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10–11 September 2018 Pisa, Italy

EINFOSE – European Information Science Education: Encouraging Mobility and Learning Outcomes Harmonization

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**The Future of Education in Information Science**  
Proceedings from FEIS – International EINFOSE Symposium  
10–11 September 2018 Pisa, Italy

Edited by  
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## Welcome address

On behalf of EINFOSE project partners and organizers of this International Symposium on the Future of Education in Information Science (FEIS 2018) I would like to welcome you and wish you a pleasant stay in Pisa, fruitful professional discussions and ample opportunities for networking both with your existing colleagues as well as with new ones.

The main goal of FEIS 2018 is to stimulate international discussion about educational pathways for information specialists of the future, while taking into account the need for reshaping the existing programs in the (L)IS field.

FEIS 2018 is one of five Intellectual Outputs of EINFOSE project (European Information Science Education: Encouraging Mobility and Learning Outcomes Harmonization) funded by Erasmus+. The Conference also serves as a base for discussions that might facilitate the development of common recommendations for entry requirements to graduate programs and harmonization of learning outcomes. The recommendations could serve as guidelines for partner Higher Education Institutions' (HEIs) policy makers and program designers as well as informative orientation for students who wish to enroll in (L)IS graduate programs. EINFOSE partners look forward for comments and suggestions from FEIS conference participants on the document entitled Policy Recommendation prepared by EINFOSE working groups, focusing on the (L)IS program entry requirements and learning outcomes harmonization.

The main topics of the FEIS Conference were developed to attract participants from different HEIs across Europe and other continents with a goal to stimulate discussions about educational trends in Higher Education worldwide, including the way information professionals try to cope with current changes and challenges, best educational practices and predictions of future development in the HEIs arena.

I hope that the exchange of ideas and experience in accreditation processes, cooperative efforts and joint programs at graduate level in Europe and throughout the World might contribute to discussions about the future of education of Information professionals.

Tatjana Aparac-Jelušić  
EINFOSE coordinator



## INVITED TALKS

### **Leif Kajberg**

*Has-been reflections from backstage: A still keen LIS observer's look at LIS education and Europe*

Diversity prevails in European LIS education and a range of thematic profiles of courses and LIS programmes can be identified. Ángel Borrego's mainly web-based analysis of European LIS schools (2015) and Jeannie Borup Larsen's mapping study of the providers of LIS education throughout Europe (2005) provide ample evidence on the variety of programme structures, levels, course titles and lengths, subject emphases of curricula, resources (number of educators), host institutions and other features. So, on the whole, as shown by the chapter on European LIS education in the collective work *Global Library and Information Science* (2017), LIS education in Europe presents a mixed bag with its miscellany of language contexts, historical distinctiveness, academic cultures, epistemological traditions and structural intricacies.

At the same time, there is a long and well-developed tradition of cooperation, meeting and networking activities in LIS educational contexts in Europe. The Bologna Process, which had as its aim to establish a European Area of Higher Education (EHEA), has received considerable attention as well and left its stamp on LIS educational structures in Europe. An important milestone in this context was the conduction of the EU-SOCRATES-funded European curriculum development project initiated and administered by the Royal School of Library and Information Science (RSLIS) in Denmark. A major objective was to bring European LIS educators together in an effort to invite them to actively contribute to explorative discussions centring on twelve pre-identified themes of LIS curricular relevance. Based on the major visible output of the project, the e-book *European Curriculum Reflections on Library and Information Science Education* (2005), some retrospective observations and ideas are presented on the effects and impact of this far-sighted joint project. In addition to reminiscing and touching upon project mechanics, outcomes, problems and obstacles – would a replication be feasible? – some comments are briefly made on issues and developments of a more recent nature including iSchools, new curricular elements and themes and the increasing concern with “imported” theoreticians (philosophy, sociology, etc.). Two examples (Finland and the USA) are supplied of LIS educators and scholars standing up for libraries and librarianship as opposed to information science and information business. Add to this the turbulence and disruptive influences of the outer world (the information society, the EU and Europe, reviving nationalism, etc.).

### **David Bawden**

*"Never again the in the history of humanity": information education for onlife*

It has become commonplace for those involved in the education of information professionals to note the need for new skills and competencies in an ever-changing and increasingly challenging digital information environment. This presentation (co-authored with my colleague Lyn Robinson) examines this perception through the lens of Luciano Floridi's concept of the 'infosphere', and suggests some appropriate responses by educators in library and information science (LIS). Floridi (2018) explains the infosphere as the condition of 'onlife', a seamless merging of analogue and digital, offline and online, and points out that the transition to onlife has already happened, and happens only once in the history of a species. Those of us teaching LIS today are the only generation that will ever experience the world before and after this transition.

This presentation reflects on this, and suggests some responses, particularly in education for data management and for digital ethics, to prepare our students to participate in the design of the infosphere, and the information society which will inhabit it.

Floridi, L. (2018), *Soft ethics and the governance of the digital*, *Philosophy and Technology*, doi 10.1007/s13347-018-0303-9

## **Gary Marchionini**

### *Information Science roles in Data Science*

Today's technical abilities to collect, store, and analyze streams of data have spurred advances in science, commerce, and public policy and spawned the emerging field of data science. An explosion of jobs and research opportunities have caused statisticians, computer scientists, information scientists, and specialists from different disciplines to adopt data science research agendas and career pathways. This talk will focus on how data science draws from these different domains with an emphasis on the roles that information science play, especially organization, metadata, ethics, representation, and preservation.

## **Anna Maria Tammaro**

### *The Benefits and challenges of internationalization of LIS education: cooperative efforts and joint courses experiences in Europe*

The internationalization of higher education and the related problems of recognition of qualifications and accreditation of courses was the objective of the Bologna Process in Europe, encouraging the experimentation of courses in cooperation between European LIS schools. These experiences of cooperation are an important laboratory to understand how to create a "Glocal" LIS education, where an international curriculum is adapted to third countries students and to local context. The presentation describes the models of accreditation and equivalency of qualifications experimented by joint courses and some solutions adopted for internship, distance learning, specialised content. The problems encountered, as well as some reflections on what could have been done better are also presented as lessons learned.

## PANEL

*In search of a balance among human, technology, and information dimensions in creating a new curriculum.*

Our discipline (Information Science) is in a particularly strong position to engage in a serious effort to teach about the intersecting areas of human, information, and technology from the perspectives of human values, ethics, and laws. This panel will delve into the theme of developing a broad framework (possibly a conceptualization) for critical topics related to Information Science, to be included and emphasized in the curriculum.

The panel will discuss the need for careful attention to topics that bring in human values, ethics, and laws associated with information capture, storage, use and dissemination. These associations can be discussed along many different dimensions such as:

- their relationships with the international and national legislation on copyright and privacy;
- the requirements for open access to information; data and research findings;
- the issues of truthfulness and reliability of media and information sources, raised lately after many suspicious cases;
- the role of new literacies and the consolidation of the information profession by developing strong ethical values based on the rights of humans.

New ideas regarding the human dimensions could be incorporated in the broader scholarly and practical engagements associated with information services.

### Panel moderator

Javed Mostafa (University of North Carolina at Chapel Hill, USA and editor-in-chief of the Journal of the Association for Information Science & Technology – ASIS&T)

### Panelists

Gary Marchionini (University of North Carolina at Chapel Hill, USA)

Fidelia Ibekwe SanJuan (University of Aix-Marseille, France)

David Bawden (City, University London, UK)

Sanda Erdelez (Simmons College, USA)

Tatjana Aparac-Jelušić (EINFOSE coordinator, University of Osijek, Croatia)

## **Presentation of the EINFOSE project: Challenges and outcomes**

**Tatjana Aparac-Jelušić and Kornelija Petr Balog**

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### **Abstract**

The aim of this introductory paper is not only to present the goal and achievements of the EINFOSE 3project, but also to stimulate discussion about the future of education in the field of Library and Information Science (L)IS. As it is widely known and elaborated, (L)IS education at European Higher institutions (HEIs) has been undergoing many changes in an attempt to find the optimal answers to challenges of the modern society including the humanities values cherished by LIS profession which tend to be brought in centre of the critical pedagogy.

Other issues of particular concern of the EINFOSE project relate on how to connect academic community (not only in Europe!) in order to enable exchange of teaching and research experience, building of the network of human and institutional capacities in regard to specialization empowered by excellency, and to predict the future needs for information professionals.

**Keywords:** EINFOSE project; entry requirements; European Higher Education; European Higher Education Institutions; learning outcomes; (L)IS study programs;

### **Introduction**

In the case of Erasmus + funded programs, internationalization and mobility efforts and support have been the focus of many European (L)IS schools (see for example, Kajberg 2004, Abdullahi and Kajberg 2004, Virkus 2007, 2008). In fact, the awareness of the aspirations of policy makers at the EU level and their readiness to offer funding for the improvement and constant building up of the HEI's networks in general (basically very modest for LIS area if compared with other funded projects), was the main stimulus for the group of LIS teachers/researchers to submit a proposal with promising intellectual outcomes. The initial team was quite a sceptic but at the same time aware of the need to take some steps that could overcome obstacles endangering this process. Analysis of current situation within Europe (Borrego 2015, Meschede, Ortiz-Repiso & Marco Kluin 2018) instructs that there exists a lack of common approach to LIS education and a very low level of activity in domestic or international partnerships.

The data collected by Maja Krtalić, and further elaborated by Vilar and Žumer – which are going to be presented in the FEIS Conference later – show that most undergraduate degrees in (L)IS combine a grounding in general culture with courses in technology, languages and practical training. Furthermore, sometimes there is no clear difference between undergraduate and graduate programmes learning outcomes; the programmes have similar names and different paths and courses; no target audiences are specified, etc. In addition to the general graduate degrees in (L)IS, most programmes revolve around digital curation, business information services and data analytics (cf. Borrego 2015). It could be added that the acceptance at the graduate programs in (L)IS also differ and lacks clear ideas about the preferable students' background, and entry requirements.

## Background of the EINFOSE project

Although the harmonization efforts of HEIs in Europe date back in the 1990s, to our knowledge there are still mixed feelings about the need to harmonize and thus several obstacles still exist to the full achievement of understanding of the potentials of learning outcomes and common entry requirements to the process of diploma recognition in Europe. In certain aspects, the team of LIS experts lead by the Royal School for LIS in Copenhagen and EUCLID (European Association for Education and Research in LIS) and supported by EU funding (2003–2005), had a vision that European HEIs in (L)IS field should strive to re-examine existed approaches and practices, investigate the implementation level of the learning outcomes and suggest the common core of the (L)IS field. It should be noted that entry requirements were not a subject of deeper concern for the project which resulted in an e-book entitled *European curriculum reflexions on Library and Information Science Education* (2005). Besides the efforts and later impact of that project, there are non-published analyses on its impact. It has been expected for several years that such an analysis will be a subject of up-to-date project EUCLID.

Thus, EINFOSE project could be seen as another attempt which could contribute to previous efforts by shading light upon new modes of teaching/learning in digital environment and by offering the Policy Recommendation that could complement the Euclid's project.

During the four-year pre-proposal submission period, EINFOSE partners from various, academic and research-related situations, concluded that large differences still exist concerning enrolment procedures and learning outcomes in the field of (Library) and Information Sciences (L)IS in Europe. These differences have been causing a number of barriers between HEIs that offer MA programs in this field, in particular related to the entry requirements and recognition of learning outcomes and their underlying workloads. The logical starting point though was to investigate if existing entry requirements could be commonly acceptable in order to mitigate or even eliminate the differences in enrolment procedures at project partner HEIs that offer programs in (L)IS. The assumption was that common entry requirements could contribute to a higher enrolment of (L)IS of MA students with different undergraduate backgrounds and facilitate mobility between partners and other HEIs by putting in focus their specialization paths and teachers' competencies. Having all these issues in mind, we started from the entry requirements based upon basic learning outcomes and core content that could prepare students for the enrolment at graduate level during summer preparatory program in IS (i.e. summer schools).

To overcome most conspicuous barriers, the partners agreed to exchange best practices using Google Docs for exchange of ideas and documents for teachers from partner institutions; intellectual outputs that provide students with the necessary knowledge to allow them to start a particular MA program in (L)IS well prepared (for instance, an online teaching and communication platform accessible via mobile devices; four Open Educational Resources – OERs).

It was our assumption that European HEIs in (L)IS should strive to improve learning and teaching and build up a strong partnership network to be able to support and take an active part in the implementation of the goals of the EU's Communication on Opening Up Education. Starting from the idea that "Europe will only resume growth through higher productivity and the supply of highly skilled workers" (EU 2013) we have been looking at Library and Information Science at various departments as an important vehicle to prepare new generations of students capable to understand humanistic values of the (L)IS profession and its many roles in modern society.

In line with the Transparency and recognition of skills and qualifications to facilitate learning, employability and labour mobility, the EINFOSE project aimed to contribute to an easier recognition of

basic and advanced skills and qualifications in (L)IS field across borders and to serve as a reference point for non-EU countries as well.

The project's objectives are in line with ET2020, especially its key priorities from the Modernisation agenda that relate to the improvement of the quality and relevance of digital teaching and learning, promotion of student's and staff's mobility, cross-border cooperation and the emphasis on the importance of the "knowledge triangle". Close and effective links between education, research, and innovation are emphasized in all planned intellectual outcomes and transnational project meeting and workshops.

### **EINFOSE goals and approaches**

As it is widely recognized, (L)IS is an interdisciplinary field with strong social, cultural and ICT features and a relatively young academic discipline. It has an important role in today's digital society as it is concerned with the design and usage of systems for information management and delivery of such information services that should improve the equity, diversity, inclusion and the citizens' participation in democracy in general. In most countries except for the USA, (L)IS is a relatively small discipline when the number of educational institutions is concerned. As a consequence: many (L)IS departments in Europe merged with other departments (such as pedagogical, computer science, communication science, economy and management) which makes the harmonization of learning outcomes and mobility goals more difficult; hardly any university can cover the full range of subjects and only a few topics can be taught in depth. Thus, partnership was and still is needed to foster exchange of best practices and enrich the existing cooperation.

Target groups for this project are students with BA diploma in any other field but (L)IS, teachers from other university departments closely connected with (L)IS (like Computer Science, Pedagogy), professional organizations in the (L)IS field, representatives of university governing bodies and public authorities, and decision makers responsible for the Quality Assessment (QA), Qualification Framework (QF) and Diploma Transparency and Recognition at EU and national levels.

The situation from which we started the EINFOSE project revealed that the teaching of the core competencies and skills in the (L)IS field depends upon capacities and specialization of each HEI's own staff and that general and information skills are not taught to the same extent at all European (L)IS HEIs. We recognized the need to suggest the didactic framework based upon innovative teaching/learning methodology and evaluation framework that could help in evaluation processes of teaching/learning platform and OERs, teaching materials and other relevant tools. Furthermore, by exchanging experience and best practice the EINFOSE project aimed to approach the problem in an innovative way by offering students not only one week of education/preparation in situ (summer schools) but also a continuation of exchange of ideas, knowledge and experience on the EINFOSE platform as well as the continuous use of OERs which are prepared for sharing and re-use. Another innovative aspect was our attempt to shed light on the new profiles in (L)IS and related fields based upon digital skills (such as digital humanist, and information professional responsible for services to disabled or immigrant students, that is one of the five new profiles for information oriented sector as published recently).

Two summer schools (ESSIS 2017 and 2018) initiated also testing and preparation of the new content for students and started a unique networking opportunity, which is quite crucial for the success in international (multi-national) future initiatives.

The agreed learning outcomes in (L)IS and basic entry requirements together with a diverse specialization areas offer a unique opportunity to deal with harmonization of learning outcomes with a



mutual understanding that the proposed Policy Recommendations should be used at all of the partner institutions after the project ends in order to stimulate the improvement of existing programs.

In relation to EINFOSE 2016 proposal the partners were selected in order to bring in many facets of (L)IS education and research: U of Osijek team as project leader and applicant has taken responsibility for management and budget issues, EINFOSE platform features, its delivery and maintenance, organization of the first workshop (i.e. multiplier event) and transnational meeting; U of Graz and U of Hildesheim were responsible for the cooperation of the work related to OERs as an important intellectual outcome, the third and fourth transnational meetings and organization of two summer schools; U of Boras coordinated activities related to students' video production, and hosted the second transnational meeting; U of Barcelona coordinated activities related to the development of the evaluation framework and hosted a related workshop; U of Hacettepe coordinated activities that produced a didactic framework; U of Ljubljana and U of Boras were responsible for coordination of all efforts in regard to preparation of the Policy Recommendations and hosting of the related workshop; U of Pisa was responsible for the organization of the International Symposium on Harmonization of Entry Requirements and Learning Outcomes in September 2018.

### **Expected outcomes**

In the project's proposal all activities were described in relevant sections with regard to intellectual outputs, multiplier events, and learning/teaching/training activities. These activities intended to contribute to the main goal of the project e.g. building up the strong partnership between eight (L)IS HEIs in designing and delivering a platform and OERs that will implore new teaching and learning methods, strengthen the importance of e-learning and offer new profiles of IS professionals as well as recommend new policy for harmonization of entry requirements and learning outcomes as a model to be adopted not only by partner HEIs but might be interesting to other European and non-European countries that offer graduate programs in (L)IS. In continuation, there is a short overview of five intellectual outcomes (IOs) that were proposed and elaborated during the course of the project.

#### **IO 1 – EINFOSE Platform.**

Effective use of educational technology is vital to solving many of current educational challenges (Learning and Communication Platform, 2017). While effective learning should be the driving force behind technology integration, it is important to keep up with technology advances in order to recognize potential solutions. Tools are abundant, but we needed to leverage their capabilities in order to improve the learning experience. We needed a platform for collaborative teaching and learning for the use of two summer schools on information literacy and the platform needed to have following capabilities: resource sharing, online conferencing, blogs, forums etc. on desktops or handheld devices. There are several open source e-learning platforms available, but we decided on Moodle because it was well known and well accepted throughout the European academic community and according to Graf and List (2005) it has several strong points: communication tools, creation and administration of learning objects, comprehensive didactical concepts and the tracking of data. The topic of the first workshop (Multiplier Event) within the project (Osijek, Croatia, in April 2017) was EINFOSE platform and it enabled us to test the platform and gain useful insight and comments from the participants regarding the platform's usability.

The platform provided various tools for blended teaching and to promote teamwork between teachers and summer school participants, on thematic instruction and authentic assessment beyond the barriers of classroom to benefit the learning needs of students as well as teachers in connection to certain specific content and methods. The basic approach to the design modifications of such a platform is based on the

idea of an integration oriented design approach emphasizing development of complex products and stimulating their systematic reuse intended to reduce development risks, costs and time of its users.

The platform allowed the use of innovative applied methodology with a goal to assure different types of interaction (Learning and Communication Platform, 2017):

- Learner >< Learner (points system creatively used to encourage learners to interact with each other and create a unique hashtag on social media for ones learning experience),
- Learner >< Expert (learners allowed to follow/interact with domain experts via social media),
- Learner >< Content (e-content made engaging with mobile devices and offering students produced videos),
- Learner >< Context (learners encouraged to engage with their environment by taking pictures of "evidence" and post them to Platform for other learners) and
- Teacher >< Teacher/Expert (teachers encouraged to share their knowledge and experience and learn from experts for certain content).

The Platform is intended also to host OERs with all their content. An anonymous learner feedback system will be installed throughout the lifecycle of the EINFOSE Platform to gain qualitative information. The final version of the EINFOSE Platform will be available in September 2018.

## IO 2 - Open Educational Resources (OER) for EINFOSE.

OERs prepared by EINFOSE teams offer an opportunity for all participants to share, use, and reuse knowledge. As they also demonstrate great potential as a mechanism for instructional innovation, OERs intend to help in fostering the networks of teachers and learners with a goal to share best practices. Another important goal of OERs organised through EINFOSE Platform was to foster deeper learning by: mastering academic content (represented by four basic courses that prepare students for graduate level study in (L)IS); critical thinking and problem solving (collecting and interpreting data to understand the interdependence of ICT and digital society), working in collaboration (work in a team to design, build, and monitor the products that will allow better communicate of their own thoughts and ideas), effective communication (presenting data and conclusions in writing and to an audience via video steaming and in classroom) and learning how to monitor and direct one's own learning (using teacher feedback, test results, and reflection to guide future learning and improve learning habits). OERs for EINFOSE include course materials, modules, and textbooks, streaming videos, tests, gaming tools and other tools and materials that are used to support effective access to knowledge.

## IO 3 – Evaluation Framework.

Evaluation framework deals primarily with the accessibility evaluation of the EINFOSE platform, but in a smaller degree it also deals with evaluation of summer schools organized within the project EINFOSE by both students and teachers of those schools.

Web Accessibility Initiative (<https://www.w3.org/WAI/fundamentals/accessibility-intro/>) defines accessibility as websites, tools, and technologies being designed so that people with disabilities can use them. It encompasses all disabilities that affect access to the Web (auditory, cognitive, neurological, physical, speech, and visual). In addition, web accessibility benefits also people without disabilities such as temporary disabled people (e.g. with a broken arm or lost glasses), senior citizens with faculties affected by ageing, people with slow Internet connections, etc.

Our evaluation looked into whether the EINFOSE platform meets the requirements of the Web Content Accessibility Guidelines (WCAG) provided by the Web Accessibility Initiative (WAI), within the



World Wide Web Consortium (W3C) (Intellectual Output 03, 2017). The second Multiplier event within the project (Barcelona, Spain, 2017) dealt with this intellectual output and produced valuable comments for the framework's coordinator.

The platform evaluation was carried out by two methods: observation of the behaviour of key components of the platform and application of the automatic evaluation tool aXe. What this evaluation misses at this point is the evaluation of the platform conducted by the users with disabilities. We are hoping to conduct this form of evaluation after the final OER web page of the project is finished.

The tests on EINFOSE platform in 2017 (CMS Moodle) revealed that it does not comply with the A level of the WCAG 2.0. There are three major problem areas: *colour contrast* (in some places there is insufficient colour contrast between text in the foreground and background colours), *links without discernible text* (some links do not have discernible text, have duplicate labels or are not focusable), *ARIA (Accessible Rich Internet Applications) attributes must conform to valid names* (some attributes are misspelled or are missing).

Considering the results of the initial testing of the EINFOSE platform, the evaluation framework offers a number of guidelines for accessible learning resources (mostly in text, in still images, in videos and converting resources into EPUB3). It also offers templates for accessible resources in Microsoft Word and Power Point (agenda, lesson plans, syllabus, and course presentation).

As already mentioned, the project involved also the student evaluation of the two summers schools (2017 Katlenburg, Germany and 2018 Graz, Austria). The evaluation was carried out in the form of the online survey administered to the participants of two summer schools through EINFOSE platform at the end of each summer school and through short interviews with some of the participants that were video recorded. The results give evidence that summer school participants were extremely satisfied with their experience: teaching materials, teachers, peers, venue, social program. The participants of the first summer school emphasized the importance of hands-on practice experience and learning from that experience, the teachers involved in the second summer school (Graz 2018) increased the number of practical exercises for students.

#### IO 4 – Didactic Framework.

Number of different didactic approaches have been in use for teaching and training and selecting the appropriate methods (e.g. lectures and presentations; interactive tutorials; webinars; reflective diaries; cognitive maps; mental model elicitation, reaction cards, case studies; story telling; guides to sources; demonstrations; hands-on practice; flipped classroom, individual advice).

The EINFOSE project's aim was to manage the implementation and provision of a variety of approaches, to suit different learning styles. Thus, considerable amount of thought and discussions was given to the didactic principles while preparing the OERs and making them available for use. The report elaborates new didactics and developments and offers an appropriate didactic framework for EINFOSE based upon theories, principles and recent trends that could support new visions for HE in 21<sup>st</sup> century as well as experiences and observations of the faculty who was involved in teaching at (L)IS schools and summer school students. The document offers several sections on: didactic approaches in 21st century to provide an overview; detailed examination of learning styles (since student-centred pedagogies are adopted) and new instructional trends such as flipped classroom, gamification and MOOCs; didactic trends in (L)IS education as well as the evaluation of ESSIS 2017 and 2018 from didactic point of view. Conclusions and recommendations drawn for the didactic framework are expected to be useful not only to improve summer school but also for any similar IS education program.

As one looks at the principles of interoperability, informational transparency, technical support, and decentralised decision-making, and their application in a future working environment which will need professionals with competency-based knowledge, communication competence 4.0, ability to develop systems and ability to work with decentralized decision-making systems (Flogie, Barle Lakota & Aberšek 2018, p. 267–268), it is more than obvious that thorough reform of teacher education programs is needed in order to provide them with a more comprehensive understanding of how cognition, motivation, teaching and learning relates to each other. This goes for the education of teachers in (L)IS field. Moreover, teachers should be able to overcome the bias between technology related goals and humanistic approaches which could enrich the skills and competencies needed and be able to guide learners in a way to soothe technophilic approach and bring in modern education a humanistic dimension.

IO 5 – Policy Recommendations for the Harmonization of the Entry Requirements and learning outcomes in IS.

The (L)IS as an interdisciplinary field offers programs to students with different BA background and possibilities of specialization at graduate level according to their interests, market demand (strong emphasis on STEM disciplines as well as digital humanities, where big data organization, curation, their visibility and openness to reuse, relay upon knowledge and skills of information based competencies), and strengths of individual HEI. The EINFOSE project looked to find out the appropriate ways and modes of the harmonization and recognition of the basic entry requirements that might be accepted by partners and translated into Policy Recommendation for Euclid and other EU bodies. There is also broad support for promoting the European Qualifications Framework (EQF) and its policy statements and documents as a reference tool to facilitate cooperation and dialogue with non-European countries. However, the lack of consistency in the level of implementation of the EQF across EU Member States results in potential obstacle to such cooperation. In line with this we believe that our Policy Recommendations on Harmonization of Entry Requirements based upon agreed learning outcomes at Graduate level might help in reaching consistent level of recognition and implementation entry requirements not only for the (L)IS programs at graduate level but serve as a model for other academic disciplines.

This document includes all the relevant suggestions for improvement and offer a set of recommendations for EUCLID, Eblida, ASIST/EC and other professional and scientific bodies involved in the matters of the (L)IS field as well as to EU respected bodies that work on QF and Recognition of Qualifications. Proposed ways and modes of harmonization of the entry requirements and summers schools as a mode to work with students coming from other academic disciplines, allow them to enter the graduate programs in (L)IS well prepared and to make their mobility activities at the graduate level much easier.

### **Impact of the EINFOSE project**

It was expected that the direct impact on the partner HEIs from the (L)IS field will be the utilization of innovative pedagogical approaches (such as constructivism, connectivism) and methods (such as multimedia learning, role playing and scenario analysis based teaching), as well as the embedment of the contents and tools to the (L)IS and related disciplines. It is also expected that the dissemination of innovative approaches and methods will contribute to the increase of the quality of HE.

Through close cooperation between partners, especially through discussions during summer schools, Google Docs and EINFOSE Platform, partners were exposed to new ideas and new content. Such a new approach could be introduced in teaching programs in order to make every partner ready and able to

modify its curricula in order to reach the high level of harmonization when it comes to the core content, and to organize mobility following the specialization of each partner HEI.

It was also expected that students at the partner HEIs could directly benefit from the high quality lessons and OERs during the project and beyond the duration of the project. They will also benefit from the online alumni platform that will allow them to use all of the OERs whenever they need: in their further education and working environment as well as in teaching and researching if they choose to continue their career at HEI.

The open access to the new and tested high quality OERs on topics agreed upon by the partner HEIs will help the individuals, but will also contribute to the international perspective in teaching at the IS graduate programs.

Other stakeholders that might be interested in using the OERs designed during the project can profit in several ways: they, themselves can use the OERs as 'vade mecum', or they can modify these materials according to their future needs, translate them to their national languages and/or modify them to MOOCs if they see the potential value in offered OERs. This way they would contribute to the spreading of the idea of internationalisation in the (L)IS field. The exposure to the international focus of (L)IS and the relation between its social dimension and high level of ICT impact on the development of the field (e.g. aspects of human computer interaction at global level, socio-cultural aspects of the changing society today and in future, multilingual information systems, ethical and legal issues of information systems implementation and usage) has a high impact on graduate programs. This is true not only in relation to the content and teaching methodology but also in the ways of attracting students to enrol to such programs and benefit from partner based approach to expertise, substitution, proliferation and innovation.

The international perspective of other planned outcomes is also visible through listed intellectual outcomes, transnational meetings and multiplier events that assured active participation of different groups of stakeholders.

At the local level all partner HEIs could benefit from strengthening their position inside their universities and local community by bringing in the interdisciplinary dimension (e.g. cooperation between university departments in relation to the approaches to scientific communication and its evaluation measures, big data curation, socio-cultural studies of information related phenomena, e-business models and information needs of disabled people). The universities could benefit from the students who participated in this project as these students will be better informed about the graduate programs they want to attend and will learn more about intercultural issues.

At the national level in each country it is expected that the EINFOSE project will contribute to the improvement of the legal framework in regard to the diploma recognition processes, facilitation of mobility programs, inclusion of accepted entry requirements and learning outcomes. In addition, we see an important impact upon the guidelines and legal documents related to the national qualification frameworks (NQF) and recognition of professions nationally and internationally. For the (L)IS field in the entire Europe this project presents one more effort toward the harmonization of the entry requirements and learning outcomes, as well as toward logical rather than administrative integration of departments and also, toward more qualitatively based mobility programs. The mobility of (L)IS students within Europe is enhanced both directly (between partner HEIs) and indirectly (by raising awareness of the particular expertise in partner and other European HEIs).

The partners agreed to search for a business model that will allow the summer schools to be prepared and offered after the project end. The support of Euclid as a European wide professional association could strengthen the idea of including more schools in the future. Possible funding resources from different sponsors should be considered at the national levels. Thus, the experience gained from this project and the establishment of the network of all the partners might contribute largely to the future joint projects and other summer schools.

The partners also expected the positive reputational effects inside their HEIs, increased awareness of the importance of (L)IS and digital learning as well as the influence on funding agencies for further financial support. Finally, it is expected that the project outcomes and deliverables will increase the influence of the IS profession at the academic institutional policies and practices in the IS field.

**Sustainability.**

As mentioned earlier, there are several essential activities and results that we expect to remain available and subject to the further use and modifications after the Project's end. The University of Osijek will continue to host the website and EINFOSE Platform beyond the duration of the project.

The ideas developed for the summer schools will continue to be improved according to the evaluation process results and will aspire for a self-sustained model. All partners will try to contribute with at least two scholarships each to attract their students from non-(L)IS fields to attend. The funding will be sought out inside HEIs, the national funding agencies and donations.

## **Conclusion**

The aim of this project was to engage all partners in an attempt to find a way how to overcome differences that exist in the area of entry requirements and learning outcomes in the field of (L)IS. These differences have been causing large mobility barriers between HEIs that offer MA in (L)IS and recognition of learning outcomes and ECTSs at the EU level.

Since most of the project partners had cooperated for several years before the actual start of the EINFOSE project, they shared their experience in several national and international networks and organisations in effort to successfully address large portion of the (L)IS community across Europe, among them: ASIST/EC, ENWI, Euclid, EADH. Transnational meetings and multiplier events were planned involving participants from each partner institution and representatives of various stakeholders.

One of the main outcomes of the project was expected to be a document Policy Recommendation for the Entry Requirements and Learning Outcomes Harmonization prepared also to serve as a foundation for the discussion during the FEIS Conference in Pisa, the last and very important activity of the project. The draft versions were presented and discussed at Multiplier event in Ljubljana, April 2018 and at the Transnational project meeting in Graz, July 2018.

It was hoped that students at the partner HEIs might benefit from the high quality lessons and the OERs during the project and beyond the duration of the project. They could also use the online alumni platform that will allow them and other interested students, teachers and professionals to use all of the OERs whenever they need in their further education, in working environment, in teaching and researching if they choose to continue their careers at HEI. The open access to the new and tested high quality OERs on topics agreed upon by the partner HEIs could help the individuals, but could also contribute to the international perspective in teaching at the (L)IS graduate programs.

At the local level all partner HEIs will benefit from strengthening their position inside their universities and local community by bringing in the international and interdisciplinary dimension. At the national

levels project will contribute to the improvement of the legal framework concerning the facilitation of diploma recognition and mobility programs, the inclusion of the accepted learning outcomes, in the guidelines and legal documents related to the national qualification frameworks (NQF).

Finally, as partner HEIs intended to improve learning and teaching and build up a strong partnership network, they have strengthened their abilities which could make them become more active in the implementation of the goals of the 2013 Communication on Opening Up Education and to approach the recognition of desired skills and qualifications in (L)IS across borders.

## References

- Abdullahi, I. & Kajberg, L. (2004). A study of international issues in library and information science education: survey of LIS schools in Europe, the USA and Canada. *New Library World*, 105(9/10), 345–356.
- Borrego, Á. (2015) Library and Information Education in Europe: an overview. *BiD: textos universitaris de biblioteconomia i documentació*, 35. Retrieved from: <http://bid.ub.edu/pdf/35/en/borrego.pdf>.
- EU (2013). *Communication on Opening Up Education. Opening up education: Innovative teaching and learning for all through new technologies and Open Educational Resources*. Brussels, 25. 9. <http://ec.europa.eu/transparency/regdoc/rep/1/2013/EN/1-2013-654-EN-F1-1.pdf>.
- European curriculum reflexions on Library and Information Science Education* (2005). Ed. by L. Kajberg and L. Lørring. Copenhagen: The Royal School of Library and Information Science. <http://euclid-lis.eu/wp-content/uploads/2014/02/european-curriculum-reflections.pdf>.
- Flogie, A., Barle Lakota, A. B., & Aberšek, B. (2018). The Psychosocial and cognitive influence of ICT on competences of STEM students. *Journal of Baltic Science Education*, 17(2), 267-276. Retrieved from: <http://www.p21.org/our-work/p21-framework>.
- Graf, S. & List, B. (2005). An Evaluation of Open Source E-Learning Platforms Stressing Adaptation Issues. In *Proceedings of the Fifth IEEE International Conference on Advanced Learning Technologies (ICALT '05)*. <http://140.130.41.203/www/upload/01508637.pdf>.
- Intellectual Output 03 (2017). *Evaluation Framework*. [project's unpublished document]
- Kajberg L. (2004). A Survey of Internationalisation Activities in European Library and Information Science Schools. *Journal of Studies in International Education*, 8(4), 352–376.
- Learning and Communication Platform (LCP for EINFOSE): Description and Tutorials, version 1.1. (2017). [project's unpublished document]
- Meschede, C., Ortiz-Repiso, V. & Kluin, M. (2018). Library and Information Science Education in Europe: Building an Interactive Map. In: FEIS: International Symposium on the Future of Education in Information Science, 10–11 September 2018 Pisa, Italy. (in Print)
- Vilar, P. & Žumer, M. (2018). Unified entry requirements for information science programmes? Do we know who we want to attract? In: FEIS: International Symposium on the Future of Education in Information Science, 10–11 September 2018 Pisa, Italy. (in Print)
- Virkus, S. (2007). Collaboration in LIS Education in Europe: Challenges and Opportunities. In: *Proceedings of the World Library and Information Congress: 73rd IFLA General Conference and Council "Libraries for the future: Progress, Development and Partnerships" 19-23 August 2007*, Durban, South Africa. [archive.ifla.org/IV/ifla73/papers/134-Virkus-en.pdf](http://archive.ifla.org/IV/ifla73/papers/134-Virkus-en.pdf).
- Virkus, S. (2008). *LIS Education in Europe : Challenges and Opportunities*. In: *Informationskonzepte für die Zukunft : ODOK '07*. (pp. 191–204). Neugebauer Verlag. [http://eprints.rclis.org/14978/1/odok07\\_virkus.pdf](http://eprints.rclis.org/14978/1/odok07_virkus.pdf).
- Web Accessibility Initiative. Available from: <https://www.w3.org/WAI/fundamentals/accessibility-intro/>.

## **Accepted papers**



## **LIS education at the St. Petersburg State University of Culture: Trends and traditions**

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### **Abstract**

This paper reviews the system of LIS higher education in the Russian Federation that is based on the requirements of the Russian educational standard of higher education. St. Petersburg State University of Culture (SPbGIK) is the oldest LIS University in Russia. In 2018, it celebrates its 100<sup>th</sup> anniversary. This article considers the experience of organizing the study process in the Library and Information Sciences Department of the St. Petersburg State University of Culture. While facing new challenges and following new trends in LIS education, SPbGIK has preserved its educational traditions; this combination makes it possible to provide a strong education that meets the needs of the employment market.

**Keywords:** Library and Information Department of Saint Petersburg State University of Culture, SPbGIK, LIS education

### **Introduction**

In 2018 LIS higher education in Russia celebrates 100 years. In 1918, Nadezhda Krupskaya, who was the wife of the leader of the Russian revolution, Vladimir Lenin, established the first Library Institute in St. Petersburg. The name of the institution changed several times, and since 2014, it is known as the St. Petersburg State University of Culture. One of the main departments of the University is Library and Information Science. While following the newest trends in the development of education, the university always retains its richest educational traditions.

We have already described some details of LIS education in the LIS Department of St. Petersburg State University of Culture in our previous papers (Brezhneva, Kolesnikova, and Elyashevich 2015, Brezhneva and Soloveva 2015), but this contribution provides a more detailed overview of our latest trends in LIS education.

### **Continuing LIS education in Russia**

In Russia, there are several stages of formal LIS education:

1. Secondary professional LIS education in junior colleges of library and information technologies:

A 2-year program awards an associate (also known as intermediate) degree that permits working in entry-level library jobs and continuing study at the next levels of higher education.

2. *Higher LIS education* in universities consists of several cycles:

- Bachelor's level – 4-years study;
- Master's level – 2-years study;
- Doctorate to earn academic degrees. In Russia, doctorates are divided into so called “junior doctorate” – Candidate of Science degree (similar to PhD) and “higher doctorate” – Doctor of Science degree. A special commission of the Ministry of Education and Science of the Russian Federation called the Higher Attestation Commission offers scientific degrees.

Both programs (secondary professional and higher education) have their own entry requirements:

- to enter a college of library and information technologies, one should have an incomplete secondary education diploma (9 years of study);
- to enter a university, one should have a full secondary education diploma (11 years of study) and certificates for passing 3 unified state exams (Russian language, Russian literature and Social studies);
- to apply for a master's degree, one should have a bachelor's degree in any professional area and pass 1 exam (Library and Information Science);
- to apply for a PhD degree, one must complete master's studies and pass 3 exams (Foreign language, Philosophy, and Library and Information Science);
- to apply for a higher doctorate degree, one must have a PhD degree.

There are two forms of study: *full-time* and *distance*. For distance study – students live and work in different towns and villages. Twice a year they come to the university for two or three weeks for lectures, seminars, practical lessons, and exams. During the period between sessions, students do their work at home. All students may consult their lecturers by e-mail or through social networks at any time.

3. *Continuing postgraduate education* that involves studying for qualification (professional development and workplace learning). Many organizations provide such services, for example, libraries and centers for further professional education at universities. These programs provide training in a particular field and are full-time or distant.

LIS higher education programs are offered in 17 universities of culture and arts located in different regions of Russia. All these universities are subordinated to the Ministry of Culture of the Russian Federation. One should note that the main employers of LIS alumni are libraries that are also subordinated to the Ministry of Culture. This is an exception because Russian universities are mainly controlled by the Ministry of Education and Science, and some of those universities have LIS higher education programs as well. All together there are more than 40 universities preparing specialists for libraries in Russia.

### **Bologna process changes in the Russian LIS education system**

Joining the Bologna process in 2003 has changed the system of Russian higher education. Previously, the academic course lasted five years and graduates received a so-called “specialist” degree. After 2003, Russian universities began switching to a new standard of higher education with bachelor's and master's degrees. The training for a specialist's degree was completely discontinued only in 2010. That means that professionals who completed their study before 2010 have a specialist's degree.

All programs are based on *the Russian standard of higher education* (Russian abbreviation *FGOS*). This standard is a legally binding instrument enforced by the government. It is mandatory for all Russian universities. Today LIS higher education programs for bachelor's and master's degrees are based on the Russian educational standard of higher education, the so-called third generation standard (Russian educational standard 2015; Russian educational standard, 2016).

A bachelor's program requires four years of full-time study (or five years of distance study) and awards 240 credits.

A master's program requires two years of full-time study (or 3 years of distance study) and awards 120 credits.



Graduates can work (in accordance with the FGOS) in the following areas: education and science; culture and art; information and communication technologies (digital information resources and information systems); business administration and management (information management of different kinds of organizations including libraries).

LIS FGOS consists of two components: a basic component that is the same for all universities with LIS programs and an elective component developed by each university in accordance with the scholarly traditions of a university and regional demands. The elective component allows the creation of various degree qualification profiles within one major program appropriate to the social, cultural and professional context of a university.

The basic component consists of two parts:

- (1) A social and economic part that includes such disciplines as philosophy, Russian history, English (or other foreign language), economics, pedagogy, psychology, social science and cultural studies.
- (2) An information and communication part that consists of such disciplines as library and information science, social communication, information systems and networks, information technologies.

The program of study provides for the development of universal, general professional and professional competencies as follows:

(1) Universal competencies:

- Systemic and critical thinking: the ability to search, critically analyze and synthesize information, apply a systematic approach to solve set tasks;
- Development and implementation of projects: the ability to determine the range of tasks within a set goal and choose the best ways to solve them, based on existing legal norms, available resources and limits;
- Teamwork and leadership: the ability to carry out social interaction and realize one's own role in the team;
- Communication: the ability to conduct business communication in oral and written forms in the national language of the Russian Federation and foreign language(s);
- Intercultural interaction: the ability to perceive the intercultural diversity of society in its socio-historical, ethical and philosophical contexts;
- Self-organization and self-development: the ability to manage one's own time, build and implement a trajectory of self-development based on the principles of life-long learning, and the ability to maintain a proper level of physical fitness to ensure full social and professional activities;
- Safety of vital activity: the ability to create and maintain safe living conditions, including in the event of emergencies.

(2) General professional competencies:

- Professionalization: the ability to apply the acquired knowledge in the field of cultural studies and socio-cultural design in professional activities and social practice, and the ability to use the knowledge of world literature for the realization of professional tasks, the formation of the cultural identity of the individual and intercultural interaction;
- Information culture: the ability to solve standard problems of professional activity based on information and bibliographic culture using information and communication technologies and taking into account basic information security requirements;
- Professional ethics: the ability to comply with the requirements of professional standards and standards of professional ethics;

- State cultural policy: the ability to navigate the current state policy of the Russian Federation in the field of culture.

The elective component includes such professional disciplines as literature, document management, librarianship, library stock, information service, enquiry services, document analysis and synthesis, library management, information management, marketing concepts in library and information services, etc.

- (3) Professional competencies are established by the university based on professional standards, labor market analysis, study of international experience, consultations with practitioners and professional associations.

Thus, based on FGOS, each university works out its own instructional plans and educational programs. They include all basic subjects while an elective part of each cycle depends on the individual university. This system allows students to acquire both deep general and professional knowledge.

Universities use their right to independently determine the profile for training bachelor's and master's students. As a rule, the decision to choose a profile is determined by the academic context of the institution, the needs of the region and the number of budget places in the first year.

### **LIS education in the LIS Department of the St. Petersburg State University of Culture**

Over the history of the LIS department there have been several changes in its structure and size, but the word «library» has always been in its name.

The training of bachelors in the library and information sciences field (as well as in other fields) at St. Petersburg State University of Culture is funded by the Russian government budget. Annually 65-75 individuals enroll in the program for full-time study and 55 individuals enroll for distance study. It should be noted that every year these numbers continue to increase.

The St. Petersburg State University of Culture has extensive experience in the training of specialists for different types of libraries – public, children's, scientific and technical, etc. Historically, courses related to library service of different users, bibliographic resources and some others were taught for students enrolled in the divisions of children's, public and technical libraries. Therefore, the content of training courses corresponded to the specific information needs of readers (users) at different types of libraries.

In Russia the LIS Department is known for its unique research on the literary text (S. A. Reiser, B. J. Buchshtab, V. A. Manuylov, V. Ya. Grechnev), bibliography (M. N. Kufaev, I. E. Barenbaum, I. A. Shomrakova), librarianship (B. V. Bank, G. G. Firsov, A. N. Vaneev, V. S. Kreydenko), bibliography (A. G. Fomin, M. A. Briskman, I. V. Gudovshchikova, L. M. Ravitch, A. V. Mamontov), and subject bibliography (V. A. Minkina, L. V. Zilbermintz, D. Yu. Teplov). Today the LIS Department is the leader among library and information science schools in Russia. It has trained thousands of specialists for the library and information sphere.

The University interacts with other universities by means of the Educational and Methodological association of educational organizations (Russian abbreviation – *UMO*). Also, it interacts with city libraries in connection with different events, and launches some courses, programs, internships, and conferences in cooperation with libraries.

The University is a collective member of the Russian Library Association (Russian abbreviation – *RBA*). It also has representatives in the St. Petersburg Library Association (Russian abbreviation – *PBO*). Leading professors of the LIS Department are members of the scientific councils of such academic libraries as the National Library of Russia and the Russian Academy of Sciences Library.

Through the Russian Library Association the LIS Department has a representative from Russia in the IFLA. In 2013–2017 the member of the Section on education and training (SET) of the IFLA was the dean of the LIS Department, Dr. Valentina Brezhneva. In 2017 she was succeeded by the deputy dean, Albina Krymskaya.

In accordance with the main scientific interests of its faculty, the LIS Department holds three conferences, one of which is an Annual International Conference on Continuing Library and Information Sciences Education (Gruzova 2015). Since 2015 the IFLA SET members have taken an active part in it.

During its existence SPbGIK established strong scientific and pedagogical schools, whose achievements are actively used in the educational process all over Russia. Faculty members are the authors of an inter-university publishing project of textbooks for the LIS bachelor's, initiated by the Educational and Methodological association of educational organizations and implemented by the publishing house "Profession".

The LIS department has four divisions: Documentation and Information Analytics; Informational Management; Librarianship and Reading Theory; Literature and Children's Reading.

## **Educational Structure: Bachelor's, Master's, Postgraduate, Continuing Training**

### **Bachelor program**

All programs are taught based on the FGOS (Russian educational standard 2015, 2016).

The LIS Department offers three bachelor's degree qualification profiles within the LIS bachelor's program:

- Information analysis in book publishing, the arts and business;
- Information management of professional activity;
- Communication management of public and school libraries.

Each degree qualification profile is developed by one of the divisions.

Information analysis in book publishing, the arts and business

This degree qualifications profile is developed by the division of Documentation and Information Analytics.

For several years, bachelors were trained in two profiles such as "Book communications in the library and information field" and "Information analysis area". Both profiles, overall, met the urgent tasks of preparing future practitioners of libraries and the book business. However, in 2014 they were combined into new ones such as "Analysis of information in book business, art and business". There were several reasons for the introduction of a new unified profile of bachelor's training. First, the division updates directions in training and teaching materials in accordance with trends in science and libraries. Nowadays an important direction in various professional fields is information analysis. Besides libraries these professional fields include publishing houses and book trade enterprises, culture and art, business planning, etc. In addition, the division tries to avoid unnecessary competition with educational institutions directly preparing specialists for the publishing and bookselling sphere. The division educates future-ready professionals who can compete in serving publishers' and bookshops' information needs.

Introducing a new profile is important for training workers who can fulfill the information function which is included in normative standards. Key factors in the profile include the following:

- (1) Analysis of information is an end-to-end process in all forms of service in the library and publishing organization.
- (2) The fulfillment of the information function in the library now, as a rule, is limited to classical forms of providing bibliographic information, which does not contribute to the qualitative fulfillment of factual inquiries.
- (3) More than 60% of inquiries in virtual reference services of libraries of different status and subordination are now linked thematically with information about books published in past years, with questions about culture and art, book business, microeconomics and business.
- (4) The library receives an increasing number of inquiries of a higher complexity than a user can perform on his own. It requires skills in comparative and other methods of analyzing published or posted information needed for LIS graduates.

The profile includes previously developed training courses (“Technologies of information analysis”, “Analytical products”, etc.), some renewed disciplines (“Book business”, “Analysis of information resources in the library” etc.), and two new disciplines which are important for modern library and publishing and bookselling practices (“Analysis of news and advertising information”, “Visualization of textual information”).

By creating the new profile “Information analysis in book publishing, the arts and business” it was important to preserve the subject approach to information analysis. While studying at the university, students can choose a subject area to study its resources deeply. Thus, it creates favorable conditions for the formation of professional competencies of an analytical type. In addition, the branch approach ensures variety in the themes of final qualification works and other research and practical forms of training.

Information management of professional activity.

This degree qualification profile is developed by the division of informational management. The division has provided special training in identifying and serving the information needs of different professional groups since 1962. The division graduates work in academic and research libraries, in information management units of different companies, information, consulting and marketing agencies and other organizations that are relevant to information management and information resources.

Since 2010, there have been such profiles as “Management of library and information resources for innovation processes in science and technology” and “Technology of automated library and information resources”. There was a need for developing new education technologies and assessment of learning outcomes. As a result, a new unified bachelor’s profile “Information management of professional activity” was introduced. This trend has been inspired by the new economic policies of innovative development in the Russian Federation. The division of information management has 50 years of experience training personnel for the library and information units of industrial enterprises.

A necessary condition for the transition to an innovative development path is professional information management at all stages of the life cycle of innovative product and technology transfer. Efficiency of decision making in industry to provide innovative development directly depends on getting reliable and timely information about the environment.

Students who choose this profile have training in information management, project management, research and development, etc. Learning outcomes are such competencies as ability to manage science, technology and business information and resources for different areas; ability to organize

communication systems and communication policies of different types of companies and innovation projects; ability to identify information needs of innovation creators (especially top-managers, researchers and engineers) and to provide relevant information services.

The profile includes such disciplines as “Information management”, “Library and information technologies”, “Information and bibliographic research in science and technology”, “Information resources of industrial enterprises”, “Promotion of library digital resources”, “Information services”, “Information and communication management of innovative projects”, “Intellectual capital of an enterprise”, “Information law”, «Science and technical communication and libraries”, “Management of information unit of enterprises”, etc.

Faculty research interests are concentrated in the field of modern intellectual information technologies and their applications for improving information management and developing the information literacy of professionals in science and technology.

Thus, the division of information management continues the tradition of training LIS professionals for supporting science and technology.

Communication management of public and school libraries.

This degree qualification profile is developed by the division of librarianship and theory of reading. The basic courses of the profile include the following disciplines: “Sociology and psychology of reading”, “Research activity in a library”, “Legal support of the library and information area”, “Library media”, “Reading technologies for children and young people”, “Library services for users with disabilities”, “Library pedagogy”, “Library public relations and branding”. Among variable disciplines are “Security of the information environment of children and young people”, “Electronic resources of children's and school libraries”, “Project activity of children's and school libraries”.

Newly developed disciplines accomplish professional tasks required by the Russian educational standard of higher education, such as production and technological work, project work, research work, and psychological and pedagogical work. The profile allows the preparation of specialists for library and information services for different users' groups in public libraries (including children's and school libraries), educational organizations and special libraries that provide for the country's needs for competent employees of children's and school libraries, as well as those libraries that serve people with disabilities.

### **Master's program**

There is only one profile for the master's degree: “Theory and methodology of library and information activities”. The program requires 120 credits.

The basic part of the program includes 12 disciplines: “Philosophy and methodology of science”, “The theory of management decisions”, “Corporation culture”, “Self-development psychology”, “World information resources and networks”, “Organization and methodology of library, bibliographic and book studies”, “Theory and methodology of socio-cultural projection”, “Theory of organization in library science”, “Library professionology”, “Methodology of teaching specialty courses”, “Business foreign language”, “The place of Russia in the modern political world”.

The variable part consists of 7 disciplines: “Theory and methodology of book science”, “Theory and methodology of library science”, “Theory and methodology of bibliography studies”, “Historiography of library and information science”, “History and methodology of literature studies”, “Classical tradition

from antiquity to the XVIII century in the world literature of the XIX-XX centuries”, “Information and bibliographic processes in science and education”.

Also the program includes elective disciplines such as “Theory and methodology of information and analytical activities”, “Theory and methodology of information management”, “Theory and methodology of information synthesis”, “Information research of scientific activity and its results”, “Theory of children’s literature and methodology of childhood reading”, “Legal environment of library and information activities”, “Library and information technologies: theory and methodology”, “Information resources management”, “Information provision of professional communications”, “Intellectual property protection”.

Students are required to write a research thesis and to defend it publicly. Most enrollees are librarians who have not had library education. But all enrollees have the same disciplines.

### **Doctoral program**

St. Petersburg State University of Culture has a Dissertation Council for awarding academic degrees in LIS. In the Russian Federation there are two academic degrees: candidate and doctor, for instance, in historical, medical, sciences, etc. An applicant for the candidate degree is required to pass three exams in foreign language, philosophy of science, and LIS, as well as the writing and public defense of a dissertation. Scholarly results must be confirmed by publication in leading scholarly journals and conference papers. Usually the final result of the research is an applied library and information product. An applicant for the doctoral degree is required to write a dissertation and present it in public. The level of a doctoral dissertation is much higher than that of a candidate’s. It must present new theoretical knowledge. Also, the doctoral applicant must have 15 articles published in special professional journals that are indexed in world databases such as the Web of Science and Scopus, and in professional journals approved by the Higher Attestation Commission, which is the Russian government agency within the Russian Ministry of Science and Education.

### **Continuing Training**

The structure of the University includes the Center of Further Education and Training which is a training unit for professionals who already have a higher education. It offers various further training courses for LIS professionals. The courses usually last 72 hours (2 credits) but that may vary. The Center offers traditional full-time learning and e-learning. One popular program for those who do not have a LIS education is retraining in different areas of LIS. The applicants for this program receive a diploma that allows them to accomplish professional tasks. The program ranges between 250 hours and 400 hours. It consists of several disciplines depending on the needs of enrollees. In 2017 the University launched an e-learning system, “*Mirapolis*,” to implement these training programs.

### **Professional orientation of LIS students**

Most students do not come to the LIS Department with clearly formed ideas regarding their future careers as librarians. Usually enrollees (who then become freshmen) need to be motivated, which requires LIS faculty members to pay a lot of attention to their professional orientation. There are several ways to approach this problem.

- (1) LIS students work as volunteers in different projects at public libraries, develop and implement their own projects in libraries.
- (2) While studying at the university, students receive practical training at libraries. The bachelor's program includes three periods of practical training which total 12 credits. The practical training is



organized under a cooperation agreement between the University and libraries or information centers.

- (3) Usually completing their LIS degree, fourth-year students write their theses on themes that are of interest of libraries or information organizations.
- (4) The LIS department holds regular meetings with leading representatives and directors of libraries and leaders of the library community.
- (5) Students are engaged in research. They participate in conferences to present their results (Gruzova 2015).
- (6) One of the best ways for students to improve their managerial skills is to organize their own events in a public library. In 2013 the LIS Department of St. Petersburg State University of Culture organized a festival called BiblioFest (Library Festival). The festival is seen as a platform for uniting students' creative power, the teaching methods used at the St. Petersburg State University of Culture, and the professional community.
- (7) Since 2014 the Library and Information Sciences Department of the St. Petersburg State University of Culture began to hold an International Summer Library School (ISLS) (Krymskaya 2014). During these programs participants visit St. Petersburg libraries, take part in round tables on different significant issues, and discuss professional problems with colleagues.
- (8) Since 2016 the LIS Department has been organizing study trips to other countries (Krymskaya 2018).

## Conclusion

Thus, among traditions kept by the LIS Department are:

- continuing the century-old history of the St. Petersburg State University of Culture and its strong reputation;
- keeping the word «library» in the name of the department;
- retaining the scholarly schools of the LIS Department;
- offering all forms of higher and postgraduate LIS education (today these are bachelor's, master's, postgraduate, continuing training programs; three bachelor's degree qualification profiles within the LIS bachelor's program are “Information analysis in book publishing, the arts and business”, “Information management of professional activity”, “Communication management of public and school libraries”.
- training personal for different types of libraries;

These traditions allow the LIS Department to follow the main trends:

- developing LIS programs in accordance with the needs of employers;
- creating research platforms for projects in libraries;
- providing career guidance by the faculty in cooperation with LIS professionals.

The alumni are very well received on the job market. They find employment in libraries, information agencies, publishing organizations, information departments of different companies and so on.

LIS education in the SPbGIK's LIS Department is complex and systematic. Students receive general humanitarian and professional training. They study professional disciplines, practice in libraries, and do research projects. This creates a professional identity and professional ideology that enable graduates to

do their job well and to acquire more specific knowledge through life-long learning. The core professional competencies of the graduates of the St. Petersburg State University of Culture's LIS Department equip them to take their worthy place in the labor market and to work successfully in a library of any type.

## References

- Brezhneva V., Kolesnikova M., and Elyashevich D. (2015). Profile LIS bachelor degree training in Saint Petersburg State University of Culture, *Trudy SPbGIK (St. Petersburg State University of Culture Proceedings)*, 205, 24–31. (In Russian).
- Brezhneva V., Soloveva L. (2015). An overview of libraries and profession in Russia (pp. 281-287). In Parikshit Mondal, Susmita (Ed.), *LIS Career at the Crossroads: Challenges and Opportunities: digest of articles*. Calcutta: Department of Library and Information Science University of Calcutta.
- Gruzova A. (2015a). Annual International conference on continuing library and information sciences education, *The SET Bulletin: The Official Publication of IFLA-Section of Education and Training*, 16(2), 9–10.
- Gruzova A. (2015b). 64th Annual International scientific LIS conference of students and graduate students of Library and Information Science Department, St. Petersburg State University of Culture (SPbGIK) (Russian Federation), April 16-17, 2015, *The SET Bulletin: The Official Publication of IFLA-Section of Education and Training*, 16(2), 11.
- Krymskaya A. (2014). International summer library school, *The SET Bulletin: The Official Publication of IFLA-Section of Education and Training*, 15(2), 13–14.
- Krymskaya A. (2018). Student educational travels as a form of independent study activity: the experience of the library and information sciences department of St. Petersburg State University of Culture, *Bibliosphere*, 1, 51–56.
- Russian educational standard (2016). Russian educational standard of higher education '51.03.06 Library and information science activity' (bachelor level), approved by the Ministry of Education and Science of the Russian Federation 11.08.2016 No 1001 (2016). Available from: <http://publication.pravo.gov.ru/File/GetFile/0001201801100025?type=pdf>.
- Russian educational standard (2015) Russian educational standard of higher education '51.04.06 Library and information science activity' (master's level), approved by the Ministry of Education and Science of the Russian Federation 14.12.2015 No 1468 (2015). Available from: <http://fgosvo.ru/news/21/1649>.



## **Multidisciplinarity and interculturality in higher education: The Case of the joint degree Master Programme Global Studies on Management and Information Science (GLOMIS)**

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### **Abstract**

“Differences in entry requirements and learning outcomes in the field of Information Science (IS) cause large mobility barriers and lack of uniformity among Higher Education Institutions (HEIs) that offer Master degrees in IS.” (EINFOSE 2018) The Joint Degree Master Programme “Global Studies on Management and Information Science” (GLOMIS) is a good example how such barriers can be overcome in a creative way. Another special feature of this programme is its interculturality since students from two European universities study one year in one of the two Korean partner universities, and vice versa.

This contribution is structured as follows: First, we give an introduction to GLOMIS. This refers to the objectives, guiding principles and the learning outcomes of the programme. Furthermore, the different programme branches (study possibilities) are described. Afterwards, we report about the results of a programme evaluation conducted among participating students from the University of Graz. This evaluation which is a precondition for the prolongation of joint degree programmes at the University of Graz showed that GLOMIS is very well accepted by the students. Finally, we give an outlook about the future development of the programme.

**Keywords:** Joint degree programme, information science, information systems, computer science, business administration, multidisciplinarity, interculturality, Europe, Korea

### **Introduction**

There have been long-term relationships between researchers from German-language countries and the Republic of Korea for many years. Out of these relationships the idea arose to make this kind of intercultural experience possible for more academics and students. First exchanges started between the Department of Information and Communication Engineering at Pai Chai University in Daejeon and the Department of Information Science and Natural Language Processing at the University of Hildesheim. After the launch of the ICI Education Cooperation Programme by the European Union, which refers to EU cooperation with Australia, New Zealand, Japan, and the Republic of Korea in the field of higher education and vocational education and training (EU-ICI 2018), two more partners were invited to join the GLOMIS consortium. These were the Institute of Information Science and Information Systems at the University of Graz and the Department of Management Information Systems at Chungbuk National University.

The starting point when developing GLOMIS was that information processes and information systems can be considered from different perspectives which are usually treated by different disciplines. Since each of the four partner universities has a different focus, the following perspectives are covered:

- University of Graz, Faculty of Social Sciences and Economics: Business Administration
- University of Hildesheim, Department of Information Science and Natural Language Processing: International Information Management – Information Science
- Pai Chai University, Department of Information and Communications Engineering: Computer Science
- Chungbuk National University, Department of Management Information Systems: Management Information Systems.

Accordingly, the joint degree programme allows each of the four universities, to extend their study with an additional perspective.

The main objectives for implementing GLOMIS were:

- “Opening an interdisciplinary view on information and management processes to students of the partner’s master degree programs through an additional perspective ...
- Enhancing the intercultural competencies of students
- Enhancing the employability of students within global companies and global organizations in the field of information processing.” (GLOMIS 2014a, p. 4.)

These objectives resulted in the following guiding principles with regard to curriculum design:

- Interdisciplinarity: The students focus on two different key aspects within the context of their degree program.
- Internationality and interculturality: Since the students spend one year at a university abroad, they have many opportunities to become acquainted with the customs of the respective other cultural area. This is especially relevant for the learning and teaching culture.
- Advancement of social competence as a teaching principle: Usually the students work in small teams, and group and project work is integrated in the courses.
- English as language of instruction and examination: The entire second academic year is taught in English with the exception of the German and Korean language courses.
- Use of new media in combination with traditional forms and didactic principles. (see GLOMIS, 2014b, p. 4 f)

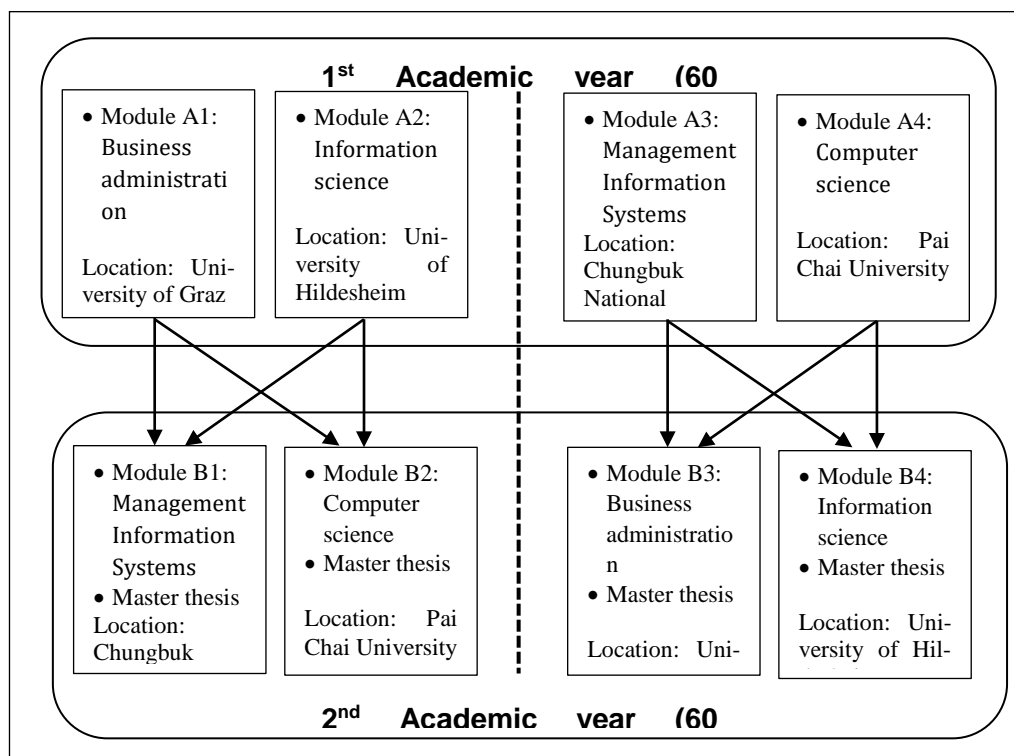
When finishing the Joint Degree Programme, students are able to design and implement information processes and information systems, in particular in an international and intercultural context. As a consequence, the students are able to>

- “determine the information needs of (business) information systems;
- analyse and optimize information processes;
- develop innovative business models taking into account new opportunities resulting from the evolution in the information and communication technologies;
- design and implement (business) information systems;
- plan information infrastructures and taking all measures to secure their optimal operation;
- ensure the economic utilization of information and communication technology
- (productivity paradox of information technology).” (GLOMIS, 2014b, p. 5)

## Outline and programme description

As can be seen in Figure 1, the students begin their study at their home university in the first year. This is Business Administration at the University of Graz, Information Science at the University of Hildesheim, Management Information Systems at Chungbuk National University, and Computer Science at Pai Chai University. Before starting with GLOMIS, the students must meet the entry requirements at their home university. In case of the University of Graz, this is a completed bachelor programme in Business Administration or a similar programme. Afterwards, the GLOMIS Programme Committee, which consists of one member from each partner university, decides on the admission to the Joint Degree Programme.

In the second year, the students from the University of Graz and the University of Hildesheim study either at Chungbuk National University (Management Information Systems) or at Pai Chai University (Computer Science), while the students from Chungbuk National University and Pai Chai University study either at the University of Graz (Business Administration) or at the University of Hildesheim (Information Science).



**Figure 1.** Outline of the programme (GLOMIS, 2014a)

In the second semester of their study abroad, the students usually work on their master thesis, which is supervised by one professor from the home university and one from the partner university. Since the South Korean academic year begins in spring while for the University of Graz and the University of Hildesheim it begins in autumn, the study period overlaps for at least one semester in which students of the two partner universities partly take the same classes. These shared study phases constitute another means, which supports the (cultural) exchange between the students.

Table 1 in the Appendix shows the courses provided by each partner institute and their workload. As can be recognized, each university brings in its particular “expertise”. In case of the University of Graz

these are business administration courses like Management, Business English, Business Intelligence, Electronic Business Models and Digital Economy, Sales Management, or Strategic Human Resource Management. The University of Hildesheim offers information science courses like, for instance, Perspectives on Information Science, Online Communication, or Language Technology. Chungbuk National University provides information system courses like Knowledge Management, Supply Chain Management or E-Government, and Pai Chai University computer science related courses such as Software Engineering, Information Processing, Image Processing and Multimedia Technology.

### **Evaluation of GLOMIS at the University of Graz**

According to the regulations at the University of Graz, each joint degree programme comes into force only for a limited period (usually four years) initially. Afterwards, a programme evaluation must be conducted, if the programme is intended to be continued. This evaluation was performed from April to May 2017 by the Department of Teaching and Study Services at the University of Graz (DTSS 2017). The evaluation covered only those study branches of GLOMIS in which students from the University of Graz are involved. Since no students from Graz decided to study at the Pai Chai University in the second year, this evaluation only includes the first GLOMIS year at the University of Graz (Module A1 in Table 1) and the second year at Chungbuk National University (Module B1 in Table 1).

For the purpose of the evaluation, both all GLOMIS students from Graz who have already completed the programme (six students) and those who were in the first year (at the University of Graz) (five students) were contacted by the Department of Teaching and Study Services. The students were asked to fill out a questionnaire consisting of five open questions covering the following topics:

- free associations with GLOMIS programme,
- study reasons,
- fitting together of the contents of the programme parts offered by the University of Graz and Chungbuk National University (module A1 and module B1),
- free associations with the study year in Korea,
- suggestions for improvement.

Finally, the students could make concluding remarks about topics, which were not considered by the questionnaire.

The participation in the survey was high: all student beginners and four out of the six students who completed GLOMIS participated in the survey. LimeSurvey was used for data collection.

**Table 2.** Positive associations with GLOMIS (DTSS 2017, p. 19 f.)

	Study beginners (n=5)	Advanced students (n=6)
Mentoring	1	3
Experience abroad	3	1
Culture	3	2
International networking	2	1
“Small” study/programme	2	1
Foreign language	1	1
Travelling	1	1
Contact with Korean professors		2
Management Information Systems	3	

#### Free associations with GLOMIS:

In the first question, the students were asked to mention all catchwords when they think of GLOMIS. Furthermore, each of the mentioned catchword should be categorized as positive, neutral or negative (Table 2).

One aspect, which received many positive mentions, was the good mentoring and supervision by the professors at the University of Graz and at CBNU. Two of the advanced students appreciated in particular the contact with the Korean professors. Another central aspect was the study abroad, which makes it possible for the students, to acquire experiences abroad, to get to know a different culture, to network with Korean students and to learn a foreign language. The stay in Korea allows the students also to travel in countries nearby which was mentioned by two students. Finally, three study beginners indicated that the study in Korea would allow them to complement their study with more information systems related courses.

There were only a few negative associations with GLOMIS: “North Korea”, “Kim Jong-un”, “missing information about Korea” and “low technical/computer science orientation of courses at the University of Graz” received two mentions each.

#### Study reasons:

In this part of the questionnaire, the students repeated several arguments already mentioned above. Most students indicated the study abroad in the Republic of Korea as the main reason, in particular the international experience in education and the experiencing of a new culture. Another reason for the students was that they could complement their study in business administration with topics from information systems.

#### Fitting together of programme parts:

Both the student beginners and the advanced students judged this aspect as good in large parts. The students find the combination of business administration and management information systems “very interesting”, however, most of them missed a stronger technical focus. One student said that he wished a stronger practical relevance of the courses offered at CBNU.

#### Free associations with the study year in Korea:

This question was only asked to those students who had already completed the study year at CBNU. Networking with the professors and the Korean students was found as the main positive aspect. Three Austrian students mentioned it in their feedback. For one respondent the EU grant and sufficient leisure time to travel also elicited positive associations.

Negative mentions referred to missing offerings to learn Korean, the small English language course programme, strong hierarchies and complicated and time-consuming organizational processes.

#### Suggestions for improvement:

According to the students, the courses should have a stronger computer science focus, more courses should be offered in English and the offer of Korean language courses should be extended. Furthermore, information provision and information distribution with regard to the GLOMIS programme should be improved.

Final remarks:

At the end of the questionnaire, students were invited to make remarks, which were not covered so far. The following responses were given:

- “The programme is really great!”
- “In parts, the courses at the Institute of Information Science and Information Systems are too theoretical and not enough computer science oriented. A management information systems programme should be established at the University of Graz since the demand for graduates of such a programme is very high at the labour market.”
- “Though GLOMIS could be improve in a few aspects, the programme is very enriching. It would be great if the programme would be continued in the future.”

Overall, the evaluation shows a very positive assessment by the students. GLOMIS is very well perceived. Furthermore, the demand for the programme also continues to be high at all partner universities.

## Outlook

Due to the great success of GLOMIS, the Programme Committee decided to continue the Joint Degree Programme. Since an EU grant in the context of the Bilateral Cooperation with Industrialised Countries Programme is not available anymore, the main challenge refers to the question how participation in the GLOMIS programme, in particular the study period abroad, can be made affordable for future students. The following alternatives seem possible:

- grants in the framework of the Erasmus + programme,
- other grants by public or private organizations: DAAD, National Research Foundation of Korea (NRF), universities, private companies,
- reduction of the study period abroad.

The problem with Erasmus + is that the financial resources are very limited. Furthermore, grants are only awarded for one to two years. Afterwards, a new Erasmus + application must be submitted. As a consequence, there is no long-term financial backup when only relying on Erasmus +.

An alternative would be national grant programmes, which must be established in particular for international joint degree programmes. For instance, the German Academic Exchange Service (DAAD) offers such grant programmes. However, such grants are not available in Austria. Therefore, it is suggested that the European Union should provide an own grant line only for such kinds of joint degree programmes. Since this is not the case anymore, the University of Graz is willing to sponsor the study period abroad for future GLOMIS students from Graz with 350 Euro per month plus 300 Euro travel support.

One possibility to decrease the study costs is the reduction of the study period abroad. In case of the current GLOMIS programme, students study at the partner university for one year. This long period enabled it to the students to get to know the other country in more detail and to delve more deeply into its culture. In the revised version of GLOMIS curriculum it is intended to reduce the study period abroad for students from the University of Graz and Chungbuk National University to one semester. However, depending on their financial possibilities, the students can extend their stay to one year and work on their master thesis at the partner university voluntarily.

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## References

- DTSS (2017). *Endbericht des Joint Degree Masterstudiums Global Studies on Management and Information Science (GLOMIS)*. Department of Teaching and Study Services, University of Graz.
- EU-ICI (2018). Bilateral Cooperation - EU-ICI-ECP Cooperation Programme | EACEA. Available from [http://eacea.ec.europa.eu/bilateral\\_cooperation/eu\\_ici\\_ecp/index\\_en.php](http://eacea.ec.europa.eu/bilateral_cooperation/eu_ici_ecp/index_en.php) (May, 30<sup>th</sup> 2018)
- FEIS (2018). FEIS – International Symposium on the Future of Education in Information Science, homepage. Available from <http://feis2018.di.unipi.it/> (March 4<sup>th</sup> 2018).
- GLOMIS (2014a). *GLOMIS homepages*. Available from <http://glomis.pcu.ac.kr/> (English version) and <https://informationswissenschaft-wirtschaftsinformatik.uni-graz.at/de/gломis/> (German Version) (March 9<sup>th</sup> 2018).
- GLOMIS (2014b). Curriculum of the Joint Degree Master Programme on Management and Information Science. Cheongju, Daejon, Graz, Hildesheim, 2014.



## Appendix

**Table 1. GLOMIS programme description** (see GLOMIS, 2014a)

	Module/course title	ECTS credits
<b>A1 BUSINESS ADMINISTRATION</b> (only for students from the Univ. of Graz in the 1 <sup>st</sup> academic year)		<b>60</b>
<b>Module A1.a</b>	<b>Basics in Business Administration and Business English</b>	<b>12</b>
A1.a1	Management	4
A1.a2	Advanced Mathematics and Statistics	4
A1.a3	Business English 1	4
<b>Module A1.b</b>	<b>Information Science and Information Systems</b>	<b>20</b>
A1.b1	Business Intelligence	4
A1.b2	Electronic Business Models and Digital Economics	4
A1.b3	Case Studies in Information Systems	4
A1.b4	Special Aspects of Information Science and Information Systems	4
A1.b5	Information Science and Information Systems (Seminar)	4
<b>Module A1.c</b>	<b>Specialization in Business Administration</b>	<b>20</b>
	Courses of the module Applied Information Systems and specializations in Business Administration of the Master program Business Administration	
<b>Module A1.d</b>	<b>Electives</b>	<b>8</b>
<b>A2 INFORMATION SCIENCE</b> (only for students from the University of Hildesheim in the 1 <sup>st</sup> academic year)		<b>60</b>
<b>Module A2.a</b>	<b>Perspectives on Information Science</b>	<b>12-14</b>
<b>Module A2.b</b>	<b>International Human Computer Interaction</b>	<b>4-14</b>
<b>Module A2.c</b>	<b>Multilingual Information Systems</b>	<b>4-14</b>
<b>Module A2.d</b>	<b>Online Communication</b>	<b>4-14</b>
<b>Module A2.e</b>	<b>Language Technology</b>	<b>4-14</b>
<b>A3 MANAGEMENT INFORMATION SYSTEMS</b> (only for students from Chungbuk National University in the 1 <sup>st</sup> academic year)		<b>60</b>
<b>Module A3.a</b>	<b>Technology and Culture</b>	<b>10</b>
<b>Module A3.b</b>	<b>Special Topics on Data Mining</b>	<b>10</b>
<b>Module A3.c</b>	<b>System Dynamics</b>	<b>10</b>
<b>Module A3.d</b>	<b>Knowledge Management</b>	<b>10</b>
<b>Module A3.e</b>	<b>Selected Topics on Management Information Systems</b> (two courses must be selected)	<b>20</b>
A3.e1	<i>Supply Chain Management</i>	<i>10</i>
A3.e2	<i>Economics of Information Security</i>	<i>10</i>
A3.e3	<i>E-Government</i>	<i>10</i>



<b>A4 COMPUTER SCIENCE</b> (only for students from Pai Chai University in the 1 <sup>st</sup> academic year)		<b>60</b>
<b>Module A4</b>	<b>Selected Topics on Computer Science</b> (courses from at least three of the four modules)	
<i>Module A4.a</i>	<i>Software Engineering</i>	0-30
<i>Module A4.b</i>	<i>Information Processing</i>	0-30
<i>Module A4.c</i>	<i>Image Processing</i>	0-20
<i>Module A4.d</i>	<i>Multimedia Technology</i>	0-40
<b>B1 MANAGEMENT INFORMATION SYSTEMS</b> (only for students from the University of Graz and the University of Hildesheim at Chungbuk National University in the 2 <sup>nd</sup> academic year)		<b>60</b>
<b>Module B1</b>	<b>Selected Topics on Management Information Systems</b> (courses from at least four of the seven modules)	<b>38</b>
<i>Module B1.a</i>	<i>Technology and Culture</i>	10
<i>Module B1.b</i>	<i>Special Topics on Data Mining</i>	10
<i>Module B1.c</i>	<i>System Dynamics</i>	10
<i>Module B1.d</i>	<i>Knowledge Management</i>	10
<i>Module B1.e</i>	<i>Supply Chain Management</i>	10
<i>Module B1.f</i>	<i>Economics of Information Security</i>	10
<i>Module B1.g</i>	<i>E-Government</i>	10
<b>Master's thesis</b>		<b>20</b>
<b>Master's thesis defense</b>		<b>2</b>
<b>B2 COMPUTER SCIENCE</b> (only for students from the University of Graz and the University of Hildesheim at Pai Chai University in the 2 <sup>nd</sup> academic year)		<b>60</b>
<b>Module B2</b>	<b>Selected Topics on Computer Science</b> (courses from at least three of the four modules)	<b>38</b>
<i>Module B2.a</i>	<i>Software Engineering</i>	0-30
<i>Module B2.b</i>	<i>Information Processing</i>	0-30
<i>Module B2.c</i>	<i>Image Processing</i>	0-20
<i>Module B2.d</i>	<i>Multimedia Technology</i>	0-40
<b>Master's thesis</b>		<b>20</b>
<b>Master's thesis defense</b>		<b>2</b>
<b>B3 BUSINESS ADMINISTRATION</b> (only for students from Chungbuk National University and Pai Chai University at the University of Graz in the 2 <sup>nd</sup> academic year)		<b>60</b>
<b>Module B3.a</b>	<b>Selected Topics on Business Administration</b>	<b>24</b>
	Courses of specializations in business administration of the master program Business Administration, furthermore courses of the modules Applied Information Systems, Business English and Quantitative Research Methods can be selected.	
<b>Modul B3.b</b>	<b>Electives</b>	<b>14</b>
<b>Master's thesis</b>		<b>20</b>
<b>Master's thesis defense</b>		<b>2</b>
<b>B4 INFORMATION SCIENCE</b> (only for students from Chungbuk National University and Pai Chai University at the University of Hildesheim in the 2 <sup>nd</sup> academic year)		<b>60</b>
<b>Module B4.a</b>	<b>Selected Topics on Information Science</b> (courses from at least three of the five modules)	<b>28</b>
<i>Module B4.a1</i>	<i>Perspectives on Information Science</i>	12-14
<i>Module B4.a2</i>	<i>International Human Computer Interaction</i>	4-14
<i>Module B4.a3</i>	<i>Multilingual Information Systems</i>	4-14
<i>Module B4.a4</i>	<i>Online Communication</i>	4-14
<i>Module B4.a5</i>	<i>Language Technology</i>	4-14
<b>Module B4.b</b>	<b>German and European History and Culture</b>	<b>10</b>
<b>Master's thesis</b>		<b>20</b>
<b>Master's thesis defense</b>		<b>2</b>

## Scandinavian cooperation in teaching a joint Master's course on e-books

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### Abstract

The aim of the paper is to share the experience of collaboration among Scandinavian iSchools in creating and implementing a joint course. The authors explore their own activity and documentation produced in relation to the collaboration around the development and implementation of the advanced course on e-books.

The results of the collaboration are expressed in terms of new experience, knowledge, and implementation of a new course on the advanced level for library and information science students. The results of the paper generalize these experiences and present the challenges and lessons learned in the process of collaboration.

The paper presents a workable administrative model for cross-national joint courses. In addition, it outlines design and teaching methods for a Master's course on e-books for library and information science students. A joint course with a shared syllabus and cross-national teacher teams gives added value to the students by getting the best out of the combined expertise. Administrative details should be implemented locally at the collaborating universities rather than try to standardise everything.

**Keywords:** collaboration; e-books; iSchools; library and information science; Scandinavia; teaching;

### Introduction

In the spring term of 2016, the University of Borås and OsloMet – Oslo Metropolitan University (then Oslo and Akershus University College of Applied Sciences) offered *E-books: Production, distribution, reading* as a joint course for Master's students in their respective library and information science (LIS) programmes. The team involved in the course received financial support from OsloMet and the Nordplus programme for planning and implementation. The course involved a significant administrative and organizational effort, a number of innovative teaching methods and learning opportunities for both students and teachers, and continues its life in other formats.

The aim of the paper is to share the experience of collaboration among Scandinavian iSchools in creating and implementing a joint course. We concentrate on the issues of organizing and administering the collaboration, constructing the idea, content, and educational approach of the subject and the course, the obstacles in collaboration, lessons learned, and achieving sustainability of the outcomes.

### Organizing collaboration

The origin of the collaboration is a workshop about e-books and digital reading held at the Department of Archivistics, Library and Information Science at OsloMet, Norway, on June 17 and 18, 2013. A group at the department with an interest in e-books as a topic for research and education received local funding as part of the university's strategy for building international relations and partnerships. The group invited colleagues with similar interests at the major iSchools in Denmark and Sweden to the workshop to share ideas and experiences. The workshop resulted in the journal article "The e-book: Scandinavian perspectives on research and education" (Balling et al., 2014).

The 2013 workshop had shown that the three partner institutions in Norway (OsloMet), Sweden (University of Borås) and Denmark (University of Copenhagen) had mutual interests in teaching e-books to LIS students, so the collaboration developed naturally into the planning of a joint Master's course. OsloMet continued its strategic funding of the project with a premise that it should involve student or teacher mobility, which meant that an online course was not an option in Oslo. The planning meetings resulted in a course description for the 15 ECTS Master's Course *E-books: production, distribution, reading* that was legally accepted at all three partner institutions for implementation in the spring semester of 2016.

The course consisted of four modules on e-books: Introduction, Production, Distribution, and Reading.

The *Introduction* module was taught and planned locally at each university, but the other three modules had collaborative expert teams from all partners that would teach the module on each campus. The University of Borås took the initiative to apply to Nordplus for travel, hotel and dining costs for the teacher teams and a couple of further meetings. We received the money, which meant that we received external funding for everything except the salary costs for teachers in this project.

Implementation of the course.

Each collaborating institution developed a separate course plan and these plans were approved as follows:

- OsloMet: The course plan *E-books: production, distribution and reading*, 15 ECTS, was accepted by the administration 2014-12-01 for the term from early January to late May, first time run in 2016. Given on campus.
- The University of Copenhagen allocated at most 30 hours of teaching each term starting with term from February to June, 2016, an elective course. Given on campus.
- University of Borås approved the following courses on 2015-05-13 (all conducted together):
  - o *E-books: production, distribution and reading*, 15 ECTS, obligatory for the international Master's programme Digital library and Information Services, second term, January-June, 2016. Distance with a residential period.
  - o *E-books: distribution and reading*, 7.5 ECTS, elective for students in the Master's programme in Library and Information Science, second term, January-March, 2016. Distance with a residential period.
  - o *E-books: distribution and reading*, 7.5 ECTS, independent course for the students outside regular study programmes, run in January-March, 2016.

The admission and registration of the students to the courses was announced in autumn 2015. Both OsloMet and the University of Borås had a sufficient number of students to start the courses. Forty students enrolled in the courses in Borås and 12 in Oslo. At the University of Copenhagen, the course did not attract a sufficient number of students and was therefore not offered. However, the Danish member of the team participated in teaching the Reading module.

The joint activities within the courses were as follows. The course started with the Reading module that was only taught in Oslo. The lectures and discussions were streamed to the Swedish students and recorded for all to access it at a later time. The Production and Distribution modules were taught on campus at both universities, which meant that the participating teachers had to travel to their respective partner institutions. The on-campus teaching events were designed almost identically at both

universities. The students accessed the study materials and information through their local e-learning platform.

The methods of assessment and student evaluation were decided locally at the partner institutions. At OsloMet, the assessment had two parts: a project work (15-20 pages) made in groups with 2-3 students and an individual 3-day home examination (7-10 pages), written either in English or in Norwegian. In Borås the students were assessed on three home examination submissions and an integrating essay focusing on a topic from one module, but integrating relevant issues from the other two modules.

## **Content and teaching approaches**

Creating the concept.

E-book production – or rather digital publishing courses – are taught mainly in the departments of publishing studies, such as a one-year MA Digital Publishing programme at Oxford International Centre for Publishing Studies (within the School of Arts at Oxford Brookes University) or 1.5-year MA in Media and Digital Publishing at the Faculty of Communication at Vilnius University. These programmes include the modules on digital publishing technology, digital design, digital publishing strategy and/or digital marketing, and are targeted to professional publishers. E-books may be mentioned as one of the digital products and the particular features of e-book design or formats would be a part of content of these courses. Thompson (2014) outlines the problems and conflicts between teaching digital (or electronic) publishing and print publishing in the US graduate programmes in publishing and discusses the benefits of the courses of electronic publishing in EPUB format.

However, a large and joint LIS Master's course specifically devoted to e-books had not been launched before, certainly not in Scandinavia, and given the increasing presence and importance of e-books across the library field, we decided the time was ripe. The interest in library publishing as a subfield of publishing originates from several sources: the involvement of libraries in academic publishing as such through subsidizing and running the entire publishing process of academic publications; from the open access publishing of articles and theses in institutional repositories run by libraries; and from digitization programmes when libraries digitize their holdings and spread them online. Thus education and training in publishing should be regarded as an important part of LIS education. (Skinner et al. 2014).

In addition, both academic and public libraries experience significant changes and difficulties with regard to commercial e-books that have become a part of their collections and require specific knowledge and skills in managing them (Bergström et al. 2017).

The LIS schools regularly experience certain pressures from the technologically savvy library communities. In combination with growing experience of teachers and researchers of digitization, e-books, and digital reading, the competence to teach this specific and interesting course has steadily accumulated, and it was the time to apply it in education. Thus, the initiative and support of OsloMet found a fertile ground with readily planted seeds. The participants decided to develop an advanced level course that could fit into the Master's or advanced programmes in all participating schools.

Three teams of teachers collaborated in the development of the course plan. All teams agreed that the course should include almost the full life cycle of an e-book from its production to the distribution and the use by readers, and should be taught at advanced level with the prerequisite of a completed Bachelor's degree. The three main parts of the course (production, distribution, and reading) were regarded as essential for the LIS students. Thus, authorial or editorial issues are only marginally present in the content. The final content included the following elements:

- e-book production process, equipment and technology
- e-books as part of the book market and the literary field
- e-books as material and cultural artefacts
- e-books in Danish, Norwegian and Swedish libraries and book market
- copyright, licensing and other legal aspects in production, distribution and use of e-books
- reading and readers of e-books from quantitative and qualitative perspectives

Each university had the possibility to use existing local literature and resources, and to highlight specific issues regarded as central in the local context, though the main focus was on the overall situation in the Scandinavian countries and on the international market.

For this part of the course development work, the teachers collaborated through a joint Google Drive document, where we started developing syllabi, course contents, literature lists, and activities for the students. The following part in this chapter highlights the content and teaching methods applied in each of the modules within the course, namely, Introduction, Production, Distribution, and Reading of e-books.

#### Introduction.

The introduction module was not part of the mutual course plan and was locally implemented at each university. It included the presentation of the course content, aims, examination tasks and course literature; explained the structure of the course and the delivery modes. The two main overarching books in the course were introduced in this module: *Reading and writing the electronic book* by Catherine C. Marshall (2010) and *Changing our textual minds: Towards a digital order of knowledge* by Adriaan van der Weel (2011). There was also a focus on the national book market in the respective countries where the Introduction module was taught.

#### Production.

All three partner institutions had experience from various courses where text encoding is being taught. The Oslo team had previously twice taught an e-books course on undergraduate level where students produced e-books from Norwegian classic texts in the public domain. This was a collaboration with Bokselvskap, which is now part of the National library in Norway. The source texts were OCR scans from the National library's vast digital library. These texts were marked up using TEI guidelines and transformed into EPUB via XSLT and different stylesheets from Bokselvskap's toolbox. The Danish partner had similar experiences from courses on e-books and electronic publishing.

In Sweden, the department of LIS had been offering a 15 ECTS Master's course on cultural heritage digitization for several years (described and discussed in Dahlström, 2013; Dahlström & Doracic, 2009). In it, students worked with image capture and text capture through OCR to digitize handwritten or printed documents, then proceeded to encode the transcription text with TEI, transform the TEI files into XHTML (and at times additional formats as well) and finally published all the resulting digital files on the web in an open source mode, both as digital facsimiles and as encoded text.

The experiences from these courses were quite positive in all three universities, and we therefore decided to use this as a teaching model for the production part of the course, and agreed on the following learning outcomes for the module:

- explain and apply the main technology and equipment of e-book production
- produce a transcription of a digital text with XML coding in a way adequate to the e-book's character and intended use

- explain how an XML encoded text is transformed into EPUB or an equivalent e-book format
- be able to identify and evaluate different arguments used for selection decision in e-book production.

As is evident from the outcomes, our focus was not only on technical hands-on skills, but equally as much on having the students analyse, understand and explain the process as a whole.

The students were provided with lectures and hands-on labs in XML, TEI, XSLT and EPUB, as well as more general lectures on scholarly e-books and digital humanities. They were also assigned course literature on text encoding and transformation such as manuals as well as critical articles on text encoding from the field of digital humanities, and Catherine C. Marshall's textbook on e-books (Marshall, 2010), which includes dedicated sections on production issues. It would certainly have been possible to treat the actual e-book production as a trivial affair, simply pressing a transform button and then making the resulting EPUB files available. This would however have turned the process into a black box for the students, and we wanted them instead to have some fair understanding of what actually occurs during this transformation and editing process. This would equip the students with better skills to understand and manage future technical development in the world of e-book publishing.

They were directed to online archives of freely available literary works as raw text (.txt). We decided a manageable size of the downloaded texts to be between 6,000 and 10,000 words, and therefore asked the students to work with short stories, e.g. by Arthur Conan Doyle or Edgar Allan Poe. An additional pedagogical aim in choosing short stories was that the students could subsequently collect all the EPUB short stories they produced into a joint short story anthology, formatted as an e-book in EPUB format. They needed to prepare the downloaded text for markup, such as checking it for possible transcription errors, markup the text in TEI (with an eye to subsequent inclusion of the story into the anthology), transform it into EPUB and finally make it available for teachers and course mates. Repeatedly during this process, we discussed with the students what was happening in the technical process, why certain problems and glitches occurred and how best to solve them.

As was our experience from our earlier courses, it was clear that the students really enjoyed getting their hands dirty with text encoding and transformations, and expressed satisfaction and joy in seeing their laborious hands-on work gradually result in real e-books on the laptop, tablet or smartphone screen in front of them.

Distribution of e-books.

The working paper, used by the course developers in Google Drive and compiled using three Scandinavian languages as well as English, reflected the gradual formulation of the learning outcomes, several of which relate to the module of e-book distribution:

- advanced knowledge of the Scandinavian e-book markets and distribution models, including challenges associated with economic and legal aspects
- assess the value and potential of distribution models of e-books for various types of libraries
- critically reflect on the implications of global e-book distribution for small language markets and literary fields

Rather early in the process the team charted out the content that should be available for the students studying this module to reach the planned outcomes. The group decided to use the book circuit by Darnton (Darnton, 1991, pp. 111–113) and its latest developments to include the changes brought about by digital technologies (Murray & Squires, 2013) as the theoretical framework explaining the e-book



market and its players. Cultural policy of Scandinavian countries was regarded as another important factor influencing e-book distribution together with legal provisions for library work, copyright and digital society. Due to the nature of e-books, all e-book market players were regarded as possible distributors of e-books. Thus, the students could explore the positions of the authors in relation to e-books, the activities of publishers in marketing and spreading their digital products on the market, and the commercial book selling channels, such as traditional bookshops, online booksellers, subscriptions services and their international context with major players in the field such as Amazon. Both academic and public libraries received much attention: the business models of acquiring access to e-books, work with digital book collections, services to the readers, and their evaluation. Some other dimensions, such as piracy and user perspective, especially e-book usage patterns in Scandinavia, were included in the course.

As learning was based on self-studies by the students of a distance Master's programme in Sweden and the on-campus studies by the students in Norway, a list of course literature included texts on the advanced level mainly in English. At the moment of preparing the course, there was a lack of scholarly texts about the situation of e-books in the Scandinavian countries, therefore the teachers prepared a number of teaching aids, such as empirical data on publishing and book sales, library lending statistics, public debate articles and other materials. Lectures, seminars and workshops were planned for the residential period of the Swedish programme students in Borås and also for the students at OsloMet. They were concentrated on the issues of commercial markets of e-books in the Scandinavian countries, statistics of e-book sales, the e-books in libraries and the legal issues related to e-books.

In Sweden, the overall learning outcomes from this module were examined through a set of questions on e-book commercial and public distribution that students had to answer after reading the course literature and reflecting on it. There were also six topics on e-book distribution issues offered for the final essay.

Reading of e-books.

The module on Reading e-books was organized by an external-only team, since the University of Copenhagen cancelled the Master's course. Anne Mangen from the University of Stavanger, who took part in the initial 2013 workshop at OsloMet, was heavily involved, and the content of the module was informed by the research in the EU COST action E-READ that is headed by Mangen.

The group formulated two learning outcomes:

- advanced knowledge of the implications of digitization of reading as a cognitive process, phenomenological experience and social practice
- critical reflection on how affordances of reading devices may affect the reading of different types of texts for different purposes

Digital reading was understood in a wide sense of the term and included several different aspects and perspectives in the content of the course:

- Psychological and phenomenological perspectives on reading and digital reading
- Ergonomic aspects of digital reading
- Affordances/interfaces/navigation in e-books
- Media consumption and e-books in its context
- Devices for digital reading and their impact on reading process

The group chose a number of recent research papers and books exploring the phenomenon of digital reading, while also grounding their teaching in their own research examining the difference between



reading in print and reading of digital texts (Balling, 2015; Mangen, 2016). They put emphasis on the different modes of reading, especially on the deep reading of fiction and non-fiction (Mangen & Weel, 2015; Wolf, 2007). Another topic emphasized in this part was children and digital reading.

The Reading module was only taught at OsloMet, because of restrictions on the number of student gatherings at the study programmes in Borås. The teachers focused on the theoretical approaches and reflections by the students. Thus, lectures and discussions of seminal papers became the main teaching forms. Adriaan van der Weel from the University of Leiden, the author of one of the main books on the syllabus, gave a two-hour lecture on the first day. The students also had a workshop to get acquainted with different reading devices. The distance learning technology was applied in the form of streaming and recording lectures and discussions to allow the Borås students in different locations to participate in them synchronously or to access the events later during the self-study period.

As there were no Swedish teachers involved in the development and teaching of this module, the University of Borås lecturer, who conducted reading research in Sweden, supervised the studies and assessed the submitted examination tasks. The examination consisted of a set of questions to be answered as a result of reflection of the read course literature. There were also nine essay topics included in the list of the final examination essays.

### **Experiences from the collaboration**

The starting point of the project was to develop joint course objectives and learning outcomes that would be implemented in each partner university's syllabi. As agreed, each partner is responsible to follow national and home university guidelines for recognition of syllabi and integration into the ordinary curricula.

The countries share legislative similarities concerning the requirements about the main statements in the syllabus, such as course level, number of higher education credits, course objectives, requirements for special eligibility and the forms for assessing student performance. Additionally, the courses in Borås must adhere to specific ordinance rules for syllabi design at the University of Borås (Dnr 339-15), which means supplementary requirements for the syllabus. However, there are some differences. For instance, the Swedish Higher Education Ordinance 1993:100 requires a certain number of examinations in the course. This legal requirement is additionally regulated by local Guidelines for examinations in due process (Dnr 724-14) from the University of Borås. It states that each examination should be offered on at least five occasions, of which at least three must take place within a year if nothing else is evident from the syllabus. This also applies to ceased courses. At OsloMet the number of examination opportunities is three (within a year) as regulated by *Forskrift om studier og eksamen ved Høgskoleni Oslo og Akershus* (Forskrift 2012, § 5-7(4)).

Much effort was put into formulating the learning outcomes that would formally be acceptable at partner universities, without losing the main idea and the content of the course. Besides the common ground in the Bloom taxonomy (Bloom, 1956) and the Solo taxonomy (Biggs & Collis, 1982), the learning outcomes in each partner's course documentation needed to be defined in a particular way, concretely expressing the objectives of the Master's programme syllabus. Furthermore, learning outcomes ought to be stated in each syllabus with regard to the domains of *knowledge and understanding, skills and abilities* and *evaluation ability and approach*. While OsloMet does not use the last category (evaluative ability), it is a common praxis in Borås to include all three categories in the course syllabus. In addition, OsloMet defined outcomes according to "After completion of the course the student has...." while Borås "After passing the course the student should be able to". A main difference between the two universities

is that in Borås, the learning outcomes must be clearly tied to specific examination tasks. This means that there were special examinations for each module throughout the semester. In Oslo, there are no such requirements. Each learning outcome can be tested at examination, but that is not mandatory. This means that students must be prepared for tasks related to anything on the syllabus at examinations.

There was likewise a difference relating to the prerequisites for the courses. While the *E-book* course in Oslo did not have any prerequisites, the course in Borås required the students to have passed the examinations of a previous programme course, *Technologies for digital libraries*.

The teams considered launching and using a joint digital learning platform as a single area of teaching, a meeting place for teachers and students, and as an effective way of distributing joint course material rather than duplicating information and documents across two or more local platforms. The various learning platforms of the partner universities were considered as well as third-party non-commercial platforms. However, this intention had to be abandoned due to local administrative, economic and regulatory uncertainties. For instance, in Borås it was difficult to arrange for students from other universities to have access to the learning platform. To use a third party non-commercial platform required additional economic investments in form of teachers' working hours that none of the partners could provide. Due to these challenges, instead of having one joint learning digital platform, each partner used its own, only providing access for the collaborating teachers. However, a Facebook group was set up by the students from both partners to exchange experiences and knowledge.

Differences in local schedules for the start and the end of the spring semester put a strain on coordinating and synchronizing the educational activities and teacher mobility. Oslo started the course almost a month before Borås, which affected the joint teaching week where Oslo students had progressed further in the Reading module in comparison to the students in Borås. However, despite differences in time frames, most of the activities overlapped.

The differences in local admission to the courses also had a negative result. As mentioned earlier, the Department of Information Studies in the University of Copenhagen did not attract a sufficient number of students to make the course economically viable, and so the course was delivered only in Oslo and Borås.

Courses in Oslo and Borås were evaluated by the students. The written comments throughout the digital evaluation survey confirmed the very positive experience of the courses. Several students expressed their great satisfaction with the quality of teaching and relevance of the content. In particular, students valued teaching with the colleagues from other Nordic countries who have elevated the course. Furthermore, a large majority of the students from both universities consider the learning objectives of the teaching methods of the course as suitable for the learning. In Oslo, the students without much experience in coding and markup languages emphasized that the hands-on approach in the Production module worked very well. However, the evaluation in Borås pointed out need for improvement in a few areas such as lectures, literature and course information. Concerning the lectures, students expressed need for additional recorded (and live) lectures and discussions. Overall appreciation for the course literature was very good. However, some comments brought up that some literature was repetitive. Finally, the structure of the course in the digital learning platform and course instructions received some minor criticism.

## Summing up

The three partner institutions have a long history of various forms of collaboration, including joint courses at PhD education level. Joint courses at Bachelor's or Master's level have however previously

mostly failed because of administrative obstacles and differences between the national education programmes. The e-book course did however come to fruition, mainly because of its administrative design. The course description, content and syllabus were the same at the three partner universities, but the course was run separately at each campus. This means that each university could adjust details such as assignments, assessment and examination necessary to the local higher education requirements. Furthermore, the students enrolled locally in their respective countries, which meant that we avoided hard discussions about distribution of money received for student credits.

We can sum up the added value of a joint course from the perspectives of students, participating teachers and the partner institutions:

- Students had an opportunity to extend their social networks into the related universities both among the students and teachers, experience new ways and methods of teaching, explore additional technologies of e-learning and teaching. They were also able to enjoy a much-anticipated course on the increasingly important topic e-books, where they not only apply critical analyses on a specific kind of digital object but also produce that very object themselves in the process.
- The teachers had to overcome some expected as well as unexpected challenges in collaborative teaching, exercising their creativity and trying out teaching methods in different environments. All three teams were able to conclude that the difficult task of international educational collaboration can be achieved with due resources, mainly, in the form of teachers' time, not to mention the good spirit of all participants.
- The participating institutions have invested in teachers' time and have acquired additional experience in running educational collaborative projects. Further, the educational approaches and course materials developed in the course project have been shared among the universities, and a new, timely and relevant course was developed. The University of Borås has added it to its Master's programmes and independent courses. The investment has proved to be sustainable at least in the medium term for now.

Overall, the collaboration was a success. The partner institutions were able to offer a joint Master's course that was richer and more advanced in content than they could do individually. The partnership utilized the expertise at the three universities with their different specialities. The workshops and teaching sessions have renewed the collaboration between the Scandinavian iSchools, also resulting in this collaborative paper.

## **Conclusion**

The experiences of the collaborative development and implementation of the course is summed up in Figure 1, which defines the stages that we could identify in our collaboration and the success factors that lead to completion of each of them.

This framework of our collaboration is based on our practical experience and so far we have not reflected on its wider theoretical base or implications. It can be useful for others developing international joint courses and draws attention to the fact that conditions in each stage leading to success or failure may be different.

	STAGE 1	STAGE 2	STAGE 3
	Conceptual framework	Organizational framework	Pilot implementation framework
<b>Success factor</b>	<ul style="list-style-type: none"> <li>• Initiative group</li> <li>• Educational need</li> <li>• Research base</li> <li>• Educational competence</li> <li>• Economic resource</li> </ul>	<ul style="list-style-type: none"> <li>•Relevance to the partner HEIs</li> <li>•International team</li> <li>•Educational competence</li> <li>•Administrative competence</li> <li>•Negotiation competence</li> <li>•Willingness to succeed</li> <li>•Economic resource</li> </ul>	<ul style="list-style-type: none"> <li>•Interested students</li> <li>•Marketing strategy</li> <li>•Teaching/learning methodology</li> <li>•Coordination of activities</li> <li>•Educational competence</li> <li>•Economic resource</li> </ul>

**Figure 1.** Stages and success factors of collaborative joint course development

The initiative may fail even at the stage of the implementation, as was the case with one of the partners who failed to attract a sufficient amount of students to the course. It also shows that the initiative group, actual design team and teachers on the course do not need to be the same people, but in all three cases a high level of educational competence and flexibility is still necessary. The figure also draws attention to the role of financial support to the collaboration, which can be expensive and any potential savings may be made only after the pilot implementation.

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### References

- Balling, G. (2015). What is a reading experience? The development of a theoretical and empirical understanding. In L. E. F. McKechnie, K. Oterholm, P. Rothbauer, & K.-I. Skjerdingsstad (Eds.), *Plotting the reading experience: Theory/practice/politics*. Waterloo, Canada: Wilfried Laurier University Press.
- Balling, et al. (2014). Balling, G., Dahl, T. A., Mangen, A., Nilsson, S. K., Lund, H., & Höglund, L. E-bogen: Skandinaviske perspektiver på forskning og uddannelse. *Nordisk Tidsskrift for Informations vidensk ab Og Kulturformidling*, 3(1), 5–19.
- Bergström, et al. (2017). Bergström, A., Höglund, L., Maceviciute, E., Nilsson, S. K., Wallin, B., & Wilson, T. D. *Books on screens: Players in the Swedish e-book market*. Göteborg: Nordicom. Retrieved from: <http://www.nordicom.gu.se/sv/publikationer/books-screens>
- Biggs, J. B., & Collis, K. F. (1982). *Evaluating the quality of learning: the SOLO taxonomy (Structure of the observed learning outcome)*. New York: Academic Press.

- Bloom, B. S. (1956). *Taxonomy of educational objectives: the classification of educational goals: Book 1 Cognitive domain*. New York: McKay.
- Dahlström, M. (2013). Wet feet. In A. Frenander & S. K. Nilsson (Eds.), *Libraries, black metal and corporate finance: Current research in Nordic library and information science* (pp. 169–182). Retrieved from: <http://hb.diva-portal.org/smash/get/diva2:883968/FULLTEXT01.pdf>
- Dahlström, M., & Doracic, A. (2009). Digitization education: Courses taken and lessons learned. *D-Lib Magazine*, 15(3/4). <https://doi.org/10.1045/march2009-dahlstrom>
- Darnton, R. (1991). *The Kiss of Lamourette: Reflections in cultural history*. New York, NY: W. W. Norton & Company.
- Forskrift (2012). Forskrift om studier og eksamen ved Høgskoleni Oslo og Akershus. Oslo: Kunnskapsdepartementet. Retrieved from <https://lovdata.no/forskrift/2012-06-26-718>
- Mangen, A. (2016). The digitization of literary reading. *OrbisLitterarum*, 71(3), 240–262. <https://doi.org/10.1111/oli.12095>
- Mangen, A., & Weel, A. van der (2015). Why don't we read hypertext novels? *Convergence: The International Journal of Research into New Media Technologies*, <https://doi.org/10.1177/1354856515586042>
- Marshall, C. C. (2010). *Reading and writing the electronic book*. San Rafael, CA: Morgan and Claypool.
- Murray, P. R., & Squires, C. (2013). The digital publishing communications circuit. *Book 2.0*, 3(1), 3–23. [https://doi.org/10.1386/btwo.3.1.3\\_1](https://doi.org/10.1386/btwo.3.1.3_1)
- Skinner et al. (2014). Skinner, K., Lippincott, S., Speer, J., & Walters, T. (2014). Library-as-publisher: Capacity building for the library publishing subfield. *Journal of Electronic Publishing*, 17(2). <https://doi.org/10.3998/3336451.0017.207>
- Thompson, V. (2014). Graduate programs in publishing: Are they worth it? *Journal of Electronic Publishing*, 17(2). <https://doi.org/10.3998/3336451.0017.204>
- Weel, A. van der (2011). *Changing our textual minds: Towards a digital order of knowledge*. Manchester: Manchester University Press.
- Wolf, M. (2007). *Proust and the squid: The story and science of the reading brain*. New York, NY: Harper Collins.

## **Student perceptions of LIS programs and profession: Study among undergraduates in Croatia and Turkey**

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### **Abstract**

Library and Information Science (LIS) is a discipline in flux, therefore LIS education has been in transformation for quite a long time. It is a time for change and there is no doubt that change requires making strategic decisions across the discipline and LIS education is not an exception. Strategic decisions are to be taken based on data collected from related stakeholders. The aim of this paper is to explore student perceptions of LIS profession and LIS programs, as well as their motivations for enrolling in these programs, their career plans and expectations. Survey by questionnaire was conducted among final year undergraduate students at the Department of Information Management of Hacettepe University, Turkey and Department of Information Sciences at Faculty of Humanities and Social Sciences, University of Osijek, Croatia. The data was collected from 69 questionnaires. Some similarities as well as differences were detected between the two student groups. Students from both countries believe that LIS profession plays an important role in the society (and will remain so in future) but that it does not enjoy high public status and is not financially rewarding. Students are generally satisfied with their choice of profession (although for a significant number of students LIS degree was not their first choice), the majority would recommend it to their friends and they are quite optimistic about employment opportunities. Dissatisfaction with their LIS program lies in most cases in insufficient amount of IT courses and practical training. Almost half of the Turkish students had some LIS related work experience prior to embarking on their studies unlike Croatian students. Two words (information and libraries) that first come to majority of students' mind when they think of LIS profession were the same for both group. Both groups of respondents agreed that LIS profession is interdisciplinary and disagreed that it is a female profession.

**Keywords:** LIS education, LIS profession, undergraduate students, perception, career plans, Croatia, Turkey

### **Introduction**

Today, in Library and Information Science (LIS) education, there is a trend towards an increasing focus on information technologies (an inevitable result of massive technological advances), users' perspectives, and multi-disciplinarity (Cronin 2007). There are new career opportunities for LIS graduates as new positions are opening up in areas such as knowledge management, information architecture (Cherry, Duff, Singh & Freund 2011), research data management and digital humanities. While LIS education is transforming, the debate over the education is intensifying. Strategic decisions such as the changes in the structure, scope and focus of individual LIS schools/programs require not only a careful examination of literature regarding the flux in the discipline, but also data collected from related stakeholders (such as employers, LIS students, graduates, and professors).

Undoubtly, students are one of the key stakeholders, and their opinions, perceptions, needs and expectation should be taken into consideration for education related decisions. Therefore, research on LIS education should also be devoted to student perceptions.



## Literature Review

Existing research on LIS students mainly focus on students' perceptions of the LIS programs they enrolled as well as the profession in general, their motivations for enrolling in LIS programs, their career goals and expectations.

In their review Cherry et al. (2011) claim that "the literature presents a mixed view of perceptions of the information professions and LIS programs, and raises more questions than it answers" (p. 122). In this part of the paper a short summary of the literature will be provided.

In her study on the students of University of California-Berkley, Van House (1988) investigated the reasons of student enrollment in an LIS graduate program along with their work and salary expectations. Findings indicated that 81% of the students chose to pursue a LIS degree because they like the idea of working in a library. Interestingly, students underestimated the salaries they would earn.

Tiamiyu, Akussah, and Tackie (1999) studied students of the Department of Library and Archival Studies at the University of Ghana. They examined the changes in students' motivations and perceptions. According to their findings, younger students' perceptions of the profession had risen while archival students' estimations of career prospects reduced.

In another survey Berry (1999) asked students from North American LIS schools to assess their program. Students rated their programs highly for various aspects such as course content, quality of the faculty, and preparation for a library career. On the other hand, respondents' comments indicated concerns regarding overemphasis on technology and theory as opposed to practical library skills.

A survey conducted by Ard et al (2006) at the University of Alabama found that 89% of students had decided to pursue their graduate degree in LIS while they were in college and 34% indicated that their decision was influenced by an individual such as a mentor, professor, coworker or friend. Only 3% of students indicated that LIS was the profession of their dreams. The main reason for their choice was their expectation to find an interesting job. Findings indicated that LIS students believe librarians earn low salaries.

A Canadian study found relatively low levels of program satisfaction among LIS students. While 68% of students were satisfied with overall program quality, only 46% agreed that their program was providing them with an understanding of a career in the information profession. The most common suggestion offered for program improvement was more practical training (Cultural Human Resources Council 2006).

Findings of a study of the graduates from North Carolina LIS programs indicate that 86% of recent graduates agreed that their programs provided them a realistic understanding of what it is like to have a career in the information field (Workforce Issues 2008).

In her study Shannon (2008) found out that employability and career flexibility were the primary factors for the choice of school librarianship as a future career.

A survey conducted among Nigerian LIS students (Issa & Nwalo 2008) found that only 42% listed LIS as their first choice of study. Prior work experience in libraries was the most common reason for choosing LIS (38%).

Taylor et al. (2010) surveyed to find out about the motivations of MLIS students for choosing a library career. 76% students indicated that job function was the primary motivator.



Singh and Chander (2013) studied sources of motivation and factors that influenced career choice of LIS students in North India. Findings indicated that majority of respondents choose the LIS profession because of employment opportunities.

Kundak (2017) investigated final year LIS students' motivations for enrolling in LIS programs, perceptions of LIS profession and LIS program they enrolled. Employment opportunities and influence of an individual (mentor, professor, family or friend) were the major factors behind their choice of profession. Majority of students had decided to pursue their LIS degree at the time they had to make a choice based on their university entrance exam scores. Findings indicated a poor view of the profession's reputation and prestige. About half of the students agreed that practical part of the education programs needs to be improved.

As a conclusion, students seem to enroll in LIS programs because of the employment opportunities, despite low expectations of salary and professional status in society. Levels of student satisfaction with their programs are not consistent and there are concerns about the practical aspects of programs.

### **The Study Context**

The study was conducted at the Department of Information Management, Hacettepe University, Ankara, Turkey and at the Department of Information Sciences, Faculty of Humanities and Social Sciences, Osijek University, Croatia.

The Department of Information Management of Hacettepe University was founded in 1972 and it became an iSchool in 2015. In the academic year 2017/2018 there are 21 faculty (including 4 post-docs and 4 research assistants) and 477 students (372 undergraduate, 74 graduate, 31 doctoral students). The names and average lengths of the degree programmes offered by the Department are as follows: undergraduate studies leading to a Bachelor degree in Information Management (4 years); Master studies leading to a Master degree in Information Management (2 years) and Doctoral studies leading to a doctor of philosophy degree (Ph.D.) in Information Management (4 years). All programs can be studied only full-time, and there are no specialization tracks. The undergraduate program of the Department consists of a year-long English Language Preparatory School followed by elective and compulsory courses in the four-year program. The language of instruction is at least 30% English. In order to enter the undergraduate program a sufficient score must be obtained from Undergraduate Placement Examination. Applicants for graduate programs are required to provide sufficient scores from Postgraduate Education Entrance Exam and a Foreign Language Exam (English). There is an increasing demand for the graduate programs from students who have different backgrounds (such as computer engineering and education). A large portion of undergraduates find placements with their Bachelor degree, so most of the graduate students at the Department are already working. Graduates of the Department find jobs in information centers, libraries, archives, documentation centers. In addition, graduates can find positions at various organizations dealing with database design and management, indexing and abstracting services, softwares companies, news agencies, publishers and research & development centers. Alumni have a chance to utilize current job opportunities such as information architecture, web designer, usability expert, etc.

There are a total of 72 courses in the program. To complete the bachelor's degree in the Department, students must successfully complete required and elective courses (138 credits / 240 ECTS). 55% (72 credit) of courses are required and 45% (66 credit) are elective. Undergraduate curricula of the Department is based on a conceptual model of education for information management having seven

components which was developed by the Department's Academic Board in 2009 to identify the core subjects to teach. Seven components of the curricula are namely (Tonta 2012):

- *Foundations of Information Management* (information theory, cognitive sciences, libraries, archives and museums as social institutions, the philosophy and history of libraries, terminology, professional ethics, etc.),
- *Organization of Information* (information analysis, cataloging, classification, indexing, categorization, abstract metadata, thesaurus construction, folksonomies, information retrieval, DBMS, document/content management systems, etc.),
- *Information Systems Design* (systems analysis, information systems, web interface design and evaluation, information architecture, programming, software development, image processing, document engineering, data mining, etc.),
- *Management* (information centers, collection management, human resources management, organizational behavior, cooperation, legal issues, law, information policies, security, privacy, standards, etc.),
- *Research* (research methods, statistics, information literacy, scholarly communication, resource use, writing reports, etc.),
- *Resource-centric Information Management* (discovery, finding, selection, collection, acquisition, organization, storage, use, digitization, preservation, evaluation, archiving, weeding of information sources, information technologies, etc),
- *Relationship-centric Information Management* (identification of users' information needs, user groups, user types, human factor, information seeking behaviors, communication, reference services, recommendation services, marketing, information brokerage, usability, social networks, social informatics –information sharing, tagging, etc.).

The Department of Information Sciences at University of Osijek was established in 1998, originally under the name Department of Librarianship. In the academic year 2017/2018 it employs 19 teachers (including 5 post-docs and 3 research assistants) and caters for the population of 168 students (110 undergraduate and 58 graduate). It offers accredited undergraduate (3 years) and graduate study (2 years) programs in Information Sciences. Both undergraduate and graduate programs can be studied only full-time. In order to enter the undergraduate program a sufficient score must be obtained from Undergraduate Placement Examination and a solid GPA from secondary school is required. The majority of undergraduate students pursue a graduate degree because prospects of finding a job with Bachelor degree are not good. The graduate students can choose to study any combination of two of the following study fields/specializations: Information Sciences, Publishing and Information Technology. The majority of graduate students are recruited from the pool of the Department's undergraduate students because the enrollment of graduate students from other disciplines is almost non-existent due to formal enrollment requirements. Applicants for graduate programs are selected based on their GPA at undergraduate level. Unfortunately, recently the criteria of 3.5 GPA was removed (to coordinate entrance requirements with other Croatian LIS departments) so the Department cannot be too picky about the students it accepts. Majority of undergraduates pursues a graduate study program immediately after graduating, without any substantial work experience in LIS field. Graduates from this Department find placements in traditional environments such as different types of libraries but also in the growing IT sector and to a lesser degree in publishing industry.

The undergraduate and graduate programs in Information sciences offered by the Department educates contemporary profiles of multidisciplinary professionals who can work in information institutions, but also in e-learning, e-publishing, e-management and e-economy. Students are educated to mediate and participate in the selection, acquisition, organization, preservation, evaluation and use of different information sources and documents of different types. Study programs introduce students to the nature of information work, missions of different information institutions and the ways they provide service

within the global information infrastructure. Students learn about similarities and differences among different information professions, and specific conditions for their work and collaboration in the changing information society. Students are educated to use and produce quality information sources, services and products, develop web services and understand diverse needs and habits of users, based on their knowledge of the organization and mediation of information and IT skills. Graduate program in Information technology educates students for flexible application of IT in different contexts (public and private sector) in line with diverse user needs with ultimate aim to help tackle the problems of digital society. Students are motivated to develop and apply IT innovative solutions, products and services. Students learn to analyze, develop, manage and maintain information systems. Graduate program in Publishing educates students to understand and develop publishing as an activity which enables free flow of knowledge and information, to develop and advance publishing processes and products by implementing new knowledge and skills, to disseminate national heritage and science in print, web and mobile platforms.

## **The Study**

The aim of this study was to understand how do undergraduate LIS students at two European universities (in Turkey and Croatia) perceive their study programs and profession in general, and to gain insight into their motivations for enrolling in LIS program and their career goals and expectations.

The study tried to answer the following research questions:

1. How do students perceive LIS profession?
2. Why do students choose to study LIS?
3. How do students perceive their study program?
4. What are the students' career goals and expectations?

## **Methodology**

The data was gathered with the help of quantitative methodology (a survey by print and online questionnaire). A self-administered print survey (in Turkish) was distributed to final year (4<sup>th</sup> year) undergraduate students enrolled at Hacettepe University, Turkey (N=60). A link to an online questionnaire (in English) was forwarded to final year (3<sup>rd</sup> year) undergraduate students enrolled at University of Osijek, Croatia (N=26). Both questionnaires were completed in March 2018. The survey was piloted with several randomly chosen respondents (from both Departments). After this, several minor changes were made, such as the change in the wording of some questions. The questionnaire consisted of 41 closed, open, multiple choice and Likert-like scale type of questions<sup>1</sup>. The survey questions covered the following thematic areas:

- questions related to social and demographic information about students (gender, age, LIS related work experience, LIS professionals among family members);
- questions related to students' perception of LIS profession (characteristics, public image, social role and value to society, importance of specific knowledge and skills and prospects of LIS profession in 20 years);
- questions related to students' motivation (when and why do they choose to study LIS, factors influencing their decision);
- questions related to the students' perception of their LIS program (subject interest, evaluation of different dimensions of study program, preferred title, expected future developments); and

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<sup>1</sup> The questionnaire was informed by an instrument developed in the study by Cherry, J. M., Duff, W. M., Singh, N. & Freund, L. (2011) and hereby we thank the authors of that study for permission.

- questions related to the students' career goals and expectations (job market and expected income).

The questionnaire was anonymous and filled out by 69 respondents (out of the total of 86 students at both Departments), resulting with the total recall of 80.2%. The recall at the institutional level was 88.5% for University of Osijek, Croatia and 76.7% for Hacettepe University, Turkey. Data was analyzed using SPSS software for statistical analysis. Although differences between the groups in the sample (Croatian and Turkish students) could not be statistically tested due to a small number of respondents, the data for two groups of respondents (Croatian and Turkish students) is presented separately so that some general trends and comparative differences could be observed.

### Sample

The study was conducted among the last year undergraduate students enrolled in LIS programs at Hacettepe University (4<sup>th</sup> year students) and at University of Osijek (3<sup>rd</sup> year students).

**Table 1.** Respondents by general characteristics

	%	%
<b>Country</b>	<b>Croatia</b> 33.3	<b>Turkey</b> 66.6
<b>Gender</b>		
female	78.3	60.9
male	21.7	34.8
do not want to disclose	0	4.3
<b>Age Group</b>		
20	8.7	0
21	60.9	0
22	13	23.9
23	8.7	21.7
24	0.0	28.3
25	0.0	8.7
26+	8.7	17.4
<b>LIS related work experience prior to study</b>		
yes	0.0	47.8
no	100.0	52.2
<b>LIS professionals among close family members</b>		
yes	4.3	6.5
no	95.7	93.5

The questionnaire was filled out by a total of 69 respondents: 33.3% from Croatia, 66.6% from Turkey. The largest number of respondents were female students (78.3% in Croatia and 60.9% in Turkey) and those from the age group 21 (60.9%) in Croatia and those from age group 24 in Turkey (28.3%). Unlike Croatian students, almost half of the Turkish students (47.8%) had some LIS related work experience prior to embarking on their studies (mainly in libraries). Very small portion of the sample (4.3% respondents from Croatia and 6.5% from Turkey) indicated that they have a member of a close family (parents, siblings) who are LIS professionals. Table 1 shows the distribution of respondents in relation to their general characteristics.

## Findings

Perception of LIS profession. Students were initially asked to choose three words that first come to their mind when they think of Library and information science (LIS) profession. The majority of respondents, both from Croatia and Turkey, indicated information (87.0 % and 78.3% respectively) and libraries (73.9% and 67.4 % respectively). However, the third most important association is different for Croatian and Turkish students: 43.5% of Turkish students relate LIS profession with knowledge management and 52.2% of Croatian students relate LIS profession with information technology (IT). Although Croatian students relate LIS profession to IT far more frequently than Turkish students, interestingly both groups of respondents relate LIS profession more frequently with IT (52.2% of Croatian students and 23.9% of Turkish students) than with books (8.7% and 21.7% respectively) and culture and cultural heritage (21.7% and 8.7% respectively).

**Table 2.** Top three concepts related to LIS profession

LIS profession	Croatia (%)	Turkey (%)
information	87.0	78.3
libraries	73.9	67.4
knowledge management	17.4	43.5
information technology	52.2	23.9
service provision	4.3	32.6
books	8.7	21.7
culture/cultural heritage	21.7	8.7
education	26.1	6.5
preservation	8.7	4.3
information economy	0.0	6.5

In order to gain deeper understanding of their perception of LIS profession, the respondents were also asked to indicate on scale from 1 through 5 (1-disagree fully, 5-agree fully) the level of their agreement with a number of statements regarding the characteristics of LIS profession (Table 3).

**Table 3.** Characteristics of LIS profession

LIS profession	Mean	
	Croatia	Turkey
interdisciplinary	4.30	4.35
demands continuous updating of knowledge and skills	3.87	4.39
IT intensive	3.91	4.22
has tight connections with education	4.04	4.15
has an important social role	4.04	4.02
deeply related to culture	3.70	4.04
contributes significantly to information economy	3.74	3.98
non-profit	3.43	4.02
innovative and ground-breaking	3.13	3.76
business-related	3.13	3.74
a profit-making sector	2.78	2.35
has a positive public image and enjoys high prestige in public	2.83	2.26
a female profession	2.35	1.78

Both groups of respondents agreed that LIS profession is interdisciplinary (Mean 4.30 and 4.35 for Croatian and Turkish students, respectively), has tight connections with education (Mean 4.04 and 4.15 for Croatian and Turkish students, respectively), and has an important social role regarding democracy, intellectual freedom, multiculturalism, social inclusion, human rights etc. (Mean 4.04 and 4.02 for Croatian and Turkish students, respectively). Similarly, both groups of respondents disagreed with statements that LIS profession is profit-making sector (Mean 2.78 and 2.35 for Croatian and Turkish students, respectively), has a positive public image and enjoys high prestige in public (Mean 2.83 and 2.26 for Croatian and Turkish students, respectively) or is a female profession (Mean 2.35 and 1.78 for Croatian and Turkish students, respectively).

When asked to rate the value to society of several professions (including LIS profession) both groups of respondents placed librarians/information professionals to the very end of the scale: Mean 3.13 (Croatian students) and 3.26 (Turkish students) for librarians/information professionals in non-library environment (industry, banks etc.) and Mean 3.61 (Croatian students) and 3.0 (Turkish students) for those working in traditional library environment, respectively) (Figure 3). Top three professions for both Croatian and Turkish respondents included medical doctors (Mean 4.26 and 4.54), school teachers (Mean 4.04 and 4.11) and lawyers (Mean 3.78 and 4.07), followed closely by web designers/software developers (Mean 3.74 and 3.78). Interestingly, while Croatian students placed librarians/information professionals working in traditional library environment above those working in non-library environment, Turkish students did the opposite (Table 4).

**Table 4.** Value to society of different professions

Professions' value to society	Mean	
	Croatia	Turkey
medical doctor	4.26	4.54
school teacher	4.04	4.11
lawyer	3.78	4.07
web designer/software developer	3.74	3.78
physiotherapist	3.65	3.70
politician	3.39	3.59
social worker	3.83	3.20
journalist	3.48	3.09
librarian/information professional in non-library environment (industry, banks etc.)	3.13	3.26
librarian/information professional in traditional library environment	3.61	3.0

Majority of respondents (52.2% in Croatia and 63.3% in Turkey) thinks that in 20 years from now LIS profession will be more important than today. To a much lesser degree respondents in Croatia and Turkey think it will have the same status (34.8% and 23.9% respectively). Only 13% of respondents, both in Croatia and Turkey, reported that they think it will be less important than now. (Table 5)

**Table 5.** Perception of LIS in 20 years

LIS profession in future	Croatia (%)	Turkey (%)
LIS profession will be more important	52.2	63.0
LIS profession will be less important	13.0	13.0
LIS profession will have the same status	34.8	23.9



Motivation for LIS program.

Only 39.1% of respondents, both in Croatia and Turkey, reported that LIS school was their desired (i.e. first choice) study program when they were selecting your current field of study. The remaining 60.9% originally wanted to study something else, such as art and design, literature and linguistics, computer science, history, law, public administration, political science, education, psychology, pedagogy, physics, sociology etc. Majority of Croatian students, and all Turkish students decided to study LIS last minute i.e. at the end of their secondary education and not long before they had to decide what to study. Only 17.4% of respondents in Croatia reached this decision earlier, i.e. during their secondary education. Despite the fact that the majority of respondents (60.9% in Croatia and 82.2% in Turkey) first heard about the LIS program through word-of-mouth (from family members, friends, teachers, librarians etc.), for none of the respondents the LIS profession was a dream career from childhood. A smaller proportion of respondents (39.1% in Croatia and 17.8% in Turkey) learned about LIS program from the catalogue of the study programs. (Table 6)

**Table 6.** Decision about LIS school

<b>LIS School decision</b>	<b>Croatia (%)</b>	<b>Turkey (%)</b>
not long before I had to decide what to study	82.6	100
during my secondary education	17.4	0.0
in my childhood	0.0	0.0

When asked to explain why they enrolled in the LIS program the majority of Turkish students said that they chose this program because it was recommended to them by their friends, family members etc. (58.7%). Croatian students were, on the other hand, to the largest degree motivated by the diversity of career options within the profession (47.8%). Interestingly, the failure to enroll in the preferred program due to entry requirements (GPA, entrance points etc.) was the second most frequently listed reason for enrolling in the LIS program for both groups of respondents (34.8% for Croatian students and 37.0% for Turkish students). Good job market was a more important motivator for Turkish students (30.4%) than for Croatian (17.4%). Respondents were least frequently attracted to this profession by public image and the status of the profession in the society (13.0% in Croatia and 4.3% in Turkey) and expected compensations and benefits, such as expected income (8.7% both in Croatia and Turkey) (Table 7).

**Table 7.** Motivation for LIS study

<b>Study motivation</b>	<b>%</b>	
	<b>Croatia</b>	<b>Turkey</b>
personal recommendation	21.7	58.7
this was the only study program I could enroll	34.8	37.0
diversity of career options within the profession	47.8	28.3
I like working with computers and new technologies	26.1	34.8
I like books and reading	26.1	32.6
good job market	17.4	30.4
I like working with people	30.4	19.6
nature of the work	21.7	15.2
job security	26.1	13
compensation and benefits	8.7	8.7
public image and the status of the profession in the society	13.0	4.3



Perception of LIS program.

In this section of the survey respondents were asked a number of questions to gain insight into their perception about the specific LIS program in which they are enrolled. The respondents' interest in subjects/specializations offered in their academic programs is shown in Table 8. Turkish students indicated the largest interest for specialization tracks in knowledge management (Mean 3.74), information technology (database development, software development, data mining etc.) (Mean 3.61) and librarianship (Mean 3.61). On the other hand, Croatian students reported the largest interest for knowledge management (Mean 3.78), information technologies (Mean 3.78) and creative industries and publishing (Mean 3.65). The lowest interest by both groups of respondents is recorded for records and archives management (Mean 2.80).

For the majority of respondents (69.6%), both from Croatia and Turkey, the preferred choice of specialization track did not change over the course of their study. However, 30.4% reported that they changed their mind about which specialty track to pursue, and in most case the initial interest in (traditional) libraries was replaced by interest in IT.

**Table 8.** Preferred specialization tracks

Specialization track	Mean	
	Croatia	Turkey
knowledge management	3.78	3.74
information technology	3.78	3.61
librarianship	3.26	3.61
digital humanities	3.43	3.37
data science (research data management)	3.52	3.28
creative industries and publishing	3.65	3.22
museum studies	3.17	3.30
records and archives management	2.83	2.78

Although their arrangement slightly differs, both groups of respondents indicated the following types of knowledge and skills among the most important ones for LIS professionals: information literacy (Mean 4.65), information behavior and retrieval (Mean 4.39 for Croatian students and Mean 4.67 for Turkish students), and IT skills (Mean 4.26 for Croatian students and 4.72 for Turkish students).

**Table 9.** Most important knowledge and skills for LIS professionals

LIS knowledge and skills	Mean	
	Croatia	Turkey
information literacy	4.65	4.65
information behavior and retrieval	4.39	4.67
IT skills	4.26	4.72
knowledge organization and management	4.04	4.54
communication skills (written and spoken)	4.35	4.39
knowledge of practice in the field	4.26	4.37
team work and collaboration skills	4.17	4.37
knowledge of legal issues and ethics	3.83	4.52
knowledge of the theory of information studies	4.39	4.24
knowledge of research design and data analysis	4.13	4.28
interpersonal or "people skills"	4.00	4.33
foreign language	4.39	4.07
problem-solving skills	3.96	4.24

intercultural communication (in multicultural society)	4.22	4.11
project management skills	3.65	4.37
marketing and fundraising skills	3.74	4.02
management and entrepreneurial skills	3.70	3.98
leadership skills	3.65	3.80
pedagogical knowledge and skills	3.65	3.78
ability to work under pressure	3.57	3.67

While Turkish students rated highly also the knowledge of legal issues and ethics (Mean 4.52), Croatian students gave more preference to the knowledge of the theory of information studies (Mean 4.39). On the other hand, ability to work under pressure, management and entrepreneurial skills, leadership skills, and pedagogical knowledge and skills were reported among the least important. Full list is shown in

The relationship between faculty members and students (Mean 4.09 and 3.87, for Croatian and Turkish students respectively) was indicated by both groups of respondents as the best dimension of their LIS programs. Turkish students also rated highly the overall quality of their program (Mean 3.78) and quality of academic advising (e.g. information on degree requirements) (Mean 3.67). On the other hand Croatian students rated highly the amount of practical training (Mean 3.52) and range and number of core courses (Mean 3.48) in their program. Both Croatian and Turkish students were least satisfied with the range and number of elective courses (Mean 2.96 and Mean 3.13 respectively) and quality of career advising (Mean 3.22 and 3.02 respectively). Turkish students, in addition, rated poorly the amount of practical training in their study programs (Mean 2.52) while, on the other hand, Croatian students were poorly satisfied with the amount of IT courses (Mean 3.13) in their program (Table 10).

**Table 10.** Dimensions of LIS programs

LIS program dimension	Mean	
	Croatia	Turkey
relationship between faculty members and students	4.09	3.87
overall quality of the program	3.35	3.78
quality of the academic advising	3.35	3.67
range and number of core courses	3.48	3.33
preparation for a professional career	3.35	3.28
teaching methods and pedagogical approach	3.30	3.09
amount of IT courses	3.13	3.09
quality of the career advising (e.g. information about employment opportunities)	3.22	3.02
range and number for elective courses	2.96	3.13
amount of practical training	3.52	2.52

The majority of respondents in both groups believe that the education of future LIS professionals should include more practical training than instruction (65.2% for Croatian students and 56.5% for Turkish students). Slightly over one third of respondents, both in Croatia and Turkey (34.8% and 37.0% respectively) indicated that equal amount of instruction and practical training is required. Only 6.5% of Turkish students think that more instruction than practical training should be included in the LIS programs.

In line with data in Table 1 (the make-up of the sample), but in contrast to the data in Table 3 (LIS as female profession), 82.6% of respondents in Croatia and 93.5% in Turkey reported that there are more

female students in their Department. Much smaller proportion, both in Croatia and Turkey (17.4% and 6.5% respectively) indicated that both genders are equally represented. (Table 11)

**Table 11.** Gender distribution at Departments

Gender distribution	%	
	Croatia	Turkey
more female students	82.6	93.5
both genders are equally represented	17.4	6.5
more male students	0.0	0.0

During their studies, a larger proportion of respondents in Turkey than in Croatia attended a professional or scholarly conference (97.6% and 44.4% respectively%). However, a larger proportion of Croatian students presented a paper, poster etc. at such an event (77.8% for Croatian students and 22.0% for Turkish students). While Turkish students reported more frequently that they hold membership in professional associations (e.g. ASIS&T or national professional association), Croatian students reported more frequently that they have spent some time abroad in a student exchange program (e.g. Erasmus program, international summer schools). (Table 12)

**Table 12.** Students activities

Student activities	%	
	Croatia	Turkey
attended a professional or scholarly conference	44.4	97.6
presented a paper, poster at a conference	77.8	22.0
hold a membership in professional association	11.1	26.8
spent some time abroad in a student exchange program	22.2	14.6
had one or more papers accepted for publication as sole author or co-author	11.1	4.9

A total of 82.6% of respondents in both study groups indicated that their academic program was a discipline based i.e. academic, meaning that it provides them with competences required for a work in wide range of institutions of which libraries are just one subset. 17.4% reported that their academic program was vocational i. e. profession-centred and that it prepares them for a specific vocational position e.g. a librarian. Ultimately, when asked whether their LIS program provides them with a realistic understanding of what it is like to work in the information field, 47.8% of Turkish and 43.4% of Croatian respondents agreed, while 13.1% in Turkey and 8.7% in Croatia disagreed. The remaining 39.1% (Turkey) and 47.8% (Croatia) neither agreed nor disagreed.

When asked about the preferred title they would like to be given after graduation, the largest majority of respondents (69.6%) from Turkey indicated information manager. In contrast, only 17.4% respondents from Croatia chose this option. Information specialist was the title with highest response rate among Croatian students (60.9%). Interestingly, in both countries information specialist was given the same level of preference. This was followed by librarian (47.8% in Turkey, 26.1% in Croatia), digital librarian (41.3% in Turkey, 26.1% in Croatia) and information architect (41.3% in Turkey, 13.0% in Croatia). Less than a quarter reported the following preferred titles: web designer (26.1% in Turkey, 24.8% in Croatia), software developer (13.0% in Turkey, 30.4% in Croatia), data librarian (21.7% in Turkey, 8.7% in Croatia) and data curator (8.7% in both Turkey and Croatia).

When asked about their plans after graduation, 71.4% in Croatia and 56.8% in Turkey reported that they would seek employment in this field. Only 4.85% respondents in Croatia and 13.6% in Turkey indicated

that they would seek employment in another field. Much smaller proportion of respondents reported that they would pursue further education in this or another field. (Table 13)

**Table 13.** Plans after graduation

Post-graduation plans	%	
	Croatia	Turkey
Seek employment in this field	71.4	56.8
Seek employment in another field	4.8	13.6
Pursue education in this field	4.8	18.2
Pursue education in another field	11.4	11.4

Finally, in this section respondents were asked about direction in which they think their Department and LIS program should move in future. As shown in Table 14, the majority of respondents both in Croatia and Turkey thinks that in the program more emphasis should be given to professional work and practical experience (91.3% and 71.7% respectively), information technology (69.6% and 63.0% respectively) and greater integration of different areas of studies/departments such as archives, information science, library science, communication, computer science, marketing, business studies, history etc (47.8% and 65.2% respectively).

**Table 14.** Future directions for LIS programs

Future directions for LIS program	%	
	Croatia	Turkey
more emphasis on professional work and practical experience	91.3	71.7
more emphasis on information technology	69.6	63.0
greater integration of different areas of studies/departments	47.8	65.2
more joint and collaborative programs with other departments	34.8	52.2
increased offerings via distance education (web-delivered courses)	26.1	41.3
more emphasis on student research and thesis	26.1	28.3
recruitment of faculty members from a broader range of disciplinary backgrounds	8.7	26.1
increasing the size of the school by hiring more faculty members and accepting more students	4.3	10.9
more emphasis on theoretical foundations	0.0	2.2

Career perception and expectations. A total of 60.9% respondents in Croatia and 58.7% in Turkey are satisfied with their choice of (LIS) profession/career, and would chose the same program again, because (as explained in an open ended question) they believe it offers them a wide array of job opportunities/career choices and they think that they stand a good chance to find a job because they obtained diverse knowledge (interdisciplinarity). On the other hand, 39.1% of respondents in Croatia and 43.5% in Turkey who would not pursue the same studies (LIS program) if they could choose again elaborated (in an open ended question) that they are confused about their career options, they expected more IT courses and IT intensive practical training, and in their opinion too much emphasis in the program was placed on librarianship. Several respondents reported that they are not satisfied with the (LIS) profession because it was not their first choice career and they are not interested in this kind of profession.

A total of 56.5% of respondents in Croatia and 73.9% in Turkey reported that their perception of LIS profession changed since they started their studies, and they further explained that the change was in most cases a positive one. Before the study they didn't even know what was LIS about and during their study program they realized that the field is much more complex, wider and diverse than they initially thought, it is more IT intensive than they thought and the job opportunities are wider. Those who indicated that their perception of LIS profession became more negative, reported that they find it dull and too often limited only to librarianship. For 43.5% of respondents in Croatia and 26.1% in Turkey the perception of LIS profession did not change since they started their studies. 87.0% of respondents in Croatia and 58.7% in Turkey would recommend LIS profession to their friends because, in the words of several respondents: "Anyone can find something that they like in LIS, like I did.", and "It is interesting and there are many fields so almost everyone can find something they like."

Overall, the majority of respondents in both countries (60.9% in Croatia and 65.2% in Turkey) think that their study program prepared them well for a professional career. Only 17.4% in Croatia and 4.4% in Turkey disagree on this, and 21.7% in Croatia and 30.4% in Turkey neither agree nor disagree. While 30.4% of respondents in both countries think that the job market for librarians and information professionals is poor (they think that they will not be able to find a job), 8.7% in Croatia and 6.5% in Turkey think it is good (they believe that they will not have any problems in finding a job).

However, the largest portion of respondents (60.9% in Croatia and 63.0% in Turkey) reported that the finding the job will not be too problematic. Also, 47.8% in Croatia and 37.0% in Turkey believe that their income and benefits, if employed in LIS profession, will be satisfactory and sufficient to cover their living cost. 17.4% in Croatia and 30.4% in Turkey disagree with. About a third in both countries (34.8% in Croatia and 32.6% in Turkey) does not have an opinion on this issue.

In the final question, students had an option to comment on any aspect of their study program or the information profession that they think may be of interest to this study, and which was not covered by the survey. Received comments referred mainly to a demand to increase the amount of practical training (internships), introduction of online courses and the separation of different specialization tracks (e.g. library and IT track) so that students can focus on their preferred area of specialization.

## **Concluding discussion**

LIS Profession.

The results show that, in comparison with Turkish respondents, students in Croatia are younger and do not have any LIS related work experience prior to enrolling into the LIS program. Both Croatia and Turkey perceive LIS as highly interdisciplinary, IT intensive profession with tight connections with education and culture. They also believe that it has an important social role regarding democracy, intellectual freedom, multiculturalism, social inclusion, human rights etc.

Although the number of female students is predominant at both departments, respondents do not think that it is a female profession. Also, majority of respondents does not see LIS profession as belonging to a profit-making sector. Both Croatian and Turkish students agree that LIS profession does not have a positive public image. With respect to the occupational prestige, respondents on average rate the status of the profession within society low.

Nevertheless, majority of respondents in both countries is optimistic about the future of LIS profession and they believe that it will be more important in 20 years than it is now.

## LIS programs.

More than half of the respondents from both countries admitted that degree in LIS was not their first choice and none dreamed about becoming a librarian/information professional since their childhood. When asked to explain why they chose to enroll in this program the respondents from Turkey reported most frequently personal recommendation of a family member, friend or teacher. Croatian students, on the other hand were most frequently motivated by diverse employment opportunities. While professional image and status within the society, along with expected compensations and benefits (e.g. expected income), were reported least frequently as motivational factors for pursuing the LIS program, the failure to enroll in the preferred program was the second most frequently listed reason for enrolling in the LIS program for both groups of respondents. The study asked respondents to indicate their potential interest in different subjects/specialization tracks in the program, including knowledge management, information technology, librarianship, digital humanities, data science, creative industries, museum studies and records and archives management. Both groups of respondents indicated the highest interest for knowledge management and information technology (database development, software development, data mining etc.). While in Turkey, librarianship attracted the same level of interest as these two tracks, in Croatia the respondents indicated creative industries and publishing as the third most popular specialization. For the majority of respondents, both from Croatia and Turkey, the preferred choice of specialization track did not change over the course of their study. The lowest interest, by both groups of respondents, was reported for museum studies and records and archives management.

Furthermore, respondents were asked to rate the importance of various areas of study in their program. They rated information literacy, information behaviour and retrieval and IT skills, as the most important areas of study, and leadership skills, pedagogical knowledge and skills, and ability to work under pressure as the least important. The findings suggest that, in relation to the best dimensions of their LIS programs, respondents are highly satisfied with the relationship that they have with their teachers. While Turkish students also rated highly the overall quality of their program and quality of academic advising (e.g. information on degree requirements), Croatian students rated highly the amount of practical training and range and number of core courses in their program. Both Croatian and Turkish students were least satisfied with the range and number of elective courses and quality of career advising. The majority of respondents in both groups believe that the education of future LIS professionals should in general include more practical training than instruction, which is in line with the findings of similar previous studies.

## LIS Career.

In general, findings indicate that majority of respondents are satisfied with their choice of profession/career and that they would recommend it to their friends because it is wide and diverse area, although LIS degree was not their first choice. While some respondents reported that they initially had only a vague idea about what LIS actually was, the perception of the field and the profession by the majority of respondents improved over the course of their studies. Finally, respondents are relatively optimistic about their employment opportunities (although finding a job might take some time). This is also in line with the findings of similar studies.

The aim of this paper was to share data collected in the first phase of multi-national study which investigated students' perceptions of LIS profession and LIS programs. In the paper only a portion of the preliminary results were presented, namely data collected from a small group of last year undergraduate students at two LIS departments in Croatia and Turkey. This localized snapshot of mixed views of student perceptions raises many questions and cannot be readily applied to other contexts.



Since educational experience for LIS students differs among different countries, and sometimes even across one country, a larger study is under way which will include more students (both at undergraduate, graduate and postgraduate level) and students from other LIS departments across Europe. This approach will hopefully, remove limitations recognized in this study and contribute towards a more complete understanding of this phenomena at European level.

## References

- Ard et al. (2006). Ard, A., Clemmons, S., Morgan, N., Sessions, P., Spenser, B., Tidwell, T., & West, P. J. Why library and information science? The results of a career survey of MLIS students along with implications for reference librarians and recruitment. *Reference & User Services Quarterly*, 45, 236–248.
- Berry, J. N. (1999). Students sound off about their schools. *Library Journal*, 124(18), 46–48.
- Cherry et al. (2011). Cherry, J. M., Duff, W. M., Singh, N. & Freund, L. Student perceptions of the information professions and their master's program in information studies. *Library & Information Science Research*, 33, 120-131.
- Cronin, B. (2007). Educational pluralism for a diversifying profession. *Education for Information*, 25(1), 51–56.
- Cultural Human Resources Council (2006). *Training gaps analysis for librarians and library technicians: Executive summary*. Retrieved from: [http://www.culturalhrc.ca/research/CHRC Librarians and Library Tech TGA-summary-en.pdf](http://www.culturalhrc.ca/research/CHRC_Librarians_and_Library_Tech_TGA-summary-en.pdf).
- Issa, A. O. & Nwalo, K. I. N. (2008). Factors affecting the career choice of undergraduates in Nigerian library and information science schools. *African Journal of Library, Archives & Information Science*, 18(1), 23–31.
- Kundak, N. F. (2017). *Bilgi ve belge yönetimi bölümleri son sınıf öğrencilerinin meslekleri hakkında görüşleri* [LIS final year students' opinions about their profession]. Unpublished master thesis. Ankara, Hacettepe University.
- Shannon, D. M. (2008). School librarianship: Career choice and recruitment. *Journal of Education for Library & Information Science*, 49(3), 210–29.
- Singh, K. P. & Chander, H. (2013). Professional inclination of library and information science (LIS) students of India: A Study of socioeconomic background and career choice factors. *International Journal of Knowledge Content Development & Technology*, 3(2), 5-27.
- Taylor et al. (2010). Taylor, S. D., Perry, R. A., Barton, J. L. & Spencer, B. Follow up study of factors shaping the career choices of library school students at the University of Alabama. *Reference & User Services Quarterly*, 50(1), 35–47.
- Tiamiyu, A. M., Akussah, H., & Tackie, S. N. B. (1999). Changes in perceptions and of archives and library students during training at the University of Ghana. *Education for Information*, 17(4), 295–314.
- Tonta, Y. (2012). Hacettepe Üniversitesi Bilgi ve Belge Yönetimi Bölümü lisans programının güncelleştirilmesi (2009–2011) [Updating the undergraduate curriculum of the Department of Information Management (2009–2011)]. *Türk Kütüphaneciliği*, 26(2), 291–314.
- Van House, N. (1988). MLS students' choice of a library career. *Library & Information Science Research*, 10, 157–176.
- Workforce Issues (2008). Workforce Issues in Library and Information Science. *WILIS short report: Recent graduates, 2001–2005*. Retrieved from [www.wilis.unc.edu/docs/Short\\_Report\\_2\\_-\\_Recent\\_Graduates.pdf](http://www.wilis.unc.edu/docs/Short_Report_2_-_Recent_Graduates.pdf).



## **Information professionals taking charge of their career: attitudes and tools to sail safely on the sea of digital revolution**

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### **Abstract**

Library professionals, after LIS school, have the responsibility to continue developing their professional competencies throughout the whole career. This was the main message conveyed by IFLA CPDWL *Guidelines for Continuing Professional Development: Principles and Best Practices* in 2016. Things are changing in the world of information, and will change more and faster; professionals need to embrace change on a self-directed development route: in other words, they need to take charge of their career. Different actors on the professional development stage contribute to shape LIS professionals in various ways: LIS schools and faculty, professional associations, library organizations and institutions, private stakeholders and international organizations. Yet, the star is the individual: the choices leading to the enhancement of professional competencies are personal. The process continues for the whole working life, its value increasing when it is assessed and validated by third parties. After reflecting on the meaning of professional development in the light of IFLA CPDWL Guidelines, the present paper will examine the right attitude needed, and some of the tools to acquire competencies and skills. Furthermore, it will discuss the use of portfolio as a tool to narrate self-directed, reflective, assessable learning - with a special focus on what is happening in Italy within AIB, the Italian library association.

**Keywords:** continuing professional development (CPD); life-long learning; competencies; portfolios; career development; IFLA CPDWL Guidelines

### **Introduction**

The IFLA CPDWL *Guidelines for Continuing Professional Development: Principles and Best Practices* (Varlejs 2016) put in writing what has been a gradual realization in last years: library professionals are made at LIS schools, but continue developing their professional competencies throughout the whole career: the management of this continuing process is their own responsibility. As the digital revolution changes the world of information faster and faster, professionals need to embrace change on a self-directed development route.

In this scenario, nevertheless, the profession's main goals, as Ranganathan expressed them in his Five Laws (Ranganathan 1931), still hold the mission of libraries is to organize information and mediate it to its potential users. It is still so according to IFLA FAIFE's Code of Ethics: "Librarians and other information workers organize and present content in a way that allows an autonomous user to find the information s/he needs [...] help and support users in their information searching."<sup>2</sup>

Ethic commitment to learner's education connects the library profession with more broadly social goals, as "literacy now extends well beyond into digital and media literacies that include skills [...] to navigate and seek out information online [...], and to be a good citizen in a digital community". (The Mozilla Foundation & Peer 2 Peer University 2012, p. 5.)

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<sup>2</sup> IFLA FAIFE. Freedom of Access to Information and Freedom of Expression. (2012). IFLA Code of Ethics for Librarians and other Information Workers. Retrieved from <https://bit.ly/2JvrcXc>.

Libraries need qualified professionals to pursue their mission, which, beside educating users, includes organizing and preserving knowledge, a task which evolved further since most of the information and knowledge started circulating in a digital format. The mass of data circulating passed the zettabyte barrier (1,000 exabytes) (Gantz & Reinsel 2011) in 2011, and “every day, enough data are being generated to fill all US libraries eight times over [...]” (Floridi 2014). Is it imaginable that libraries – or any other subject – succeed in organizing that data? Is it even desirable? The question is off the mark of the present paper, though it elicits its basic reflection: what effects does the ever-changing nature of information development have on the librarians’ professional development?

Naturally, the digital evolution determines the skills and competencies needed, but, more importantly, its rate determines the professionals’ attitude: things change so fast that sometimes there is just not the time to set up new descriptions of competencies, so the only solution is to swim with the tide.

The paper will reflect on the development of competencies and the professional’s attitude, and move subsequently to some suggestions for tools to keep on course.

## Overview

The professional development landscape.

Defining professional competencies implies focusing on different perspectives: what they are, which ones are needed for specific jobs, who is in charge of determining and assessing those necessary for a specific profession. Competencies, in the personal-psychological sphere, are made of skills, knowledge, attitudes. Extremely meaningful when sketching job profiles, they are not about possessing knowledge, rather about using knowledge on the job and giving evidence (Tammaro 2015). Schmidt et al. (2016) recently pointed out that *according to the European e-Competency Framework (e-CF) competency is the ‘demonstrated ability to apply knowledge, skills and attitudes to achieve observable results’*. Hence, *a competency is not a skill; on the contrary, a competency embeds skills*. As Lorrinan (1997, pp. 48–49) underlines, thinking of job description is rather restrictive, it fails to take into account transversal competencies which might be most useful to the organization. Competencies are not just specialized, technical skills, and competent employees are of paramount importance to guarantee a quality service.

Technical skills and competencies needed to become a librarian are acquired, in the first place, at Library and Information Science (LIS) academic programs- though here we will not describe them<sup>3</sup>, but simply discuss about their assessment. An IFLA research showed that professionals worldwide wish for an international scheme allowing comparison of LIS education in various countries (Tammaro & Weech 2008) – though not a rigid framework, but rather a tool to underline trends.

As the job market and the society are continuously changing, so competencies cannot be possibly fixed in time, but need to be ready to adapt to the fluctuations of the market and the varying needs of libraries and the information society. “It is not enough to have a formal education once in your life, but you have continuously to update, to renovate your competencies. These are the new labour market needs and a new role for library associations.” (Tammaro 2015) An international recognition requires that international organizations be in charge: IFLA can help professional associations develop and harmonize standards.

The European commission is concerned with international recognition and professional mobility within its boundaries, recognizing that the “lifelong learning perspective, where people acquire new and more

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<sup>3</sup> Since this Symposium is about Education in Information Science, it seemed superfluous to describe those competencies in detail.

relevant competencies throughout their lives, is more evident than ever” (European Commission 2017). ECVET<sup>4</sup> and EQF<sup>5</sup> consist respectively in (1) a set of descriptors of learning outcomes and (2) a system of validation for vocational education. Developed to allow mobility within the EU, they describe professional competencies, enabling their comparison over different countries. These tools help in the effort to define standards at national level and for specific professions – though they are not specifically aimed at LIS.

Specific competencies of information professionals are defined – among others – by the American Library Association (ALA),<sup>6</sup> by the Australian Library and Information Association (ALIA),<sup>7</sup> by the Chartered Institute for Library and Information Professionals (CILIP) – though their Professional Knowledge Skills Base<sup>8</sup> is available to members only. Specific competencies for research librarians are discussed by Schmidt et al. (2016) and hint at the e-CF,<sup>9</sup> a standard published by CEN and therefore not available on open access, as, for Italy, are the UNI 11535:2014 for librarians and UNI 11536:2014 for archivists. In Italy, nevertheless, the Osservatorio Formazione<sup>10</sup> of the Italian Library Association (AIB) outlined seven areas of expertise for professional development, published online and juxtaposed with the UNI areas.<sup>11</sup>

As far as we can see, the above-mentioned tools are prospective rather than prescriptive, they show trends rather than drawing lines. The evolution is ongoing, therefore being too precise is counterproductive, particularly when speaking of the management of digital information. To put it in the words of Schmidt et al. (2016)

“On the one hand, libraries are at the forefront of the digital transformation and digital information infrastructures, on the other they manage and curate cultural heritage collections. This brings about new ways of engagement with information and knowledge and the need to rethink skills and competency profiles - which enable librarians to support e-research all along the research cycle.”

Technological change causes a continuing development, to be met with a life-long learning attitude. It “is likely that most children entering primary school today will end up working in new job types that do not yet exist” and that coping with this “will require a massive investment in skills and a major rethink of education and lifelong learning systems” (European Commission 2017). The traditional tasks of the librarian will be enriched with new skills in response to technological development. In such a situation, it could be more productive to think about trends: see for example, the emergence of the Digital

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<sup>4</sup> The European Credit system for Vocational Education and Training (ECVET): Education and training, European Commission. Retrieved 5 March 2018, from <https://bit.ly/2JRFLDT>.

<sup>5</sup> European Commission. Descriptors defining levels in the European Qualifications Framework (EQF) - Learning Opportunities and Qualifications in Europe. Retrieved 5 March 2018, from <http://ploteus/en/content/descriptors-page>.

<sup>6</sup> ALA. (2012, October 22). Library Competencies [Text]. Retrieved 7 June 2018, from <https://bit.ly/218xdtX>, where standards varying according to diverse libraries and roles are made publicly available.

<sup>7</sup> The Library and Information Sector: Core Knowledge, Skills and Attributes | Australian Library and Information Association. (s. a.). Retrieved 7 June 2018, from <https://bit.ly/1IpNKi3>. The focus here is on outlining the core competencies.

<sup>8</sup> Using the Professional Knowledge and Skills Base | CILIP. Retrieved 13 June 2018, from <https://bit.ly/2JHIWdF>.

<sup>9</sup> CEN: European Committee for Standardization. (2016). *e-Competence Framework (e-CF) - A Common European Framework for ICT Professionals in all industry sectors - Part 1: Framework* (Standard No. EN 16234-1:2016). Retrieved from <https://bit.ly/25KODxN>.

<sup>10</sup> It could be translated as Professional Development Monitor, a body within the Library association specifically dedicated to Professional development.

<sup>11</sup> AIB. (2015). Tabella di corrispondenze Aree formative AIB e Aree di attività Norma UNI 11535 - AIB Wiki. Retrieved 7 June 2018, from <http://wiki.aib.it/form:tabella>.

Humanities librarian, whose job descriptions include “demonstrated ability and interest in exploring and evaluating emerging technologies in support of digital humanities, and a willingness to remain current with changing technology and its applications” (Schmidt et al. 2016, p. 6).

The issue is not how digital developments are going to influence the form of *e-education*<sup>12</sup>, rather “what” to teach, what competencies will be needed by those who will do jobs that do not even exist yet. Digital savvy curators of information will need to understand “the languages through which information is created, manipulated, accessed and consumed [...]” not only English but also “mathematics, programming, music, graphics and all the languages necessary to understand critically the accessible information, and share it with others” (Floridi 2014). Preserving information is becoming crucial – without memory we would fall back into a *digital prehistory* - yet increasingly difficult for the nature of information itself. Websites age and are rewritten – therefore erased – and storage tools have a limited lifespan. The first ever web page at CERN had to be recreated on purpose when it was time to celebrate its twentieth anniversary, as it no longer existed. As the amount of storage space is finite, erasing is as important as preserving. Big data and learning machines will help us in the task but competent professionals will be crucial.

Another interesting view of the digital job market comes from the NESTA report *Creativity vs. Robots* (Bakshi 2015), according to which “creative occupations are more future-proof to technologies like machine learning and mobile robotics. In the US, 86 per cent of workers in the highly creative category are found to be at low or no risk of automation. In the UK, the equivalent number is 87 per cent.” Routine, repetitive tasks can be easily replaced by machines, whereas complex tasks involving social abilities or artistic creativity seem to require skills that algorithms cannot supply yet – and according to some (Serrai 2017) never will.

To summarize, it seems that the competencies for the librarians of the future, other than the core professional skills and languages, will have to keep an eye on the development of languages in the broadest sense: human, machine, artistic and science languages. How will librarians know what they need to learn in order to face this changing environment? With the right attitude.

Facing the problem: professional attitude.

We saw earlier that the digital revolution is, unsurprisingly, changing the world, and it is doing so even more for the library and information job market and professionals. The competencies required are ever-changing and what is needed most of all is the understanding of trends, a creative attitude, and a continuing self-development effort.

The IFLA SC CPDWL, the Standing Committee for Continuing Professional Development and Workplace Learning, has dealt with the issues related to professional development for years, preparing guidelines that are meant to show the way to librarians and to organizations. The Committee released in 2016 the *Guidelines for Continuing Professional Development: Principles and Best Practices* (Varlejs 2016)<sup>13</sup>, a document definitely in line with recent trends. The Satellite Conference “Taking charge of your LIS Career: Personal strategies, institutional programs, strong libraries” (IFLA CPDWL 2015),

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<sup>12</sup> The concept of e-ducation and most of the paragraph is indebted to Floridi’s (2014) Chapter 3: *Identity Onlife*, and on chapter 1 *Time Hiperhistory* – particularly the section entitled *Memory*.

<sup>13</sup> In the following paragraph the *italic* quotes are taken literally from the Guidelines executive summary in English. The Italian translation of the Summary is available online, at <https://bit.ly/2JzThN4>, translated by Matilde Fontanin with the supervision of Anna Maria Tamaro.

organized by the Standing Committee in 2015, highlighted from the title itself the concept of the professionals' responsibility, and hinted at the influence this vision has on the institutions as well.

To look more closely at the statements of the guidelines, we will use the poster released at the IFLA WLIC 2017 in Wroclaw (Poland) and already translated into various languages. The poster highlights the five stakeholders on the stage of continuing professional development. The first is the learner, meaning here the *individual professionals who are responsible for their own ongoing learning*<sup>14</sup> and bear this responsibility to three authorities: the organization they work for, the profession at large and, last but not least, themselves. The reference to the personal responsibility could not be clearer, and in the light of the reflections on the digital revolution, it actually makes even more sense. If the professionals are to stay abreast of technological novelties when there is so much going on, who better than themselves could choose? Who else is supposed to show them the way if not themselves? What is needed is a personal effort based on their previous knowledge, expertise and competencies, the awareness of their code of ethics, a mind open for change and the desire *to seek out and use opportunities to close competency gaps and to advance knowledge and skills*.

Naturally, the professionals are not going to do this on their own: if they work within organizations they will choose according to the organization's needs. On the other hand, the employer will *show commitment to engaging all staff in ongoing learning* and offer *access to a broad range of learning opportunities, both formal and informal*. The latter will be developed according to quality standards and be taken into consideration for career development: the guidelines are very detailed in demanding that organizations take their staff development in serious consideration, allocate the adequate amount of time and resources, plan ahead and give structure to the learning experience.

The third class of stakeholders are the *professional organizations, consortia, government agencies, and other bodies with library development responsibilities*. They will *champion the importance of staff development* and offer opportunities and information about existing initiatives. Their contribution begins *with recognition of the importance of professional development for staff effectiveness, which in turn enables superior information services*, and includes the setting of standards and guidelines.

The responsibility of LIS educators implies to *motivate their students to continue learning after graduating*, and to be *themselves lifelong learners*, as the *behaviours and attitudes are shaped by pre-service professional education*. Educators demonstrate LIS students the importance of staying abreast *of changes in technology and society that affect library/information services, while maintaining their own expertise*. The latter is a key point: librarians and information professionals have their own expertise, and they need not confuse with other professionals (*e.g.* computer specialists, media specialists, social workers and so on), but at the same time, it is their responsibility to observe what happens in the information society, direct their professional development accordingly and to close their gaps.

The last stakeholders in the guidelines are the *providers of continuing learning activities, programs, or products*. Their responsibility is to organize effective programs, assessable according to SMART models<sup>15</sup>, based on adult teaching theory and on instructional design. The instructors must be chosen carefully; theory and hands-on practice must be accurately balanced to provoke an enhancement of skills and competencies, building on previous knowledge.

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<sup>14</sup> This quotation – as the following in the paragraph – are drawn from the poster and/or the CPDWL guidelines referred to in the reading list.

<sup>15</sup> SMART criteria. (2018, February 15). In Wikipedia. Retrieved from <https://bit.ly/2MfkYbD>.



The *Guidelines* show that, though providers, institutions and associations have their responsibilities, the professionals are the choosers. The responsibility of LIS educators is fundamental in shaping professionals with the right attitude, but after the academic program is over, the process goes on. The direction it will take is determined by the developments in technology and profession, changes in society, institutional needs, but the choice of what competencies will be improved resides with the individual.

## Proposal

Tools: using MOOCs, badges and more.

Associations and organizations strive to draw what competencies build up the profile of the librarian and the information professional, but how can the professionals who intend to “take charge of their career” actually foster their development? The answer is by being open to new learning opportunities, many offered by the digital revolution. The possibility to attend workshops and conferences extended, in the digital era, to online resources. The CPDWL and NPSIG webinar series dedicated a meeting (Hirsh et al. 2016) to low-cost professional development opportunities offered thanks to partnerships – most of which are virtual. One of the cases highlighted is the Library 2.0 conference<sup>16</sup>, an ongoing initiative of the San José University School of Information, where professionals from the whole world can meet up and discuss issues relevant to the professional debate.

Many other opportunities are available, with the possible barrier of the English language. The NPSIG/CPDWL webinar series started a Spanish-speaking series for Latino librarians – thanks to the efforts of Loida Garcia-Febo, current ALA president-elect. Similar initiatives could be started also in different countries and languages: the SJSU Library 2.0 conference, in its first editions, offered professionals from any country the possibility to meet online, even in their language. Now they host non-English speaking speakers as well, but do not run totally non-English events.

Sandy Hirsh, Director of the School of Information at SJSU, explained via email

“We decided to experiment with a different model. Instead of one big conference with multiple strands/topic areas, we decided to try doing 3 mini conferences where each of the mini conferences had a different topical focus. [...]. We did a survey a year or two ago of our attendees [...]. Overwhelmingly, our audience preferred the mini conference model. [...]. The 3-hour mini conference model fits much better into people’s schedules – they feel it is more manageable.”<sup>17</sup>

The last one<sup>18</sup> was held on 7 June, there were about 250 people attending simultaneously and is still available<sup>19</sup>: all webinars are archived and available for free.

Many free webinars are offered online by various stakeholders, the Library Journal<sup>20</sup> among them: exploring LinkedIn groups or Facebook or professional associations websites close to one’s own interests could bring pleasant surprises. IFLA e-lists and newsgroups continuously highlight opportunities.

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<sup>16</sup> San José University School of Information. Library 2.0 virtual conferences. Retrieved at <https://bit.ly/2t3R2X6>.

<sup>17</sup> From private e-mail exchange on the 8<sup>th</sup> of June 2018, between Fontanin, Hirsh, Hargadon and Main.

<sup>18</sup> Entitled *Blockchain Applied: Impact on the Information Profession*. See at: <http://www.library20.com/page/blockchain>.

<sup>19</sup> The recording is online after about an hour, though it might be reserved to those who registered for the event. The “Blockchain” mini-conference is now available at: <https://bit.ly/2JRmUIL>.

<sup>20</sup> <https://lj.libraryjournal.com/>.

For more structured experiences, professionals can turn to MOOCs (Massive Open Online Courses), totally online, self-paced courses, generally offered by higher-education institutions, they are a great opportunity to improve complimentary competencies. Specifically focused was the “Library advocacy Unshushed”<sup>21</sup> – now archived – which drew together a large community of librarians worldwide, but courses on Big Data, Cybersecurity, Project management and more are continuously available. Platforms such as EDX<sup>22</sup>, Coursera,<sup>23</sup> FutureLearn<sup>24</sup> offer courses, mostly organized by Universities or other research institutions and held at various levels. MOOCs are generally offered free of charge – though verified certificates require the payment of a fee. EMMA<sup>25</sup> is a EU-based platform for MOOCs, available also in languages other than English and hosting initiatives by many European Universities: a highlight for librarians was “Digital library in principle and practice” by Anna Maria Tammaro.<sup>26</sup>

Another flexible option to acquire soft skills is to pursue a digital badge. According to Mozilla Foundation, “a ‘digital badge’ is an online record of achievements, tracking the recipient’s communities of interaction that issued the badge and the work completed to get it.” Basically, by means of badges, people would be able to associate granular skills and competencies, in a secure way, to their digital profile: this is particularly meaningful for self-directed learning of new skills – namely those not included in formal curricula -in unusual contexts, that is on-the-job and informal learning, tinkering, participating in projects and so on. The landscape of badges is varied: there are “smaller” badges, released for motivational purposes, or “larger”, used for certification; they could be generated through bottom-up or top-down processes, and facilitate peer-to-peer endorsement. Digital badges must be linked to metadata giving reliable evidence of the learner’s experience; furthermore, they can be grouped in meta-badges to validate complex competencies and shared through social platforms such as LinkedIn or Facebook. This way, badges build up a useful tool to assess, certify and display a lifelong learning attitude, particularly in fields generally left out of formal education: they would seem to be the perfect tool for the professional swimming in the sea of digital information.

Even in the face of these new digital tools, strategies from the analogic world still hold and more development comes from informal learning (professional courses) as well as on-the-job experience: though analogic, these could undoubtedly take advantage of digital tools for their communication. Regardless of the analogic or digital means of acquisition, skills and competencies are enhanced when put on display as part of a process rather than as a series of interesting, but scattered, experiences.

Telling the story of professional development: can portfolios be the answer?

We saw above that professionals wish for an international recognition of their learning, and that the comparison between different LIS courses in different countries is to be driven by an international organism. Yet, that is for formal education. There are different ways, strategies and tools to grow professionally, but a series of experiences needs to be narrated to make sense and to be seen as a process by an external observer. The article describing Open Badges states that

“The badge system also fits well with the increasingly popular portfolio assessment, and in fact creates a distributed portfolio by using the badges as markers or entry points to specific skills and

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<sup>21</sup><https://www.edx.org/course/library-advocacy-unshushed-university-torontox-la101x>.

<sup>22</sup><https://www.edx.org/>.

<sup>23</sup><https://www.coursera.org/>.

<sup>24</sup><https://www.futurelearn.com/>.

<sup>25</sup><https://platform.europeanmoocs.eu/>.

<sup>26</sup>More at: [https://platform.europeanmoocs.eu/course\\_digital\\_library\\_in\\_principle\\_a](https://platform.europeanmoocs.eu/course_digital_library_in_principle_a).



achievements, and each earned badge could then be linked directly to the relevant artifacts in the portfolio.” (The Mozilla Foundation & Peer 2 Peer University 2012, p. 9).

This was actually the solution suggested by some library associations: to use portfolios in order to link all evidences of professional development in a coherent narrative. The professional growth that the resourceful librarian succeeds in developing, needs to be acknowledged and validated as much as LIS formal education – but the task is not made easier by the variety of experiences that can make up a process of professional growth.

The individual, according to the guidelines:

- “1.2.1 conducts regular self-assessment congruent with job responsibilities and aspirations;
- 1.2.2 participates in performance appraisals;
- 1.2.3 monitors developments that impact the profession and seeks out and uses opportunities to close competency gaps and to advance knowledge and skills;
- 1.2.4 develops a personal learning plan that will lead to both improvement in current performance and future career advancement; makes judicious choices of formal and informal learning resources based on the best available information;
- 1.2.5 seeks learning needed for present responsibilities before preparing for a new position.”

One possible tool, mentioned in the Guidelines Summary, is the personal development plan (PDP). It had been taken into consideration in a paper (Varlejs 2015) presented at the already mentioned CPDWL Satellite conference in Milnerton, South Africa. The paper discussed the possibility to create a specific model of PDP<sup>27</sup> for librarians, and analyzed an EDUCAUSE<sup>28</sup> model and some proposals from the past: Varlejs’ conclusion was that its implementation would have been challenging unless mandatory, as it required a lot of time and self-discipline. On the other hand, it could prove beneficial for the professional wondering where to go next. The addition of a portfolio to the PDP, to record and reflect on the continuing development process would have been, according to Varlejs, a natural progression.

So, narration efforts are time-consuming, so unlikely to be done if not mandatory. The benefits are connected to the necessity to validate the professional status and to increase personal growth: we will now see why. A portfolio is a reasoned collection on professional development allowing the display of the acquisition of competencies, attested by the professional’s declaration and supported by evidence. Some library associations already use it as a tool for professional validation and accreditation: CILIP in the UK and LIANZA in New Zealand made it mandatory (Broady-Preston & Cossham 2011); Broady-Preston (2009) reported in detail on the process that led CILIP to the decision to use that specific tool in the UK.<sup>29</sup> The scheme comprises three levels of accreditation according to the breadth and scope of the individual’s activity, and the model is running through a Professional Knowledge Skills Base – only visible to CILIP members – and a series of dedicated workshops continuously advertised on CILIP website (Owen & Watson 2015).

The CILIP portfolio sensibly foresees many informal and on-the-job activities: professionals may grow professionally also by reading a book or a blog post, or discussing with a colleague, or being active for the local branch of the Library association (Owen & Watson 2015). What matters is not *what* is done,

<sup>27</sup> PDP is a personal development plan. For an introduction see ‘Develop your career: Personal development plan (PDP) – Help Centre – Open University’. Retrieved at: <https://help.open.ac.uk/pdp>.

<sup>28</sup>“The EDUCAUSE Learning Initiative (ELI) is a collaborative community committed to advancing learning through IT innovation” – quote directly from their webpage at: <https://www.educause.edu/eli>. For further information on EDUCAUSE and the model, see Varlejs (2015).

<sup>29</sup> Which were mainly related to the necessity to validate job experience for people who were already in the profession but did not have a specific academic background.

but *how* it affects professional growth. According to Barrett (2000), the portfolio development process comprises various phases, namely collection, selection, reflection, projection/direction, presentation of activities supported by evidences. In a nutshell, it is a narrative collecting the professional's learning experiences, be they formal, informal or non-formal, and reflecting on how the latter have contributed to the achievement of the declared competencies, supporting the declaration with evidence to make it understandable to external stakeholders.

The tool requires commitment on the librarians' side, just like Varlejs (2015) stated about PDP, but on the other hand if professional development happens in the perspective of continuing change – that is changing information society and changing competencies – and of individual choices, an open tool seems to be the best option. Though being a demanding task, constructing a personal narrative helps focusing personal strengths and achievements, consequently contributing to self-awareness. Naturally, the process is more likely to be undertaken in case of external obligations – if mandatory for professional qualification, or for career development – yet examples are present in different countries and different disciplines (Broady-Preston & Cossham 2011, Machala 2009, Endacott et al. 2004, Saunders 2003) and more are quoted by Varlejs (2015) herself.

The case is still in progress in Italy, our host country, in the light of the next professional validation which will take place in 2019: it could be interesting to examine what has been done and what remains to be done in the light of the *Guidelines*. AIB, the Italian Library Association, after the promulgation of Law n. 4/2013, was entitled to assess the librarians' compliance with the professional standards and requirements in Italy. The process is still under way, and the association is about to have its second round of validations. The first one was based on sheer evidences, that is certificates giving evidence of formal education and more informal achievements. For the second round of validations, the portfolio was proposed as an elective tool. The association has started collecting portfolios on a voluntary basis since 2014, at first during professional development courses on e-learning and e-tutoring, and next in dedicated workshops<sup>30</sup>. In 2016, 67 professionals who had completed their portfolio gave almost invariably the same feedback: it had been hard work, but it had increased their professional self-awareness.

Presently, the association is working hard to help members in this task, for example by preparing tools to help the librarians accomplishing it: dedicated workshops have been mentioned before, some courses have been held up to now in a blended-learning mode, residing on AIB Moodle platform, AIBformazione.it. Besides, a guide on portfolio for validation was published by the association in 2017 (De Noia, Fontanin, and Lùperi 2017), with a description of the process and a series of practical pieces of advice on how to write a portfolio, including a template and a series of examples.

The above-mentioned tools, together with the framework for competencies issued along with the *Guidelines for continuing professional development* approved by the AIB National Board in December 2015,<sup>31</sup> build the basis for the professionals who wish to reflect on their learning. But more is needed, for example a professional network, made of more expert members within regional chapters, trainers and tutors, supporting the professional in the effort. CPDWL guidelines do not simply state the necessity for the learning professional to be proactive, but describe the roles of the different stakeholders, thus

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<sup>30</sup> Most courses were organized by the Regional chapters and held in blended mode by Patrizia Lùperi with the collaboration of Manuela De Noia, Viviana Vitari, Immacolata Murano. The full story is in (De Noia & Fontanin, 2018).

<sup>31</sup> AIB.(2016) Linee guida per la formazione continua AIB. Retrieved 6 March 2018, from <https://bit.ly/2LiKR96/>.

inscribing professional development in a social context where goals are reached only if every component contributes to the common aim.

Portfolios are practices for personal reflection, which, if used for validation, make that reflection visible to the other stakeholders. Yet, building a portfolio narrative is not a skill which librarians necessarily learn during their formal education, this is why library associations deciding to adopt them must provide their associates with the tools for the job and they can do so involving the associates and creating a network of people and services contributing to making that task feasible. This network serves at the same time the scope of strengthening collaboration, alliances and cooperation among members, thus making the professional association stronger.

This is what CILIP did: the association is entitled to accreditation and certification, they provide the Professional Knowledge Skills Base, a template for portfolio, an online platform, they organize workshops and created a network of mentors. AIB's approach is more open to choice, but useful especially for people in the profession who do not have a specific academic background –yet are experienced and competent.

## Conclusion

This paper started by stating that the IFLA CPDWL Guidelines are suggesting that professionals take charge of their career. The reflections on the digital change make it clear that this attitude is the only possible way forward in the changing world of digital information. Many opportunities are offered for self-development (Webinars, MOOCs, badges), but it is important to keep on course, therefore standards defining competencies are crucial to help professionals choose in a sea of possibilities and professional associations, institutions and organizations work to guarantee assessment of the process and harmonization of the achievements. In this light, portfolios can build up a tool to make a self-led development course visible.

The Italian experience, quoted for its familiarity to the author, confirmed that the portfolio actually is a challenging task, but that it can reward professionals and help them become the leaders and managers of their own professional development. For this process to happen they need to develop self-awareness and meta-competencies regarding their career management. The most important aspect about the portfolio, though, is that it does not make sense as a soloist's achievement, it requires a network: mentors and trainers; associations as intermediaries that describe the competencies framework; institutions to guarantee that competencies are recognized and validated; employers who recognize the products, LIS schools who prepare their students to become life-long learners.

Individuals need an open attitude to face the change, they need to develop meta-competencies to become leaders of their own professional development, but in the digital world, even more than in the analogic world, this requires collaboration among all actors: librarians, libraries, higher education institutions, associations and other stakeholders involved in the professional development process.

## References

- Bakshi, H. (2015). *Creativity versus robots: the creative economy and the future of employment* (p. 38). Nesta. Retrieved from <http://www.nesta.org.uk/publications/creativity-vs-robots>.
- Barrett, H. (2000). Electronic Teaching Portfolios: Multimedia Skills + Portfolio Development = Powerful Professional Development. Retrieved from <http://eric.ed.gov/?id=ED444514>.

- Broady-Preston, J., & Cossham, A. (2011). Keeping the information profession up to date: Are compulsory schemes the answer? *IFLA Journal*, 37(1), 28–38.  
<https://doi.org/10.1177/0340035210396777>.
- Broady-Preston, J. (2009). Continuing professional development - its role in the changing educational and qualification landscape of the information profession: a case study of the UK. In *Strategies for regenerating the library and information profession: eighth World Conference on Continuing Professional Development and Workplace Learning for the Library and Information Professions, 18-20 August 2009, Bologna, Italy* (pp. 260–278). Munchen: Saur.
- De Noia, M., & Fontanin, M. (2018). Il percorso AIB per l'attestazione delle competenze. *Biblioteche oggi*. <https://doi.org/10.3302/0392-8586-201803-019-1>.
- De Noia, M., Fontanin, M., Lùperi, P. (2017). *Il portfolio delle competenze: un nuovo strumento per il professionista dell'informazione*. Roma: Associazione italiana biblioteche.
- Endacott, R., Gray, M. A., Jasper, M. A., McMullan, M., Miller, C., Scholes, J., & Webb, C. (2004). Using portfolios in the assessment of learning and competence: the impact of four models. *Nurse Education in Practice*, 4(4), 250–257.  
<https://doi.org/10.1016/j.nepr.2004.01.003>.
- European Commission. (2017). White paper on the future of Europe: reflections and scenarios for the EU27 by 2025. Retrieved from <https://bit.ly/2nHUab3>
- Floridi, L. (2014). *The 4th revolution: how the infosphere is reshaping human reality*. New York ; Oxford: Oxford University Press.
- Gantz, J., & Reinsel, D. (2011). Extracting value from chaos. *IDC Iview*, 1142(2011), 1–12. Retrieved from <https://bit.ly/2LIOEMZ>.
- Hirsh, S., Schnuer, S., Gorokhova, S., Dalby, A., & Krasowska-Igras, M. (2016, April 4). Utilizing Partnerships to Expand Professional Development Opportunities Worldwide. Retrieved 7 June 2018, from <https://bit.ly/2tOZCvh>.
- IFLA FAIFE. Freedom of Access to Information and Freedom of Expression. (2012). IFLA Code of Ethics for Librarians and other Information Workers. Retrieved from: <https://bit.ly/2JvrcXc>.
- IFLA CPDWL. (2015). Taking charge of your LIS Career: Personal Strategies, Institutional Programs, Strong Libraries. In *Taking charge of your LIS Career: Personal Strategies, Institutional Programs, Strong Libraries*. Milnerton Public Library: IFLA. Retrieved from: <http://library.ifla.org/1924/>.
- Lorriman, J. (1997). *Continuing professional development: a practical approach: managing your CPD as a professional engineer*. London, U.K: Institution of Electrical Engineers.
- Machala, D. (2009). E-portfolio for Recognition of Prior Learning Assessment in Continuing Education for Librarians in Croatia (pp. 565–574). Retrieved from: <http://eprints.rclis.org/19646/>.
- Owen, K., & Watson, M. (2015). *Building your portfolio: the CILIP guide*. 3<sup>rd</sup> ed. London: Facet Publishing.
- Ranganathan, S. R. (1931). *The five laws of library science*. Madras: The Madras Library association. Retrieved from <https://bit.ly/2t2nvwN>.
- Saunders, L. (2003). Professional Portfolios for Librarians. *College & Undergraduate Libraries*, 10(1), 53–59. [https://doi.org/10.1300/J106v10n01\\_06](https://doi.org/10.1300/J106v10n01_06).
- Schmidt et al. (2016). Schmidt, B., Lamblin, P., Kuchma, I., & Shearer, K. (2016). Time to Adopt: Librarians' New Skills and Competency Profiles. *Stand Alone*, 1–8. Retrieved from: <https://doi.org/10.3233/978-1-61499-649-1-1>.
- Serrai, A. (2017). Una precoce intuizione di Heidegger. Da l'Hommeplante al dilemma della musica. *Bibliothecae.it*, 6, 2. <https://doi.org/10.6092/issn.2283-9364/7707>.

- Tammaro, A. M. (2015). A framework for lifelong learning and teaching: the competencies paradigm and Library Associations. In: *The role of competencies in librarians' Continuing Professional Development: IFLA Webinar, October 26, 2015*. Retrieved 7 June 2018 from: <https://adobe.ly/2l2ZTVe>.
- Tammaro, A. M., & Weech, T. L. (2008). *International Guidelines for Equivalency and reciprocity of Qualifications for LIS Professionals: Report of the project*. IFLA. Retrieved from <https://bit.ly/2JzXFM5>
- The Mozilla Foundation, & Peer 2 Peer University. (2012). *Open Badges for Lifelong Learning: Exploring an open badge ecosystem to support skill development and lifelong learning for real results such as jobs and advancement*. Retrieved from <https://mzl.la/1GqzenW>.
- Varlejs, J. (2015). Shape your career – design your professional development plan: rationale and workshop template. In *Taking charge of your LIS Career: Personal Strategies, Institutional Programs, Strong Libraries*. Milnerton Public Library: IFLA. Retrieved from <http://library.ifla.org/1924/>.
- Varlejs, J. (2016). IFLA Guidelines for Continuing Professional Development: Principles and Best Practices. 2016 update. IFLA. Retrieved from <https://www.ifla.org/publications/node/11885>.

## **Enhancing e-learning experiences in higher education: Implementation of QR Codes in a gamified environment**

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### **Abstract**

Gamification is an educational trend that orientates on the needs of today's learners and people with a high affinity towards gaming. It aims at creating a motivational and interactive learning environment. For this purpose, the gamified project "The Legend of Zyren" has been initiated in 2013 turning a course for undergraduate students into an exciting adventure. Since then, due to the evaluation results of the project, several improvements have been made. One remaining goal is to enhance interrelationships between offline and online contents and thus students and digital technology. The solution that is presented in this article is the use of Quick Response (QR) codes. Thereby, the physical world can be connected with digital tasks and actions. Several forms of QR codes have been implemented in order to address different types of game elements. To verify the benefits, an evaluation with the participants of the project has been conducted. The results show that most students (83%) could use the QR codes without any problems and evaluated them as a diversified alternative to conventional tasks (70%). For the tutors of the course the integration of QR codes results in some important advantages, inter alia, an ease of work and an enhanced insight into the students learning progress.

**Keywords:** Gamification, E-Learning, QR codes, Game Elements, Higher Education.

### **Introduction**

Education in the digital age requires new forms of learning techniques and environments in order to cover the needs of today's learners. The so-called "google-generation" is shaped by changing information literary skills (Gunter, Rowlands, & Nicholas 2010) and the use of smartphones in daily life is of particular importance (Falaki et al. 2010). The habitude of accessing information anytime and from everywhere results from student's high affinity towards information and communication technology (Orszullok, Knautz, & Soubusta 2013a). Providing an interactive and stimulating learning environment facilitates the enhancement of information literacy skills and maintains motivational aspects of learning (Wintermeyer & Knautz 2015). Different forms of e-learning have been considered in order to attain such conditions. Today, especially the application of game elements is seen as an ideal realization of a motivational environment that turns learning into more than a monotonous duty (Lee & Hammer 2011). The use of game mechanics in contexts without game-based background is defined as gamification (Deterding et al. 2011).

A lot of gamified projects have been launched in business and education. The project this article will rely on is "The Legend of Zyren", which has been successfully implemented and developed in 2013 in order to turn a course on knowledge representation for information science students into an exciting adventure (Hanraths, Wintermeyer, & Knautz 2016, Knautz 2013, Knautz, Göretz, & Wintermeyer 2014, Knautz, Orszullok, & Soubusta 2013, Knautz, Soubusta, & Orszullok 2013, Knautz, Wintermeyer, & Göretz 2014, Orszullok & Knautz 2014, Orszullok, Knautz, & Soubusta 2013b, 2013a, Wintermeyer, & Knautz 2015). The project consists of a text-based adventure embedded in a platform on which every student has to solve so-called quests in order to pass the course. In addition, during a real-life practical course the participants form groups and face up to further tasks, also augmented by story elements and



additional game mechanics. During the past years the project was improved based on evaluation results and experiences during the realization. In 2016, the concept for the gamified lecture was revised for the fourth time. One remaining goal is to enhance the integration of the platform and the practical session and thus the relation between the group and technology. Other projects use Quick Response (QR) codes to combine the physical environment with digital elements (Fitz-Walter et al. 2012; Rouillard & Laroussi 2008). Thus multiple media can be approached. In the case of Zyren these QR codes are integrated to increase the immersion of the students with their online character. Students can further resolve the online assignments independently without the help of a tutor as the system automatically verifies the answers. After having implemented the QR codes in the existing system, a questionnaire was created and answered by the participating students. The evaluation is intended to enhance the e-learning experience.

### **The project: The Legend of Zyren**

Before the project has been launched, the course on knowledge representation consisted of a traditional lecture, a practical seminar and assignments which the students had to solve in order to pass the course. The contents of the course are primary theoretical and the failure rate of 44% in the final exam was not satisfactory. In order to provide a better learning environment for the students, parts of the course were redesigned completely. While the lecture itself remained untouched, the practical course was revised and an online platform replaced the former homework assignments. The platform was realized via a self-developed metasystem called “Questlab” which is freely available online<sup>32</sup> and provides access via mobile devices due to a responsive design (Hanraths et al. 2016). The structure of Questlab allows to create several gamified courses with the help of a modular system. Based on one’s own need, game elements like a story, avatars, quests, experience points (XP), levels, achievements and leaderboards can be constructed. In the following, these game elements will be explained shortly.

A story is the common theme throughout a gamified course. To facilitate the identification between a player and the story (Martin 2005) a personal avatar can be used. Quests are tasks which contain the actual learning content and can be embedded in the narrative elements. Quests are supposed to motivate the player to achieve certain goals (Zichermann & Cunningham 2011). By solving these tasks, a player can earn experience points. Points are important to give an overview of the player’s status and rank (Kapp 2012). A certain amount of XP causes a character to reach a higher level. Achievements are visual badges, which the players earn by fulfilling specific actions. Examples are reaching a certain level or solving a particular quest within the first attempt. Achievements serve as a reward to support the feeling of ego enhancement and status (Antin & Churchill 2011). Leaderboards sort users by different variables such as XP. They have a competitive and motivational effect due to the transparent demonstration of the player’s success in comparison to others (Costa et al. 2013). In the case of “The Legend of Zyren” all available game elements and features of Questlab have been adapted to the purpose of the course. In Figure 1 an overview of the implemented course is displayed.

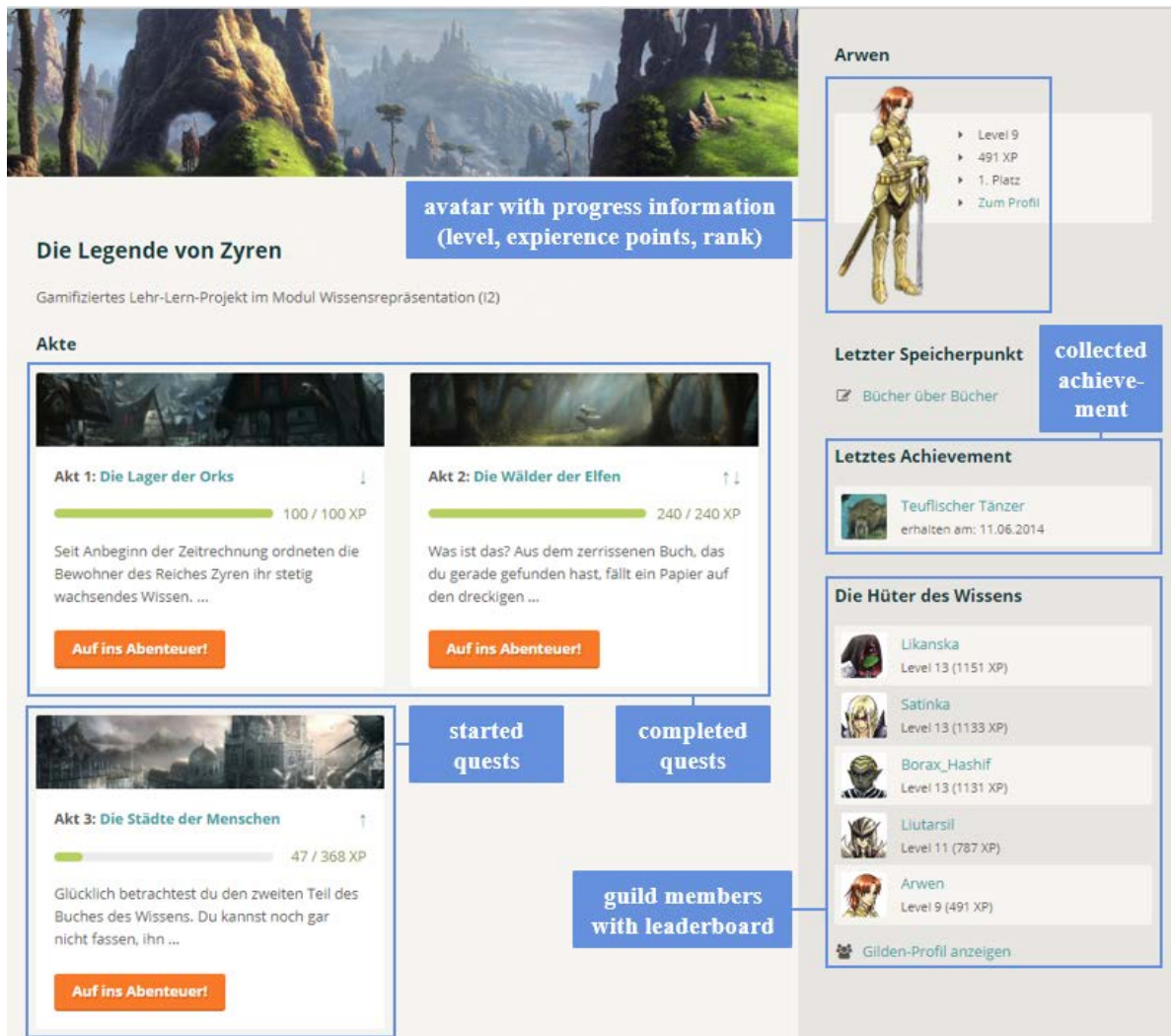
The setting of the story is Zyren, a realm of fantasy. Suitable for the fantasy environment, the avatars consist of the races humans, elves, orcs and goblins from which each student can choose a personal favourite. Simultaneously the participant has to apply his knowledge on the contents of the lecture on knowledge representation via the embedded quests. For a detailed description of all realized game mechanics see (Knautz 2013, Knautz, Göretz, & Wintermeyer 2014, Knautz, Orszulok, & Soubusta

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<sup>32</sup> <http://questlab.hhu.de>



2013, Knautz, Soubusta, & Orszulok 2013, Knautz, Wintermeyer, & Göretz 2014, Orszulok & Knautz 2014, Orszulok, Knautz, & Soubusta 2013b, 2013a, Wintermeyer & Knautz 2015).



**Figure 1.** Implementation of “The Legend of Zyren” in Questlab

Beside a personal profile of a character in Zyren, a team area has been embedded on the platform. During the practical course the students unite as special forms of teams, so-called guilds. Guilds originate from Massively Multiplayer Online Role-Playing Games (MMORPGs) and are an “association of players who chose to come together to achieve a common goal“ (Riegle & Matejka 2006, p. 1). These common goals are the guild quests held during the practical lessons which are rewarded with XP similar to the quests on the platform. There are different types of guild quests. Some remind of common parlor games or game shows like “Jeopardy!”, others are self-developed concepts or campus quests, which are conducted in the style of scavenger hunts. A recurring element in the guild quests are narrative components which give an impulse to fulfil certain tasks. Thus, the practical sessions do not only serve to transmit theoretical knowledge on the course’s contents but also contain game elements and support the social component by forming groups. Moreover, the practical lessons are not completely detached from the platform because on the one hand every session is embedded in the fantasy story and on the other hand XP received during the guild quests are added to the avatars on the platform as well. The guild area provides an overview of all groups, a ranking and a summary of every passed guild quest.

Before integrating QR codes, the guild area was edited manually e.g. by adding XP, which have been earned during the practical sessions.

Beside the narrative elements and these points, the connection of platform and real life course can be further strengthened. Addressing today's importance of smartphones, QR codes are an appropriate possibility to link the digital and physical parts of Zyren and to provide students with adaptive information (Rouillard & Laroussi 2008). With the introduction of these QR codes additional game elements can be implemented aiming at a higher level of collaboration, which turned out to be an important dynamic to support the learning process (Knautz, Göretz, & Wintermeyer 2014). In the following section the concrete functions of QR codes and contexts in which they already exist will be explained.

### **QR codes**

QR codes are forms of barcodes that can be read by smartphones. Developed by Denso-Wave, which is a subsidiary of Toyota, these codes already exist since 1994. They were initially used to track inventory in vehicle parts' manufacturing (Ashford 2010). Unlike traditional barcodes the stored information in QR codes is much more extensive. Beside conventional text, URLs, phone numbers, SMS or electronic business cards (V-cards) can be deposited. QR codes can be created easily and free of charge or with only marginal costs. The benefit of QR codes has also been recognized in different learning environments. The projects "Secret SLQ" (Fitz-Walter et al. 2012) as well as "PerZoovasive" (Rouillard & Laroussi, 2008) serve as an example. "Secret SLQ" by Fitz-Walter et al. (2012) is a form of scavenger hunt with additional gameplay elements like challenges, points and leader boards. It was designed to facilitate the access to the State Library of Queensland for children at the age of 8-14. All elements are embedded within a story about being trapped in the library. To escape, the player must find hints and solve challenges all over the library. Beside his own knowledge and skills, the player is accompanied by a cock-roach named Lester. QR codes are hidden all over the building and "provide a historic viewpoint of the library, contextual background of artifacts, clues to challenges, and challenges themselves that initiate a quiz for children to complete" (Fitz-Walter et al. 2012).

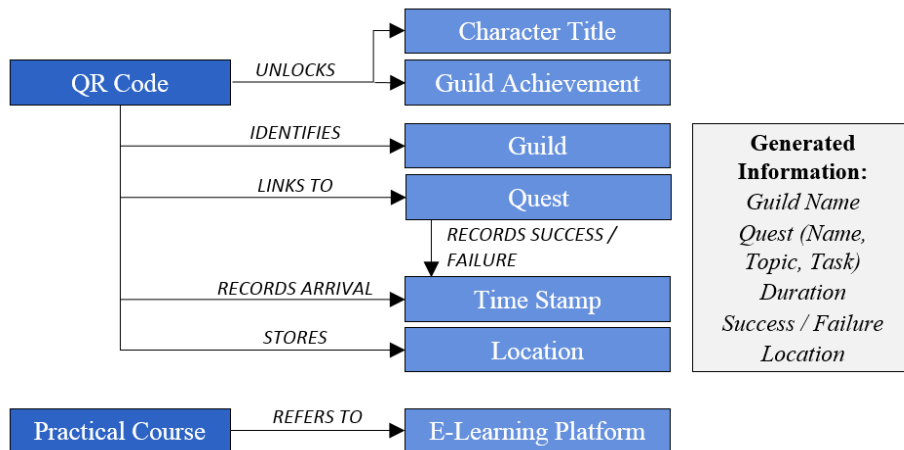
In contrast, "PerZoovasive" (Rouillard & Laroussi 2008) is not driven by a story but instead uses QR codes to convey information. The project is located in a zoo and makes use of contextual QR codes. With these codes context-sensitive information can be transferred. Consequently, the corresponding language, state of knowledge and possible tasks can be adapted to a particular user. In addition, e.g. information about an animal race (species, food, etc.), a specific animal (name, age, etc.) or a quiz can be retrieved. Some comparisons between Zyren and the aforementioned projects can be drawn. Similar to "Secret SLQ" an underlying story is of main importance. "PerZoovasive" on the other hand primary uses QR codes to provide its users with adaptive information, which is also the goal of the implementation regarding "The Legend of Zyren". The concrete methods for the realization are depicted in the following section.

### **Research and Methodology**

Subsequently, a possibility to integrate QR codes into an existing gamified learning environment will be discussed. For the evaluation, a questionnaire was developed and handed to the participating students. The evaluation models and methods will be presented in the subsequent section.

## Implementation

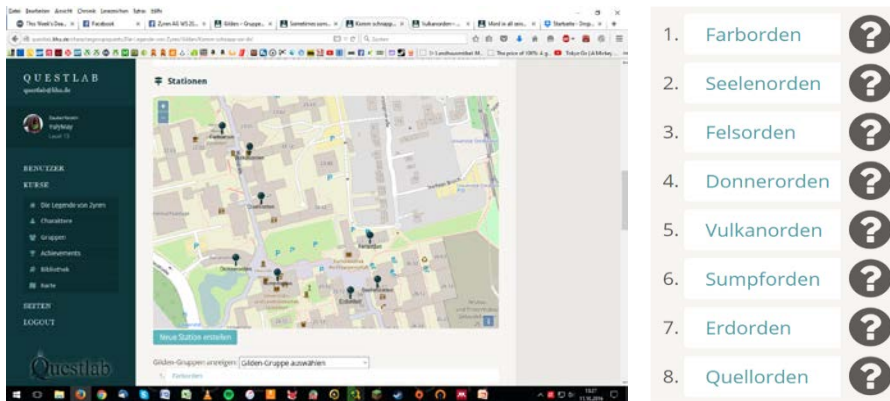
In the case of “The Legend of Zyren” QR codes were used that provide a link to the e-learning platform Questlab, respectively one of its subpages. During the practical course the QR codes have been made accessible to the students either on the presentation slides or printed on paper distributed on the campus. When a student scans the code via smartphone or tablet, a web browser opens and the e-learning platform appears. After scanning the QR code, different events can occur due to the type of link (Figure 2). Three different types were implemented which are all related to a specific game element. Character titles and guild achievements were newly realized via QR codes whereas guild quests existed before, but not in a digital form.



**Figure 2.** Implementation model for QR codes

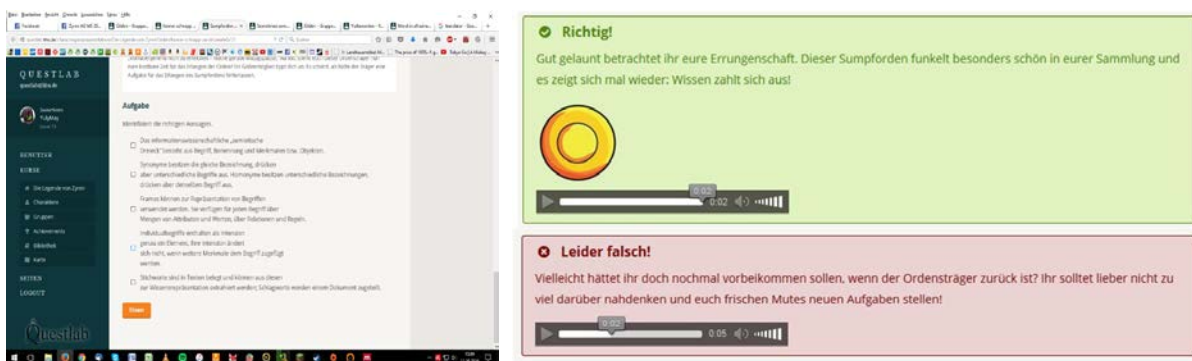
**Guild Quests.** The most complex form of QR codes is the realization of quests which include the actual learning content. Every meeting of the practical course consists either of a classroom session or a campus quest. The three campus quests in the form of a scavenger hunt put a greater focus on the implementation of QR codes. In former realizations, participants had to visit several stations on the campus where they solved tasks assigned by tutors. A direct connection between the campus quest and Questlab was not given. By the use of QR codes this connection is generated as some of the tutor stations are now replaced by a QR code.

The resulting mixture of human and QR code based challenges provides a diversified combination of tasks. Now every campus quest has its own page in the course area on Questlab where all information is accessible for the students. In addition to a story related to the sessions topic (e.g. Pokémon, “Gotta Catch ‘Em All!”), the page provides a scalable map with all stops of the recent campus quest (Figure 3).



**Figure 3.** Left: Map with all stops of the campus quest “GottaCatch ‘Em All!”; Right: Overview of all stations including their covered icons

After scanning a code at one of the QR code stations without tutors the participants gain access to a small online task on Questlab. These assignments are designed as factual questions (multiple choice and text input) to enable a short processing time on the smartphone which has a limited screen size. After solving the quest, the guild receives a direct feedback through a jingle and a story element (Figure 4). QR codes are also used at tutor stations. Instead of a short task only a text input field is displayed. Here the guild has to enter the password which they earn by solving the tutor’s task correctly.



**Figure 4.** Left: Multiple Choice task, Right: Feedback of a correct (green) and incorrect (red)

**Character Titles.** During each session, the QR codes with link to a character title were placed in the presentation slides or printed on paper hidden on the campus. The titles facilitate an individualization of the personal avatar on the platform. A total of 13 titles, like “Throne Guardian” or “King of Villains”, can be collected. In order to retain the narrative tension, the correspondent name of the title is not displayed before the QR code has been scanned. Afterwards, the title is stored at the individual’s profile.

**Guild Achievements.** As an equivalent to the achievements for individual players, achievements for guilds (e.g. “The winner takes it all” or “The Fearless”) were introduced. The guilds can earn these by fulfilling different tasks or finding the hidden QR codes as part of the campus quests. During the classroom sessions on the contrary only guilds that reach a certain goal (e.g. to catch the highest amount of XP) during the guild quest are provided with a particular achievement.

Beside the mere QR codes, additional information can be stored during the scanning process which are useful in order to evaluate the students’ progress in a guild quest and to improve further implementations

of the course. Thus, time stamps and success respectively failure information of a quest are stored each time a guild scans a code and completes a task. Success rates can then be calculated in order to estimate the guild's performance in a particular quest. As an important goal of the project is to enhance the e-learning experience of the participating students, it is also essential to estimate the added value for this group, which is presented in the following subsection.

### **Evaluation Model**

In order to evaluate the implemented QR codes and their effects, the evaluation model that has been used for former evaluations of the course (Knautz, Göretz, & Wintermeyer 2014) has been expanded. The underlying model is based upon three core concepts of gamification that have been identified by Hamari, Koivisto and Sarsa (2014): motivational affordances, psychological outcomes, and behavioral outcomes. Different aspects of gamification were fixed and structured in eight facets. The individual items, called foci, can be combined with each other in order to form questions for the evaluation survey which increases the expressional power of the model. As this article focuses on the evaluation of the implemented QR codes, this item was added to the evaluation model, specifically to the facet System Features (SF) which belongs to the dimension motivational affordances. To figure out if the newly implemented items further strengthen the gamified concept of the course, the former questionnaire was accordingly supplemented by 13 questions concerning this focus. Ten further questions were developed addressing the guild achievements and character titles as these elements were also made available via QR codes. The resulting paper-based survey was handed to all of the 179 students that took part in the revised course during the summer term of 2016. Each question can be answered based on a Likert-like scale from 1="strongly disagree" to 6="strongly agree". A neutral option is missing on purpose in order to force a tendency from those students that are not sure about their answer. An additional free text field was added in order to catch any supplementary ideas of the students.

### **Results**

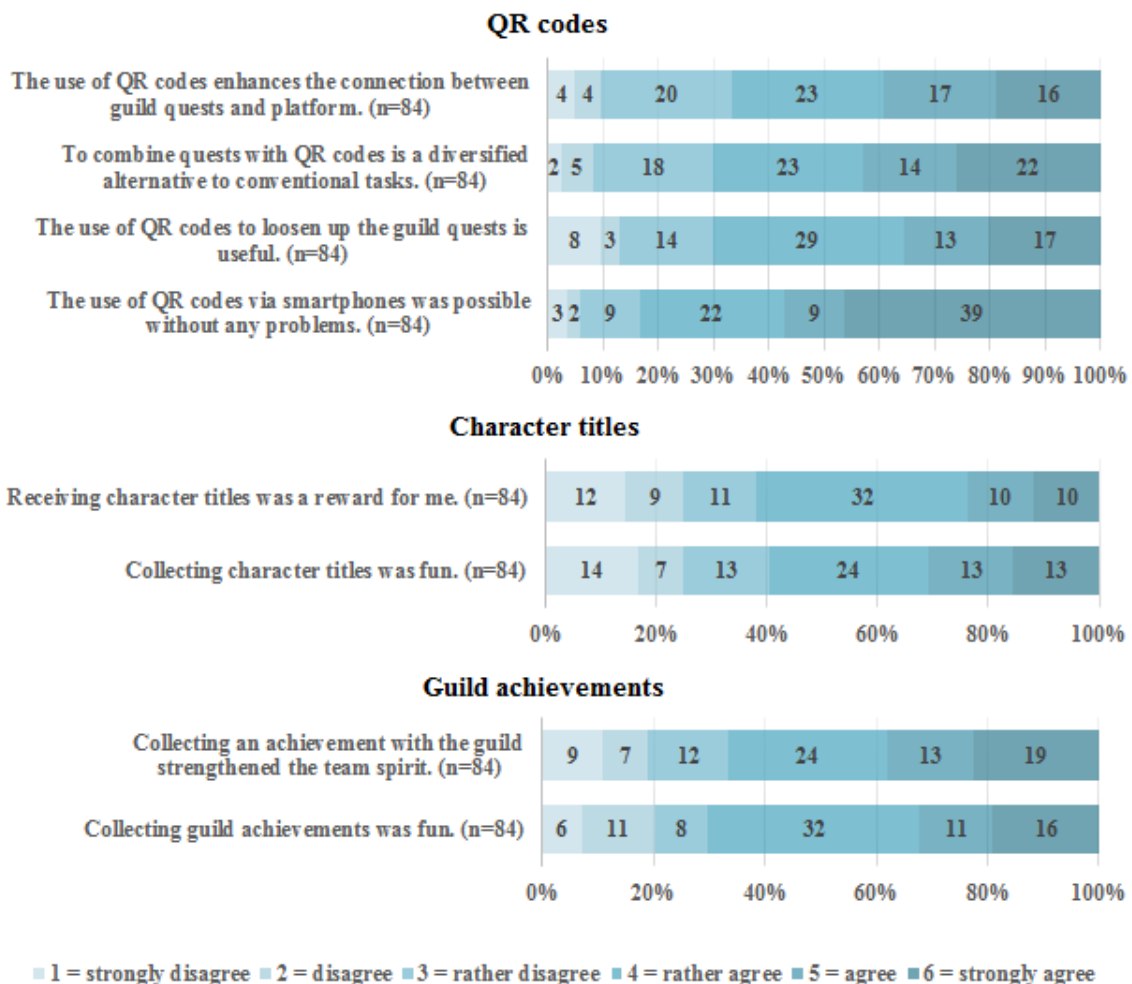
In total, 84 students ( $n=84$ ) fully completed the questionnaire. The results regarding the newly introduced elements (QR codes, character titles and guild achievements) can be retraced in Figure 5. Regarding the unproblematic use of the QR codes with a smartphone, 83% reported on a positive tendency with even 39 (46%) ratings for the best possible option. The mean value amounts to 4.8 ( $SD = 1.4$ ). Nevertheless, the answers in the free text fields showed that some students with older smartphones or a slow internet connection sometimes had problems with the scanning process. Concerning the usefulness of QR codes most students (70%) agreed that a combination of quests with QR codes is a diversified alternative to conventional tasks. Similarly, 59 students (70%) hold that the use of QR codes to loosen up the guild quests is useful although in this case only 17 students (20%) strongly agree. The question if the use of QR codes enhances the connection between guild quests and platform was answered positively by 56 (66%) of the participants. Beside the QR codes in general, the evaluation of character titles and guild achievements shows that the latter score better than the former. Both elements were examined with regard to the question if they are fun for the participants. Referring to this, character titles were rated positively by 60% of the students. The fun aspect of guild achievements on the contrary reaches a positive value of 70%.

The question if collecting achievements with the guild strengthened the team spirit was answered positively by 67% whereof 23% strongly agree. A mean value of 4.0 ( $SD = 1.6$ ) also shows that most of the students agree with this statement. This positive outcome of the guild elements is also reflected in evaluation questions about guild collaboration (Figure 6). For example, the question "I enjoyed working



on the teaching contents together with my guild” was answered positively by 74 students (88%) from which 30 participants (36%) strongly agree with the statement. This results in a mean value of 4.8 ( $SD = 1.2$ ). Likewise, again 74 students (86%) tend to agree to “I enjoyed working in a guild” with even 32 students (38%) fully agreeing and again a mean value of 4.8 ( $SD = 1.3$ ).

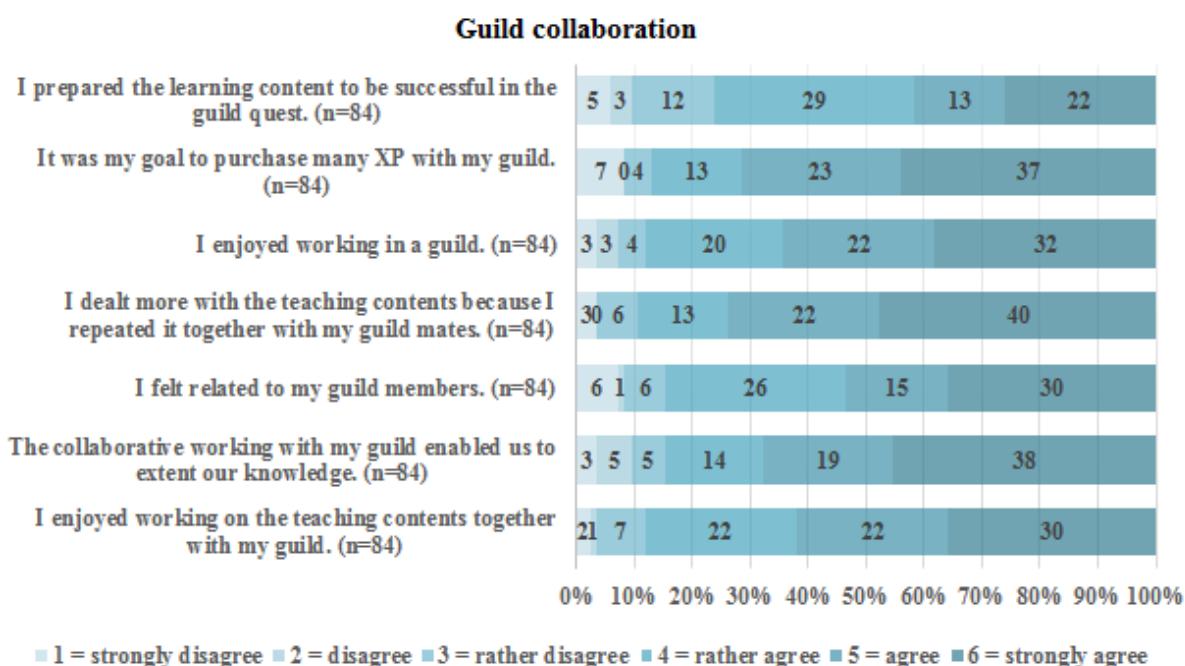
Scanning the codes provides the tutors with important information. Through a time-stamp and a note whether a guild solved a task or failed at it, it is possible to draw conclusions on the difficulty of the tasks. For the guild quest “Gotta Catch ‘Em All!” e.g. some relevant findings could be gathered. Solving a task at a QR Code station took between one and three minutes. Further, the multiple choice station “Volcano Badge” was solved correctly by 33.24% of the guilds, which indicates a problem of comprehension in this quest on metadata. On the other hand, the task “Cascade Badge” on the calculation of semantic similarity was solved correctly by 88.46% which is evidence to suggest that students cope well with this topic.



**Figure 5.** Evaluation results of the newly introduced elements QR codes, character titles and guild achievements

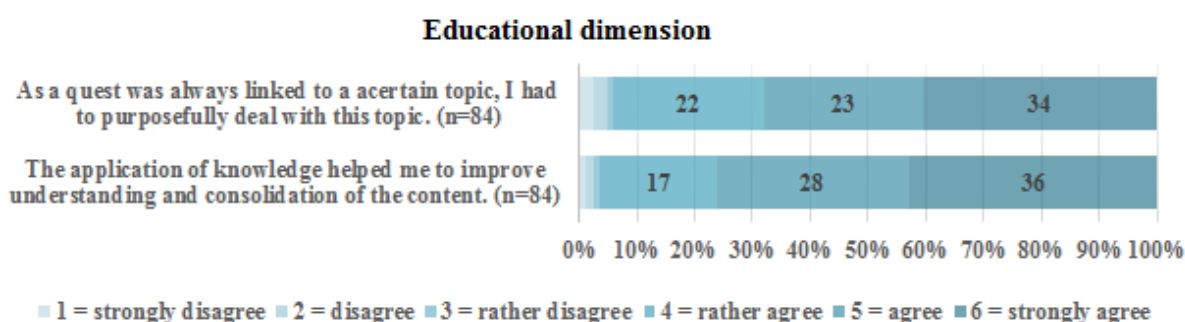
Beside the information on the topical difficulties, the time stamp also helps to improve the locality of a scavenger hunt. For instance, the station “Soul Badge” was only visited by 19 out of 28 student groups. This probably indicates that the geographical position of this location was not ideal, which could be

considered for the subsequent campus quest. Additionally, the tracking enabled to show the guild’s path during the quest as every station was assigned to a position on the map of the campus. This shows whether the distances between the stations fit into the time frame of the practical course. Based on this information the locations can be improved if necessary. On the other hand, it is a good overview for the participants.



**Figure 6.** Evaluation results of guild collaboration

Overall, the embedment of the learning contents into the course worked well according to the evaluation results (Figure 7). Most students (94%) agree that they had to purposefully deal with a topic by solving a quest which results in a mean value of 5.0 ( $SD = 1.2$ ) for this question. Even 96% of the students think that the application of knowledge helped to improve understanding the learning content, a mean value of 5.1 ( $SD = 1.0$ ) confirms this positive outcome.



**Figure 7.** Evaluation results of the educational dimension

## Conclusion

The presented platform for collaborative learning and teaching aims at addressing the need for new learning approaches, also in higher education. In the recent stage of the gamified project “The Legend of Zyren” QR codes were implemented to deepen the connection between the online platform Questlab



and the practical course. Based on the evaluation results, a positive trend of the use of the new elements and a strengthened connection between students and technology could be identified. The introduction of QR codes is a benefit especially for the tutors because of the information they obtain by tracking the codes. However, since this was the first attempt of such an implementation, there is also room for improvement. For example, there were some minor problems concerning the scanning process of the QR codes as well as the connection to the platform, which was due to a bad wireless signal or mobile internet access. Although this problem does not directly concern the implementation, attention should be drawn to a smooth process. A possible solution for the problem with the internet connection could be an extensive test at the potential locations. Only positions with stable wireless signal should be chosen.

In spite of a positive tendency, the results regarding the variety of the given tasks and the linking between guild quests and platform could come of better. To increase the variety of the QR code quests it is useful to extend the existing types of tasks, though the new types should not be too complex due to the display size of a smartphone. In order to emphasize the connection between platform and guild quest, existing features like the map could be used more intensely, thus serving as a basis for further mechanisms. Another possibility to strengthen the connection between both parts is to use QR code tasks in the non-campus guild quests more extensively. The same holds for the newly introduced character titles and guild achievements. Overall, both were perceived positively but also show potential for improvements. To design the obtaining of character titles more interesting it is possible to bind them to specific challenges like achievements. Moreover, the titles could be more present on the platform and also during the course so that they will be perceived more as a reward whereby the students can stand out from other participants. Regarding the guild achievements, a greater variation of challenges is conceivable.

The overall project has shown that gamification can be a useful solution to increase the motivation of students to learn and can offer them new possibilities to deal with the learning content. Especially the resulting collaborative aspects had a very positive influence on the motivation increase and the feeling of togetherness among the students. The e-learning platform also made it possible for each student to learn at his or her own pace and to focus even more intensively on information literacy. For this reason, the concept could also be applied to other seminars. Nevertheless, such an extensive gamification required a very high amount of time and personnel, which should not be underestimated when planning such a project. The use of game elements cannot be regarded as a valid solution for improving higher education in general, because the success depends strongly on the desired objective and the target group that is confronted with it.

## References

- Antin, J., & Churchill, E. F. (2011). Badges in Social Media: A Social Psychological Perspective. In *Proceedings of the ACM Conference on Human Factors in Computing Systems* (pp. 1–4). New York, NY: ACM.
- Ashford, R. (2010). QR Codes and Academic Libraries: Reaching Mobile Users. *College & Research Libraries News*, 71(10), 526–530. <https://doi.org/http://dx.doi.org/10.5860/crln.71.10.8454>.
- Costa et al. (2013). Costa, J. P., Wehbe, R. R., Robb, J., & Nacke, L. E. Time's Up: Studying Leaderboards for Engaging Punctual Behaviour. In *Proceedings of the First International Conference on Gameful Design, Research, and Applications* (pp. 26–33). New York, NY: ACM. <https://doi.org/10.1145/2583008.2583012>.
- Deterding et al. (2011). Deterding, S., Dixon, D., Khaled, R., & Nacke, L. From Game Design Elements to Gamefulness: Defining “Gamification.” In *Proceedings of the 15th International Academic*

- MindTrek Conference: Envisioning Future Media Environments* (pp. 9–15). New York, NY: ACM.
- Falaki et. al. (2010). Falaki, H., Mahajan, R., Kandula, S., Lymberopoulos, D., Govindan, R., & Estrin, D. (2010). Diversity in Smartphone Usage. In *Proceedings of the 8th International Conference on Mobile Systems, Applications, and Services – MobiSys '10* (pp. 179–194).
- Fitz-Walter et al. (2012). Fitz-Walter, Z., Tjondronegoro, D., Koh, D., & Zrobok, M. Mystery at the Library: Encouraging Library Exploration Using a Pervasive Mobile Game. In *Proceedings of the 24th Australian Computer-Human Interaction Conference, OzCHI 2012* (pp. 142–145). <https://doi.org/10.1145/2414536.2414561>.
- Gunter, B., Rowlands, I., & Nicholas, D. (2010). *The Google Generation: Are ICT innovations Changing information seeking behaviour?* Cambridge, UK: Woodhead Publishing.
- Hamari, J., Koivisto, J., & Sarsa, H. (2014). Does Gamification Work?: A Literature Review of Empirical Studies on Gamification. In *Proceedings of the 47th Annual Hawaii International Conference on System Sciences* (pp. 3025–3034). IEEE. <https://doi.org/10.1109/HICSS.2014.377>.
- Hanraths, O., Wintermeyer, A., & Knautz, K. (2016). Questlab: A Web-Framework for Gamification of Seminars. *Proceedings of the 49th Annual Hawaii International Conference on System Sciences*. <https://doi.org/10.1109/HICSS.2016.109>.
- Kapp, K. M. (2012). What is gamification? In Kapp, K. M. *The Gamification of Learning and Instruction: Game-Based Methods and Strategies for Training and Education* (pp. 1–23). <https://doi.org/10.1145/2207270.2211316>.
- Knautz, K. (2013). Gamification im Kontext der Vermittlung von Informationskompetenz. In S. Gust von Loh & W. G. Stock (Eds.), *Informationskompetenz in der Schule. Ein informationswissenschaftlicher Ansatz* (pp. 223–257). Berlin, Germany: De Gruyter Saur.
- Knautz, K., Göretz, J., & Wintermeyer, A. (2014). 'Gotta Catch 'em All': Game Design Patterns for Guild Quests in Higher Education. In *iConference 2014 Proceedings* (pp. 690–699). Champaign, IL. <https://doi.org/10.9776/14319>.
- Knautz, K., Orszulok, L., & Soubusta, S. (2013). Game-Based IL Instruction - A Journey of Knowledge in Four Acts. In S. Kurbanoglu, E. Grassian, D. Mizrachi, R. Catts, & S. Spiraneč (Eds.), *Worldwide Commonalities and Challenges in Information Literacy Research and Practice: European Conference on Information Literacy* (Vol. 397, pp. 366–372). Cham, Switzerland: Springer International Publishing.
- Knautz, K., Soubusta, S., & Orszulok, L. (2013). Game-based Learning for Digital Natives: Knowledge is Just a Click Away. In *Proceedings of the 2013 International Conference on Advanced ICT and Education* (pp. 74–78). Amsterdam, Netherlands: Atlantis Press.
- Knautz, K., Wintermeyer, A., & Göretz, J. (2014). Challenge Accepted - On a Quest for Information Literacy. In S. Mader, M. Chou, J. Teo, J. Cavanagh, & P. Kirby (Eds.), *Facing the Future: Librarians and Information Literacy in a Changing Landscape* (pp. 72–86). Limerick, Ireland: LIT.
- Lee, J., & Hammer, J. (2011). Gamification in Education: What, How, Why Bother? *Academic Exchange Quarterly*, 15(2), 1–5.
- Martin, J. (2005). Virtually Visual: The Effects of Visual Technologies on Online Identification. *DiGRA 2005 Conference Changing Views Worlds in Play*.
- Orszulok, L., & Knautz, K. (2014). Orc-based Learning – Evaluating a Game-Based Learning Approach. In *iConference 2014 Proceedings* (pp. 1009–1012). Champaign, IL. <https://doi.org/10.9776/14349>.
- Orszulok, L., Knautz, K., & Soubusta, S. (2013a). A Quest for Knowledge Representation Instruction.

- In *Proceedings of the 2013 International Conference on Advanced Information and Communication Technology for Education (ICAICTE 2013)* (pp. 290–294). <https://doi.org/10.2991/icaicte.2013.58>.
- Orszulok, L., Knautz, K., & Soubusta, S. (2013b). Aufbruch nach Zyren - Game-based Learning in der Hochschullehre. In J. Griesbaum, J. Heuwing, J. Ruppenhofer, & K. Werner (Eds.), *HIER 2013 - Proceedings des 8. Hildesheimer Evaluierungs- und Retrievalworkshop* (pp. 87–99). Hildesheim, Germany: Universität Hildesheim.
- Riegle, R. P., & Matejka, W. A. (2006). The Learning Guild: MMORPGs as Educational Environments. *22nd Annual Conference on Distance Teaching and Learning* (pp. 1–5).
- Rouillard, J., & Laroussi, M. (2008). PerZoovasive: Contextual Pervasive QR Codes as Tool to Provide an Adaptive Learning Support. In *Proceedings of the 5th International Conference on Soft Computing as Transdisciplinary Science and Technology - CSTST '08*, 542. <https://doi.org/10.1145/1456223.1456332>.
- Wintermeyer, A., & Knautz, K. (2015). Meaningful Implementation of Gamification in Information Literacy Instruction. In S. Kurbanoglu, J. Boustany, S. Špiranec, E. Grassian, D. Mizrachi, & L. Roy (Eds.), *Information Literacy: Moving Toward Sustainability. Communications in Computer and Information Science* (pp. 350–359). Cham, Switzerland: Springer International Publishing.
- Zichermann, G., & Cunningham, C. (2011). *Gamification by Design: Implementing Game Mechanics in Web and Mobile Apps*. Sebastopol, CA: O'Reilly Media.

## **Post-human condition – Epistemic disruption: How Information (Science) lost its body to Data-Based Knowledge**

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### **Abstract**

What constitutes capital value today is not anymore information but (living) data. Epistemic shift from information to data (science) is hardly tackled among LIS educators due to the fact that critical academic discourse in LIS is uncommon or found mostly on margins of scholarship and profession. I would argue in favor of inquiry that envisions critique of discursive status quo for it could perhaps instigate further research topics questioning normative, rational, positivist framework, in which discipline dwells. I claim the necessity of hybrid critical pedagogy interconnecting critical data studies, critical code studies, and critical digital humanities, particularly highlighting contemporary findings in what's named digital post-humanities.

**Keywords:** critical LIS, digital capitalism, dataism, critical digital humanities, digital posthumanities.

### **Introduction**

In inaugural issue of *Journal of Critical Library and Information studies* editors' note is explicit:

“As scholarship becomes increasingly commoditized, monetized, and ‘productized,’ JCLIS was envisioned as both intervention and resistance to its commercialization and rarefication, as well as narrow definitions and conceptions of library and information studies that privilege or cast the field in the terms and methods of positivist or empiricist paradigms and dominant epistemological and ontological constructs, and the normative tendencies of the field to center such paradigms” (Lau, Sellie, & Day 2017).

As a matter of fact, a noble tradition among prudent critical librarians, activists, academics, and publishers, trying to reveal how power works, observed such tendencies decades ago, but still we had to wait until the last year to urge for the journal in which critical LIS theory would, hopefully, reach a broader attention and hopefully, continuance.

As case for critical data studies in LIS, revealed by Tami Oliphant (2017), urges discussions “in terms of research methodologies, philosophical underpinnings, and application of critical social theory, values, and ethics” this article tends to emphasize importance of discursive deconstruction of ideological premises of “widespread belief in the objective quantification and potential tracking of all kinds of human behavior and sociality through online media technologies” (van Dijck 2014, p. 198). Furthermore, highlighting this radical turn as a new scientific paradigm I would argue for its reevaluation from the digital post-humanities standpoints.

### **Where is the what if the what is in why?**

Critical theory is not widely tackled among majority of librarians and information science scholars. However, critical theory and critical pedagogy submit important, yet indispensable, background for socially responsible praxis, as well as repolitization of LIS education. Critical consciousness in librarianship arises from questioning the library neutrality, a critical pedagogical instruction aligned

with political literacy to question social justice and civic engagement, ethos of intellectual freedom and professional's free-speech rights in particular. Overlooking these roots prevents bringing theories and methods of critical instruction to most of the information science curricula. Engaged scholarship is being left to techno-rational (informational), techno-managerial (economic), techno-deterministic (socio-cultural) impulses which prevail over political issues in teaching production, organization, use and dissemination of information. For Siva Vaidhyanathan (2006), alleged crisis in cultural studies demands investigation in multi- and interdisciplinary debates and analysis in the field named Critical Information Studies considering law, computer science, political science, communication, ethics, sociology, and academic administration through "variety of approaches and bodies of knowledge needed to make sense of important phenomena such as copyright policy, electronic voting, encryption, the state of libraries, the preservation of ancient cultural traditions, and markets for cultural production" (ibid.). This derivative of critical theory and information theory, as explained in his "Critical Information Studies: A Bibliographic Manifesto", finds itself in tradition of resisting "naked empiricism and positivism" while discussing concerns of commercial, technical and scientific in terms of flows, flux, and processes, matters not qualified as mere "information" but big enough to cover the breadth of the field (ibid.). A few years later Christian Fuchs (2011) situated critical arguments over transformations of the Internet, furthermore explaining today's relevance of Marxian thinking regarding digital labor (Fuchs 2014a) and social media critique in contemporary information and media studies (Fuchs 2014b). Undoubtedly, current interest in big data analytics now asks for subsequent shifts in epistemological/methodological and ethical dimensions of research of digital positivism and digital media intermediaries.

Data, manifestations of social interaction and cultural production, have become ontological and epistemological objects of research (van Dijck 2016) and datafication has grown to become an accepted new paradigm for understanding sociality and social behaviour (van Dijck 2014). As Californian ideology (Barbrook & Cameron 1996) is reaching its extensive control over our digital lives with algorithms setting boundaries to our freedoms. Moreover, being tools for codification of sociality (O'Neil 2016), interest for critical code studies should become even more apparent. Critical code studies is defined as "(...) an approach that applies critical hermeneutics to the interpretation of computer code, program architecture, and documentation within a socio-historical context" (Marino 2006). Marino's proposal for critical reading of the code, its "imprints of epistemologies, cultural assumptions about gender, race and sexuality; economic philosophies; and political paradigms" today rapidly develops as we pose ourselves to question: "what algorithms want" (Finn 2017)? Becoming more and more aware of influences of "algorithmic culture" (Striphas 2015) that shapes living in the age of disruption, we are faced with importance of education about what algorithms exactly do operating "in the gap between code and culture" (Finn 2017, 47). Finn detects that the significance of algorithms requests researches of the grounded materiality of hardware and software as well as subjects that enact, transmit and receive information for "algorithms and their human collaborators enact new roles as culture machines that unite ideology and practice, pure mathematics and impure humanity, logic and desire" (ibid.). As critical algorithmic studies open conversations across disciplines, LIS scholars are not to miss it. However, as applied Big Data research is becoming a new common-ground and datafication „as a legitimate means to access, understand and monitor people's behavior is becoming a leading principle, not just amongst technoadvancers, but also amongst scholars“ (van Dijck 2014, 198) questions about political-economy of data (ownership, control, profit) reopens box of neutrality issues that goes along with critical approaches. Having in mind that critical theory is mostly poorly integrated in LIS curricula (evidently the L has been „on the erasure“ from its body, and I guess we have lost it for D -data) neglecting data research from the humanities and social sciences, future practitioners would be left to „revolutionary“ big-tech monopolists of mind (Foer 2017) to shape our culture. David Berry (2011) reminds us that pedagogy of



digital *Bildung* (critical understanding of the literature of the digital) leads to differentiation of binary (digital) intellect vs. (digital) intelligence, tension that LIS historically cherished from its humanistic backgrounds. Actually contemporary interest of information science scholars for digital humanities indicates tendencies of reshaping and redesigning of its field of research, yet partial integrating based on the components of the communication chain of recorded information intersection for linking two disciplines into joint future (Robinson, Priego, & Bawden 2015). In view of such drifts, I contend that announced common interest therefore should also align aforementioned *dataism* with prospects of critical digital humanities. In point of fact, as we should recognize overlapping of digital humanities with LIS, why not call for attention to digital post-humanities as well. Stances driven from Ed Finn's argument that emphasize ambitions of "twinned desires embedded in the heart of effective computability: the quest for universal knowledge and perfect self-knowledge" (Finn, 2017, p. 13) certainly lay grounds for investigations in "experimental humanities, a set of strategies for direct engagement with algorithmic production and scholarship, drawing on theories of improvisation and experimental investigation to argue that a culture of process, of algorithmic production, requires a processual criticism that is both reflexive and playful" (ibid.).

As we are globally witnessing devotion to "the cathedral of computation" (Bogost 2015) exploring invisible structures of "persuasion architecture" (Tufekci 2017) that influences our cognitive sphere seems to be indisputable. The exemplified "knowledge problem", as Pasquale (2015) discerns, is just one example of a general truth: "what we do and don't know about the social (as opposed to the natural) world is not inherent in its nature, but is itself a function of social constructs" (Pasquale 2015, 2). Moreover, since the digital world is construction "we don't want to let that blind us to the world that is not constructed, to the world that predates our digital selves" (Lynch 2016, p. 195). Hyperconnectivity of knowledge that LIS practitioners explores and teach therefore should not bond only to potentials of "epistemic equality" in being cognitively autonomous but also dedicate more of their attention to risks of vulnerabilities of digital (ways) of knowing: "it would be wrong to say that the Internet itself is making us less reasonable. It would be more accurate that we are making ourselves less reasonable with the help of the Internet (ibid., p. 65). What might help us then is not only deconstructing of the secrecy and complexity of the black boxes of Big Data (Pasquale 2015, p. 6), social media "platform capitalism" (Lovink 2016) in "automated public sphere" (Pasquale 2017) but, in addition, how we became posthuman (Hayles 1999), "database animals" (Azuma 2009)<sup>33</sup> on "cool-tools" (Liu 2004).

### **Meta(data)morphosis: more human than human, more data than information**

Critical approaches to digital humanities that underlies "computational turn" (Berry 2011) or specificity of computational medium that induces a way of thinking about how medial changes produce epistemic changes that appears to be utterly missing in considering overlapping contexts of information science with digital humanities as well as their inter-relating in theoretical/conceptual basis which support practical professional activities. Besides, insufficient course of instruction about social epistemological foundations in education for librarianship, or else absence of science and society dialectic<sup>34</sup> (Bozzetti &

<sup>33</sup> In computerized consumer society, explains Hiroki Azuma (2009), we experience rapid alteration of our behavior. Naming a new view of humanity "database animals" Azuma brings in-depth analysis of origins of the "otaku behavioral principle", 'animalistic' lifestyle, divergence of desire and sociality driven by addiction to database: "cultural consumption revolves not around the giving of meaning by a grand narrative but around the combination of elements extracted from the database" (p. 92).

<sup>34</sup> Rodrigo Porto Bozzetti's and Gustavo Saldanha's challenge us to focus again on Jesse Shera's social epistemology as a sort of "critique of the future" that "consolidated under the notion of Information Science" being "a conceptual mechanism for understanding the epistemic struggles of the construction of the discourse of the field and its future", yet "anticipating the risks

Saldanha 2017), history of technology education (Postman 1995)<sup>35</sup>, intercultural information ethics (Capurro 2007) what is more, “marginalization of critical thought in the field in the interest of ‘positive’ research” (Day 2010), to reveal just a few, is what the most of the current information science curricula are likely to keep back while catching up with agenda of data accelerationism augmented by Silicon Valley knowledge disruptors (Foer 2017, Greenfield 2017, Wu 2016). Certainly librarians<sup>36</sup> nor information specialists will not be able to change how algorithmic machine operates but without safeguarding of patrons and users’ digital rights and freedoms<sup>37</sup>, informing about dataveillance, teaching biases from subject headings to search engines, disclosing free digital labor and “democratization of manipulation” on social media platforms (Boyd 2017), warnings on “colonization with love” (Lukic 2016), “mathematization of abnormal in metadata society” (Pasquinelli 2014), and machinic enslavement of human capital (Lazzarato 2014) etc., counter-cultural alternatives in praxis and “counter-hegemonic” *conscientization*<sup>38</sup> will remain devoid from our institutions, curricula, and ourselves, being situated in an overly deterministic way (Apple 1990, p. 3).

Consequently, we should cast our attention to question raised by Ramon Salim Diab (2017):

“How might critical library and information studies analyze the intersection of information infrastructures and class structures? In coming to the point on how librarians and information specialists contribute to information economy<sup>39</sup>, moreover, digital economy of the “social factory”<sup>40</sup>

and recognize that information and media literacy educators weakly tackle dynamics of critical internet studies stressing the wider economic and cultural context of digital capitalism. As shown in “Digital labour shortage: A new divide in library and information studies education?” teaching and learning about digital labor in LIS education is most commonly addressed as “performing and managing work in a digital environment (e.g., digital reference services)” (Worman & Samek 2011) while further examination of concepts surrounding digital exploitation through specialized multiple lenses is to be expected. Following the contemporary autonomist Marxist thought we are explained how immaterial, free labor is structural to the late capitalist cultural economy (Terranova 2000), yet how digital technologies, devices, protocols, platforms, and programming languages functions as mechanisms of capturing of living labor. Pasquinelli (2015) argues we should recognize information machine as a meta-informational relay: “information machines can be generically defined as machines for the accumulation

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of informational ontology”. See more: Bozzetti, R. P. & Saldanha, G. (2017). Jesse Shera, the wars and the pietá: social epistemology as criticism of information ontology. *Brasilian Journal of Information Science: Research Trends*, 11(2). 79-87.

<sup>35</sup> I refer here to N. Postman’s remarks that educators confuse the teaching of how to use technology with technology education: “It should also be said that technology education does not imply a negative attitude toward technology. It does imply a critical attitude...Technology education aims at students’ learning about what technology help us to do and what it hinders us from doing; it is how technology uses us...” See: Postman, Neil (1995).

<sup>36</sup> Silencing of (critical) librarians may also indicate the fact that the Library of Congress’s subject headings, for example, still does not recognize *critical librarianship* as confirmed during the interview with Sanford “Sandy” Berman “one of librarianship’s foremost activists” (Hauptman 1999, cit. in. Eichenlaub 2003). See more: Gross, T. (2017). [Expand, Humanize, Simplify: An Interview with Sandy Berman]. *Cataloging & Classification Quarterly*, 55(6). 347-360.

<sup>37</sup> For example, see more about Library Freedom Project <https://libraryfreedomproject.org/>

<sup>38</sup> On development and cultivation of critical consciousness see: Freire P. (1970). *Pedagogy of the Oppressed*. New York: Herder and Herder.

<sup>39</sup> For background issues on interactions of information, labour, capital, class and librarianship see: Estep, E., & Enright, N. (2016). *Class and Librarianship: Essays at the Intersection of Information*. Sacramento, CA: Library Juice Press.

<sup>40</sup> The notion of the social factory, in view of Italian Autonomist Marxists, relate to technical changes of capitalism, technical increase in productivity of what Marx called “relative surplus value production”, in other words, how capitalist social relations had expanded outside the sphere of production to society as a whole. See more: Tronti M. (1962). *Factory and Society*. Retrieved from: <https://operaismoenglish.wordpress.com/2013/06/13/factory-and-society/>



of valorizing information, extraction of metadata, calculation of network surplus value and implementation of machinic intelligence” (ibid p. 63). Or, as stated by R. Braidotti (2013), “data banks of bio-genetic, neural, and mediatic information about individuals are the true capital today (...)’data-mining’ includes profiling practices that identify different types of characteristics and highlights them as special strategic targets for capital investment” (ibid p. 61). Accordingly, when biopolitical dimension of “data extractivism” (Morozov 2018), is missing bioeconomic analysis of apparatus of dataveillance from below (Pasquinelli 2009), lives of our patrons, yet netizens, are opened to a vast machinic commodification which remains invisible under umbrella of being neutral? Pervasiveness of algorithmic mode of extraction of value from “online surplus population” (Morozov 2018), in that light, I contend, asks for LIS educators who would critically intervene in teaching political and economical value of metadata, moreover, critical theorists and practitioners ready to, as Wark utters, “shift from being data punks to meta-data punks in order to continue the struggle in and against a mode of production based not in the first instance on surplus value, but on asymmetries of information” (Galloway 2017).

As analysis of the phenomenon of dataization helps in understanding how our subjectivity has been commodified (Lazzarato 2014), our social body fragmented and distributed, minds kept in echo chambers, we should not ignore the wakeup call which comes from critical digital humanities: “a space where the new thinking and critiquing of digital capitalism can occur - and this includes the creation of new terms that seek to identify and critically engage with the various experiences of this new form of capitalism” (Grimshaw 2018). Whether library and information science has lost its substance in neglecting of development of contemporary progressing epistemic disruption we could only trace in education for the future which would be situated within historical roots of our discipline, critical history of the modern tradition of documentation and indexing (Day 2014). Nonetheless, looking back at the history of machines that seem to have disappeared from critical theory (Lazzarato 2014)

## Conclusion

As intelligence embodied in cybernetic machines is changing status of human subjectivity critical thoughts reemerge in its posthuman “blooming”. Pirate function of posthuman critical theory, according to Gary Hall (2017), asks for theorists and philosophers ready to act “like pirate philosophers in the sense of the term’s etymological origins with the ancient Greeks, where the pirate is someone who tries, tests, teases, and troubles, as well as attacks (p. xiv)<sup>41</sup>? So what’s to be pirated in LIS using Hall’s “diffractive methods of reading that attend to the relational nature of difference in neither spatial nor linear terms...mixing and mutating, and putting things to the test in order to tease out some of their productive elements and dynamic potentialities” (Hall 2017, p. 22)? I would be prone to say we are in need of merging critical library and information studies with critical digital humanities. If not for the sake of our discipline or professions, then maybe for need of dismantling of the “information bomb”<sup>42</sup> (Virilio 2000) whilst filter bubbles’ explode in systemic amplification of falsehood.<sup>43</sup>

<sup>41</sup> “With a little adjustment, *Pirate Philosophy* could quite easily have had a title centering it on the digital humanities, capitalist subjectivation, the posthuman, posthumanities, or even the unbound book.” (Hall 2017, p. 18)

<sup>42</sup> Virilio’s warning on what we today recognize as fake news were written almost twenty years ago: “the revolution of real information is also a revolution of virtual disinformation” (2000, p. 108).

<sup>43</sup> As I am concluding this article on 9<sup>th</sup> March, 2017, MIT data scientists, Soroush Vosoughi, Deb Roy, and Sinan Aral, published in *Science* the largest-ever study of fake news stories distributed on Twitter from 2006 to 2017 that confirms that truth simply cannot compete with hoax and rumor (126,000 rumors were spread by 3 million people more than 4,5 million times): “Contrary to conventional wisdom, robots accelerated the spread of true and false news at the same rate, implying that false news spreads more than the truth because humans, not robots, are more likely to spread it.” See: Vosoughi, S., Roy, D. & Aral, S. (2018) The spread of true and false news online. *Science*, 359(6380), 1146-1151.

## References

- Apple, M. (1990). *Ideology and Curriculum*. New York: Routledge.
- Azuma, H. (2009). *Otaku: Japan's database animals*. Minneapolis, MN: University of Minnesota Press. Retrieved from: <https://mogami.neocities.org/files/otaku.pdf>
- Barbrook, R., Cameron, A. (1996). The Californian Ideology. *Science as Culture*, 6(1), 44-72. DOI: 10.1080/09505439609526455
- Berry, D. (2011). The computational turn: thinking about the digital humanities. *Culture Machine*, 12. Retrieved from: <https://culturemachine.net/index.php/cm/article/download/440/470>
- Bogost, Ian. (2015, January 15). The Cathedral of Computation. *The Atlantic Magazine*. Retrieved from <https://www.theatlantic.com/technology/archive/2015/01/the-cathedral-of-computation/384300/>
- Boyd, D. (2017, January 6). Hacking the Attention Economy. *Apophenia*. Retrieved from: <http://www.zephorias.org/thoughts/archives/2017/01/06/hacking-the-attention-economy.html>
- Bozzetti, R. P., Saldanha, G. (2017). Jesse Shera, the wars and the pietá: social epistemology as criticism of information ontology. *Brasilian Journal of Information Science: Research Trends*, 11(2). 79–87. Retrieved from: <http://www2.marilia.unesp.br/revistas/index.php/bjis/article/view/6681/4516>
- Braidotti, R. (2013). *The Posthuman*. Cambridge, UK: Polity Press.
- Capurro, R. (2007). Intercultural Information Ethics. In R. Capurro, J. Fruhbauer & T. Hausmanninger (Eds.), *Localizing the Internet. Ethical Aspects in Intercultural Perspective*, (pp. 21-38). Munich: Fink.
- Day, R. E. (2014). *Indexing it All. The Subject in the Age of Documentation*. Cambridge, MA: MIT Press.
- Day, R. E. (2010). The Self-Imposed Limits of Library and Information Science: Remarks on the Discipline, on the Profession, on the University, and on the State of “Information” in the U.S. at Large Today. *Interactions*, 6(2). Retrieved from: <https://cloudfront.escholarship.org/dist/prd/content/qt0jr2h7w5/qt0jr2h7w5.pdf>
- Diab, R. S. (2017). Becoming-Infrastructure: Datafication, Deactivation, and the Social Credit System. *Journal of Critical Library and Information Studies*, 1(1). Retrieved from: <http://libraryjuicepress.com/journals/index.php/jclis/article/view/19>
- Eichenlaub, N. (2003). Silencing Sandy: The Censoring of Libraries’ Foremost Activist. In K. Roberto & J. West (Eds.), *Revolting Librarians Redux: Radical Librarians Speak Out* (pp. 120-128).
- Estep, E., Enright, N. (2016). *Class and Librarianship: Essays at the Intersection of Information*. Sacramento, CA: Library Juice Press.
- Finn, E. (2017). *What Algorithms Want: Imagination in the Age of Computing*. Cambridge, MA: MIT Press.
- Foer, F. (2017). *World Without Mind: The Existential Threat of Big Tech*. New York, NY: Penguin Press.
- Freire, P. (1970). *Pedagogy of the Oppressed*. New York: Herder and Herder.
- Fuchs, C. (2011). *Foundations of Critical Media and Information Studies*. London: Routledge.
- Fuchs, C. (2014a). *Digital Labor and Karl Marx*. New York: Routledge.
- Fuchs, C. (2014b). *Social Media: A Critical Introduction*. London: Sage.

- Galloway, A. (2017, April 7). An Interview with McKenzie Wark. *b2o*. Retrieved from <http://www.boundary2.org/2017/04/alexander-r-galloway-an-interview-with-mckenzie-wark/>
- Greenfield, A. (2017). *Radical Technologies: The Design of Everyday Life*. London: Verso.
- Grimshaw, M. (2018). Towards a manifesto for a *critical* digital humanities: critiquing the extractive capitalism of digital society. *Palgrave Communications*, 4(21). Retrieved from: <https://www.nature.com/articles/s41599-018-0075-y>
- Gross, T. (2017). [Expand, Humanize, Simplify: An Interview with Sandy Berman]. *Cataloging & Classification Quarterly*, 55(6). 347-360. Retrieved from: [http://repository.stcloudstate.edu/cgi/viewcontent.cgi?article=1061&context=lrs\\_facpubs](http://repository.stcloudstate.edu/cgi/viewcontent.cgi?article=1061&context=lrs_facpubs)
- Hall, G. (2017). *Pirate Philosophy: For a Digital Posthumanities*. Cambridge, MA: MIT Press.
- Hayles, N. K. (1999). *How We Became Posthuman. Virtual Bodies in Cybernetics, Literature, and Informatics*. Chicago: The University of Chicago Press.
- Lau, A. J., Sellie, A., & Day R. E. (2017). Why is the Journal of Critical Library and Information Studies Needed Today? *Journal of Critical Library and Information Studies*, 1(1), 1-6. DOI: 10.24242/jclis.v1i1.48
- Lazzarato, M. (2014). *Signs and Machines: Capitalism and the Production of Subjectivity*. Cambridge, MA: Semiotext(e)/MIT Press.
- Liu, A. (2004). *The Laws of Cool: Knowledge Work and the Culture of Information*. Chicago: University of Chicago Press.
- Lukic, K. (2016, August 19). Colonization with Love. *Share Lab*. Retrieved from: <https://labs.rs/en/colonization-with-love/>
- Lovink, G. (2016). *Social Media Abyss: Critical Internet Cultures and the Force of Negation*. Malden, MA: Polity Press.
- Lynch, M. P. (2016). *Internet of Us: Knowing More, Understanding Less in the Age of Big Data*. New York: W.W. Norton.
- Marino, M. (2016). Critical Code Studies. *Electronic Book Review*. <http://www.electronicbookreview.com/thread/electropoetics/codology>
- Morozov, E. (2018, January 28). Will tech giants move on from the internet, now we've all been harvested? *Guardian*. Retrieved from: <https://www.theguardian.com/technology/2018/jan/28/morozov-artificial-intelligence-data-technology-online>
- Oliphant, T. (2017). A Case for Critical Data Studies in Library and Information Studies. *Journal of Critical Library and Information Studies*, 1(1). DOI: 10.24242/jclis.v1i1.22.
- O'Neil, C. (2016). *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*. New York, NY: Crown Publishers.
- Pasquale, F. (2017, November 8). The Automated Public Sphere. *University of Maryland Legal Studies Research Paper 31*. Retrieved from: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3067552](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3067552)
- Pasquale, F. (2015). *The Black Box Society. The Secret Algorithms that Control Money and Information*. Cambridge, MA: Harvard University Press.
- Pasquinelli, M. (2009). Google's Page Rank Algorithm: A Diagram Of The Cognitive Capitalism and the Rentier Of The Common Intellect. In K. Becker & F. Stalder (Eds.), *Deep Search: The Politics of Search Beyond Google* (pp. 152-162). London: Transaction Publishers. Retrieved from: <http://www.graphicine.com/matteo-pasquinelli-googles-pagerank-algorithm-a-diagram-of-the-cognitive-capitalism-and-the-rentier-of-the-common-intellect/>

- Pasquinelli, M. (2014, February-April). Anomaly Detection: The Mathematization of the Abnormal in the Metadata Society. Retrieved from:  
[http://eclass.uth.gr/eclass/modules/document/file.php/MHXD236/Pasquinelli%20-%20Anomaly\\_Detection\\_The\\_Mathematization\\_of.pdf](http://eclass.uth.gr/eclass/modules/document/file.php/MHXD236/Pasquinelli%20-%20Anomaly_Detection_The_Mathematization_of.pdf)
- Pasquinelli, M. (2015). Italian Operaismo and the Information Machine. *Theory, Culture & Society* 32(3). 49-68. Retrieved from:  
<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.851.5326&rep=rep1&type=pdf>
- Postman, N. (1995). *The End of Education: Redefining the Value of School*. New York: Vintage Books.
- Robinson, L., Priego, E. & Bawden, D. (2015). *Library and information science and digital humanities: two disciplines, joint future?* Paper presented at the 14th LIDA International Symposium on Information Science, 19-21 May 2015, Zadar, Croatia.  
<http://openaccess.city.ac.uk/11889/8/LIS%20and%20DH.pdf>
- Striphas, T. (2015). Algorithmic culture. *European Journal of Cultural Studies*, 18(4-5), 395-412.  
<http://journals.sagepub.com/doi/abs/10.1177/1367549415577392>
- Terranova, T. (2000). Free Labour: Producing Culture for the Digital Economy. *Social Text*, 63, 18(2), 33-58. Retrieved from: <http://web.mit.edu/schock/www/docs/18.2terranova.pdf>
- Tronti, M. (1962). *Factory and Society*. Retrieved from:  
<https://operaismoinenglish.wordpress.com/2013/06/13/factory-and-society/>
- Tufekci, Z. (2017, October). *Zeynep Tufekci: We're building dystopia just to make people click on ads* [Video file]. Retrieved from:  
[https://www.ted.com/talks/zeynep\\_tufekci\\_we\\_re\\_building\\_a\\_dystopia\\_just\\_to\\_make\\_people\\_click\\_on\\_ads/transcript](https://www.ted.com/talks/zeynep_tufekci_we_re_building_a_dystopia_just_to_make_people_click_on_ads/transcript)
- Vaidhyanathan, S. (2006). Afterword: Critical information studies: A bibliographic manifesto. *Critical Studies*, 20(2-3), 292-315.
- van Dijck, J. (2014). Datafication, dataism and dataveillance: Big Data between scientific paradigm and ideology. *Surveillance & Society*, 12(2), 197-208.
- van Dijck, J. (2016). Foreword. In M. T. Schäfer & K. van Es (Eds.), *The Datafied Society. Studying Culture through Data* (pp. 11-12). Amsterdam: Amsterdam University Press.
- Virilio, P. (2000). *The Information Bomb*. London: Verso.
- Vosoughi, S., Roy, D. & Aral, S. (2018) The spread of true and false news online. *Science*, 359(6380), 1146-1151. Retrieved from: <http://science.sciencemag.org/content/359/6380/1146.full>
- Worman, A., Samek, T. (2011). Digital labour shortage: A new divide in library and information studies education? *Information, Society and Justice*, 4(2). pp.71-82. Retrieved from:  
[http://repository.londonmet.ac.uk/115/1/InformationSocietyAndJustice\\_v4n2\\_p71-82.pdf](http://repository.londonmet.ac.uk/115/1/InformationSocietyAndJustice_v4n2_p71-82.pdf)
- Wu, T. (2016). *Attention Merchants: The Epic Scramble to Get Inside Our Heads*. New York: Alfred A. Knopf.

## **Library education in Austria: With a particular focus on the Postgraduate University Program Library and Information Studies, MSc**

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### **Abstract**

This article gives an overview about library education in academic libraries in Austria. A regular program at university level does not exist in Austria. Furthermore, the education of academic libraries is not linked to the education of public libraries and school libraries. In the past, library education for academic libraries was an in-house training which was controlled by the ministry of science. After the University Act 2002 had released Austrian universities to full legal capacity, the postgraduate University Program Library and Information Studies, MSc replaced the in-house trainings. The program which was implemented at the University of Vienna first (the University of Graz and Innsbruck followed a few years later) consists of a basic program and a master program. The successful completion of the basic program provides the unified education for the library staff at Austrian universities. The master program, which can be continued by students with a bachelor degree, also contributes to applied research in the field of library and information studies in Austria. However, since the postgraduate program is part of continuing education, it cannot be considered as a regular university program.

**Keywords:** Austria, library education, university library, academic library, postgraduate university program

### **Development of library education in Austria**

Traditionally, the education programs for public libraries, school libraries and academic libraries are not linked to each other in Austria. This article especially focusses on the education programs for academic libraries after high school.

In 1929, the federal government adopted the first regulations which laid the foundation for in-house trainings at the (Austrian) National Library. These in-house trainings constituted the education for academic libraries in Austria for almost 70 years (Zotter-Straka 2018, p. 1). The courses were offered to academic librarians who were high school graduates and who already worked in an academic library and were not open to the public. These in-house trainings at the Austrian National Library existed until 1978.

In 1979, a new regulation was adopted according to which the programs were carried out in cooperation of the Austrian National Library and the university libraries in Graz, Innsbruck and Salzburg (Zotter-Straka 2018, p. 5). It was the first time that persons not working in an academic library could participate in the library education if there were free places available. This regulation was in force for another 20 years until a new reform took place in 1999. At first sight, the time period between the reforms seems to be quite long. However, the content of the programs was constantly adapted to the changing requirements of the profession and the changing job profile has always been taken into account. (Pum 2014, p. 2)

At the end of the 20th century, the growing education market caused an increasing competitive situation with the consequence that the in-house trainings had to compete with external library programs.



Furthermore, the University Act 2002<sup>44</sup> brought the independence of the Austrian universities. Also, the Austrian National Library acquired its own legal personality at the beginning of 2002 due to the Federal Museums Law<sup>45</sup>. Due to these developments, the existing in-house trainings were no longer adequate and a fundamental reform of the education for academic librarians was necessary. As a result, the university program Library and Information Studies, MSc. replaced the internal training courses.

**Table 1.** Legal bases for library education for academic/university libraries in Austria

Period	Legal foundation of library education for academic libraries
1929–1978	Regulations on academic librarianship in Austria (for graduates from universities and from high schools)
1979–1999	Regulation on the Education of Librarians and Documentalists (Levels A (academics) and B (high school graduates)) <sup>46</sup>
2000–2004	Regulation of the Federal Government on Basic Training for the Levels A1 (academics) and A2 (high school graduates) - Library, Information and Documentation Service <sup>47</sup>
2005–2013	Regulation on the Uniform Education in Librarianship, Information and Documentation for Library Staff at Universities (according to the University Act 2002) <sup>48</sup>
2014–	Regulation on the Uniform Education of University Library Staff <sup>49</sup>

### University Program Library and Information Studies, MSc.

The fundamental changes in Austrian higher education have been mainly performed in the past 25 years. After the adoption of the University Organization Act 1993 (UOG 93)<sup>50</sup>, Austrian universities received partial legal capacity. Before, the universities were controlled by the ministry which was also true for the university libraries. With the adoption of UOG 93, university libraries became part of the particular university. In 1999, Austria signed the Bologna Declaration to participate in the European Higher Education Area.

These developments were the preconditions for a totally new design of academic library education in Austria. The final end of the education for academic libraries and, as a consequence, the opportunity for a new education was initiated by the University Act 2002 which was adopted in 2004 and which released

<sup>44</sup> Österreich (2002b): Universitätsgesetz 2002 (idgF).

<sup>45</sup> Österreich (2002a): Neue Erlassung des Bundesmuseen-Gesetzes (idgF).

<sup>46</sup> Österreich (1978): Verordnung über die Grundausbildungen für die Verwendungsgruppen A und B - Bibliotheks-, Dokumentations- und Informationsdienst, BGBl. Nr. 659 vom 29. Dezember 1978.

<sup>47</sup> Österreich (1999): Verordnung: Grundausbildungen für die Verwendungsgruppen A1 und A2 – Bibliotheks-, Informations- und Dokumentationsdienst - BGBl. II Nr. 295/1999.

<sup>48</sup> Österreich (2005): Verordnung: Einheitliche Ausbildung aus dem Bereich Bibliotheks-, Informations- und Dokumentationswesen für das Bibliothekspersonal der Universitäten gemäß Universitätsgesetz 2002 und der Universität für Weiterbildung Krems, BGBl. II 186/2005.

<sup>49</sup> Österreich (2014): Verordnung des Bundesministers für Wissenschaft, Forschung und Wirtschaft über die einheitliche Ausbildung für das Bibliothekspersonal der Universitäten (Universitätsbibliothekspersonal-Ausbildungsverordnung). - BGBl. I Nr. 45/2014.

<sup>50</sup> Österreich (1993): Bundesgesetz über die Organisation der Universitäten, UOG 1993.

Austrian universities to full legal capacity. At the same time, all education regulations for academic libraries lost their validity. Furthermore, the demand for a uniform library education was legally anchored (Zotter-Straka 2008, p. 134). After two years of preparation from 2002 to 2004, the postgraduate University Program Library and Information Studies, MSc was finally implemented.

Structure and organization of the program.

The university program Library and Information Studies (LIS), MSc was established at the University of Vienna (in cooperation with the Austrian National Library) in 2004, at the University of Innsbruck in 2005, at the University of Graz in 2006 and at the University of Salzburg in 2013. Currently, the program lasts 4-5 semesters and consists of a two-semester basic program with an internship and a project as well as of an advanced program (master's degree program) with a master's thesis and a defence. The successful completion of the basic program provides the unified education for the library staff at Austrian universities for the "qualified" (high school graduates or graduates with a bachelor's degree) and "higher qualified" (graduates at master's degree level) fields of activity. After completing the basic program, students are awarded with the title "Academic Library and Information Expert".

The master's degree program is completed with the master's thesis including a thesis defence. The awarded degree is Master of Science (MSc) in Library and Information Studies. The required qualification for admission to the basic program is the graduation from high school or a university entrance examination. The required qualifications for admission to the master's degree program are the successfully completed basic program and a successfully completed university study with a minimum of 180 ECTS (see Table 2).

The goal of the study is a practice-oriented education at an academic level, which meets the requirements and expectations of academic libraries as well as the European standards (Zotter-Straka 2018, p.13). It is one of the characteristics of postgraduate university programs that they serve as continuing education. As a consequence, the program is not part of the master programs according to the Bologna process.

A working group under the lead of the Austrian Federal Ministry of Education, Science and Research is responsible for the curriculum design.<sup>51</sup> The working group consists of representatives from the universities where the university program is offered (Vienna, Graz, Innsbruck, Salzburg), the head of the education department at the Austrian National Library, one representative from the Austrian university library directors, one representative from the Austrian Federal Ministry of Education, Science and Research and other information experts. The working group meets every three months for intensive working sessions in order to revise the curriculum, exchange experience and generally to adapt the program for a professional field that is constantly changing.

The curriculum was designed and revised in close cooperation with the Austrian board of university library directors which is responsible for ensuring the scientific, organizational, educational, didactic and professional standards. The goal is to have one common curriculum in Austria. However, since universities are independent corporate bodies, the curriculum has to be established at each participating university. Each of the universities has implemented its own process for the development, implementation and revision of curricula. This means that the curriculum has to pass this process at each single university. For example, the process at the University of Graz is shown in Figure 1.

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<sup>51</sup> [www.bibliotheksausbildung.at](http://www.bibliotheksausbildung.at). The website provides links to the curricula of all participating universities.



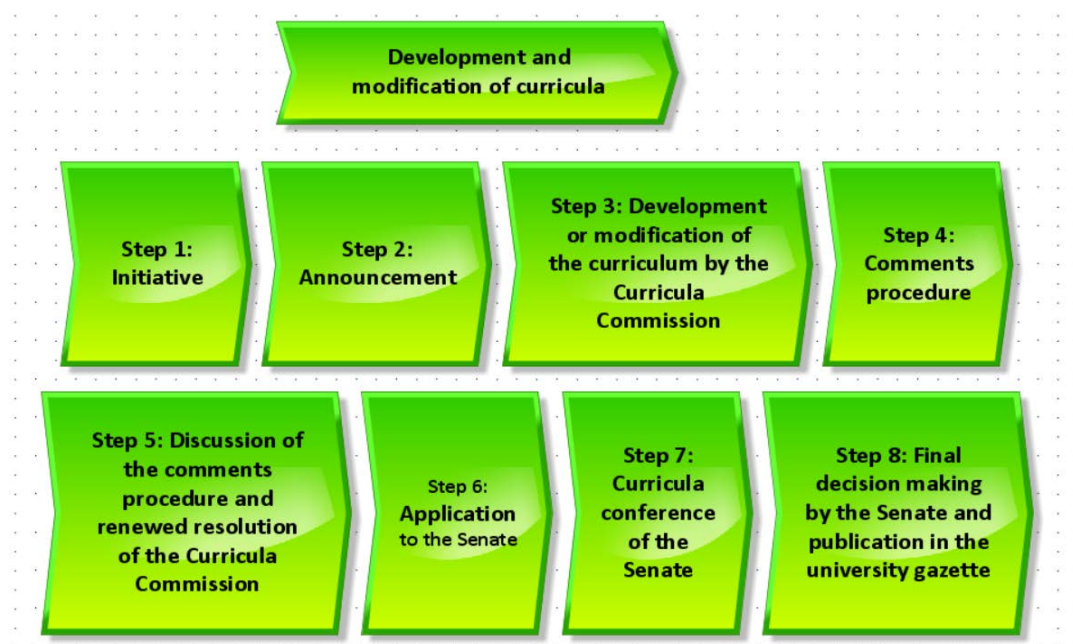
As the reality shows, the term "interuniversity" is more and more difficult to apply due to the autonomy of the participating universities and the related in-house developments. In any case, the participating universities have the following in common:

- the course content will remain the same at all participating universities as defined in the University Act 2002
- the participation fees are the same at all universities
- each participating university appoints a local scientific director who is a member of the Austrian-wide Scientific Program Board which meets once a year
- a common pool of lecturers
- common guidelines for quality assurance purposes (e.g., requirements for internships, projects or master's thesis)
- a joint international advisory board.

The modalities of cooperation between the involved universities are regulated in a cooperation agreement. A joint international advisory board meets once a year to gather and discuss the inputs from international experts of the field. These inputs are very valuable when revisions of the curriculum which already happened twice are discussed.

**Table 2.** Short facts about the postgraduate university program on LIS, MSc.

<b>Basic program</b>	
Required qualification	Completion of a high school or university entrance examination
Duration	2 semesters
Workload	60 ECTS
Title/Degree	Academic Library and Information Expert
<b>Master program</b>	
Required qualification	1. Completion of a bachelor program (180 ECTS) 2. Completion of the basic program (60 ECTS)
Duration	2-3 semesters (full-time or part-time)
Workload	60 ECTS
Title/Degree	Master of Science in Library and Information Studies, MSc.



**Figure 1.** Submission process for curricula of postgraduate programs at the University of Graz

In 2009, the range of courses was expanded mainly to include elective courses for public libraries. The second revision took place in 2013, the third one will enter into force in 2019.

Modules of the curriculum 2013.

According to the current curriculum, students of the basic program have to complete 7 modules, including a project and an internship (see Table 3).

One of the most important success factors of the program is the combination of theory and practice. The obligatory internship enables students to gather experiences in different fields of library work. It aims to familiarize students with professional practice and to apply theoretical knowledge. Furthermore, the internship provides improved job opportunities and the chance for establishing contacts to libraries in Austria and abroad. Internships are also an opportunity for employers to get to know the students, who could be their future employees (Pum 2014, p. 7). Furthermore, students have to complete a practical project in groups of 2-4 students. The focus of team work is on independently implementing a project.

**Table 3.** Modules of basic program

Modules	ECTS
Module 1      Management basics for libraries	4
Module 2      Media	4
Module 3      Library metadata	9
Module 4      Information sources and information retrieval	6
Module 5      Information services	7
Module 6      Legal information (basics)	4
Module 7      Project and internship	22
Elective courses	4
<b>TOTAL</b>	<b>60</b>

The students have the opportunity to prove their skills in a relevant working environment, since they can put into practice what they have learned in class. A project supervisor accompanies the projects and guarantees their feasibility. Furthermore, the students have to write a project report to guarantee the sustainability of the projects. They also have to present the results to an expert audience, which includes the clients of the projects as well as interested colleagues (Pum 2014, p. 6).

The master's degree program consists of 3 modules, including the master's thesis and its defence (see Table 4). The master's theses of the graduates are an important contribution to the research in the field of library and information studies in Austria.

**Table 4.** Modules of advanced program (master's degree program)

Modules	ECTS
Module 8      Library management (advanced courses)	12
Module 9      Current topics in librarianship	6
Module 10     Master thesis, master seminar and defence	34
Elective courses	8
<b>TOTAL</b>	<b>60</b>

### Curriculum revision 2019

Currently, the university program is offered as a modular face-to-face study program with a few distance learning units. The revised curriculum which is expected to be enacted in October 2019 (see Tables 5 and 6) will have a blended learning concept which combines on-site classes with distance learning units.

In addition, the number of elective courses will increase significantly. The elective courses will be organized in modules, so that the deepening in them will already be possible during the basic program. Nevertheless, the principle of a universal basic education will be maintained.

**Table 5.** Modules of basic program (Curriculum 2019)

Modules	ECTS
Module 1      Library and collection management	8
Module 2      Organization of information	8
Module 3      Information technology	8
Module 4      Information services	8
Module 5      Project	8
Module 6      Professional practice / internship	12
Specializations:	
7.1 Library metadata	
7.2 Applied information literacy	
7.3 Legal information for libraries (basics) and information ethics	
7.4 Public libraries	
Module 7      7.5 One-person libraries	8
7.6 Administration of literary legacies	
7.7 Marketing and public relations	
7.8 Current topics and trends (basic program)	
7.9 Archival science	
7.10 Data librarianship	
7.11 Historical book collections	
<b>TOTAL</b>	<b>60</b>

**Table 6.** Modules of advanced program (master's degree program) (Curriculum 2019)

Modules	ECTS
Module 8      Strategic management	12
Module 9      Knowledge production and library	8
Master thesis and defence:	
Module 10      10.1 Master seminar	32
10.2 Master thesis	
10.3 Defence	
Specializations:	
11.1 Library architecture	
11.2 Bibliometrics and scientometrics	
Module 11      11.3. Legal topics in libraries	8
11.4 Innovation and change management in libraries	
11.5 User research in libraries	
11.6 Management of public libraries	
11.7 Current topics and trends (master program)	
<b>TOTAL</b>	<b>60</b>

## Conclusion and future perspectives

Austria is among those countries that has no regular study program in LIS in Europe. However, the postgraduate program Library and Information Studies, MSc has definitely led to a significant improvement in the library education. Content and structure of the program are similar to regular university programs in other European countries. There is only one main difference: Austrian students have to pay very high tuition fees due to the fact that postgraduate university programs must cover their costs in Austria.

The university program also stimulates innovation in the Austrian library system: on the one hand, innovations are initiated by the librarians themselves since they are strongly involved in library education now, for example, as a teacher or in the role of a project manager or project supervisor. On the other hand, the master theses have a strong impact on applied research and innovation in Austrian university libraries.

The dynamic job profile of librarians requires flexible structures in education and continuing education and new forms of teaching and learning. While factual knowledge is not so relevant anymore, strategic thinking, innovation management and service orientation gain in importance. In particular, skills like analytical thinking, communication competence, openness for technical questions and an interest in solving complex tasks, always under the aspect of scarcity of resources and the constantly rising flood of data, are more and more demanded (Pum 2014, p. 2). It is not only necessary to have an international focus, but also to maintain a close contact to the employers in order to adapt the program consequently to the needs of the libraries.

In Austria, it was common practice to include all relevant stakeholders in the development of library education. As a result, there was always a close cooperation between science and practice. This principle is a very important success factor for library education in Austria and is expected to be pursued to guarantee a successful program in the future.

## References and sources

- Österreich (1978): Verordnung über die Grundausbildungen für die Verwendungsgruppen A und B - Bibliotheks-, Dokumentations- und Informationsdienst, BGBl. Nr. 659 vom 29. Dezember 1978 [https://www.ris.bka.gv.at/Dokumente/BgblPdf/1978\\_659\\_0/1978\\_659\\_0.pdf](https://www.ris.bka.gv.at/Dokumente/BgblPdf/1978_659_0/1978_659_0.pdf) (accessed July 31<sup>st</sup>, 2018)
- Österreich (1993): Bundesgesetz über die Organisation der Universitäten, UOG 1993 <https://www.bka.gv.at/Dokumente/Normenliste/NL00005389/NL00005389.pdf> (accessed July 31<sup>st</sup>, 2018)
- Österreich (1999): Verordnung: Grundausbildungen für die Verwendungsgruppen A1 und A2 – Bibliotheks-, Informations- und Dokumentationsdienst - BGBl. II Nr. 295/1999 <https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=10008430&FassungVom=1999-07-31> (accessed July 31<sup>st</sup>, 2018)
- Österreich (2002a): Neue Erlassung des Bundesmuseen-Gesetzes (idgF) [https://www.ris.bka.gv.at/Dokumente/BgblPdf/2002\\_14\\_1/2002\\_14\\_1.pdf](https://www.ris.bka.gv.at/Dokumente/BgblPdf/2002_14_1/2002_14_1.pdf) (accessed July 31<sup>st</sup>, 2018)
- Österreich (2002b): Universitätsgesetz 2002 (idgF) <https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20002128> (accessed July 31<sup>st</sup>, 2018)

- Österreich (2005): Verordnung: Einheitliche Ausbildung aus dem Bereich Bibliotheks-, Informations- und Dokumentationswesen für das Bibliothekspersonal der Universitäten gemäß Universitätsgesetz 2002 und der Universität für Weiterbildung Krems, BGBl. II 186/2005 [https://www.ris.bka.gv.at/Dokumente/BgblAuth/BGBLA\\_2005\\_II\\_186/BGBLA\\_2005\\_II\\_186.html](https://www.ris.bka.gv.at/Dokumente/BgblAuth/BGBLA_2005_II_186/BGBLA_2005_II_186.html) (accessed July 31<sup>st</sup>, 2018)
- Österreich (2014): Verordnung des Bundesministers für Wissenschaft, Forschung und Wirtschaft über die einheitliche Ausbildung für das Bibliothekspersonal der Universitäten (Universitätsbibliothekspersonal-Ausbildungsverordnung). BGBl. I Nr. 45/2014 <https://www.ris.bka.gv.at/eli/bgbl/II/2014/377/20141223> (accessed July 31<sup>st</sup>, 2018)
- Pum, G. (2014): Bibliotheksausbildung im Umbruch: Neuerungen in Österreich. *Bibliothek, Forschung und Praxis*, 39(1), 1-11.
- Zotter-Straka, H. (2008): Qualifizierung für bibliothekarische Leitungsfunktionen: die Situation in Österreich. *Zeitschrift für Bibliothekswesen und Bibliographie*, 55(3-4), 134-137.
- Zotter-Straka, H. (2018): Der Weg zur beruflichen Gleichstellung am Beispiel von Bibliothekarinnen. Frauen in der bibliothekarischen Ausbildung. [not yet published].



## **Information Science: An emerging ‘generalist’ discipline?**

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### **Abstract**

Education for the information profession in Australia is overdue for a serious debate and discussion about how well we are meeting the needs of the information professionals that we are educating. This article highlights some issues that have evolved as a result of the expanding information landscape.

A literature review and brief environmental scan of the current information education in Australia has formed the basis of this discussion.

The results of the environmental scan show significant duplication of effort in Australian information education programs. This leads to the inability to offer specialist programs in areas such as health and law information, and also the inability to address the ever-expanding information environment that we now operate in. Because of the breadth and depth of knowledge now required of information professionals, it is suggested that ‘information’ be seen as a generalist discipline, and that the Masters qualification be used as a means to specialise.

Potential solutions that may better prepare information professionals of the future with the breadth and depth of knowledge they will need to successfully operate in the information society are provided. Information education pathways in Australia are compared with those in both Medicine and Education.

**Keywords:** Information Science education; Australia; Library and Information Science

### **Introduction**

Calls for the examination of library and information science programs in Australia, and indeed in the world, are nothing new. The discipline continues to expand in response to new technologies (Al Jabri et al. 2018) and new and evolving roles of libraries and librarians in areas such as data science, data analytics, and data curation. A contemporary example in Australia can be seen in the rise and importance of research data management, evidenced by Government funded programs such as the Australian National Data Service (ANDS), which seeks to make “Australia’s research data assets more valuable for researchers, research institutions and the nation” (ANDS, n. d.). As these areas of practice expand, many information science programs are maintaining those traditional subjects of information discovery, cataloguing and classification, and collection development – as valuable as those may still be. However, Karno and Roth (2017) note that many “ALA accredited library schools have transformed into I-Schools [...] emphasizing the technological and data-driven nature of information science, and distancing themselves from traditional approaches to library school education” (p. 38). Although referring specifically to developing a data science specialisation in LIS curricula, Khan (2018) suggests that the rapidly changing demands for workforce skills is constrained by the “ad-hoc approach in the Library and Information Science (LIS) curriculum” (p. 46); but more broadly, Saunders et al. (2018) also highlight the need for “LIS schools to ensure that their curricula are meeting the needs of the field” (p. 205). The aforementioned developments suggest that the time is right for us to critically examine what information educators are teaching, what it means to be an information educator, and what it means to educate those who will call themselves information professionals.

Defining what an information professional is has become more complex since the introduction of the Internet and World Wide Web. New roles have appeared, and existing roles have grown and changed,

redefining the boundaries of what might be considered ‘traditional’ information professional domains. Le Coadic (1996, as cited in Ferreira et al. 2007) suggests that it is because of this “growth and diffusion” (para. 24) in the information professions that has made it difficult to precisely define what an information professional is.

Principally, an information professional can be defined as someone who in the course of their daily work performs some or all of the following information management practices: collecting, organising, describing, storing, providing access to and preserving information (Dupont 2007, Given & McTavish 2010; Myburgh 2011), remembering that information now exists in both physical and digital form. If this work is performed in a library, these information professionals are called librarians (traditionally, although some have much more creative titles, such as Metadata Processing Analyst, Data Collections Analyst, Informatics Specialist, Data Services Specialist); in an archive they are called archivists; in museums they may be called a curator; and in an art gallery they may be called a registrar. Therefore, an information professional is not only synonymous with ‘librarian’ but also with archivist, curator and registrar.

But even more broadly than these roles, it could be argued that this description of an information professional also describes much of what an Information Technology (IT) or Information Systems (IS) professional does, to a greater or lesser extent. According to Shah (2015), the role of an IT professional has ‘primarily and predominantly been, to facilitate [the] communication of information or data, from man, to machine, and then back to man’ (para 12). If the aforementioned librarian, archivist, curator or registrar is dealing purely with digital documents, is there in fact a difference between them and an IT professional as defined by Shah (2015)? There are certain sociocultural aspects to a librarian’s role that may not be a consideration for the IT professional – for example, the belief that information be freely and readily available to everyone without any form of censorship. However, if we disregard these aspects for just a moment, is there a difference between the information professionals that become librarians, archivists, curators and registrars and the IT professional? The technical skills that are seemingly becoming mainstream are going beyond the ability to search databases, yet to what degree are educators going beyond that? There are information education programs in Australia that are doing great things with HTML coding, information architecture, website design, and project management for example, but at a postgraduate level, is that really what we should be teaching? Shouldn’t a Master’s qualification be a first-level *professional* qualification, not ‘Introduction to Information’? Perhaps that depends on what we think the profession itself actually is – or what we want it to be.

Both the breadth and depth of skills and knowledge that are now called for in order to be an information professional has moved far beyond simply adding modules in order to respond to changes in technology. This is something that Myburgh noted (2003) and referred to as ‘disjointed incrementalism.’ She argues that the library and information science profession is only able to manage incremental change, when it is perhaps more extensive and widespread change that is needed. This view foreshadows that of Khan (2018) mentioned earlier. It is worth noting and addressing Myburgh’s use of the term ‘library and information science,’ or simply LIS. In order to gain professional recognition from the Australian Library and Information Association (ALIA), graduates are required to have completed an ALIA-accredited degree, a point that is not unique to Australia. In order for education programs to be accredited, there is an emphasis on the library-related content, and it is perhaps this fact that leads most people in Australia to continue to refer to the profession and associated education as ‘library and information science’ rather than simply ‘information science.’ As this is the common phrasing in Australia, the term ‘LIS’ will be used in the following sections when referring to the Australian context. However, it is suggested later in this paper that it may very well be this terminology that is supressing

any notion of an extensive and detailed review of what it means to be an information professional and what information education entails in Australia in 2018.

## **Research and Methodology**

An environmental scan and literature search was undertaken to ascertain the current situation of LIS education in Australia. A brief scan of international developments (although these are mostly focussed on the US) was then conducted in order to get a picture of how other countries are addressing the changing nature of the LIS profession and the education required in order to meet these changes. The pathways for entry into the Australian LIS profession was also compared to what could be considered as specialisations in the hard sciences and medicine. The data collection cannot be considered comprehensive, as this was the first attempt to gather empirical evidence to support my premise of positioning information science as a 'generalist' discipline.

## **Results**

In Australia, a generalist discipline is one that can be studied at undergraduate level with no particular professional end point in mind. Two of the most popular generalist undergraduate degrees in Australia are a Bachelor of Arts and a Bachelor of Science. In these two disciplines, and within the degree programs, students can study their choice of subjects, from human anatomy to zoology, in the case of Science; and from applied linguistics to women's studies in Arts. Exactly what subjects are offered is determined by each university. These generalist degrees provide students with the flexibility to decide during their tertiary studies what their future career options might be.

However, although students are expected to select a major and/or minor by the end of their first year of a three-year degree, their selection may still result in a non-vocational degree being granted – that is a degree that is not considered to be an entry into a particular profession in the way that a Bachelor of Surgery qualifies one as a medical professional. Nevertheless, these generalist degrees can and do provide entry to various professions. Select the right major and you can become a biochemist, marine biologist, a school teacher or a psychologist.

Current education (issues) in Australia No. 1: Duplication of effort.

The current trend in Australia is for universities to move away from so-called boutique or niche programs that comprise comparatively low student numbers, to those that offer better economies of scale (Pymm 2012). This alone should be enough of an impetus for the profession in Australia to investigate the extensive and widespread change that Myburgh (2003) calls for.

One of the fundamental reasons for comparatively low student numbers in Australia is that per capita, Australia has more LIS programs than countries such as the UK, USA and Canada, placing them in competition with each other for the small number of students who wish to become information professionals (Partridge and Yates 2012). This fact remains despite a decline in universities offering LIS education – from 12 in 2003 to 7 in 2018 (a decrease of over 40%). Considered in its historical context, it may be understandable why so many LIS programs were made available: the sheer size of Australia meant that it was practical to have at least one LIS program offered in every state capital city. With today's technology and opportunities for learning online, this is no longer necessary. Currently, the seven universities that offer LIS education provide a total of 13 ALIA accredited programs to cater for a population of 25 million. The majority of these are a Postgraduate Diploma or Masters (which vary in duration from 1-2 years), with three 3-year undergraduate programs available.

In order to gain ALIA accreditation, each institution must offer a program that includes certain core subjects. For example, each program will have subjects that in some form or other addresses cataloguing and classification, and collection development to name two. These will not be exactly the same in content, as each institution and each educator will put their own stamp on it. However, it can be assumed that they are reasonably similar, otherwise the accreditation may not be forthcoming.

The replication of effort needed to ensure that all seven universities deliver the core accreditation requirements severely limits the ability of most programs to provide specialised, allied fields of study, such as archival studies (Partridge and Yates 2012). Additionally, as the majority of LIS programs are only staffed with between two and five academics, this compels them to focus on these core subjects, further restricting the amount of growth and/or development that can feasibly be done. Coupled with the need for students to be across a much broader range of information knowledge, such as HTML/XML coding, information architecture, website design, data analytics, and project management as mentioned earlier, this duplication of effort does nothing to facilitate a broad-base information curriculum at each institution that offers LIS education.

Current education (issues) in Australia No. 2: Terminology.

Despite the wide and varied names of the programs that offer LIS education in Australia (Information Management, Information Studies, Information and Library Studies, and even Business Information Systems), they remain focussed on library subjects with a view that graduates will become librarians. This is somewhat ironic, given that the names of the programs imply that graduates will receive a broader information education. While this is partly due to the core subject requirements for accreditation mentioned above, it may also be the discipline's inability to look beyond the 'L' word and see a broader information discipline, of which librarianship is a part.

These two issues – the duplication of effort and terminology – is how we end up with a rather circular argument: we need to offer broader information subjects to account for the expansion of the discipline and to provide students with a more holistic view of the information world; but the effort required simply to meet the core required for accreditation – remembering the low staff numbers at most institutions – means that the focus on library-related subjects will remain. Add to this the lengthy process involved when adding new subjects to a university curriculum, the result is often that the piecemeal, ad-hoc approach disparaged by Myburgh (2003) and Khan (2018).

### **Practical implications: Three potential solutions**

In order to break the circular nature of this predicament, three potential solutions are offered for debate. The first is relatively simple: where programs focus on library education, ensure that the name of the program accurately reflects that. Why is a program called "Information Management" when the only information it focusses on belongs in a library? This could also be addressed at the discipline level – why do we insist on calling the profession "LIS"? Why is the 'L' given preference above other forms of information or information organisations, such as archives or museums, or even research organisations? They all manage information of some kind, and not all of it relevant to libraries or library education.

The following two potential solutions attempt to address the duplication of effort in the case of the WISE Consortium suggestion; and the terminology issue in the case of the second, 'generalist degree' suggestion.

## WISE Consortium.

The Web-based Information Science Education (WISE) Consortium could play a role in information education in Australia. This international collaborative initiative is a consortium of universities from the United States, Canada, United Kingdom, Australia and New Zealand. Each university pays an annual membership fee, which allows them to open a limited number of places in individual subjects to students of other WISE member institutions. Students pay their tuition fee for the subject to their home university. At the end of the year, WISE prepares a balance sheet showing which schools are net consumers (i.e. more outgoing than incoming enrolments), and which schools are net providers (more incoming than outgoing WISE enrolments). Net consumers are required to pay a small amount per student in addition to their annual fee. While there are Australian universities who are part of the WISE consortium, the concept does not appear to have taken hold in Australia as well as it potentially could. The reasons for this are unclear – perhaps the uncertainty as to whether the school will be a net consumer or net producer, and what (if any) impact that may have on future enrolments could be reasons why Australian universities have been reticent in exploiting this option.

It may be worth considering the feasibility of an Australian-only WISE model. A major benefit could be that it reduces the amount of duplication mentioned above by limiting the number of institutions that offer the core subjects, thus freeing other institutions to offer desperately needed specialisations such as such as medical librarianship, law librarianship, audio-visual archiving, digital preservation or cultural heritage informatics, to name a few.

Pymm (2012) notes the potential of the WISE consortium, particularly in relation to specialised subjects where faculty may not be readily available at the student's home institution. Currently, there are 98 topics listed, as a sample of what is available through WISE (WISE 2015). Not all could be considered specialisations, with inclusions of metadata and collection development topics, but the scope and variety of specialist, niche subjects on offer is well beyond the current capacity of Australian universities and educators.

## Information – the next generalist degree?

The idea behind suggesting an undergraduate degree is twofold. Firstly, if information education is to be much broader and less focussed on the 'L' it is impossible to do so within the current education structures and staffing levels. Continuing to add subjects to current (already crowded) curricula only perpetuates Myburgh's (2003) and Khan's (2018) concerns. Secondly, removing both introductory and more generic subjects (such as project management) from a postgraduate program and placing them in an undergraduate degree frees up curriculum space for more cohesive specialisations to be offered at the postgraduate level.

In a paper presented at the Congress of the International Council on Archives, Pymm (2012) notes the current challenge in developing an archival curriculum is the need to fit in what has traditionally been seen as core archival knowledge (appraisal, arrangement and description, functional analysis etc.) as well as including generic skills covering business, project management and advocacy approaches; building a research capability and commitment; and doing all this within an umbrella of understanding the big picture and context within which archives operate. Oh, and ensure a considerable level of IT knowledge and understanding. ('Education' section, 2nd para.)

Pymm (2012) goes on to highlight that such a "crowded curricula [...] is not unique to the archives and records fields" ('Education' section, 2nd para.), and that "any education for the [information] professions today has to [...] acknowledge some core generic skills and attributes which seem common

across the spectrum” (‘Education’ section, 3rd para.). In order to archive this, Pymm suggests a three-tiered program of education:

1. An intensive introductory program, “which serves as the essential framework, but is flexible enough to enable a level of ‘tailoring’” (‘Education’ section, 4th para.)
2. A second tier level of subjects relevant to the cultural heritage sector and the broader information disciplines (including records, archives and IT). Suggested subjects include “data curation and digital preservation; traditional preservation, access and users; metadata and descriptive standards; copyright and related legals [...]; more targeted IT knowledge covering digitisation, web presence and open standards” (‘Education’ section, 5th para.)
3. Professional-focussed subjects. Pymm mentions records and archives specifically, but also acknowledges that this could include any information-related professional program, provided faculty with the requisite skills and knowledge are available.

While not specifically stating that levels one and two in the above proposal are at the undergraduate level, this is implied by the reference to “the idea of shared courses across faculties [...] is an established practice, particularly at the undergraduate level” (‘Education’ section, 4th para.). Level three, incorporating ‘professional-focussed subjects’ speaks to my earlier question about a master’s level qualification being a professional qualification and not ‘Introduction to Information.’

An undergraduate degree in information science (note: not *Library* and Information Science!) could be positioned so that it appeals to the broader information professions, including those on the ‘hard science’ end of the information spectrum (i.e. Computer Science and Information Systems professionals) and those on the ‘softer’ end, which would incorporate librarians, archivists and museum professionals. In this way, the term ‘informatics’ as defined by Fourman, encapsulates the idea of information science as a generalist discipline of study:

“Informatics is the science of information. It studies the representation, processing, and communication of information in natural and artificial systems. Since computers, individuals and organisations all process information, informatics has computational, cognitive and social aspects.” (Fourman, 2003, p. 1)

An undergraduate degree in informatics has the potential to produce well-rounded information professionals on both ends of the information spectrum, by providing the cognitive and social aspects that may be missing from current IT education, and the increased technical competence and confidence that is needed by professionals who will work in the more service-focussed areas of the information profession, such as libraries, archives and museums.

Interestingly, the University of Maryland’s School of Information Studies announced a new inaugural undergraduate program: Bachelor of Science in Information Science (BSIS) which began in the northern hemisphere’s autumn of 2016. According to the press release ‘the undergraduate program joins the three existing graduate degree programs in Human Computer Interaction, Information Management, and Library Science’ (University of Maryland 2016, para 3). The Dean, Brian Butler, outlined the motivations for the new program:

“Information science is an interdisciplinary field, drawing from other areas of study such as computer science, management, education and the humanities, but with a focus on individual and institutional users of information and their information needs. This degree provides an opportunity for students to develop a unique combination of skills in information management, technology, and user-centered design that prepares students for



careers in a wide variety of industries and public sector jobs, ranging from financial services to libraries and museums. This program also provides the basis for increased collaboration with other departments around campus.” (University of Maryland, 2016, para 4).

This is not the only Bachelor of Science in Information Science by any means, with similar programs being offered by University of North Texas; University of North Carolina, Chapel Hill; University of Pittsburgh; University of Arizona, to name a few.

At the completion of such a generalist degree, students may have a better understanding of what information specialisation they wish to follow, whether that be library, archives, records, cultural heritage, systems, data analytics, data science and so on. Pursuing this option achieves two things: first, it eliminates the need for introductory information subjects in the Master’s degree; and second, the Master’s degree can then concentrate on the professionally focussed subjects, as suggested by Pymm (2012).

This model is similar to that used in the medical field in Australia – an undergraduate degree that qualifies you as a general practitioner, and if you want to specialise, then you select a specialisation based on your area of interest and undertake further study. Some may argue that the financial rewards for masters-qualified librarians are not the same as a specialist doctor (e.g. a psychiatrist), and this is going to put an unnecessary financial burden of university fees onto potential entrants to the field. However, students are currently required to do an undergraduate degree prior to undertaking a Masters in LIS, so this aspect doesn’t change. Additionally, it should be remembered that the number of years of study is not necessarily an indicator or indeed a determinant of financial reward.

However, this option is not without concerns, particularly with regard to current entry requirements for postgraduate study in LIS. Currently, any undergraduate degree in any discipline can be used for entry into LIS in Australia. As a profession, we have benefitted from this wide range of undergraduate degrees through the variety of perspectives it brings. However, it may be time for this requirement to be re-assessed for its feasibility and relevance in the environment that we now operate. We need to be realistic about what an information professional now needs to know. Our knowledge base in many ways has doubled – we still need to know how to care for and provide access to physical documents, but now we also need to know about digital documents – and I use the term ‘documents’ in its broadest sense to include objects found in museum and gallery collections.

A model that provides a compromise is to follow what some education faculties in Australia do: either a 3–4-year undergraduate degree in education where you become eligible for teacher registration; or a 3–4-year degree in another faculty (say in science) followed by a postgraduate qualification in education, which also leads to eligible teacher registration. People who want to be subject specialist teachers (e.g. a science teacher) will often follow this path. This option could be the preferred model for people who want to be subject specialist librarians. Examples in the current climate are law librarians and health librarians. Interestingly, there is a significant shortage of suitably qualified health information professionals (including health librarians) in Australia (Hallam et al. 2011).

## Conclusion

It may be that throughout their career a librarian will never have the need to apply information architecture principles, or write an information policy, or analyse research data, but the mere fact that they have more than a passing knowledge of it surely makes them a much more rounded, more holistically educated information professional? Would you go to a doctor who had no knowledge of

mental health issues, simply because they never intended to be a psychiatrist, so they skipped that subject in their bachelor degree? Librarians, archivists, information architects and system developers are specialists of the information professions, but current education in LIS in Australia is for the most part neither specialised nor generalised. The one thing that information professionals across the spectrum all have in common is information. How they deal with information may be different, but information is the overriding and unifying factor. We need to harness this common factor for the benefit of future generations of information professionals. Let's ensure that information education is robust and sustainable in the long term.

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## References

- Al Jabri et al. (2018). Al Jabri, S., Albright, K., Chu, C. M., Dali, K., & Tammaro, A. M. LIS qualifications, certification, and the meaning of 'professional' around the world. In: *The Expanding LIS Education Universe*, Proceedings of the Association for Library and Information Science Education Annual Conference: ALISE 2018. *ALISE Proceedings* (pp. 219–222).
- Australian National Data Service (ANDS) (n. d.). What we do. Retrieved from: <https://www.ands.org.au/about-us/what-we-do>.
- Dupont, C. (2007). Libraries, archives and museums in the 21st century: Intersecting missions, converging futures? *RBM: A Journal of Rare Books, Manuscripts and Cultural Heritage* 8(1), 13–19.
- Ferreira et al. (2007). Ferreira, F., Santos, J. N., Nascimento, L., Andrade, R. S., Barros, S., Borges, J., and Letalien, B. L. Information professionals in Brazil: core competencies and professional development. *Information Research*, 12(2), 12–2.
- Fourman, M. (2003). Informatics. In J. Feather & P. Sturges (Eds.), *International encyclopaedia of information and library science* (2nd ed., pp. 237–244). London: Taylor & Francis.
- Given, L.M. and McTavish, L. (2010). What's old is new again: The reconvergence of libraries, archives and museums. *The Library Quarterly*, 80(1), 7–32. doi: 10.1086/648461
- Hallam et al. (2011). Hallam, G., Ritchie, A., Hamill, C., Lewis, S., O'Connor, P., Kammermann, M., and Newton-Smith, C. Health librarianship workforce and education: Research to plan the future. *Final Report. Canberra: ALIA*.
- Karno, V. v., & Roth, A. a. (2017). LIS Education in an Interdisciplinary Frame: Integrating Digital Media into the Ethics of Digital Personhood. *DESIDOC Journal of Library & Information Technology*, 37(1), 38–41.
- Khan, H. R. (2018). Curriculum Development in LIS Education for Data Science Specialization. *The Expanding LIS Education Universe*. In: *The Expanding LIS Education Universe*, Proceedings of the Association for Library and Information Science Education Annual Conference: ALISE 2018. *ALISE Proceedings* (pp. 45–50).
- Myburgh, S. (2003). Education directions for NIPs (New Information Professionals). Paper presented at the 11th Information Online Exhibition and Conference, Sydney, 21-23 January. Available from: <http://conferences.alia.org.au/online2003/papers/myburgh.html>.
- Partridge, H. & Yates, C. (2012) A Framework for the Education of the Information Professions in Australia. *The Australian Library Journal*, 61(2), 81–94. doi: 10.1080/00049670.2012.10722323

- Pymm, R. (2012). Education for the profession: convergence or divergence in the digital world. Paper presented at International Congress on Archives, Brisbane, Australia. Available from: <http://ica2012.ica.org/files/pdf/Full%20papers%20upload/ica12final00324.pdf>.
- Saunders et al. (2018). Saunders, L., Abels, E., Hinchliffe, L.J., Owen, C. and Todaro, J. Core & More: Examining Foundational and Specialized Content in LIS Programs. In: *The Expanding LIS Education Universe*, Proceedings of the Association for Library and Information Science Education Annual Conference: ALISE 2018. *ALISE Proceeding* (pp. 205–206).
- Shah, H. (2015, November 4). *The role of the IT professional over the next decade* [Web log]. Available from: <https://www.linkedin.com/pulse/role-professional-over-next-decade-harish-shah?trkSplashRedir=true&forceNoSplash=true> .
- University of Maryland. (2016, February 29). *UMD's school of information studies announces inaugural undergraduate program*. Available from: <http://www.umdrightnow.umd.edu/news/umds-school-information-studies-announces-inaugural-undergraduate-program>.
- WISE (2015). *Sample list of WISE Courses*. Available from: <http://www.wiseeducation.org/media/documents/2009/1/wise.pdf>.

## **Towards building a strong LIS education: Preliminary findings from an international environmental scan of LIS education, certification and professional identity (European focus)**

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### **Abstract**

This paper reports on the preliminary findings of an international survey which examines the state of LIS education, certification and professional identity. It is part of an exploratory study conducted by IFLA's BLISE<sup>52</sup> working group as the first steps towards identifying core LIS competencies and establishing an international quality assessment framework. The results reported compare European findings with those of other regions globally.

**Keywords:** Accreditation; LIS Education; Authority; Internationalization; Identity

### **Introduction**

Technology, increased connectivity and socio-political changes are transforming the LIS profession (Hirsh et al. 2015, Vassilakaki & Moniarou-Papaconstantinou 2015, Kawooya 2016). An increase in international collaborations and cross-border mobility is bringing to the forefront the issues of LIS credentialing equivalencies and quality assurance (Han et al. 2014; Tammaro, 2015). IFLA's BLISE<sup>1</sup> Working Group was formed in response to these challenges and opportunities. As an initiative of the IFLA Section on Education and Training (SET) along with LIS Education in Developing Countries (SIG) and the section on Library Theory and Research (LTR) formed at the 2016 IFLA Satellite meeting at OCLC in Dublin Ohio, BLISE is working towards establishing an international quality assessment framework to promote LIS educational standards. The goal of this framework is to enable the identification of core competencies for LIS professionals that will facilitate professional mobility. However, there is a limited knowledge and understanding of the current worldwide LIS educational systems and professional certification that are mostly nationally or regionally governed. Mapping these areas marks a critical first step. This study was undertaken to explore, through a global survey, this landscape as it relates to credentialing, identity and authority. The preliminary data and analysis reported from this study uncover a few interesting trends and insights.

### **The LIS education landscape and its international context**

LIS education plays a key role in defining professional identity. However, the dissatisfaction with LIS education persists as does the criticism of the nature, content and output of the programs from multiple stakeholders (Oguz, Chu & Chow 2015, James, Shamchuk & Koch 2015, Mullins 2012). More specifically, the curriculum and library graduates' skills are seen as problematic (Weatherburn & Harvey 2016, Mole, Dim & Horsfall 2017, Kaur 2015). LIS practitioners and their employers believe that LIS curricula are not responsive enough to the needs of current and future professionals (Chawner & Oliver 2016, Saunders, 2015). Some skepticism regarding this crisis and the calls to reform LIS programs are noted instead by some as a crisis of understanding (Stoffle & Leeder 2005, Dillon & Norris 2005).

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<sup>52</sup> BLISE – Building Strong Library and Information Science Education.  
IFLA – International Federation of Library Associations.

However, there is a call for cooperation among LIS practitioners and educators to better prepare their graduates for their tasks as future LIS professionals (Miwa & Miyahara 2014). Past educational programs were primarily focused on physical collections and their services. Today, the emphasis is on the individual graduate, on information provision and anticipated future practices. Technological changes within LIS education are well documented and analyzed (Malhan 2017, Raju 2017). We also need a broader scope of changes, which are often referred to as user-centered (Bronstein 2007). With rapid technological changes and the increasing importance of social tools and applications, there is a growing need to strengthen the user-centered approach of information work by developing responsive social and technical skills of LIS professionals (Goodsett & Koziura 2016, Verma 2015).

The scope the LIS profession has become more international as graduates of LIS find job opportunities beyond the boundaries of their country. Therefore, the question of appropriate measures for assessing and comparing the quality of LIS educational programs becomes more pressing. New initiatives should focus on the diverse ways LIS education should be addressing the need to reach across national borders. Abdullahi and Kajberg's (2004) questionnaire-based study of issues and patterns of internationalization of LIS education in Europe, the USA and Canada highlights the efforts made by LIS schools to internationalize their programs and activities. This study demonstrates that this growing interest is motivated by a desire to improve programs, to understand the nature of the LIS profession and to explore ways in which international as well as intercontinental cooperative schemes can be best utilized. It uncovered that LIS programs should evolve from the present position characterized by the lack of coordinated and effective programs of international studies to future oriented programs that are clearly defined in their mission, goals and objectives. Cooperation and competition are regarded as two paradigms of internationalization in Europe. One is the more traditional framework consisting of networking and collaboration and the other is placing internationalization activities in a market competition framework (Abdulahi, Kajberg & Virkus 2007). However, currently, there appear to be no standards for inclusion of international issues in LIS curricula.

Case studies on international perspectives of LIS education like the one done for the School of Information at San José State University defined several noteworthy initiatives that include: virtually abroad global projects, globalization of LIS curriculum, international LIS internships, international project-based learning, faculty professional development, and international research collaborations (Hirsh et al. 2015). For LIS education, opportunities for international internships, practicums and field experience in different forms are particularly valuable. "You Can't Learn It in School" (Hoffmann & Berg 2014) defines perfectly the value of this type of educational experience. A study by Bird, Chu and Oguz (2015) among national libraries, associations, and academic library and information science programs from 69 different countries around the world revealed that, for 65% of the cases, internships are often required by the program or by law. Internationally, however, there is a decided lack of institutional support for virtual internships (James, Shamchuk & Koch 2015). Comparative studies of LIS programs in different countries show striking similarities in practicum and internship organization as well as in the attitudes that students and employers have toward them (Pymm & Juznic 2014).

Other important players in building professional identity are LIS professional associations. The International Federation of Library Associations and Institutions (IFLA) stands out as a leading international body representing the interests of library and information services and their users globally. It serves also as a forum where LIS practitioners and educators meet, discuss and work together to address issues and problems related to the internationalization of LIS education. For many years, the SET has acted as an international facilitator between educators and schools in the LIS field

throughout the world. SET addressed issues such as: standards for library schools, equivalency and reciprocity in terms of qualifications, curriculum development, the establishment of a LIS core curriculum, continuing professional education as well as the listing of LIS schools and archival programs (Abdullahi, Kajberg, & Virkus 2007, Al Jabriet al. 2018). Weech's (2016) review of the history of IFLA's involvement and efforts in the quality assessment of LIS Professional educational programs found that it is a complex and frustrating endeavor. Specifically, the role of SET has been to walk a fine line between what is feasible in terms of the limited resources available through IFLA and the establishment of enforcement protocols that would permit some form of international quality assessment of LIS Education programs to be implemented. This undertaking should be done in such a way that confidence in the assessment could be maintained internationally. The internationalization of LIS professional qualifications requires a necessary mutual trust that can stem only from quality assurance systems, which are appropriately compatible and credible, so that they can be validated (Tammamo 2005; 2015). To achieve this goal, more information about the current state of LIS educational requirements to qualify as an LIS "professional" at an international level is needed.

## Research

To address this knowledge gap, IFLA's BSLISE Working Group conducted a survey to learn about the differing qualification requirements (education, certification, individual credentialing system) for library and information "professional" practice which will help develop a better understanding of the current equivalence of credentials and the role of LIS education globally. It will also serve as the initial phase of an ongoing research project geared toward developing a framework to 1) assess the quality of LIS education, and (2) determine the transferability of LIS education, internationally.

## Method

The survey consists of an online questionnaire which included eight multiple-choice and three open-ended questions examining: (1) LIS/librarian qualification and certification requirements; (2) the definition and meaning of an LIS "professional"; and (3) authorities that determine professional entry requirements and certification (see Appendix A). Only three demographic questions were posed, asking the respondent to identify their role in the LIS profession, their institution's name (optional), and the country represented. The online questionnaire was deliberately kept short, as the goal was to receive responses from as many participants as possible from all countries worldwide. The survey was made available in six languages (Arabic, Chinese, English, French, Russian and Spanish) via an online survey platform. The link to the survey was disseminated through various LIS professional association's email discussion lists to reach both LIS practitioners and educators. Sharing of the link was encouraged. The survey was available from March to May, 2017. The regional and language expertise of BLISE team members was valuable in developing the survey and interpreting responses to ensure that differences in terminology and educational structures (e.g. post-secondary education levels of study and entrance requirements), and entities that shape LIS "professional" entry requirements (e.g., professional organizations) were understood and clearly presented.

The research group was initially confronted by the dilemmas of defining the target groups of participants and how they should be approached. Since the broader research focus is related to how collaboration and internationalization of LIS education could build stronger and better LIS field, the survey was initially meant to be an environmental scan the LIS educational field. We intended to have respondents that were mainly LIS practitioners, LIS educators and the representatives from professional organizations. It would have been challenging to have a complete stratified sample. Instead, a random



sampling approach was used where each member of the research group contacted one regional mailing list in the LIS field, with the invitation to respond to the survey. At this stage of the study, only descriptive statistics were needed.

### Results and discussion

The survey received 706 fully usable and complete responses from 100 countries (Table 1). The distribution of responses per region and per country was uneven. In some smaller countries, only one participant responded, whereas from other countries ten or more responses were received. USA, South Africa, Chile, Mexico and Australia are the countries where more than 20 participants responded.

The random sampling approach produced uneven number of responses from different countries and regions. Given the short length of questionnaire, however, many respondents provided some form of feedback. Qualitative responses, in particular the two open-ended questions (Q8 and Q12) were also coded to also allow for frequency counts for general, regional, and/or country trends. Quantitative data was captured to an Excel spreadsheet to generate descriptive statistics (frequency distributions by general, regional, and/or country trends). The random sampling approach produced unexpected results: in some countries with multiple respondents there were conflicting answers. In these cases, research team members reviewed the responses, and where a conclusive answer could not be made regarding a question, the national association, national library or an LIS program of the country of interest was contacted to confirm responses.

**Table 1.** Responses by region<sup>53</sup> (Q3)

Capacity	Responses
LIS professional	412
LIS educator	185
Professional association officer	59
LIS program head/dean/director	57
National librarian or representative	40
Professional certification representative	7
Other	48

**Table 2.** Responses by role (Q1)

Capacity	Responses
LIS professional	412
LIS educator	185
Professional association officer	59
LIS program head/dean/director	57
National librarian or representative	40
Professional certification representative	7
Other	48

<sup>53</sup> Regions designated according to the IFLA governing board  
<https://www.ifla.org/files/assets/wlic/general/documents/ifla-congress-regions.pdf>

As this is an ongoing research project, the research group will try to increase the number of respondents, especially from the countries where no responses were obtained. As expected, the majority of respondents stated that they are LIS practitioners, working in libraries or other information institutions (Table 2). As expected, the second highest responding group was LIS educators, most likely because they have the greatest interest in the survey theme.

### 1. LIS/librarian qualifications and certification (Q4 – Q7)

**Table 3.** Level of LIS education (number of countries)

	Africa	Asia & Oceania	Europe	Latin America & Caribbean	North America
A diploma from a college or a professional/vocational training institution (in any field)		4			
A diploma from a college or a professional/vocational training institution (in LIS)				1	
A graduate university degree (in LIS)	1	1	9	1	2
An undergraduate OR a graduate university degree			2		
An undergraduate OR a graduate university degree (in LIS)	4		7		
An undergraduate university degree (in any field)		2	1	1	
An undergraduate university degree (in LIS)	14	6	3	15	
None	1	3	2		
Other		1			
Qualification by apprenticeship any field)	1	1		1	

According to the findings from the survey, the credentials that appear to stand out for Europe are both, graduate and undergraduate degrees in LIS. These might be the result of the Bologna reform. In the other region, undergraduate degree in LIS are the most common credentials. North America, the graduate university LIS degree has been longstanding prerequisite for LIS/librarian professional entry into the job market, which is not so common in other parts of the world.

The Bologna Process, European higher education reform process, which commenced in 1998/99, might be the main reason why European countries also went in this direction by changing from an undergraduate LIS degree to a graduate degree.

College diplomas or apprenticeships are the only credentialing standards that not to appear in the European setting in either librarianship or other LIS related fields. This is not the case for other regions, where it is still quite common.

Countries where any undergraduate or graduate degree is sufficient and no LIS education is required still exist, as in Europe as in other regions. These can sound strange as some remains from the “distant” LIS field history and could be worth exploring further, as a special case study.

Our results show that these countries are clear exception and interesting anomaly to otherwise clear picture of the LIS profession in the world.

**Table 4.** Certification for librarian

	No	Yes
Europe	37,5%	62,5%
Other regions	36%	64%

**Table 5.** Certification for broader LIS field

	No	Yes
Europe	44%	56%
Other regions	58%	42%

**Certification** is a formal recognition that an individual has demonstrated a proficiency within, and comprehension of, a specific body of knowledge and skills. Often prior to the certification, a certain level of education is required.

About two thirds of the countries, certification for professional librarians is required. We also asked about certification for the broader LIS field. For question 7 (certification/broader field), the results were slightly different: 56% European respondents said yes compared to 42% in other parts of the world.

## 2. The definition and meaning of an LIS professional (Q 8)

**Table 6.** Definition of an “LIS professional”

	Knowledge and skills in LIS field	Person has a professional LIS degree	Working in a library or similar information institution	LIS job title and work experience	Other
Africa	2%	72%	11%	12%	3%
Asia & Oceania	30%	29%	15%	8%	18%
Europe	11%	50%	27%	5%	7%
Middle East	2%	65%	9%	21%	2%
North America	11%	59%	13%	16%	2%
Latin America & Caribbean	2%	87%	9%	2%	0%

For question 8 (definition of LIS professional/open question), four categories of definitions emerged that related to: credentialing, knowledge, work environment and job experience.

Most regions defined an LIS professional with the credentialing designation that is someone with an LIS degree (50 – 87%) with Latin America and Africa scoring the highest. Asia/Australasia stood out with a lower percentage (29%) for the credentialing definition, which was on equal par with the skills definition (30%).

Though Europe also followed the norm at the lower end (50%), 27% of respondents indicated that an LIS professional can be also designated someone who worked in not only a library but also in other information institutions (work environment). These results indicate that credentialing may not be required in some regions for LIS practice.

### 3. Authority (Q 9, Q10, Q11)

**Table 7.** Authority

	Europe	Other regions
A government agency	24%	35%
A professional association	32%	14%
None	12%	30%
Other.	16%	17%
The national library	16%	4%

When national policies and standardized guidelines are established through some authority, it provides the opportunity for recognition of qualifications hence greater mobility (Dali & Dilevko 2009). In the survey, when respondents were asked about ‘professional’ entry requirements to the LIS field, a notable difference was found between Europe and other regions of the world. Professional associations followed by government agencies play a predominant role in roughly one third of European countries. The National library authority seem to be present in many new EU member states which may stem from the historical tradition in several eastern European countries. Only 12% reported the absence of an authoritative body associated with professional requirements compared to 30% in other countries.

**Table 8.** Qualification legislation

	No	Yes
Europe	36%	64%
Other regions	66,7%	33,3%

**Table 9.** Certification legislation

	No	Yes
Europe	40%	60%
Other regions	76%	24%

Qualifications and certification in LIS field is much more common in European countries. According to the survey, most two thirds (64%) European countries have legislation regarding LIS qualification, compared to one third countries in other part of the world (Table 9). Legislation regarding certification (Table 10) shows even bigger discrepancies (60% vs. 24%) when comparing Europe to other countries.

The question of authority legislation in LIS professions has been for decades a subject of special interest in comparative library and information science that is becoming a revitalizing field (Lor 2014). In certain countries, laws that define the LIS field and librarianship in general provide the legal basis on which a library authority can carry out its functions, provide financial support and empower the competent authority to appoint trained staff and define objectives for the provision of service (Abdullahi 2009). Experience in many countries has shown the need for legislation so that the principles governing library

laws are now well defined, although a fair degree of flexibility is necessary to account for local circumstances (Zulu, Ngoepe & Saurombe 2017). However, library legislation does not exist at the national level in many countries. Even where library legislation has been adopted at the national level, differences from country to country may be observed with respect to contents that are regulated by applicable legislation. That the characteristics of library legislation differ from one country to another derives from differences in the countries' histories of the library as well as the social backgrounds of these countries (Ryu, Juznic 2017).

### **Survey comments from European respondents (Q8 & Q12)**

The following is a sample of comments representing some noteworthy issues relating to certification, legislation and identity.

#### **Professional qualifications/certification**

- 'Professional organization is trying to encourage more routes to acquire professional status. This means that people without degrees in LIS can apply and present a portfolio of knowledge and experience to be judged and awarded professional status' (equivalency accreditation)
- 'Due to lack of persons trained as librarian for public libraries (serving the general public) positions have been filled with ex-teachers, pre-school teachers and so on' (deprofessionalisation)
- 'One of the reasons for the lack of necessary documents in the field of certification and qualification is insufficient attention of the state to the profession, insufficient lobbying by the professional communities of the interests of library staff' (authority).

#### **Legislation**

- 'LIS certification/qualification was once recognized by law as a condition for applying to a library or archive job but it is no longer legislation protected'
- 'Certification/validation of graduated librarians is done by the Library Association through the state exam. LIS university programmes are accredited by the Ministry of Science, Education and Sport (i.e. government body, not professional association)'

#### **Professional roles and opportunities**

- 'LIS professional still mainly means librarians working in any sector - public, academic or specialist library or information service. However, there are many related roles - especially as (country) has many information-rich industries - like Google, Facebook and so on - so there are many types of roles, information architect, information consultant, those with different titles (like researcher or project leader) but who are essentially carrying out information management roles' (competing roles)

### **Conclusion**

The study reported only on preliminary findings from the study. A more comprehensive international report in the form of a white paper will be presented at the IFLA WLIC in August 2018. The BLISE group is currently in the process of completing a more in depth analysis as part of this exploratory study.

For the specific purpose of this conference, the survey results were presented from a European perspective. During the last fifteen years, a lot of effort has been made to make LIS field and especially education much more globally connected. The book *European Curriculum Reflections on Library and Information Science Education* (Lorring & Kajberg 2005) marked a threshold moment in this turn. One important finding was that the apparent disparate nature of LIS educational programmes in Europe

compared to other countries which constitutes a barrier to increased co-operation in the field. It was expected that the implementation of the Bologna Process will gradually replace a more conventional practice-oriented and profession-centered LIS education programs. Although the main goal was to increase collaboration between European LIS educational institutions, this would also influence the LIS field and professions in general. Our results still show a very diverse picture of LIS field in the Europe compared to other countries in the area of authority (legislation/certification). In Europe, LIS education is mostly connected to the national specifics and the regulation of the field. If this is diverse, LIS education will follow.

The possible solution might be bigger or even decisive involvement of professional association in LIS education programs accreditation process as it exists today in some countries (United States and Canada, Australia, South Africa, United Kingdom and Ireland).

A second phase of this study would involve a qualitative case study approach from selected countries that have outlier data. These cases could provide rich contexts from which to re-interpret data from the initial study and perhaps provide insights into how to move forward towards defining and internationalizing the profession through educational and institutional venues. This research is timely as it works in synergy with a current and unprecedented IFLA initiative called Global Vision. Global Vision seeks to address “*the challenges facing the library field from ever-increasing globalization can only be met and overcome by an inclusive, global response from a united library field*” (IFLA 2017).

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### References

- Abdullahi, I. (2009). *Global library and information science: A textbook for students and educators. with contributions from Africa, Asia, Australia, New Zealand, Europe, Latin America and the Carribean, the Middle East, and North America*. Berlin/Boston: K.G. Saur.
- Abdullahi, I., Kajberg, L., & Virkus, S. (2007). Internationalization of LIS education in Europe and North America. *New Library World*, 108, 7–24.
- Abdullahi, I., & Kajberg, L. (2004). A study of international issues in library and information science education: survey of LIS schools in Europe, the USA and Canada. *New Library World*, 105, 345–356.
- Al Jabri et al. (2018), Al Jabri, S., Albright, K., Chu, C. M., Dali, K., & Tammaro, A. M. LIS Qualifications, Certification, and the Meaning of ‘Professional’ Around the World. Presented at the 2018 *ALISE Annual Conference: The Expanding LIS Education Universe*, Denver Colorado (pp. 219–222).
- Bird, N. J., Chu, C. M., & Oguz, F. (2015). Internship in LIS education: An international perspective on experiential learning. *IFLA journal*, 41, 298–307.
- Bronstein, J. (2007). Current trends in library and information studies curricula around the world: Looking for the user-centered approach. *Journal of Information, Communication and Ethics in Society*, 5, 59–78.
- Chawner, B. & Oliver, G. (2016). What if? Exploring alternative models for professional LIS education. *The Australian Library Journal*, 65, 304–316.



- Dali, K., & Dilevko, J. (2009). The evaluation of international credentials and the hiring of internationally trained librarians in Canadian academic and public libraries. *The International Information & Library Review*, 41(3), 146–162.
- Dillon, A., & Norris, A. (2005). Crying wolf: An examination and reconsideration of the perception of crisis in LIS education. *Journal of Education for Library and Information Science*, 46, 280–298.
- Goodsett, M. & Koziura, A. (2016) Are Library Science Programs Preparing New Librarians? Creating a Sustainable and Vibrant Librarian Community. *Journal of Library Administration*, 56, 697–721.
- Han, P. et al. (2014). Han, P., Shi, J., Li, X., Wang, D., Shen, S., & Su, X. (2014). International collaboration in LIS: global trends and networks at the country and institution level. *Scientometrics*, 98(1), 53–72.
- Hirsh, S., Simmons, M. H., Christensen, et. al. (2015). International perspectives in LIS education: global education, research, and collaboration at the SJSU school of information. *Journal of Education for Library and Information Science*, 56, 27–46.
- Hoffmann, K., & Berg, S. (2014). " You Can't Learn It in School": Field Experiences and their Contributions to Education and Professional Identity / «Ça ne s' apprend pas à l'école»: Les expériences de terrain et leur contribution à la formation de l'identité éducationnelle et professionnelle. *Canadian Journal of Information and Library Science*, 38, 220–238.
- James, N., Shamchuk, L., & Koch, K. (2015). Changing roles of librarians and library technicians. *Partnership: The Canadian Journal of Library and Information Practice and Research*, 10, 1. doi:10.21083/partnership.v10i2.3333
- Lor, J. P. (2014). Revitalizing comparative library and information science: theory and metatheory. *Journal of documentation*, 70(1), 25–51.
- Kaur, T. (2015). Challenges and concerns for library and information science (LIS) education in India and South Asia. *Journal of Education for Library and Information Science*, 56(S1), 6–16. doi:10.12783/issn.2328-2967/56/S1/3
- Kawooya, D. (2016). Does Africa's LIS Education Address New Forms of Digital Content and Related Right? *Libri*, 66(2), 137–150.
- Lorrington, L., & Kajberg, L. (eds). (2005). *European curriculum reflections on library and information science education*. Royal School of Library and Information Science. Retrieved 25 Mar. 2018, from: <http://dspace-unipr.cineca.it/bitstream/1889/1704/1/EUCLID%20European%20LIS%20curriculum.pdf>.
- Malhan, I. V. (2017). Diverging Library and Information Services, Converging Technologies, Surging Professional Roles and Emerging Scenario for LIS Manpower Development. *International Journal of Intelligent Information Systems*, 6, 40.
- Miwa, M., & Miyahara, S. (Eds.). (2014). *Quality assurance in LIS education: An international and comparative study*. New York: Springer.
- Mole, A.J., Dim, C.L., & Horsfall, M.N. (2017). Re-engineering LIS education to meet industrial needs for knowledge societies. *Journal of Librarianship and Information Science*, 49, 313–319.
- Mullins, J.L. (2012). Are MLS graduates being prepared for the changing and emerging roles that librarians must now assume within research libraries? *Journal of Library Administration*, 52, 124–132. doi: 10.1080/01930826.2011.629966
- Oguz, F., Chu, C. M., & Chow, A. S. (2015). Studying online: Student motivations and experiences in ALA-accredited LIS programs. *Journal of Education for Library and Information Science*, 56, 213.

- Pymm, B., & Juznic, P. (2014). The view from industry: LIS students on placement. *Library Review*, 63, 606–623.
- Raju, J. (2017). Information Professional or IT Professional? – The Knowledge and Skills Required by Academic Librarians in the Digital Library Environment. *portal: Libraries and the Academy*, 17, 739–757.
- Ryu, H., & Južnič, P. (2017). Comparison of Slovenian and Korean library laws. *Journal of Librarianship and Information Science*, 0961000617743543.
- Saunders, L. (2015). Professional Perspectives on Library and Information Science Education, *The Library Quarterly* 85, 427–453.
- Stoffle, C. J., & Leeder, K. (2005). Practitioners and library education: A crisis of understanding. *Journal of education for library and information science*, 46(4), 312–319.
- Tammaro, A. M. (2005). Recognition and quality assurance in LIS: New approaches for lifelong learning in Europe. *Performance measurement and metrics*, 6(2), 67–79.
- Tammaro, A. M. (2015). Current Trends of Quality Assurance Models in LIS Education. In M. Miwa & S. Miyahara (Eds.), *Quality Assurance in LIS Education* (pp. 169–186). New York, NY: Springer.
- Vassilakaki, E., & Moniarou-Papaconstantinou, V. (2015). A systematic literature review informing library and information professionals’ emerging roles. *New library world*, 116(1/2), 37–66.
- Verma, M.K. (2015). Changing Role of Library Professional in Digital Environment: A Study. *International Journal of Library Science*, 13, 96–104.
- Weatherburn, J., & Harvey, R. (2016). Finding and forming the bold and the fearless: The future of LIS education in Australia. *The Australian Library Journal*, 65(4), 251–261.
- Weech, T. (2016). *IFLA Efforts to provide Standards for International Library and Information Studies Education: The Role of the IFLA Section of Education and Training– A Case Study*. Paper presented at: IFLA WLIC 2016 – Columbus, OH – Connections\_Collaboration. Community in Session 144 – Committee on Standards.
- Zulu, P., Ngoepe, M., & Saurombe, N. (2017). The importance of legislation in the provision of national and public library services in Zambia. *Journal of Librarianship and Information Science*, 49(2), 152–164.

## APPENDIX A

**Link to the survey:** <https://www.ika.si/a/115316>.

### International Survey of Entry Requirements for Library and Information “Professional” Practice

The IFLA Building Strong Library and Information Science Education (BSLISE) Working Group is conducting an international study to learn the differing qualification requirements (education, certification, individual credentialing system) for library and information “professional” practice in order to develop a better understanding of the equivalence of credentials and the role of LIS education. We invite the LIS community to participate in this survey to provide information regarding professional qualification and certification in their country. The results of this international survey will contribute to a better understanding of these practices and the equivalence of credentials globally. It will also serve as the initial phase of an ongoing research project geared toward developing a framework to 1) assess the quality of LIS education, and (2) determine the transferability of LIS education, internationally.

## **BiblioFest as an educational practice for starting professional career: Russian experience**

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### **Abstract**

This article presents student projects which are held in the oldest Russian University in LIS education – Saint Petersburg State University of Culture (SPbGIK). Among them are ‘LIS Department Week’, ‘Direct Line with Libraries of Russia’, ‘Around Russia in 60 Minutes’. The unique project of the LIS department is the International Student Library Festival ‘BiblioFest’ which was launched in 2013. The Festival was funded by the Grant of the European Union for the project № 2011/263-420 ‘Promoting event management training program as a resource for development of cultural industries and tourism in the North-West Russia’. Since 2013 the number of partners, participants and areas of projects within the BiblioFest has increased. Therefore, the BiblioFest acts as a link between SPbGIK and libraries in different parts of Russia and foreign countries. By participating in the BiblioFest, students get professional LIS competences which are included in the Russian educational standard of higher education ‘51.03.06 Library and information science activity’ (bachelor level). Thus this Festival prepares students for the future professional career.

**Keywords:** library festival, library and information science education, St. Petersburg State University of Culture, professional training

### **Introduction**

The main indicator of the competitiveness of universities is their demand in the labor market. There is a process of rapid changes in the field of education today in Russia. Modern students are placed in a rigid framework of the necessity for constant self-development and improvement. It is hard for school graduates to choose the sphere of activity for their future specialty. Advice of parents and friends do not give a complete idea of the content, significance and prospects of the chosen specialty. The humanitarian education is considered as a key factor for the formation of a person's ability to self-education, development, communication skills, promotes the assertion of one's own worldview and ideals for many years (Zakharov 2010). The primary goal of the university is to create ideal conditions for maximum self-disclosure of future specialists in various fields of activity: educational, scientific, creative, and professional.

Saint Petersburg State University of Culture (SPbGIK) was founded on November 28, 1918. One of the first two departments was of library and information science (LIS). Throughout its history a lot of prominent figures in the field of bibliology, library science and bibliography took an active part in the formation of the department. LIS department occupies leading positions among library and information science departments of the Russian universities. The department has trained thousands of specialists in the library and information science sphere. There are strong scientific and pedagogical schools in SPbGIK which achievements are actively used in the educational process (Brehzneva et al. 2015).

LIS department offers vocational guidance to students through involving them into project activity. One of them is called “LIS Department Week” (Ryabuhina 2017), which includes creative and professional events for the LIS students and faculty (LIS Department Week 2016).

Since 60% students of the department come from the federal districts of Russia it is very important to integrate all of them into St. Petersburg culture. At the same time, it is necessary to tell to the local students about culture of different Russian regions. To resolve this problem helps an innovative educational project for first-year students “Direct Line with Libraries of Russia” (Krymskaya and Ryabuhina 2016). It was designed by the Associate Professor Albina Krymskaya and initially was held on December 7, 2015. The aim of the project is to get acquainted with the libraries of different regions

of Russia through students studying at the department who come from the federal districts. By participating in this project students can learn to identify and analyze information resources, acquire skills for scientific research, and communicate for interpersonal interaction verbally (Russian educational standard 2016).

Another informational and educational project “Around Russia in 60 Minutes” (organized by A. Krymskaya) was held in the branch of V. V. Mayakovsky’s Central Public Library – “OKHTA Lab”. The aim of the project is to popularize the historical and cultural heritage of Russia, to present the library as an important modernized information center, which allows to find relevant information.

Both projects give a great experience to first-year students. They allow students to develop their oratorical abilities, to gain skills in information search, and to know more about Russia. Also they learn how to work in a team and develop skills in information and analytical activities such as analytical and synthetic information processing, analysis of information resources etc. Such projects help first-year students to engage into library profession (Russian educational standard 2016).

### **Library Festival as an area for bringing libraries and library schools together**

The unique project of the LIS department is an International Student Festival «BiblioFest» (“Library Festival”) (see *Bibliofest website* <http://spbgik.ru/bibliofest/>), which was initiated in 2013. Annually it unites students, faculty, staff and cultural institutions of St. Petersburg and other cities both of Russia and foreign countries.

The main objectives of the festival are to identify creative students, to create conditions for the realization of their creative potential, to strengthen professional and cultural ties between the university community and cultural and leisure organizations, to carry out activities aimed at drawing attention to the library and reading, to promote students’ creativity. The festival changes stereotypes about library and library science specialists in the public opinion, rebrands the library as a social institution. It shows people that a library might be seen as an object and subject of event management.

BiblioFest program includes events related to professional activities: excursions, business games, quests, master classes, round tables, exhibitions, concerts and performances prepared by students. The Festival gives students an opportunity to discover their creative, personal and professional potential. It is open for everyone who wants to take part in it – either libraries and other organizations throughout the country and beyond or any citizen. For us it is a good chance to show the importance of library and library profession in general.

BiblioFest is dedicated to the All-Russian Library Day (May 27) and lasts about 2 weeks. The Festival is supported by the Committee for Culture of St. Petersburg and the St. Petersburg Library Society, including 46 official partners of Saint Petersburg State University of Culture (BiblioFest Report 2016). Since 2013 we have managed to find permanent partners and establish professional contacts with various libraries that by today are co-organizers, authors of individual projects and a venue for the Festival's events.

At present, the libraries and universities of Chelyabinsk, Kazan, Belgorod and other cities take the initiative to participate in various events within the framework of the BiblioFest thanks to which the number of events is growing every year.

The theme of the BiblioFest changes every year, depending on which year is officially announced in Russia:

- 2013 – “The Year of Environmental Protection in Russia”;
- 2014 – “The Year of Culture in Russia”;
- 2015 – “The Year of Literature in Russia”;
- 2016 – “The Year of Russian Cinema”;
- 2017 – “Year of Ecology in Russia”;
- 2018 – “Year of the Volunteer in Russia”.

Since 2013 there were 3 traditional contests:

1. A library as cultural and recreational center (projects in libraries): here students present educational, information and socio-cultural projects performed in the libraries of St. Petersburg and the Leningrad region. This contest annually gives an opportunity to exchange experience of practical use of modern technologies of socio-cultural design in libraries.
2. "I am a librarian!" (Essays, poems, short stories, novels, etc.): the goal is to introduce students into the profession and form the right attitude to the role of librarian.
3. My profession is Librarian (videos): the purpose of the competition is to enhance the image of the library in society.

In 2016 there was added a new contest "Our Motherland is a World" to the BiblioFest program (Bakhtina and Andreeva 2017). It was held for the second time in 2017 and its theme was "National Family Tradition". The goal of this project is to create a tolerant perception of the world as well as preventing extremism among young people. Participants of the contest were able to tell about their Motherland, its cultural heritage and family traditions. Students from different parts of the world presented their projects too. This contest includes works on classical traditions currently supported in the families of Russia (such regions as St. Petersburg, the Urals, and the Republic of Dagestan), Germany, Kazakhstan, Ukraine, Estonia and other. The project promotes development of oratorical abilities, acquaints with traditions of other nationalities' representatives and cultures of other countries.

In 2017 one more contest was initiated. It was the contest of tourist routes "Library as an object and resource of cultural and educational tourism". It was conducted by students of the 1st and 4th courses. The project aim was the creation of professional routes, the introduction of library tours as an important cultural and educational object in the excursion routes. Since the concept of "Library is the third place", became popular, librarians started paying more and more attention to information and educational projects for their readers (users). Particularly important is the fact that most student projects go beyond the limits of the institution, demonstrating the readiness and desire of students to further engage in the chosen profession, developing and improving it. The sphere of culture, library and information science is an integral part of any state. Countries need new professionals able to raise the cultural level of the entire population, using the previous experience of specialists and skills.

In 2018 the BiblioFest program includes all of the contests. Along with contests various events are held in the libraries such as intellectual and business games, interactive seminars, lectures etc.

The events within the walls of the library and information science department of the St. Petersburg State University of Culture are aimed at bringing together all students from different departments of the University through creative schools, master classes, competitions, concerts and projects, during which participants learn to find a common language with each other, hear and respect someone's else opinion, faith and culture. Thus, all these projects are aimed at achieving the most important goal – the formation of a tolerant attitude in the student environment of the University in the dialogue of different cultures. In conclusion, we can say that the task of future specialists in library and information activities is to develop a language of communication with all categories of the population, spreading knowledge and culture without borders.

Since 2013, number of contests, events in the libraries and areas differed annually (see Table No. 1). In 2016 and 2017, the growth of events is especially noticeable. Social media was used to inform citizens about the festival events.

Initially, LIS department invited libraries to participate in the Festival. The situation changed lately. Now libraries are very interested in cooperation with the LIS department. The Festival is a project of mutual interest for both libraries and LIS department. Thus, the Festival has become well-known among the public libraries of the city and other regions.



Since 2014 there were some events of international level. For instance, students of the iSchool of the University of Maryland took part in the contest “The Library as cultural and recreational center” (projects in libraries). In 2017 there were three events with international guests. One of them was a discussion “Student life during training: motivation mechanisms, professional consciousness: an example of education in Germany”. To the 100<sup>th</sup> anniversary of the Russian revolution there was a meeting with the American historian, Professor of the University of Indiana Alexander Rabinowitch. Of great interest was a webinar “Forms of service in the library of the University of Maryland” by the head of libraries for Humanities and Social Sciences at the University of Maryland, Yelena Luckert.

Frequent guests of the festival are students from Belarus and Kazakhstan. This year an exchange student from Kazakhstan is included into the Festival organizing committee.

All the projects and competitions of the BiblioFest fully comply with the standards required by Russian educational standard of higher education ‘51.03.06 Library and information science activity’ (bachelor level) (Russian educational standard 2016) which also reports new competences required in LIS field. Participation of students of all courses in BiblioFest allows them to study professional activities and get useful competencies for the future work. Such activities form certain professional skills for students (such as research and methodological skills, information and analytical skills, management and project management skills) that will be extremely useful in their work.

**Table 1.** BiblioFest in numbers (BiblioFest Report 2015, 2016)

Year	Contests	Other events	Areas
2013	5	18	12
2014	4	11	7
2015	4	18	11
2016	5	19	15
2017	6	29	20

## Results

In this way, the Festival is the link between the library school and the library – between theory and practice. BiblioFest gives an opportunity to prepare a student for professional work. BiblioFest is an educational tool for students and we can see the actually results:

- Increase in the number of partner-libraries. Within the framework of the Festival, the University and libraries act as equal partners.
- Libraries are aimed at participating in the festival's events. There is an annual plan in libraries, which includes special projects within the framework of BiblioFest.
- The festival is recognized by specialists from the professional community, for example, in Saint-Petersburg library society.
- The growth in the number of students who participate and organize competitions and projects within the framework of BiblioFest.
- Students receive professional skills in organizing events from the moment the idea is created and until the project is fully implemented.
- Initiated and implemented student projects (some of these actively used in libraries) allow young specialists to independently get a job in libraries.
- There is the preparatory stage of the Festival – it is a “Contest of concepts for BiblioFest”, initiated and organized by students.



- At the LIS department a student volunteer squad was organized on a permanent basis in 2018 which participated in organization and realization BiblioFest' projects.
- Foreign students from different countries such as Germany, China and Japan are also involved in BiblioFest. It allows them to immerse in a new culture as soon as they can and makes the process of communication with Russian students easier.

## Conclusion

Recognition of a young LIS specialist by the Russian professional community is confirmed by introducing two new nominations for LIS students into the Russian Librarian of the Year Award. Though the Russian Librarian of the Year Award started in 2013, only in 2017 it included two nominations for students of higher education schools and colleges: (1) “The library of the future as viewed by young people”; (2) “My choice is to be a librarian”. 26 students from 10 Russian regions were nominated for the Award 2017. In this way, the competition contributes to the strengthening of the role of libraries in the field of education and culture of the country's population and has a direct impact on the development of libraries as a public institution for the distribution of books and introduction to reading (Russian Librarian 2017).

Probably other countries have such projects as the BiblioFest but most of them are more often targeted at a certain industry: book presentations, round tables and lectures; activities for children; book exhibitions. Nevertheless, it could be said that such a project as the BiblioFest might be considered as a way to unite LIS students from different countries which will help to contribute to general cultural interchange and international understanding.

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## References

- Bakhtina E. & Andreeva Y. (2017). The competition «Our motherland – the World» as a form of education of tolerance at students of Library and Information Science Department, *Bibliotechnoe delo*, 5, 43–44.
- BiblioFest Report, 2015 (2015). Available from:  
[http://spbgik.ru/upload/file/docs/bibliofest/bibliofest\\_2015.pdf](http://spbgik.ru/upload/file/docs/bibliofest/bibliofest_2015.pdf). (accessed on 24.02.2018).
- BiblioFest Report, 2016 (2016). Available from:  
[http://spbgik.ru/upload/file/docs/bibliofest/bibliofest\\_2016.pdf](http://spbgik.ru/upload/file/docs/bibliofest/bibliofest_2016.pdf). (accessed on 24.02.2018).
- Book Festival [18th Library of Congress National Book Festival] (2018). Available from:  
<http://www.loc.gov/bookfest>. (accessed 24.02.2018).
- Brehzneva V., Kolesnikova M., and Elyashevich D. (2015). Profile LIS bachelor degree training in the Saint Petersburg State University of Culture, *Trudy SPbGIK (St. Petersburg State University of Culture Proceedings)*, 205, 24-31. (In Russian). Russian Librarian of the Year Award 2017 (2017). Available from: <http://nlr.ru/prof/konkurs/polog.pdf>. (accessed on 24.02.2018).
- Katina A. (2017). Vocational guidance as the key to highly qualified specialists in LIS (pp. 37–43). In E. I. Chernyak (Ed.), *Ehtyudy kul'tury (Culture studies)*. Tomsk: Tomsk University Press.
- Krymskaya A. and Ryabuhina T. (2016). LIS Department is always young, *Gazeta SPbGIK*, 1, 1.
- LIS Department Week (2016). Available from: <http://spbgik.ru/news/Priglashaem-s-12-po-16-dekabrya-v-SPbGIK-na-Nedelyu-bibliotechno-informacionnogo-fakulteta>. (accessed on 24.02.2018).

Russian Educational Standard of Higher Education '51.03.06 Library and information science activity' (bachelor level), approved by the Ministry of Education and Science of the Russian Federation 11.08.2016 No 1001 (2016). Available from:

<http://publication.pravo.gov.ru/File/GetFile/0001201801100025?type=pdf>.

Ryabuhina T. (2017). Library and information science department Week. Available from: <http://spbgik.ru/news/Nedelya-bibliotechno-informacionnogo-fakulteta1/> (accessed on 24.02.2018).

Zakharov N. (2010). Quality education as basis of specialist competence, *Akkreditaciya v obrazovanii (Accreditation in education)*, 4, 118–119.

## **Opportunities of continuing education in the implementation of standards in the library-community centers of Bulgaria**

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### **Abstract**

The report contains the results of empirical research, implemented in the period 20.01. – 20.02.2018 among library-community centers in Bulgaria. The data obtained were processed using SPSS for Windows 19.0 software – a product for the mathematical analysis of statistical data.

The aim of this research is the creation of a comprehensive picture of the Bulgarian library-community centers system in terms of the understanding of the benefits of standardization activities and the implementation of specific standards in the library field. Its sub-objective is to study the possibilities and the intent of the professional librarians to conduct training seminars on operating standards in the library area.

The methods applied in our research are: comparator analysis, one-factor dispersion analysis (ANOVA), descriptive statistics, and correlation analysis.

As a result of the survey the contemporary level of application of specific national, sectoral and international standards in the library-community centers was determined. Measures for the promotion of standardization activities in the library field were targeted. The data collected from the survey contribute to the development of methodology and educational programs for online training of library professionals depending on their specific needs and interests.

**Keywords:** libraries; standards; standardization; continuing education; education

### **Introduction**

The Bulgarian library-community centers are a special kind of institution typical for Bulgaria in view of its historical development and cultural features. The first community centers on the Bulgarian territory were established in the year 1856, when the country was still under Ottoman rule. Today these specific, separate culture institutes exist in almost any settlement in Bulgaria. Library-community centers are the most common type of libraries in Bulgaria with a count over 2600. They are in partnership with public libraries and both institutions are financed by municipalities in Bulgaria.

Among the many cultural activities that the community center has realized, can be highlighted: library activities, amateur art, storytelling, discussions, presentations of new books, promotion of motion pictures, organization of different courses, promoting reading, etc. Currently, its objectives and main activities are regulated by the Law on the national community centers. Art.3 para.2 of the same law states as its first activity establishment and maintenance of libraries, reading rooms, photo-, phono-, film- and video libraries, as well as creating and maintaining electronic information networks" (Law 2016), which implies that the library work is among the priorities of the community centers today. The Law clarify that library-community centers are not typical public libraries, but rather are institutions with majority of community center's activities, where library service appears to be a function of secondary importance. Therefore, they differ from the municipal public libraries mainly on the volume of their book funds. The most of the community centers today have libraries, and completing, cataloguing and other activities for maintaining the library funds are related to the standards.

The standards have long ago proven its capability to remove the barriers to information exchange for the optimization of processes and activities in organizations, as well as to ensure the stability and control over the standardized processes. The application of standards is inherent to the libraries, and the processes and activities therein are necessary to comply with the applicable governmental Bulgarian standards (BDS) and the harmonized with international and/or European BDS.

For this reason, at the beginning of this year a research was conducted among the national library-community centers, associated namely with the knowledge and application of standards.

## **Research**

The objective of the research is to create a comprehensive picture of the Bulgarian library–community centers system in terms of the understanding of the benefits of standardization activities and the implementation of specific standards in the library field. Its sub-objective is to study the possibilities and the intent of the professional librarians for conducting training seminars on operating standards in the library area. To achieve this objective, the following tasks were identified:

- studying the scope of the standardized processes and activities in the libraries;
- clarifying the scope of the types of standards currently applied in the Bulgarian libraries;
- exploring the possibilities and forms of training of the working library specialists.

The working hypothesis of this research is based on the fact that in Bulgaria until 1990 a state policy was applied for free distribution of the standards and control over their implementation and compliance, both in the production and non-production field, respectively, and in the libraries. For already 27 years such policies and controls have not been applied. Probably, the awareness of the current standards of professionals, for which they were developed and who are expected to apply them, is insufficient (Krasteva 2017). The authors of this article are the first researchers in Bulgaria that concretize standardization problems in library-community centers. This is topic of great importance for the library community at all. Presumably, better understanding for optimizing the processes and activities in the library-community centers through the application of standards have the library managers of higher and intermediate level, who mostly have professional library education. If this hypothesis is confirmed, it can be used as a good basis for conducting regular trainings on the application of specific standards no matter of each librarian’s belief/ persuasion.

In the course of research, the following methods were applied: research, analysis and synthesis of the information received, comparator analysis between different groups of libraries, participated in this questionnaire survey.

To specify the psychometric characteristics of the methods and verification of the working hypothesis were applied the following methods of statistical processing: descriptive statistics; correlation analysis; factorial analysis; one-factor dispersion analysis ANOVA.

## **Scope and limitations of the study**

This study was performed electronically, using Google Forms platform, through a specially developed questionnaire for this purpose in the period 20.01. – 20.02.2018.

The survey covers all library-community centers with a valid email address (2634 in number).

The study was implemented on the principle of a systematic random selection as the rules of scientific statistic research request, with stratification against 10% of library-community centers in Bulgaria (representative sample, called in statistic “cross section”, sufficient to verify the results as presentative for all library-community centers).

The covered groups of libraries are distributed in % as follows (See table 1).

The data presented in Table 1 shows that the participants in the study and those who aprioristically wish to participate in the training events (webinars) are mostly library specialists from smaller settlements. Actually, trainings in Bulgaria are conducted in the major cities and the smaller towns remain mostly not covered.

The general population of the study consists of 296 effectively inquired Bulgarian adult citizens (library specialists, and library managers).

**Table 1:** Libraries, participated in this questionnaire survey

<b>Nº</b>	<b>Libraries in places with different number of population</b>	<b>Number of libraries surveyed</b>	<b>Percentage of libraries surveyed</b>
1.	in a settlement with less than 500 inhabitants	85	29,6
2.	in a settlement with more than 500 inhabitants	57	19,9
3.	in a settlement with over 1000 inhabitants	59	20,6
4.	in a city with over 2000 inhabitants	42	14,6
5.	in a city with over 5000 inhabitants	13	4,5
6.	in a city with more than 10000 inhabitants	5	1,7
7.	in a city with over 20000 inhabitants	12	4,2
8.	in a city with over 50000 inhabitants	6	2,1
9.	in a city with over 100000 inhabitants	5	1,7
10.	in a city with over 300000 inhabitants	3	1,0
	Total	296	100

Upon completion of this questionnaire survey of the respondents, the survey materials were subjected to a logical order and control, after which the data were entered and subsequently processed using the statistical package SPSS for Windows 19.0.

#### *State of the studied variables*

In responses to the first of the questions in the questionnaire – "What are the types of standards that applies your library?", the answers of the library professionals from various types of libraries were distributed as follows: BDS-293; harmonized with the European standards (BDS EN) – 31; harmonized with the European standards, which, in turn, are harmonized with the international standards (BDS EN ISO) – 11; Professional (sectorial standards) – 17. The total percentage of responses exceeds 100, since the respondents have had the opportunity to give more than one response. The presented data shows that the most commonly implemented standards in the library-community centers are BDS. In the questionnaire is provided the possibility of free-text response. It becomes clear that the most applicable standards are BDS for bibliographic description, BDS for conservation of the library fund, BDS for organization of the library collections. These standards were developed in the 70's of the last century, they have been supplemented and modified and have the status of effective standards since they relate to processes and activities which are at the core of the library work.

The harmonized with the BDS international and European standards, as developed recently in the last 3–5 years, which see the current state of libraries as a subject of information society, are very rarely applied in the activity of the library-community centers. These are the standards for the electronic exchange of bibliographic records (BDS ISO 2709:2011 "Information and documentation. Format Information exchange format", BDS ISO 13008:2016 "Information and documentation. Digital records conversion and transfer process"), BDS ISO 30300:2013 "Information and documentation. Document management systems. Principles and terminology", BDS ISO 30301:2016 "Information and documentation. Documents/records management systems. Requirements", BDS ISO 30302:2016 "Information and documentation. Documents/records management systems. Implementation guide", BDS ISO 690:2011 "Information and documentation. Guide for bibliographic references and citation to information resources", BDS ISO 9:2001 "Information and documentation. Converting Cyrillic into Latin letters. Slavic and non-Slavic languages" as well as those relating to the quality of the library activity (BDS ISO 11620:2015 "Information and documentation. Library effectiveness indicators").

Lack of wide application of standardization in the community centers is understandable – most of the library-community centers do not have electronic catalogues and do not participate in the exchange of bibliographic records, etc.

Questions No 2 – No 6 of the questionnaire enable respondents to express their opinion in an open point. Each question is about certain advantage of standardization in the field of library and they are all included in the next table in column “Characteristic”. The applied method for processing incoming data is the one-factor ANOVA. The results are presented in Table 2.

**Table 2:** The most significant advantages of standardization in the field of library (factor – type of library)

Characteristic	N	M	SD	F	Sig.
Optimization of processes and activities in the library	19	3.47	1,16	2,37	,03
Providing stability and control on the standardized processes	21	3.10	,81		
Create high-quality bibliographic descriptions	214	3.31	,91		
Reducing the cost of cataloging and indexing of library documents	23	3.00	,86		
Creating a framework for accountability, with a view to certification of the library	4	3.22	,50		

In the compilation of the questionnaire was used a 5-degree Likert scale, at which: 0 means “no”, not at all”; 1 – „to a small extent“; 2 – „partly“; 3 – „to a large extent“; 4 – „to a very large extent“.

In relation to the statistical indicator of averages M (Mean) the presented in Table 2 results indicate that the library specialists and library managers realize high-importance of applying standards in the library activity. This fact can be used as a good basis for conducting trainings on the application of specific library standards.

The conclusion from results obtained is that the library specialists and the library managers highly realize the importance of application of standards in the libraries. This fact can be used as a good basis for conducting trainings on the specific library standards.

Question No 7 of the questionnaire aims to establish the degree of interest in the possibility of continuing education of the librarians, working in the library-community centers. Most of the librarians responded positively to this question – 28.2% "Yes, highly" 66.3% "Yes". The positive attitude of respondents is confirmed by the correlation analysis (see Table 3).

**Table 3.** Interconnections and influences between the expression of interest in the seminars and other forms of continuing education and the benefits of the application of standards in their daily work.

No.	Questions		
Question № 7	Expression of interest to seminars and other forms of continuing education	*	0.517**
Question № 8	Benefits for the daily work from training on the application of specific standards		*

\*\* Significant at level 0.01.



Since the data is organized in ordinal scale range, the correlation coefficient rank Spearman was used. The level of its significance was noted in the legend to the table. Moderate correlation between the answers of these questions ( $r = 0.52$ ) provides the basis to argue that the expression of interest in the seminars and other forms of continuing education depends on the expectation they would be useful in their daily work.

The benefits of applying standards in their daily work are realized to a greater extent by the younger professional librarians (see Table 4). One-factor dispersion analysis, which is attached, reported a statistically significant difference in the opinions of respondents of different age groups.

**Table 4:** Benefits of applying standards in their daily work (factor – respondents age)

	N	M	SD	F	Sig.
<b>Respondents age</b>					
below 30 years	18	3.17	0,51	4,49	0,04
30 – 39 years	45	2.93	0,76		
40 – 49 years	93	3.10	0,56		
50 – 59 years	107	2.87	0,47		
over 60 years	25	2.60	0,73		

The last question of the questionnaire refers to the forms of continuing training on applying regular standards in Bulgaria and also in international level. From cumulated data it is clear that conducting Webinars is the most preferred form of training – 278 (93.9%) librarians have chosen it precisely. Barely 18 librarians (6%) have indicated that this form will not be comfortable for them and would like to receive the published summaries of existing in the library area BS Standards. The summary digest is being developed currently by the authors of this article and will be released in electronic and traditional (paper) format at the beginning of July. The electronic format will be presented for free to all participated in this survey libraries – and the traditional format among the all 27 Regional libraries in Bulgaria.

A training through Webinars is forthcoming in the beginning of July. The results are going to be disclosed in the next post.

## Conclusion

From the replies of the respondents, who were questioned to what extent they are familiar with the issues of standardization, with the advantages and benefits, as well as, specifically, with the modern standards in the library area, it becomes clear that there is a considerable differentiation in the degree of their awareness. This fact should be taken into account in the formation of training groups – 1) familiar to a significant extent, who wish to upgrade their knowledge; 2) – familiar with some basic knowledge which should be extended; 3) – unfamiliar or almost unfamiliar with the standards, with whom should be worked with more, starting from defining concepts, principles, methods, sites, level of development of standardization and types of standards. This group is necessary to obtain knowledge about the institutional provision of standardization at international, European and national level; about the legal and normative basis of standardization; and even about the purpose, structure and formation of standards.

As a result of the survey has been taken into account the contemporary level of application of the specific national, sectorial and international standards in the library-community centers. The preconditions and possibilities for carrying out trainings (webinars) on specific standards in force in the libraries were revealed. Measures were identified for the promotion of standardization activities in the library field.

The data obtained from this questionnaire survey contribute to the development of methodology and educational programs for online training of library professionals depending on their specific needs and interests.

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## **References**

Law (2018). Law on the national community centers. // *Official Gazette* (7). Available at <https://www.lex.bg/laws/ldoc/2133897729>

Krasteva, Rositsa. (In press). *Standardization and standards in the Bulgarian university libraries: contemporary state*. // Reports of XV national scientific conference with international participation "Community of knowledge and humanism of XXI Century". Sofia, Simelpres.

## **Challenges for international and multilingual MOOCs: Experiences with the Information Literacy Online (ILO) learning service**

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### **Abstract**

The development of Open Educational Resources and especially of Massive Open Online Courses (MOOCs) is a huge trend. Open Educational Resources lower barriers to education and have the potential to improve access to knowledge for many people. However, MOOCs are often not available in many languages and English dominates the online offers. In this paper, we report the development of a MOOC for Information Literacy, which will be available in several languages in parallel. First, we report on the development of the content for the MOOC. The creation of a learning resource in several languages poses several practical, technological and cultural challenges. The awareness about the issues facilitates the design of such offers.

**Keywords:** MOOC, Information Literacy, Multicultural, Multilingual.

### **Introduction**

The participation of citizens in our modern society is to a large extent based on information tools and information resources. The trend of digitalization is adopted by more and more enterprises and other organisations. Digitalization is the use of digital technologies to change and optimize social processes. It can lead to innovation and value-producing opportunities. More and more aspects of our lives become strongly affected by digitalization. For entertainment, finding products, identifying relevant information and even for e.g. finding jobs, citizens need to access knowledge bases by information tools.

For being successful in society, citizens need to find appropriate information and interact with it adequately. Citizens need a complex set of competences for dealing successfully with the social environment created through digitalization. This set of competencies is most often referred to as Information Literacy.

Information Literacy (IL) is ‘the set of integrated abilities encompassing the reflective discovery of information, the understanding of how information is produced and valued, and the use of information in creating new knowledge and participating ethically in communities of learning’ (ACRL 2016). IL as a key competence is particularly essential in post-secondary education and research. An extended version of IL is known under the term ‘metaliteracy’ (Jacobson and Mackey, 2016) which goes beyond the competence to search successfully by including collaborative production and sharing of information in digital environments. The concept of metaliteracy is integrated into the new Framework for Information Literacy for Higher Education (ACRL, 2016). Metaliteracy is intended to serve as a comprehensive framework unifying IL with related literacies, in particular with media literacy and with computer literacy. Metaliteracy stresses the importance of collaboration and reflection as well as the crucial ability to critically self-assess different competences. Metaliteracy considers more recent developments as participation and collaboration within online learning and social media.

According to many studies the level of Information Literacy of university students is low (e.g. Rubinić, Stričević & Juric 2013, Maurer, Schloegl, & Dreisiebner 2016). Often, college education does not

develop Information Literacy skills. There is a great demand for content and services to educate students regarding Information Literacy.

The project Information Literacy Online – Developing Multilingual Open Educational Resources Reflecting Multicultural Aspects (ILO) intends to create a MOOC which can be used to study and enhance the IL skills. Although there are already many online courses for IL, they are most often offered in English or do not encompass a modern approach to IL. The ILO project intends to provide a MOOC in several localized versions in order to serve students in their native language and culture. The partners in ILO will provide the online course in English, German, Spanish but also in Catalan, Slovenian and Croatian. For the latter, there are only very few MOOCs available at all. The multilingual approach will not only consider linguistic translation but also cultural-specific differences. These relate to aspects of addressing students up to potential changes in the interface. Also the content needs to be modified as often the national laws e.g. on copyright might be slightly different and conventions for citations are also different. There may also be differences in whether learning signifies remembering facts or critical thinking.

### State of the Art

Many online learning resources for Information Literacy can be found (e.g. <http://primodb.org>). They implement several different pedagogical approaches (Courtney & Wilhoite-Mathews 2015). However, many of them lack a holistic approach and often focus on skills like locating and accessing. They often do not include components regarding higher level skills like synthesis and creation.

Another major shortcoming of current IL courses is the lack of self-assessment components although efficacy has been discussed for a long time (e.g. Kurbanoglu 2003). Therefore, a central innovative approach of the ILO MOOC will be the implementation of technology based assessment components (among others extending that of (Hahnel et al. 2018) which allow students to get feedback on their learning success.

The design of multilingual systems is a challenge for the creators of online learning material. Very little online learning content is available in several languages.

Moreover, only few systems are available for implementing online courses in many languages. We expect that the interface for a course should be localized in order to lower the access barrier for learners independently of their language abilities. Only a few popular systems have multiple localized translations available. The eLearning system Moodle is the most popular of these platforms. However, Moodle is not specifically designed for MOOCs. Modern MOOC software such as Instructure Canvas<sup>54</sup> or Open edX<sup>55</sup> are not available for all languages. For Open EdX, the open platform for localisation, transifex.com is used to create localized versions as a community effort; any translator may be contributing. Our experience thus far is that very little of the Open edX software has been localized for several European languages. As an example, regarding to ILO project, there are only few translations in Catalan, Slovenian and there is no translation into Croatian yet.

The translation of learning material is a tedious task. Translation theory has long given up the idea of full equivalence and has moved toward functional theories for translation: „Dynamic equivalence is [. . .] to be defined in terms of the degree to which the receptors of the message in the receptor language respond to it in substantially the same manner as the receptors in the source language. This response can never be identical, for the cultural and historical settings are too different, but there should be a high degree of equivalence of response, or the translation will have failed to accomplish its purpose“ (Nida & Taber 1969: 24). As the quote shows, the translation needs to constantly consider the context regarding e.g. the previous knowledge, the teaching traditions and the learning outcomes in order to achieve a high quality OER in each language. This also shows that considering language is not sufficient. For each translation and especially for creating an interactive resource, culture should be considered.

<sup>54</sup> <https://canvas.instructure.com/>

<sup>55</sup> <https://open.edx.org/>

For each of the learning cultures, the perspective on learning can be different. Countries have different rules on information ethical behaviour e.g. regarding copyright and this needs to be reflected in the content. Beyond that, even the preferred user interaction styles and aesthetic preferences change from country to country. Culture is a complex phenomenon which is hard to grasp and define. It is mostly agreed upon that despite many obvious signals of culture, the major differences are invisible. In general, cultural theory for understanding and improving eLearning should focus on the different patterns of behaviour as observed in groups. These invisible ways of thinking and dealing with the world are difficult to access. This leads to many misunderstandings in intercultural encounters. For example, while the greeting behaviour can be easily observed in a different culture, it is much more difficult to find out how a culture deals with unavoidable uncertainties of our existence or encourage a learner to keep on researching for an exercise.

Cultures are often classified in accordance to their relative positions on a number of polar scales which cultural anthropology commonly calls cultural dimensions. The position of a culture on those scales is determined by the dominant value orientations. Such quantified models of culture are difficult to find. Hofstede originally defined four dimensions of culture (Hofstede & Hofstede 2004):

- *Power distance* measures the extent to which subordinates (employees, students) respond to power and authority (managers, teachers) and how they expect and accept unequal power distribution. In high power distance cultures, individuals pay more respect to superiors and value authorities. In low power distance cultures, the equality of people is emphasized.
- *Individualism vs. Collectivism*: these value orientations refer to the ties among individuals in a society. In collectivist cultures, individuals define themselves more as members of a social group. They are expected to share their belongings with the group and can rely on the backup within the group. Harmony is a highly desirable value. Individualistic cultures have loose personal connections and expect rewards for hard work.
- *Uncertainty avoidance* describes the extent to which individuals feel threatened by uncertain or unknown situations. High uncertainty avoidance cultures try to avoid and prepare for risks and install control mechanisms. They seek a collective truth whereas cultures with a low score welcome new initiatives and accept change.
- *Masculinity vs. Femininity*: these two extreme values of this dimension focus on the differences between the social roles attributed to men and women and the expected behaviour of the two sexes. Masculine values are related to competitiveness and feminine values are related to quality of life. In countries with low masculinity scores, the distinction between the roles is not transparent. Women also work in male-dominated professions, there is much cooperation and men are allowed to be sensitive and kind.

Later, Hofstede added a fifth dimension which is related to time: *Long-term vs. short term* orientation. Long-term oriented societies are willing to invest and wait longer for the return. In short-term oriented cultures, individuals want to get the return for their investment very soon (Hofstede & Hofstede 2004).

The theories of Hofstede have been used in optimizing online material and human-computer interaction for heterogeneous user groups (e.g. Heimgärtner 2012). Others have applied Activity theory as a basis for considering intercultural differences in the design of online learning materials (Denman-Maier 2004).

There has also been research on the design of learning systems. The adequacy of different learning theories for cultures has been assessed to design learning material for heterogeneous audiences (Kamentz 2011).

We conclude from the review of earlier work that hints toward a multilingual MOOC are available from cultural studies and several resources are available toward the teaching of information literacy but we have found none that combine both approaches. The ILO project thus attempts, at the small multicultural European scale, to tackle the multilingual development of an online self-paced learning content that is compatible with each of the intended six cultures.

## Methodology within the ILO Project

The content of the ILO MOOC based on the SCONUL (2011) Seven Pillars of Information Literacy, on the ACRL Framework for Information Literacy for Higher Education (2016) and on the Meta-literacy model (Mackey and Jacobson, 2011). Since it is expected that the MOOC should include students with different levels of previous knowledge, the SCONUL approach is adequate as it has the same prerequisite. The Meta-literacy model expands the scope of traditional IL skills (determine, access, locate, understand, produce and use) to include the collaborative production of information in digital environments (collaborate, participate, produce and share), especially in MOOCs. The new ACRL Framework (2016) draws significantly upon the concept of Meta-literacy. In creating the content for the MOOC, the project is going to address and integrate the mentioned concepts of IL into the course objectives, learning outcomes and specific course units.

The focus of the content is not only on lower level IL skills (access to sources and finding information), but also IL skills on the higher level (evaluation, interpretation and use), which include critical thinking, knowledge construction and collaborative learning. MOOCs are suitable for facilitating those skills because the main characteristics of MOOCs are the orientation on the learner and collaborative learning. The content is going to be constructed after the best practice analysis of other IL course content (Dreisiebner & Mandl 2017).

The modules in the ILO MOOC are the following:

- Module 1: Orienting in an information landscape
- Module 2: Research is a journey of inquiries
- Module 3: The power of search
- Module 4: Critical information appraisal
- Module 5: Information use: the right and fair way
- Module 6: Let's create something new based on information and share it!

From the perspective of the content the multilingual approach is taken. The content of the modules is first collaboratively developed by the partners in English: a sketch is shared as a document to depict all concepts that will be studied, all examples, all questions, and all quizzes; then, the online learning content is realized, made of videos, interactive quizzes, question texts, and reading materials.

Each of these realizations is consolidated by partners who comment on feasibility, correct and enrich. Only then is the content translated to each local language. This work is conducted at the partner institutions for their local languages, namely the University of Graz (Austria), University of Hildesheim (Germany), University of Ljubljana (Slovenia), University of Zadar (Croatia), University of Barcelona (Spain), The City University (Great Britain) and German Institute for International Educational Research (Germany).

In this each interaction, the issues met to apply the MOOC in different cultures are addressed and collected.

In order to facilitate translation and commenting, common editing practices are being established mediated by a common content storage in the form of the versioning system GitLab. This allows simple text translations to follow the successive enhancements of content, if need be, or to share Screencast-O-Matic sources so that translators can adapt only the necessary parts.

An evaluation scheme will follow in the later phase of the ILO project. It will consider the content, the learning success and the interaction with as well as the satisfaction of the students with the learning resource. Several tools will be applied to this end, from learning analytics of learning traces in the usage of the MOOC to interviews, from quiz results to standardised assessments.



## Challenges due to Multilinguality

The design of the parallel multilingual MOOCs has led to many challenges already in the first project phase. First, we will discuss the technical issues and the video production. After that, content related aspects will be discussed. These linguistic and cultural issues will be explored based on examples.

To foster the user experience and learning success of the participants, ILO shall provide separate MOOCs for each involved language. A thorough analysis of several available software solutions for providing a MOOC platform lead to the conclusion to use Open edX for implementing ILO. The analysis revealed that there are already advanced solutions available in terms of functionality, but that multilingualism is still a major issue. None of the analysed software solutions offered full translations for all involved languages. Existing translations are usually provided through the web community, in case of Open edX through the localization platform transifex.com. Working with these translations has shown that some of them are even wrong and that the translation validation process is rather unequal. This leads to the need to not only conduct additional translations, but also to proof-check existing translations.

As a standard content of a MOOC, videos play an important role. Video production has proven within ILO to be a challenging task in terms of multilinguality. If videos should be completely translated, especially if they consist out of screencasts, they need to be independently produced for each language. Screencasts can be a complementary tool for online learners (Peterson, 2007). However, into ILO project screencast is a relevant aspect since information science is commonly shown in the actual manipulation of digital information. A possible approach to reduce the effort of translating videos is to stick to a common English user interface when producing the screencast. Later on, just the voice track needs to be changed. A more basic approach would be to add subtitles, which are the only element that is translated. However, all of these approaches require at least basic technical skills in video editing and video production. Therefore, special attention needs also the sound where tracks must be clearly understood. Moreover, a common software needs to be used, to allow editing for all of the involved partners. For this reason, within ILO project the software Screencast-O-Matic is used, that provides a simple but powerful functionality too.

The translation of the content provided in text format is a straight forward process. However, even there, many terms need to be carefully dealt with. For example, there are two synonyms for *recall* in Slovenian. In Germany, the term has been used with a different meaning in popular TV shows. In a dance and fashion show for candidates, it means that successful candidates in the competition can come back and continue to participate. These are classical translation issues and require attention and domain knowledge in the translation process.

A key competence for Information Literacy is searching. The skills for search need to be strengthened by providing realistic search examples. The search terms for examples need to be translated, but often that is not sufficient. The terms may have other synonyms or homonyms in another language and have to be well suited as example.

A MOOC on Information literacy requires many concrete examples and recommendations for preferred tools. The Information literacy content has to be connected to knowledge about tools which are suitable for searching in the specific culture. In some cultures, there may be e.g. no domain specific search portals for certain disciplines. For these cultures, the examples need to be adopted and if there is no publication culture in a language (e.g. computer science for Dutch) the setup of the learning goals needs to be reconsidered.

Beyond that, the cultural issues remain. These are less obviously visible and will require careful attention during the evaluation. There may be different learning cultures and a different level of acceptance of certain methods. E.g. memorizing facts can be considered a valid method in some cultures but not in others.

One important dimension regarding learning within the cultural framework of Hofstede (Hofstede & Hofstede 2004) is the dimension power distance. How much is the teacher considered as an authority

that cannot be challenged? The ARCL (2000) IL definition emphasises the 'instructor as facilitator', which may not be equally well suited for all cultures. This additional complexity leads to the acknowledged 'messiness' compared to skills-based frameworks (McGarrity 2016) which may be an issue also regarding the cultural dimension of uncertainty avoidance.

The largest differences in the cultural dimensions between the partners have been identified and the values of the cultural dimensions can be seen in Table 1.

**Table 1.** Cultural dimensions for ILO countries (extracted from www.hofstede-insights.com)

Cultural Dimension	Germany	Austria	Spain	UK	Slovenia	Croatia
Power Distance	35	11	57	35	71	73
Individualism	67	55	51	89	27	33
Masculinity	66	79	42	66	19	40
Uncertainty Avoidance	65	70	86	35	88	80
Long Term Orientation	83	60	48	51	49	58

The largest differences can be seen between the neighbouring countries Slovenia and Austria regarding Individualism and Power Distance. For Uncertainty Avoidance, the UK has a very low value compared especially to Slovenia.

In ILO, particularly the formulation of instructions to students has been identified as an issue. Whereas it is normal in Germany or the UK to explain a task and demand students to work as fast as possible when solving it, this seems inadequate for Slovenia and Croatia. This issue came apparent in a first preliminary translation of the MOOC.

Another issue regarding the Power Distance dimension could be the question whether an authority needs to define the quality of a publication or whether the students are expected to apply their own critical thinking skills to judge e.g. publications. At a more general level, the skill set for Information Literacy may be expected to be at rather different levels. For the ILO approach which intends to have parallel courses with little translation effort, there needs to be some harmonization.

The design of the instructions seems to be related to cultural dimensions and needs to be considered with specific care in order to create a learning experience which is culturally adequate and which therefore, allows a natural environment and good learning progress for local students.

## Conclusion and Recommendation

The development of the ILO MOOC can serve as a model to create MOOCs in parallel version in order to generate more online learning materials and OER in languages which have very little content so far. This is a crucial issue in maintaining the linguistic and cultural diversity and it is necessary to facilitate access to information and learning opportunities online for all citizens.

The selection of a system should be made early within the development. The candidates are modern online learning platforms. However, the availability of translations of the interfaces for the languages in question needs to be checked early on.

The localization process adopted within ILO has proven to be adequate so far. The model to develop the MOOC and its content first in English seems adequate and practicable. It can be recommended to pursue as suggested.

As far as cultural issues are concerned, the instructions for students are a good starting point to discuss the differences. Also, the content of any MOOC might need to be adopted.

The ILO MOOC will be offered in the English version at the end of 2018 and in its localized versions in 2019 through the project website <https://informationliteracy.eu>.

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## References

- ACRL (2000). Information Literacy Competency Standards for Higher Education. Chicago, Illinois. Available from <http://www.ala.org/acrl/sites/ala.org.acrl/files/content/standards/standards.pdf>.
- ACRL (2016). Framework for Information Literacy for Higher Education. Chicago, Illinois. Available from: <http://www.ala.org/acrl/sites/ala.org.acrl/files/content/issues/infolit/framework.pdf>.
- Courtney, M. & Wilhoite-Mathews, S. (2015). From distance education to online learning: practical approaches to information literacy instruction and collaborative learning in online environments. *Journal of Library Administration*, 55(4), 261–277.
- Denman-Maier, E. (2004). Intercultural factors in web-based training systems. *Journal of Universal Computer Science*, 10(1), 90–104.
- Dreisiebner, S & Mandl, T. (2017). Entwicklung und Evaluierung einer Plattform zur Vermittlung von Informationskompetenz: Vorstellung des von der Europäischen Union geförderten Projekts „Information Literacy Online“ *Bibliotheksdienst*, 51(9), 763–770. doi:10.1515/bd-2017-0083
- Hahnel et al. (2018) Hahnel, C.; Goldhammer, F.; Kröhne, U. & Naumann, J. The role of reading skills in the evaluation of online information gathered from search engine environments. *Computers in Human Behavior*, 78, 223–234.
- Heimgärtner, R. (2012). *Cultural differences in human-computer interaction: Towards culturally adaptive human-machine interaction*. Walter de Gruyter.
- Hofstede, G & Hofstede, G.-J. (2004): *Cultures and Organizations: Software of the Mind*. New York: McGraw-Hill.
- Jacobson, T. E., & Mackey, T. P. (2016). *Metaliteracy in practice*. Chicago, ALA Neal-Schuman Publishers.
- Kamentz, E. (2011). Adaptivität von hypermedialen Lernsystemen: Ein Vorgehensmodell für die Konzeption einer Benutzermodellierungskomponente unter Berücksichtigung kulturbedingter Benutzereigenschaften. Dissertation, Universität Hildesheim. <http://nbn-resolving.de/urn:nbn:de:gbv:hil2-opus-906>.
- Kurbanoglu, S. (2003). Self-efficacy: a concept closely linked to information literacy and lifelong learning. *Journal of Documentation*, 59(6), 635–646.
- Nida, E. & Taber, C. (1969). *The Theory and Practice of Translation*. Leiden: Brill.
- Mackey, T. P., & Jacobson, T. E. (2011). Reframing information literacy as a metaliteracy. *College & Research Libraries*, 72(1), 72-78. <https://crl.acrl.org/index.php/crl/article/download/16132/17578>.

- McGarrity, I. (2016). Developing agency in metaliterate learners. In Jacobson, T.E and Mackey, T.P. (eds.) (2016), *Metaliteracy in practice* (pp. 159–182), London: Facet.
- Maurer, A., Schloegl, C. & Dreisiebner, S. (2016). Comparing information literacy of student beginners among different branches of study. *Libellarium*, 9(2). doi: 10.15291/libellarium.v9i2.280.
- Peterson, E., (2007). Incorporating Screencasts in Online Teaching. *International Review of Research in Open and Distance Learning*, 8(3), 1–4.  
<http://www.irrodl.org/index.php/irrodl/article/view/495/943>.
- Rubinić, D., Stričević, I. & Juric, M. (2013). Information Literacy Course–The Perception of Students and Professors: University of Zadar Case. *Worldwide Commonalities and Challenges in Information Literacy Research and Practice*. Springer International Publishing. Available from: <http://goo.gl/oa4F1C>.
- SCONUL (2011). Seven pillars of information literacy. Available from: <https://www.sconul.ac.uk/sites/default/files/documents/researchlens.pdf>.

## **Thriving at work: understanding how initiative librarians take opportunities and cope with challenges**

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### **Abstract**

The paper aims to determine how initiative Lithuanian library professionals create an engaging and empowering work environment and cope with challenges.

Job resource-demands model (JD-R) that is widely applied in organisational psychology was used as a methodological research framework. The data were collected by conducting semi-structured interviews with Lithuanian library professionals. Qualitative content analysis was used to interpret the results.

Results showed that job demands distinguished by the respondents mostly related to general management and organisational environments and the nature of tasks they performed; job resources covered the nature of work, social and physical environments. Personal resources that inspired the balance between job demands and resources included positive thinking, enthusiasm, prosocial motivation and self-efficacy.

The findings of the current research and JD-R model, in general, could be usefully employed by library managers to balance job demands with opportunities and library employees – to take an active role in shaping their own work experience. JD-R allows combining library manager and employee perspectives on creating a motivating work environment and provides an insight how personal resources may influence coping with job demands, while job opportunities – cultivating personal resources.

**Keywords:** librarians, job demands, job resources, personal resources, motivation, job demands-resources model, JD-R

### **Introduction**

Studies about library roles and trends, workforce and employment situation highlight an importance of innovative librarians, leaders and efficient teams to shape the successful future of libraries all over the world (Williamson 2016). Ability to act as an agent of change, to develop new tasks and reframe the old ones, to establish and maintain wide professional networks and to employ them to initiate new projects – these are just few examples of features desired from a contemporary librarian (Partridge et al. 2010, Bronstein 2015). The emphasis is increasingly put on personal traits and characteristics when hiring professionals (Williamson 2016). For instance, “Competencies for Information Professionals” by Special Library Association (2016), highlight so-called enabling competencies that help to perform job-related tasks. They include adaptability to change, initiative, creativity etc. Professionals who meet “wanted staff member” profile have their own expectations to the workplace and also need to understand how to cope with all pressures experienced at work. Therefore, to attract and retain library employees it is necessary to combine personal goals and motives with library goals, tasks, challenges and pressures. Considering current difficulties with recruitment and retention of initiative and competent library staff, greying library workforce, this task becomes crucially important.

Lithuanian library labour market is being affected by global trends and specific national circumstances. According to the Lithuanian national library statistics, in 2017 there were 5487 professionals who gained library and information science education or higher education in other field (Lietuvos nacionalinė biblioteka 2018). Similarly to many countries, greying of library workforce is a challenge for Lithuania. Five-year analysis of activities of the 10 largest libraries of national significance and county public

libraries has shown that staff turnover in average ranged from 3 to 11 percent in 2008-2012, which means that a library employee could spend from 10 to 30 years without changing the job (Manžuch & Tautkevičienė 2014). The scarcity of higher education programmes for library and information professionals in Lithuania complicates the situation. Those planning to choose library career can enter only one study programme “Library Information Resources” delivered by Šiauliai State College. Vilnius University – the largest university in Lithuania with the longest history of delivering library and information education (since 1949) stopped these study programmes in 2010 (Vilniaus universiteto Komunikacijos fakultetas s. a.). Despite the lack of educational options and dynamics of library workforce the Lithuanian libraries experience an increased demand of innovative and creative library professionals. Therefore, both Lithuanian library managers and employees must find new solutions to cope with challenges and use opportunities and remain engaged in library work.

In this research we sought for possible solutions to be engaged with library work in examining successful practices developed by library employees that help them to stay tuned and fit. This paper aims to determine how initiative Lithuanian library professionals create an engaging and empowering work environment and cope with challenges. For the purposes of this research, we defined an initiative library professional as individuals who are remarkable for professional achievements, introducing improvements or new activities at their workplace and who are known for positive feelings and attitudes to their jobs. So, we sought answers to several research questions:

- What are the positive aspects of library job as perceived by the initiative Lithuanian library professionals?
- What are the challenging aspects of library job as perceived by the initiative Lithuanian library professionals?
- What helps the Lithuanian library professionals to cope with challenges, use opportunities and create a satisfying workplace environment?

To get answers to the research questions we used the Job Demands-Resources (JD-R) Model (Bakker and Demerouti 2007). The model helps to understand the job-related aspects that are perceived as challenging (job demands) and those that are treated as positive (job resources) by an individual, basing on his/her personal resources that are helpful in coping with challenges and using opportunities (Bakker and Demerouti 2007, Bakker 2011). Differently from staff motivation and job satisfaction models and research, JD-R allows a more in-depth analysis of external and internal conditions that shape job-related motivations, influence job satisfaction and enable work engagement (Bakker 2011).

In this paper we present the part of research about initiative library professionals strategies to use opportunities and cope with challenges at work that was performed in 2017 in preparation for the library professional conference “Unrevealed powers of librarians: where to find them?” that took place in Vilnius, Lithuania.

## **State of the art**

The current issues of attracting and retaining library staff encourage abundant research on library staff motivation and job satisfaction. LIS has a long tradition of such research that applies different theoretical frameworks and models. Usually, such studies explore well-being of library staff at work and factors that can pre-condition higher or lower levels of satisfaction or motivation. Herzberg motivation model was used in recent studies by Walker and Calvert (2016) and Hanif (2018). Walker and Calvert (2016) examined the motivation of school librarians to choose their career path and the factors that kept them



at chosen positions. The research found that school librarians valued the level of autonomy, variety of tasks, satisfying work/personal life balance, while major factors for dissatisfaction were work and payment conditions (Walker and Calvert 2016). Hanif (2018) also studied school librarians and found the impact of religious values and environment on librarian job satisfaction. Al-Aufi and Al-Kalbani (2014) used a different approach – Maslow hierarchy of needs to assess the motivation of Omani academic librarians. They found that lower-order needs were mostly satisfied with exception of security, while higher order needs, e.g. self-esteem, were not satisfied at work. A grounded theory approach was applied by Nicholson (2016) to analyse career choices and job satisfaction of New Zealand library professionals. She found that librarians were satisfied with personal life/work balance and professional development opportunities, while less satisfied with career progression prospects and salaries.

Some library and information science (further in the text – LIS) research examined the links between specific aspects of work and staff behaviours. For instance, Karim (2017) researched the impact of work related variables to organisational commitment and job satisfaction. He found that work related aspects (e.g., autonomy, task clarity, role conflict, performance feedback etc.) had a greater impact on organisational commitment than on job satisfaction. Femenía, Sadunišvili and Lipeikaitė (2014) surveyed 120 librarians, engaged in innovative activities, to understand what motivates innovation in developing countries. According to their findings, the main reasons that motivated innovation were the desire to make libraries more relevant to communities, satisfaction for being useful to served community, and the development of library infrastructure. Jantz (2012) examined perspectives of university librarians on innovation, including external factors that influence abilities to innovate. He found that external pressures (e.g. budget cuts) can become a stimulus of innovation; introducing new job positions or departments responsible for innovation, engaging people with different background in library work can contribute to innovative practices (Jantz 2012).

Most of current studies are focused on identifying factors that contribute to job satisfaction and personnel retention in libraries. Few researches are focused on studying factors that contribute to specific desired behaviour of employees or level of their engagement with work. In most of current studies the employee is considered a potential object of motivational programmes, but not the active agent who is able to create inspiring environment at the workplace.

## **Methodology**

### **Research framework and methods.**

Job demands-resources (JD-R) model was used as a methodological framework for this research. JD-R is an influential model used in organisational psychology to analyse well-being at work, to predict job performance and professional burnout. The model is based on three major components: job demands, job resources and personal resources. Job demands are defined as those conditions of work that require a significant emotional, cognitive, physical or other effort from an individual and in long-term perspective may cause personal exhaustion and motivation decrease. Examples of such demanding aspects include physical workplace environment that cause strain, emotionally challenging interactions with clients, unnecessary complex tasks and organisational structures that require a lot of cognitive efforts when dealing with everyday tasks, etc. On the contrary, job resources cover positive aspects of work that are helpful in reaching job-related goals, useful in reducing job demands, stimulate learning and personal growth. Social support and feedback, autonomy, learning opportunities are examples of job resources (Bakker and Demerouti 2007). Originally based on two components, later JD-R was complemented by the third one – personal resources. Personal resources are intrinsic characteristics of individuals and perceived abilities to control their life and cope with challenges. Different researchers

developed major personal resources notions. For instance, the notion of self-efficacy was introduced by Albert Bandura; it covered a perceived ability to cope with different demands and accomplish a task, continue activities despite challenges (cf Hobfoll 2002). Other examples include optimism, positive self-esteem, degree of goal pursuit (Hobfoll 2002), etc. Bakker (2015) also indicated prosocial motivation (a desire to make a positive impact on other people and society) and public service motivation (a wish to serve other people and society in general, a commitment to public interest that influences the choice to work in public organisations) as strong drivers of job performance and engagement in public sector. Relations between job demands-resources and personal resources are reciprocal. On the one hand, environmental factors (job demands-resources) may influence the cultivation of personal resources; on the other – personal resources define how an individual perceives and reacts to the environment, i. e. what and how many aspects are treated as opportunities, how job demands are confronted (Xanthopoulou et al. 2007). In fact, even demanding jobs can encourage engagement and dedication of employees, if proper job and personal resources are available (Bakker et al. 2007, Xanthopoulou et al. 2007).

In his research Bakker (2011, 2015) made two important highlights that are very helpful in interpreting the findings of JD-R research in a broader context of work phenomena. First, he explained how JD-R model relates to work engagement. According to Bakker (2011) work engagement refers to a state when an individual: a) approaches his/her job-related tasks with passion and demonstrates high level of energy, b) feels involved and committed to work and c) is completely absorbed by tasks at work. Bakker argues that job resources and personal resources can lead to higher work engagement: job resources help an individual to cope with job demands and create a motivating environment, while personal resources help to develop productive personal approaches and strategies to cope with challenges at work (Bakker 2011). Second, Bakker made an important distinction between work engagement and other frequently researched work phenomena, such as job satisfaction and organisational commitment (Bakker 2011, 2015). He argued that work engagement refers to high levels of energy and willingness to invest efforts into one's work, while job satisfaction as an indicator of well-being at work and organisational commitment pointing to identification and emotional attachment to work does not necessarily lead to action (Bakker 2015).

The research was designed as an explorative inquiry into perceptions of Lithuanian librarians about their work; therefore, a semi-structured interview method was chosen. Basing on JD-R model, a semi-structured interview aimed to find out how initiative library professionals perceive job demands and resources, what personal resources they use to thrive at work. The interview consisted of eight questions. They focused on the following aspects:

- Activities and aspects of work that are perceived as deeply satisfying, motivating and empowering for action and those that are perceived as discouraging, challenging and disappointing.
- Personal action, helpful individual ways of dealing with challenges and opportunities at work.
- Demographic information about respondents: age, gender, location, workplace-library type, education, and work experience.

In this research we focused on so-called initiative library professionals, in other words, those who are known for introducing new activities or improvements, are remarkable for professional achievements and enjoy their work. We assumed that being initiative relates to high work engagement, while enjoying the work shows that a person copes with job demands successfully.

Qualitative content analysis was used to interpret the interview data. Two coders worked independently and then aligned their results to reach the consensus.

#### Data sources and data collection.

The main data sources were initiative library professionals that met the following criteria: a) they were remarkable for professional achievements in the community, i.e. they won professional awards or were recommended by professional organisations; b) they were recommended by their managers as initiative and valuable staff members for the libraries by providing an argument about their contribution.

Selection was performed by making a convenience sample basing on snowball technique. To recruit respondents, researchers used the lists of winners of the annual “The Best Librarian of the Year” award and collected feedback from professional library associations about these persons. “The Best Librarian of the Year” is the title awarded by the Ministry of Culture of the Republic of Lithuania for significant professional achievements in library and information work on a national scale. It is the main award to celebrate achievements of library professionals in Lithuania.

One third of all respondents were recruited by examining the “Best Librarian of the Year” awards and seeking advice about initiative librarians in professional library associations. Additionally, researchers performed a brief questionnaire survey of managers or heads of departments of different libraries. Respondents were asked to nominate initiative library professionals who obviously enjoyed their works and to ground with examples and arguments the contribution of nominees to library activities. Two thirds of respondents were recruited by surveying their managers.

Data collection took place in October-November 2017. Face-to-face, telephone and Skype interviews were conducted with respondents. Audio records and text transcripts were used for analysis.

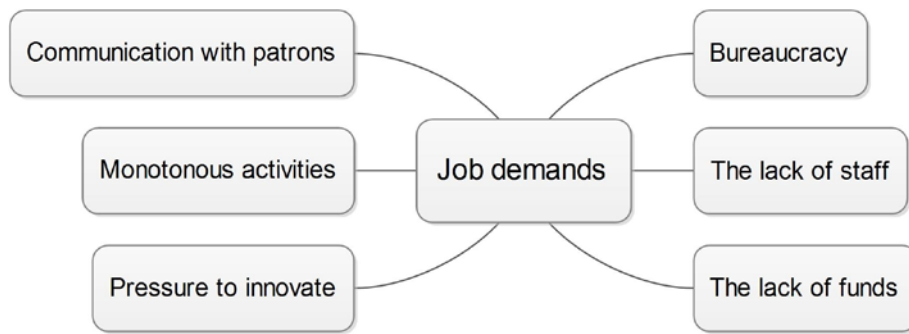
## Results

#### Demographic features of respondents.

18 persons – 3 men and 15 women participated in research. The demographic features were in line with current library workforce realia in Lithuania and worldwide, including such trends as prevalence of women and greying profession. Respondents fell into two groups by age with seven 29-48 years old participants and eleven – 50-62 years old. All professionals acquired higher education: fourteen respondents – a bachelor’s degree, three – master and one respondent – a doctoral degree. Twelve respondents completed library and information, while six – other study programmes (philology, management, educational sciences, history etc.). The respondents had an extensive work experience in library profession: five of them reported 6-10 years’ experience, five – 12-19, seven – 25-35 and one – 40 years. Respondents held both managerial and specialist positions in libraries and represented public (8 respondents), academic (7), school (2) and the national library (1). The geography of respondents covered both large cities and smaller towns: Vilnius, Kaunas, Klaipėda, Lazdijai, Utena, Plungė, Raseiniai and Anykščiai.

#### Job demands.

The respondents distinguished six job demands (see Figure 1) that were perceived as disturbing and stressful aspects at the workplace.



**Figure 1.** Job demands perceived by the respondents

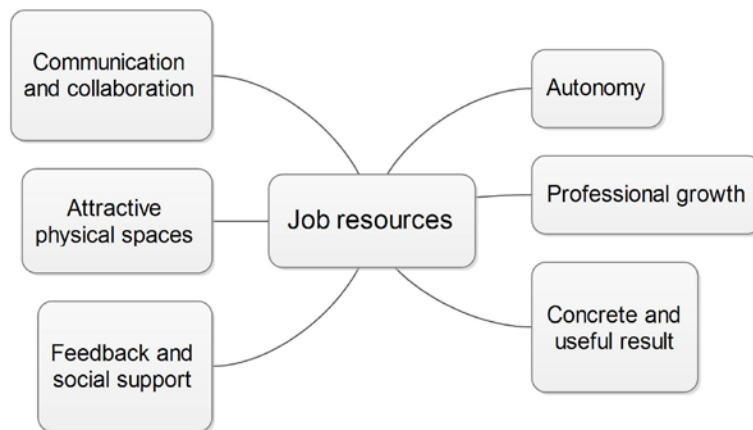
Three of job demands addressed general management and organisation of activities. Respondents mentioned bureaucracy, i. e. formal procedures that were obligatory when performing any activity at the library. Bureaucratic procedures were time consuming and had a negative effect on motivation. Instances of comments on such job demands included: “formalities take a lot of time [...] I don’t like them”, “when you finally get all papers done, you don’t want to do anything else”. Similarly, the demanding conditions included the lack of competent and/or motivated staff to involve in projects and initiatives: “the problem is to get people who can do what you need”, “one of the most complicated issues in the library is the motivation of staff, some people lack motivation and we speak about it”. And the final unfavourable condition was the lack of funds: “the major obstacle are limited funds”, “we lacked money for a long time and we don’t have what we need now”.

Demands of other type were mostly related to certain job tasks. Some respondents found communication with patrons demanding (“each person wants to be noticed and must be noticed”), while others could hardly bear similar and repeated activities (“I do the same tasks every day”), and some of respondents felt a pressure to innovate (“you need to invent something new even if you do not want to, you need to plan something, even if you do not want to plan”).

#### Job resources.

During the interviews respondents identified six job resources that made them feel positive and inspired at work (see Figure 2).

As Figure 2 shows the nature of activities, social and physical environment presented different opportunities for the staff. The first group of job resources related to the nature of activities and tasks. Respondents valued work autonomy, i. e. the ability to take control over their tasks and work independently (“library is an institution where you can implement the things you want”, “I was allowed to make this project from scratch”). Participants also mentioned several powerful sources of personal growth provided by the library: ability to act in different fields (“you discover plenty of interesting fields that you had never imagined you might be interested in”), ability to learn something new and improve one’s knowledge and skills (“I can use my knowledge and improve my skills”, “I started to work, I learnt a lot and I know a lot now”) and to implement new things in practice (“library work is very creative because you can introduce new things”). And finally, respondents found the ability to enjoy immediate and practical results very rewarding (“for instance, I know that if I take those books and bring them somewhere else, something will change”, “I love to see an immediate result”).

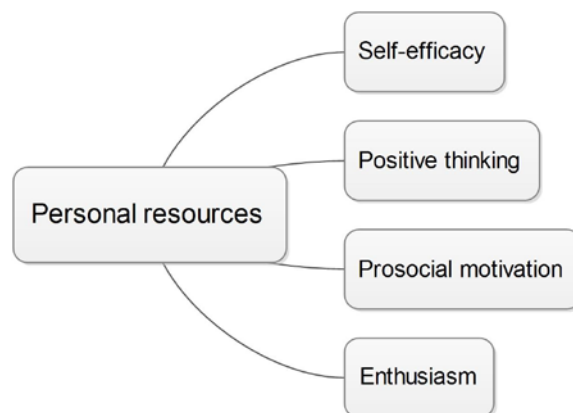


**Figure 2.** Job resources perceived by the respondents

The second group of job resources covered social and physical aspects of work. Most respondents valued feedback and social support from users (“it is important when people get to love the library and see that we do the right things”, “when you see this [user – inserted by authors] reaction, you know that you did the right job”) and peers at work (“colleagues motivate a lot”, “you understand that people at work trust you and you can find the right way to speak to them”, “there are colleagues who understand you and think in a similar way”). The respondents found it very inspiring to be able to collaborate and communicate with communities they served and different partners, including international ones (“I appreciate different views, because I get more insights”, “I appreciate a lot communication with users, tourists and other people coming to our city”, “I am happy that during these fifteen years I had an opportunity to discover the strongest European and Scandinavian libraries”). And finally, there were respondents who enjoyed the physical spaces they work in (“to be frank, it is impossible to work bad in this fantastic environment. The space motivates a lot.”)

**Personal resources.**

Asked about their achievements, rewarding and challenging situations the respondents revealed some deeper reasons of reacting to their environment in a certain way. Four personal resources explained their accomplishments (see Figure 3).



**Figure 3.** Personal resources perceived by the respondents

Respondents were aware about their different states and took control over them to continue their work productively (“every time I build a motivational system for myself, the one that I feel is appropriate at the moment”, “I think what things irritate me at work and how to overcome them”, “new challenges emerge, and I need to learn how to treat new situations and take control over them”). They also tended to search for and appreciate positive aspects of each situation (“I appreciate things I have”, “I understand that difficulties are temporary”, “I am a true optimist and I never stop acting”). Some of respondents reported getting enthusiastic about new ideas (“this is my feature that I quickly get excited about the idea”). And finally, many respondents mentioned about their intrinsic motivation to work for the benefit of other people and to make a positive effect, in other words, prosocial motivation (“I can apply my knowledge for the benefit of the society”, “I feel the happiest when I do something good for other people”).

## Discussion

The research findings show strong links with other JD-R research and demonstrate results that are common in other LIS job satisfaction and organisational commitment research. However, some results of this research indicate that JD-R application can provide a different perspective to library managers on motivators and inhibitors in library environment than traditional job satisfaction research.

Similar to Nicholson (2016), Walker and Calvert (2016), and Karim (2017) findings, the Lithuanian librarians treat opportunities for professional development, work autonomy as important motivating factors and job resources. Lithuanian librarians related job resources to communication and collaboration. This finding is consistent with main JD-R concepts and findings (Bakker and Demerouti 2007), where feedback and social support from colleagues and patrons are considered important job resources. Al-Aufi and Al-Kalbani (2014) also found that social needs that covered communication, collaboration, teamwork were rated as highly satisfying by Omani librarians. Additionally, Lithuanian librarians indicated that communication and collaboration with partners is a source of professional learning. Autonomy and opportunities for professional growth were classical instances of job resources found in research of other professions (Bakker and Demerouti 2007). The importance of opportunities for professional development and significance of autonomy were also emphasized in library research by Nicholson (2016), Walker and Calvert (2016) and Karim (2017).

The research has shown that similarly to other professions, positive thinking, high self-efficacy are important personal resources for inspiring and productive work. This finding is consistent with research results in organisational psychology (Xanthopoulou et al. 2007). Librarians, as other professionals engaged in public sectors were distinctive for high prosocial motivation – the intrinsic motivation to make a positive effect to other people. Prosocial motivation seems to be a typical motivator not only for the public librarians in the developing world (Femenía, Sadunišvili, and Lipeikaitė 2014) or school librarians in New Zealand (Walker and Calvert 2016), but for Lithuanian library staff as well. A more in-depth examination of the nature of such motivation may disclose similar results as found by Bakker (2015), who discussed public service motivation.

The findings have shown that some job demands were caused by the nature of tasks employees performed in a library (monotonous work, interactions with clients), while others were rooted in specific workplace conditions and contexts (e.g. bureaucratic procedures, pressure to innovate, lack of funds and staff). Such distribution of job demands can be a valuable insight to a library manager who can work on reframing and redistributing pressing tasks (e.g., reducing the volume of monotonous work for a person who is capable to undertake creative and challenging tasks). Analysis of job demands perceived by the Lithuanian librarians provided a unique perspective on daily job-related tasks that caused strain to the



employees. This aspect of findings appeared quite different from other job satisfaction research that reported about more general conditions of work as, e.g., insufficient financial reward (Walker and Calvert 2016, Nicholson 2016). The closest to our research was the effort of Karim (2010) to explore the relation between certain job variables to job satisfaction and organisational commitment. However, in this research specific pre-defined job-related variables were explored. There is a short mention of the influence of organisational structure and task complexity as inhibitors of innovation that may be closer to the findings of this research in Jantz (2016) paper.

Notably, the mediating role of personal resources was observed. Similar things, as e.g. the ability to introduce new developments and the need to innovate were treated differently: some respondents attributed them to job demands, while others – to job resources. It provides an interesting insight about the impact of personal resources to the way a person reacts and interprets the environment.

## Conclusions

Differently from research focused on motivation and job satisfaction, JD-R study provides a dynamic interplay of demands and resources and discloses how the balance between them can be maintained. Moreover, JD-R disclose how personal and job resources may lead to dedication to and engagement with work, which is valued in any workplace setting.

That's why the results of such analysis can be insightful not only for library managers, but also for library staff who are eager to explore the roots of their attitude to work and would like to take an active role in constructing their work experience. By balancing job demands with opportunities library managers can create a motivating environment for their staff, while library professionals can be more aware about their personal resources they can put to work to cope with challenges. A deep understanding about job demands and resources is helpful not only in retaining, but also in attracting new library staff. Library managers can make use of their knowledge about job demands and resources in formulating job advertisements and during candidates' interviews. Furthermore, this model can be useful for mentoring initiatives and discussion in LIS higher education setting. Understanding of job resources and matching them with personal resources will help students to develop a more informed approach to their career and to think about possible strategies to cope with challenges and use the opportunities to the maximum.

Importantly, this research has several limitations. It is a first qualitative inquiry into job demands, job and personal resources of the Lithuanian library professionals. Therefore, there were no distinctions between professionals occupying different positions and performing specific tasks. Due to the qualitative nature of research we did not highlight the pre-dominant demands and resources.

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## References

- Al-Aufi, A., & Ahmed Al-Kalbani, K. (2014). Assessing work motivation for academic librarians in Oman. *Library Management*, 35(3), 199–212.
- Bakker, A. B. (2015). A job demands–resources approach to public service motivation. *Public Administration Review*, 75(5), 723–732.

- Bakker, A. B. (2011). An evidence-based model of work engagement. *Current Directions in Psychological Science*, 20(4), 265–269.
- Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of managerial psychology*, 22(3), 309–328.
- Bakker, A. B. et al. (2007). Bakker, A. B., Hakanen, J. J., Demerouti, E., & Xanthopoulou, D. (2007). Job resources boost work engagement, particularly when job demands are high. *Journal of educational psychology*, 99(2), 274.
- Bronstein, J. (2015). An exploration of the library and information science professional skills and personal competencies: An Israeli perspective. *Library & Information Science Research*, 37(2), 130–138.
- Femenía, A. M., Sadunišvili, R., and Lipeikaitė, U. (2014). *EIFL public library innovation programme: evaluation of the take-up of PLIP innovation by other libraries. What sparks innovation in public library sector?* Available from: [http://www.eifl.net/system/files/resources/201506/eifl\\_take-up\\_study\\_may\\_2015.pdf](http://www.eifl.net/system/files/resources/201506/eifl_take-up_study_may_2015.pdf).
- Hanif, S. (2018). Job Satisfaction of Library Science Professionals in Beacon house School System of Pakistan: A qualitative study. *Pakistan Library & Information Science Journal*, 49(1), 33–41.
- Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of general psychology*, 6(4), 307.
- Karim, N. H. A. (2017). The impact of work related variables on librarians' organizational commitment and job satisfaction. *Malaysian Journal of Library & Information Science*, 15(3), 149–163.
- Lietuvos nacionalinė biblioteka (2018). *Bendroji 2017 metų bibliotekų ataskaita*. Available from: <https://www.lnb.lt/media/public/bibliotekininkui/statistika/statistika2017.pdf>.
- Manžuch, Z., & Tautkevičienė, G. (2014). *Valstybinės reikšmės ir apskričių viešųjų bibliotekų strategijų, kokybinių ir kiekybinių veiklos rodiklių tyrimas*. Available from: <https://drive.google.com/file/d/0B2eahNizpAafSjg2SIRBdnZBTnc/edit?usp=sharing>.
- Nicholson, A. (2016). Where do we come from? A survey of current library workers, their previous careers, and paths into library work. Master theses. Victoria University of Wellington. Available from: <https://researcharchive.vuw.ac.nz/xmlui/bitstream/handle/10063/5634/report.pdf?sequence=1>.
- Partridge, H. et al. (2010). Partridge, H., Menzies, V., Lee, J., & Munro, C. The contemporary librarian: Skills, knowledge and attributes required in a world of emerging technologies. *Library & information science research*, 32(4), 265–271.
- Special Library Association (2016). *Competencies for information professional*. Available from: <https://web.archive.org/web/20170321172834/>. <http://www.sla.org:80/about-sla/competencies/>.
- Vilniaus universiteto Komunikacijos fakultetas (n. d.). *Kultūros informacijos ir komunikacijos bakalauro studijų programos istorija*. Available from: <http://www.kf.vu.lt/studijos/programos/bakalauro-programu-istorija#kulturos-informacija-ir-komunikacija>.
- Walker, L., & Calvert, P. (2016). 'So what made you decide to become a school librarian?' Reasons people currently working in New Zealand school libraries give for their choice of employment. *Journal of Librarianship and Information Science*, 48(2), 111–122.
- Williamson, V. (2016). The Library Workforce. *International Information & Library Review*, 48(1), 57–62.
- Xanthopoulou et al. (2007). Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. The role of personal resources in the job demands-resources model. *International Journal of Stress Management*, 14(2), 121.

## European Trends in LIS Education, as represented in WoS: 2000–2017

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### Abstract

This study analyses the output of scientific papers about Library & Information Science (“LIS”) education, produced in European institutions. Data sources are the papers and communications produced by authors based in European institutions during the years 2000-2017, which are indexed in the *Web of Science* (WoS). The purpose of this study is to identify which of the themes related to LIS education were given priority in Europe, in the period 2000-2017. The initial aim behind the methodology was to identify subjects and also the limitations of retrieval, in the particular case of the works published in WoS. The search was limited by documentary type, articles and communications, and also by the geographical space that belongs to the European institutions. The search was further refined by requiring that each search term be included in the keywords and abstracts of each of the references analysed. The results obtained are shown in tables and figures, and the comments reflect the characteristics of the institutions, the authors, and the particular subject matter of the journals and conference papers in the selection. The search was refined again in WoS by the category *Information Science and Library Science*, by type of document, by country and by date. The most notable recent trends in LIS education are: updated studies about LIS, and information literacy – both of which refer to teachers and to practitioners, students and users. These topics concern institutions for higher education and academic libraries. Both information literacy and the new proposals in course study plans for the inclusion of additional subjects follow the trends and issues that affect academic libraries in higher education. These trends and issues are identified by the ACRL Research Planning and Review Committee. This study highlights the considerable variety of learning methods used in LIS, and the significant increase of the online mode of learning.

**Keywords:** LIS education; Europe; European Higher Education Area (EHEA)

### Introduction

Library and Information Science is constantly in the process of change. New professional profiles are required, and new relationships develop with other fields of knowledge. Teachers and practitioners are always on the alert for changes and newly-developing tendencies, so as to be in a position to offer the appropriate training programmes to their students and ensure that the competencies of the future professionals in the field adapt to and reflect the new realities. It is also a priority to increase work opportunities for new LIS professionals. For example, the type of work that is based on the analysis of the influences of educational externalities and internalities, in order to estimate future output (Borko 1984). Other professionals are now focusing on the cooperation that they feel should exist between the area of computer science and that of information technology (Steierwald 2006). In addition, the current situation of overall economic growth in Europe has been considered sufficient justification for implementing changes in LIS education – where the aim is to identify the new tendencies to which professionals in several European countries are having to adapt their skills – and which should therefore be reflected in LIS education (Okello-Obura and Kigongo-Bukenya 2011). Market studies enable us to identify tendencies in the requirements for technological and digital competencies that new information professionals will need to acquire if they want to be able to take advantage of the kind of jobs offers that will reflect future demand. (Morato, Sánchez-Cuadrado, Fernández 2016, Abadal & Rubio 2017).

The principal aim of the present study is to identify the recent tendencies in LIS education by analysing the literature published on the subject over the last 17 years. Also, to identify the differences in approach before and after the Bologna Process agreements. Another particular objective is to show what aspects of LIS have attracted the greatest interest during the period examined, and to establish which countries offer the greatest number of learning experiences in LIS.

The years 2000–2017 were particularly marked by the setting up of the European Higher Education Area (EHEA), initiated after the Bologna Process agreements, where flexibility and cooperation between different specialities were of key importance in the design of university training programmes relating to LIS (Tejada Artigas 2010). Also important during the period was the cooperation that sprang up between LIS schools and LIS educators in Europe. In particular, EUCLID (European Association for Library and Information Education and Research) promoted links and cooperation between LIS schools and LIS educators, in Europe. The seminars about LIS educational topics culminated in 2005, with the completion of the European LIS Curriculum Project - which will be presented and discussed in our study (Kajberg 2007).

Together, those two new developments in Europe (the Bologna Process agreements and the European LIS Curriculum Project) have had an influence on the kind of studies published about LIS education worldwide, over the last 10 years. In certain countries - the United States and Spain, for example – fewer students enrolled in LIS studies during that period, partly because of the low visibility of the discipline, and also due to the unstable economic situation in these countries. In addition, university fees for the LIS study programmes increased in both countries. In other countries, however, the very considerable efforts made to promote LIS were rewarded, and there was a boom in LIS studies - as in the case of Israel and Turkey. Once these varying tendencies in LIS teaching had been detected, possible strategies were proposed, with the objective of strengthening the discipline and the profession as a whole (Borrego 2015; Cronin 2015; Ortiz-Repiso 2015).

The use of the *Web of Science* (WoS) to analyse the output of authors in European institutions who write about LIS education provides the necessary guarantee that the documents extracted are relevant.<sup>56</sup> The journals and conference proceedings that appear in the WoS index guarantee a scientific communication that is of greater visibility and also, therefore, widely applicable. As a consequence, we may assume that the content will have a greater impact. All the journals and other content included in WoS have passed peer reviews.

Due to the international circulation of the articles published, WoS offers one of the best means of access to the paths followed by the different specialities, and is certainly therefore the best means of testing the state of research efforts in Europe in relation to LIS education. However, the very fact that our research is limited to the articles and communications that are indexed in WoS means that the results obtained cannot be considered sufficiently complete. For this reason, it would be advisable to give attention to Scopus, in addition to books and PhD dissertations, and even take other types of publication into account, in order to ensure a more complete vision.

However, this would not only be a much longer task, but it would also not guarantee the exactitude of consultation that is provided by WoS. We have therefore confined our study to the scientific journals and conference proceedings included in WoS between the years 2000–2017.

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<sup>56</sup> Note: even if they were born in other, non-European countries, at least one of the authors of each paper must be active in one European institution.

## Methodology

The investigation was confined to the main collection of the database *Web of Science* (WoS), by combining the terms that define LIS education, and making use of the logical operator OR in two different groups, that were then combined with the operator AND. Some terms were truncated, in order to include the extensions of the terms in the search. When necessary, a search by exact phrase was carried out, in order to avoid noise during recovery. The following search terms were used in the field TS (abstract, title and keywords): in the first search (librarian\*) OR ("LIS education") OR ("library studies") OR (librarianship) OR ("LIS studies") OR ("Information science") OR ("continuing LIS education"); and in the second search (education) OR ("education and training") OR ("Professional development") OR ("Higher-education") OR ("teaching skills") OR (curricul\*) OR ("European higher education area") OR (EHEA) OR ("Professional competencies") OR ("professional development").

The results of the search were refined by selecting the category Information Science and Library Science, according to types of document (articles or proceedings papers) and according to country (Spain), and selecting period of time 2000-2017. The search was limited to the following indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI.

We excluded some of the registers (141) were excluded from the resulting list, either because the topics addressed were not related to LIS education, or because the authors were not found to be working in any European institution. In the final analysis, the total number of works selected was 240. To all these documents, the necessary descriptive subject headings were assigned, in addition to a note about the collective that was being targeted, the speciality of that collective, the mode and the method of teaching, and the country of publication.

The selection was made to include all the countries of the European continent, including the Eurasian countries of Turkey, Russia and the Ukraine. In addition, we included Israel, because it is the usual practice to include this country in the European Section of international associations – see, for example, the European Section of ASSIS&T.

## Results

In order to present the results obtained in our analysis as clearly as possible, we have included simplified tables and figures. The source of all data shown is always the WoS. The first three tables reflect the general results obtained by the search (2503 documents), before we proceeded to refine the registers obtained for the European countries.

The final result was that 381 documents were recovered. Following data selection, the number of relevant documents for the purpose of our research was further reduced to 240. These documents are the ones that have been made use of in our study. Of these, 205 (85.42%) are articles and 35 (14.58%) are proceedings papers.

After applying a search refinement by "*Information & Library Science*", we found that the USA generates 43.31% of the 2503 documents that represent total world production recovered in our initial search (Table 1).

European production represents 15.22% of that total. Particularly noteworthy is the strong presence of an Asian country, China, in total world production; also Canada, in North America; while in South America Brazil stands out; in Oceania, Australia; and in Africa, South Africa.

**Table 1.** Number of documents per country (Source: WoS, 2018)

Country	Docs	% of 2503
USA	1084	43.31
ENGLAND	186	7.43
CANADA	151	6.03
AUSTRALIA	111	4.44
BRAZIL	89	3.56
PEOPLES R CHINA	88	3.52
SOUTH AFRICA	80	3.20
SPAIN	77	3.08
SCOTLAND	44	1.76

In Europe, restricting the search to the member countries (with the addition of Israel and Turkey), the UK and Spain were found to be the most productive, followed by Germany, Russia, Sweden, Turkey, Ireland, Israel and Denmark (Table 2). The presence of Turkey and Israel reflects the considerable effort made in these two countries, in recent years, to implant and reactivate LIS studies.

**Table 2.** Number of documents per country (Source: WoS, 2018)

Country	Documents	% of 381
UK	145	38.06
SPAIN	52	13.65
GERMANY	18	4.72
RUSSIA	16	4.20
SWEDEN	15	3.94
TURKEY	14	3.67
IRELAND	13	3.41
ISRAEL	10	2.62
DENMARK	8	2.10

The most outstanding European institutions (where the authors of the papers are based), are listed in Table 3. It will be observed that they are all universities, and that four UK universities are among the top eight. The University of Sheffield is responsible for the greatest output. It is worth noting that two Spanish universities in Spain are listed among the top eight, and one Israeli.

**Table 3.** Number of documents per institution (Source: WoS, 2018)

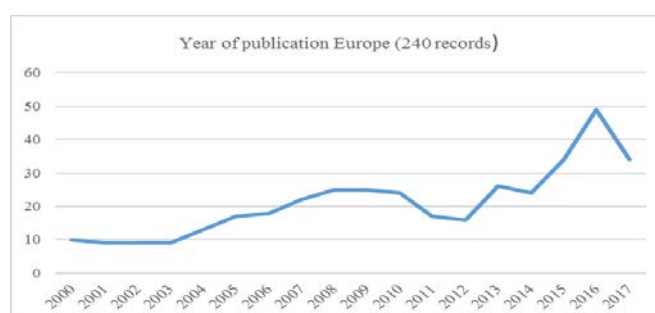
University	Documents	% of 381
UNIVERSITY OF SHEFFIELD, UK	26	6.82
ROBERT GORDON UNIVERSITY, UK	13	3.41
ABERYSTWYTH UNIVERSITY, UK	11	2.89
COMPLUTENSE UNIVERSITY OF MADRID, SPAIN	11	2.89
CITY UNIVERSITY LONDON, UK	10	2.63
UNIVERSIDAD CARLOS III DE MADRID, SPAIN	10	2.63
UNIVERSITY OF LONDON, UK	10	2.63
BAR ILAN UNIVERSITY, ISRAEL	9	2.36



Having selected the documents that are really pertinent to the subject of LIS education from the total search results (240 documents in total), it can be observed that European production describes a continuing progression upwards during the period 2000 – 2017 (Figure 1).

This leads us to the logical conclusion that interest in the subject of LIS education is continuing to increase in Europe. Growth commenced in 2003, when study plans began to be remodelled after publication of the Bologna Declaration on the European space for higher education [1999].

Due to the particular characteristics of the search carried out, all the documents are included in the category LIS. It is however the case that 22% (53) of documents are very closely related to Computer Science, in the “Information Systems” category.



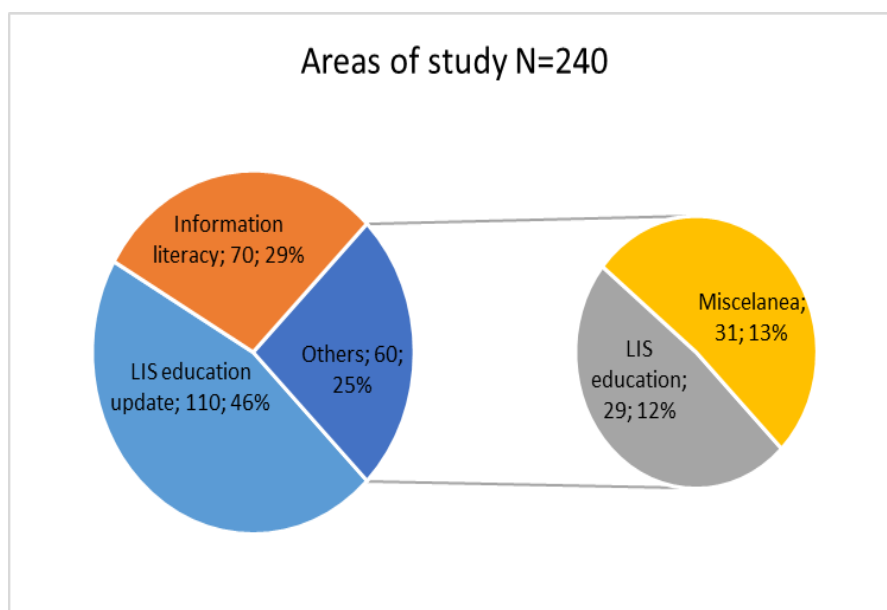
**Figure 1.** Number of European records according to year of publication (Source: WoS, 2018)

After selection, an analysis of the 240 documents pertinent to LIS revealed which countries had the greatest output during the period (Table 4). We found that the UK continues in first position, followed by Spain and Germany.

**Table 4.** Number of documents per country after selection (Source: WoS, 2018)

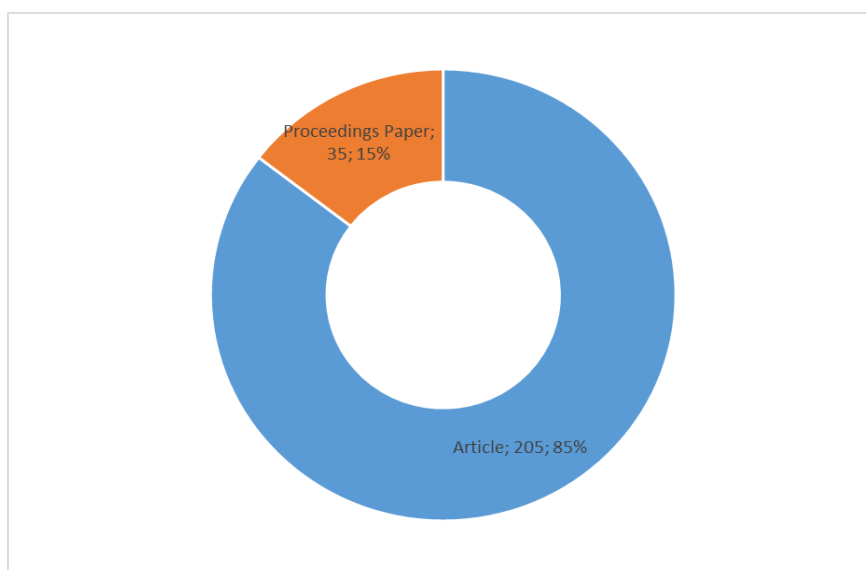
Country	Docs	% of 240
UK	69	28.75
SPAIN	25	10.41
GERMANY	11	4.58
SWEDEN	10	4.16
ISRAEL	7	2.91
IRELAND	6	2.50
RUSSIA	6	2.50
DENMARK	5	2.08
TURKEY	5	2.08

The areas of interest addressed in the documents are varied; but in general, more documents relate to libraries, and fewer to archives. Having analysed the themes addressed in the documents, the following summary can be made of the most frequently preferred areas of study (Figure 2): Updating LIS education, Information literacy, Special subjects, Miscellaneous, and Modes of learning in LIS education.



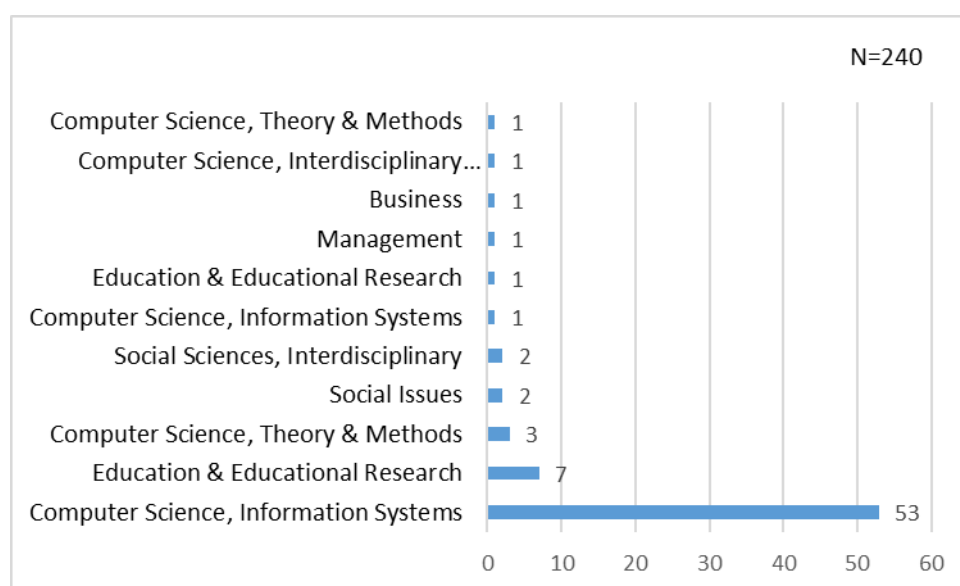
**Figure 2.** Topics grouped by main study areas

If we look at output in respect of document type, we find more articles in journals and fewer proceedings papers (Figure 3).



**Figure 3.** Document type

Some journals are not included only in the WoS category “*Information Science & Library Science*”. A few journals are also included in other categories, of which the most recurrent is: “*Computer Science, Information Systems*” (Figure 4). This demonstrates, once again, that LIS studies are interdisciplinary.



**Figure 4.** Journals that are included in WoS categories other than “*Information Science & Library Science*”

Table 5 lists the names of the journals that include the greatest number of documents about LIS. A medical journal heads the list. This is not surprising, as medicine is one of the disciplines that is most active in LIS education.

**Table 5.** Journals that include the greatest number of documents about LIS

Titles	Documents.	% of 240
HEALTH INFORMATION AND LIBRARIES JOURNAL	20	8.33
JOURNAL OF LIBRARIANSHIP AND INFORMATION SCIENCE	18	7.50
ASLIB PROCEEDINGS	16	6.67
LIBRI	11	4.58
PROFESIONAL DE LA INFORMACION	11	4.58
INFORMATION RESEARCH-AN INTERNATIONAL ELECTRONIC JOURNAL	9	3.75
JOURNAL OF DOCUMENTATION	8	3.33
LIBRARY TRENDS	8	3.33
LIBRARY & INFORMATION SCIENCE RESEARCH	7	2.92
ZEITSCHRIFT FUR BIBLIOTHEKSWESEN UND BIBLIOGRAPHIE	7	2.92
NAUCHNYE I TEKHNICHESKIE BIBLIOTEKI-SCIENTIFIC AND TECHNICAL LIBRARIES	6	2.50
ELECTRONIC LIBRARY	5	2.08
PROGRAM-ELECTRONIC LIBRARY AND INFORMATION SYSTEMS	5	2.08
BID-TEXTOS UNIVERSITARIAS DE BIBLIOTECONOMIA I DOCUMENTACION	4	1.67
INFORMATION-WISSENSCHAFT UND PRAXIS	4	1.67
JOURNAL OF ACADEMIC LIBRARIANSHIP	4	1.67
JOURNAL OF INFORMATION SCIENCE	4	1.67
NFD INFORMATION-WISSENSCHAFT UND PRAXIS	4	1.67
REVISTA ESPANOLA DE DOCUMENTACION CIENTIFICA	4	1.67

What follows below is a more detailed analysis of the areas of interest identified in our study.

### Updating LIS education.

This is the area of interest that is most frequently addressed, in all the relevant documents obtained from WoS (in 110 documents out of 240: 45.8% of the total). Both the updating of study plans (33.64%) and the continuous training of practitioners (35.45%) are addressed. Some articles deal with the historical development and evolution of LIS education in various different European universities (13.64%). Certain weak areas in the present situation are examined, and possible solutions for the future are suggested, with special emphasis on human factors, particularly teachers and students, who are obviously the people most affected by the changes. The suggestions about ways to update study plans are often related to the setting up of the EHEA, following the Bologna agreement (European Ministers Responsible for Higher Education, 2009), in order to promote European convergence. Dialogue and cooperation between professionals who are working on the task of updating LIS academic programmes appears as a recurrent theme in the documents. Other documents explore the possibility of updating the CVs of LIS professionals working in different types of libraries, by providing them with continuous training plans. One of the most frequent references in all these documents is to the collective of Health Scientists. Some documents give particular attention to the appropriate methods of learning, [the possibility of tailor-made methods of learning] according to each type of professional concerned, and the skills they need to acquire.

### Information literacy.

The numerous studies focusing on the useful skills that information literacy provides have considerable bearing on the overall results (70 documents, 29.16% of the total). It can be observed from the frequent recurrence of this theme that information literacy has gained an important place in library and information science education. Both digital and information literacy underpin the process of learning to learn, and support the transition from higher education to independent learning, and also to the workplace. Some studies examine the potential and actual roles that academic librarians play in supporting the development of information literacy. Other studies examine the consequences to librarians and teachers of the “flattening” of expertise, or the “Google effect” on the process of information retrieval. In other documents, the experiences of literacy programmes are analyzed, and then the evaluation by users and the impact of these programmes are examined. Students have communicated to teachers the great advantages they have obtained from this training. It appears that literature relating to information literacy has begun to be accepted in the universities. The cooperation of university faculties in combination with the dogged determination of librarians, added to good assessment results, have all helped to pave the way for the progressive implementation of computer literacy programmes in the universities since the setting up of the EHEA.

There are articles that focus on the specific experiments with computer literacy that have been carried out in different types of libraries, principally academic libraries (specializing in the Health Sciences, Law, Engineering, Veterinary science, Music, Sociology), but also public and school libraries. Librarians responsible for suggesting new types of training related to their areas of knowledge, so as to widen the learning experience of students: for example, the designing of computer literacy programmes in cooperation with the other faculty members of the institutions concerned, in accordance with the individual needs of the students.

### Special subjects.

A very considerable number of studies focus on the particular subjects that should be added to academic programmes, either because at present they are not included, or because they are not given the

appropriate weighting (34 documents, 14.2% of the total). One motive behind this area of interest is the way these subjects relate to the tasks currently being carried out by LIS professionals. Another motive is the appearance of new professional job profiles in LIS; and in addition, the evolution that has taken place in library services: new areas of interest include, for example, Project management, Grey literature, Copyright, Research data, Leadership, Ethics and others, up to a total of 29 special subjects (see Table 6). Some articles make comparative studies of the programmes of various different universities, pointing out the similarities and differences between one academic programme and another. In these studies, students and teachers are the people who are principally affected, since they are the interested parties.

**Table 6.** Special Subjects

Special Subjects	Documents
Research data	3
Copyright	2
Project management	2
IRS	3
Information history	2
Bibliometrics	1
Climate changes	1
Conceptual maps	1
Data literacy	1
Digitization	1
Epistemology	1
Grey literatura	1
Information economics	1
Information management	1
Knowledge management	1
Leadership skills	1
Quality management	1
Repository management	1
Cultural heritage	1
Information management	2
Business needs	1

#### Miscellaneous.

The remaining 12.9% of documents obtained in our search (31) are very varied in their particular areas of interest, but a large proportion of them have a clearly technological component. Information and Communication Technologies, Web 2.0, mobile technologies, and social networks, are seen in these documents as an opportunity for learning the new skills that are needed in order to provide adequate services in digital libraries – skills that are also required in the processes currently being developed in the new electronic information markets. All these studies hold that the principal people affected are students and other users of university libraries, in addition to users of public and school libraries.

#### Modes of learning in LIS education.

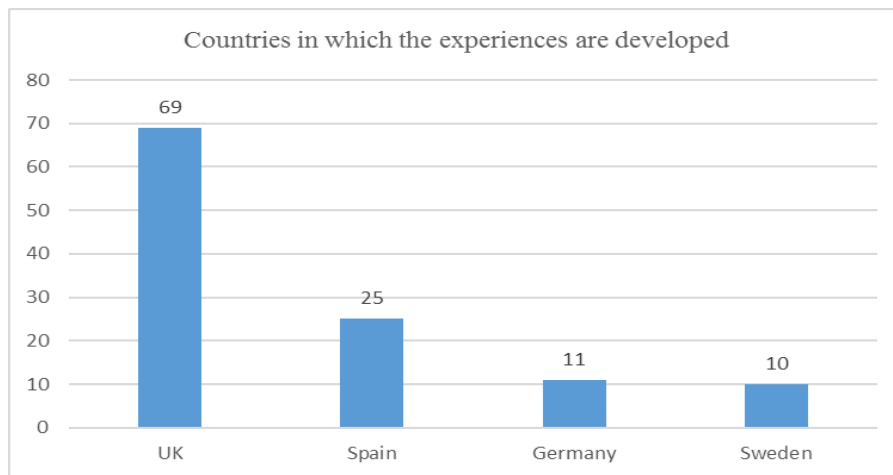
By using the heading “Modes of learning”, we mean to convey both the form and the methods of teaching, and the ways of learning, that certain documents address. The majority of these documents (28

documents, 11.66% of the total) discuss the online form of teaching and learning, using computers and mobile devices that give access to a “virtual” campus which eliminates communication barriers. In addition, the online mode makes it possible for each student to adapt the pace of learning to the time he/she has available, which means that interference to personal and professional obligations is very much reduced. In several of the documents recovered, the distance teaching mode of “Massive Online Open Courses” (MOOCs) is viewed as a useful means of self-education. Websites, and social networks, can be used as platforms from which to access training courses that offer many possibilities (webinars, workshops, conferences) for university students of all levels (undergraduate, graduate and postgraduate), and are valid aids in continuous training programmes for professionals.

However, no recommendation is given in this group of documents that the traditional modes of face-to-face teaching and learning should be abandoned altogether (9 documents, 3.75% of the total); on the contrary, it appears to be generally considered that direct contact with teachers and classmates provides added value to training, and enrich it very considerably.

Countries with the greatest number of learning experiences in LIS.

In the group of countries that are included in the European Union, those that show the greatest number of learning experiences in LIS are those indicated in Figure 5, below:



**Figure 5.** Countries with the greatest number of learning experiences in LIS

Among the countries shown to have the greatest output of works that focus on learning experiences in LIS, these “top four” are followed by the USA and Israel. But we should not ignore the very considerable number of other countries around the world that have also been identified in the set of documents retrieved.

## Conclusions

The setting up of the (EHEA) has encouraged professionals and teachers involved in higher education to revise and update LIS. Their work has acquired greater visibility since the setting up of the EHEA.

Practitioners, students and university faculty members are all involved in the changes that are being proposed in training programmes. During the period covered by our study, cooperation between these groups – and also between all the various institutions involved - has been seen to be of vital importance for achieving results that are in accordance with recent new developments.



Information literacy, proposals for new subjects to be assigned in LIS study plans, and the exploration of new modes of learning that we have also detected in the documents recovered - all these are areas of interest which follow the trends and issues that affect academic libraries in higher education, and that the ACRL Research Planning and Review Committee reports on annually (ACRL 2016). In 2016, for example, the subject of the ACRL report was information literacy and data management; and in 2014, it reported on Open Education, MOOCs, and Competency-based learning.

Continuing education provides continuous food for thought among the LIS professionals whose objective is to get abreast of the new technological challenges that arise constantly in the services and processes being developed in digital libraries. Information and Communication Technologies require continuous updating, and therefore skills also have to be updated continuously in order to meet the demands of the electronic workplace. All the modes of learning that are reflected in the documents recovered in our search are oriented towards facilitating and improving the opportunities for continuous education. And they are in line with some of the key areas of interest in the strategic plans of several professional associations (eg The American Library Association - ALA 2015)

Academic libraries and health libraries are the workplaces that have provided the greatest number of opportunities for work experience in LIS during the period of our study. Those institutions have provided Information Literacy programmes for students and have also offered continuous education to the LIS professionals who work there.

## References

- Abadal, E. & Rubió, A. (2017). Evolución de los perfiles ocupacionales de los profesionales de la información. *Anuario ThinkEPI*, 58–62. Available from: <https://doi.org/10.3145/thinkepi.2017.06>.
- ALA (2015) American Library Association. Strategic Directions. Available from: <http://www.ala.org/aboutala/sites/ala.org/aboutala/files/content/governance/StrategicPlan/Strategic%20Directions%20June%2028%202015.pdf>.
- Borko, H. (1984) Trends in Library and Information Science Education. *Journal of the American Society for Information Science*, 35(3), 185–193.
- Borrego, A. (2015). Library and information education in Europe: An overview. *BiD*, 35. <https://dx.doi.org/10.1344/BID2015.35.8>.
- ACRL (2016). 2016 top trends in academic libraries. A review of the trends and issues affecting academic libraries in higher education. *CRL News*, June, 274–281.
- Cronin, B. (2015). *A Field in Flux*. III International Seminar on LIS Education and Research (LIS-ER): Barcelona, 4-5 June 2015. Available from: <http://bd.ub.edu/liser/sites/bd.ub.edu.liser/files/Programa/ppt/Cronin-opening.pdf>.
- Kajberg, L. (2007) European LIS curriculum project: Developing an e-book as an integrated process among 100 academic colleagues. *Bulletin of the Association for Information Science and Technology*, 33(2), 9–15
- Morato, J. M.; Sánchez-Cuadrado, S.; Fernández Bajón, M. T. (2016). Tendencias en el perfil tecnológico del profesional de la información. *El profesional de la información*, 25(2), 168–178.
- Okello-Obura, C., and Kigongo-Bukenya, M.N. (2011) Library and Information Science Education and Training in Uganda: Trends, Challenges, and the Way Forward. *Education Research International*, 9 p. DOI 10.1155/2011/705372.
- Ortiz-Repiso, V. (2015). "Rethinking Library and Information Studies in Spain: crossing the boundaries". *BiD: textos universitaris de biblioteconomia i documentació*, núm. 35 (deseembre) Available from: <http://bid.ub.edu/en/35/ortiz.htm>.

- European Ministers Responsible for Higher Education (2009). *The Bologna Process 2020-The European Higher Education Area in the new decade*. Leuven and Louvain-la-Neuve, 28-29 April.
- Steierwald, U. (2006) Five aspects of current trends in Germany library science. *Education for information*, 24, 193–200.
- Tejada-Artigas, C. M. (2010). Formación universitaria en biblioteconomía y documentación: más allá de Bolonia. *Anuario ThinkEPI*, 4, 44–52.

## **Is Moodle accessible? An analysis through experiences in scientific literature and a case study**

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### **Abstract**

For several decades, both the development of E-learning platforms and the definition of methodologies and guidelines for web accessibility's evaluation have been important research topics in the field of Information Technology. In last years, numerous researchers have carried out various works, proposing different solutions for the accessibility evaluation of online learning platforms, contributing to provide a wide range of experiences in the scientific literature. In this paper, we will focus on Moodle, one of the most popular E-learning platforms, providing an overview of the most recent works present in the literature regarding the accessibility of this platform. Furthermore, we will make an active contribution to the discussion about this topic, carrying out the analysis of the accessibility of some existing Moodle installations. Through these experiences, we will provide a general assessment of the accessibility of Moodle, highlighting that, despite the improvements made over the years, this platform, like other similar E-learning solutions, can not yet be considered fully accessible.

**Keywords:** Web Accessibility, E-learning, WCAG, Moodle, Accessibility Evaluation.

### **Introduction**

The term 'E-learning' indicates "the use of new multimedia technologies and the Internet to improve the quality of learning by facilitating access to resources and services as well as remote exchanges and collaboration" (Commission of the European Communities, 2001).

The origins of the term E-learning are not certain, but, according to Moore, Dickson-Deane & Galyen (2011), the term probably originated during the '80s, in order to indicate concepts and theories already elaborated in the previous decade. Although the concepts related to the use of telecommunications as a means of promoting and enriching the training of individuals date back to more than two decades ago, only in the last decade this model of training has become a concrete, widespread and constantly expanding reality. The success of this model was made possible by the widespread diffusion of Internet throughout the world and to the contemporaneous growth of the functionalities offered by Web technologies.

The success of online training is certified both by the proliferation of various E-learning models and by numerous statistics: for example, few years ago the Global Industry Analysts (2015) estimated that the entire global E-learning industry would generate revenues of \$ 107 billion, with an annual growth rate of 23%.

Nowadays, the panorama of online training is fragmented into a varied set of solutions, characterized by various functionalities available. In fact, they vary from courses limited to a defined set of participants to MOOC (Massive Open Online Courses) freely usable by a very high number of students, from courses available on proprietary platforms to courses hosted through open source platforms.

Moreover, they vary from courses based exclusively on digital hand-outs to those that include audio / video content, from those that provide synchronous training (i.e. in real time) to those based on

asynchronous training (i.e. flexible hours), from those based on webinars to those that provide different types of interactive training (Gamification, Social media learning, Mobile learning).

In this jagged landscape of solutions, where often the available features are combined and it is not easy to identify the boundary between different online training platforms, the only common element to all solutions, in addition to the formative purpose, is the use of Web standards and technologies.

The variety of solutions proposed is, at least from the students' point of view, one of the strengths of this training model: in fact, each student can choose the platform whose characteristics best meet his/her needs and preferences, and, therefore, the one that can guarantee the best training experience. The students who can benefit most from this new model of training are those who, for various reasons, find it difficult to take advantage of traditional models of training. Among these, a significant portion is made up of disabled students, who through distance learning, multimedia content and the flexibility offered by many E-learning platforms, can find a training model that suits their special needs. Therefore, for this type of users, the accessibility of online training platforms is a key element in accessing this model and increasing their personal development.

In this paper, we present the results of a literature review, which covers from the years 2011 to 2017, on the topic of the accessibility of Moodle, one of the most popular E-learning platforms. Moreover, we will perform an evaluation of three existing Moodle installations through the usage of some accessibility validators: the result of our analysis will confirm the findings present in most of the works present in literature.

### **Web Accessibility: Definition, Guidelines and Methodologies**

Human-Computer Interaction (HCI) is a field of study focusing on the design of computer technology and, in particular, the interaction between humans (the users) and computers. Within this field of study, one of the most important research topics is *Accessibility*, which can be defined as:

"The capability of computer systems, in accordance with the attained technological knowledge and its limits, to supply services and to provide information which can be availed of, without discrimination, also by those who need supporting technologies or special configurations because of some disability" (Stanca Act 2004).

If the referred computer system is a website or a web application, this capability is called *Web Accessibility*. According to Tim Berners-Lee, Director of W3C and inventor of the World Wide Web, accessibility is an intrinsic feature of the Web and its essential aspect. (W3C, s. a.). It follows that accessibility must be a fundamental aspect of every Web project, including the web platforms dedicated to the delivery of E-learning courses (defined as Learning Management System or LMS).

During last decades, several countries enacted national laws on the accessibility of information systems, which, among other things, oblige public institutions to make accessible their website and their web applications in compliance to some accessibility guidelines (Paternò & Schiavone 2015). In many countries, this obligation applies also to public educational institutions, such as colleges and universities: therefore, in many cases, ensuring the accessibility of E-learning systems is not just a way to encourage the training of disabled students, but it is also a legal obligation.

In most cases, these laws (or technical documents associated with them) defined their own guidelines for web accessibility. In recent years, many countries updated such laws in order to embrace WCAG 2.0 as a standard for web accessibility.

The Web Content Accessibility Guidelines (WCAG) are the accessibility guidelines promoted by the international non-governmental organization World Wide Web Consortium (W3C), and aimed at providing of contents and to web developers, indications, both general and technical, on the creation of accessible websites and web applications. The WCAG 2.0, i.e. the version released in 2008 (W3C 2008a), have subsequently also become an ISO standard (ISO / IEC 40500: 2012). Few months ago, these guidelines have been updated to WCAG 2.1, including new mobile-oriented accessibility guidelines. These guidelines are organized according to 4 inspiring principles (Perceptible, Usable, Understandable and Robust) and further categorized according to three compliance levels (A, AA and AAA), respectively from the most basic and therefore fundamental level, to the most advanced and therefore less compulsory level.

Regarding the evaluation of the accessibility of websites and applications, both in scientific literature and in common practice, three distinct methodologies are applied (Paternò & Schiavone 2015):

- Analysis by accessibility experts, i.e. practitioners who are expert in the verification of accessibility of information systems. Depending on the needs, they can refer directly to certain accessibility guidelines or perform the assessment according to their experience.
- Analysis through Evaluation Groups, i.e. groups made up by people with various types of disabilities, who have the task of accessing the website in question in order to test its functionalities. These tests can be performed both in informal environments (home, work environment), and in specifically designed environment s (laboratory environment), both in free form (without specific tasks), and task-driven (with predefined tasks).
- Analysis through accessibility validators, i.e. automatic tools that can verify the compliance of a site or a web application with respect to the criteria established by certain accessibility guidelines. Commonly their evaluation is based on the source code's analysis of the of the web application under consideration.

In conjunction with WCAG 2.0, W3C (2008b) also released *Techniques for WCAG 2.0*, a document that provides guidance for web content authors and evaluators on meeting WCAG 2.0 success criteria.

## **Moodle and Accessibility Research**

### **Web Accessibility and E-learning**

For several decades both the development of E-learning platforms and methodologies and the definition of guidelines for web accessibility's evaluation have been important research topics in the field of Information Technology. Consequently, many researchers from all over the world have conducted several studies regarding the accessibility of various E-learning platforms. For example, in scientific literature, there are works regarding the analysis of some E-learning platforms (Sánchez Gordón & Luján Mora 2015) or comparisons of different MOOCs platforms (Bohnsack & Puhl 2014), or comparative analysis of specific features offered by LMS, such as for example collaborative chats (Calvo 2013). Due of its great popularity, especially among universities, many researchers have focused their analysis on Moodle.

### **Moodle**

Moodle (from the acronym of Modular Object-Oriented Dynamic Learning Environment) is an E-learning platform “*designed to provide educators, administrators and learners with a single robust, secure and integrated system to create personalised learning environments.*” (Moodle HQ, 2018).

The first version of Moodle was created in 2002 by Martin Dougiamas, a network administrator at Curtin University in Perth (Australia), and it is currently developed by the Australian company Moodle HQ, with the support of a large global community of developers. The platform is usually updated every six months: the latest release currently available is 3.5.0. Moreover, the basic features of this LMS can be further extended by installing some of the more than 1300 plugins available.

According to the US research and advisory firm Capterra (2017), Moodle is currently the E-learning platform with the largest number of users in the world and in second place for number of installations: in fact, this platform is widely used by universities from all over the world. In literature there are numerous E-learning experiences carried out in several universities: for instance, at University of Turin in Italy (Barana et al. 2016), at University of Education of Winneba in Ghana (Hanson & Asante 2014), at University of Jordan in Jordan (Almarabeh 2014) and at University of Antioquia in Colombia (Uribe-Tirado & Castano 2016).

### **Web Accessibility in Moodle**

Few years after the release of the first version of Moodle, the scientific community has begun to have an interest in this platform, and, in particular, to investigate the accessibility of this technological solution and its impact on distance learning for people with disabilities (Nedeva 2005).

Due to this interest, nowadays there are several papers in the scientific literature concerning the accessibility of Moodle. However, in order to limit the length of the discussion and make it consistent with the evolution of the platform over the last few years, we decided to limit the scientific review regarding the topic of Moodle's accessibility to papers published after 2011. According to this set of scientific papers, the analysis of Moodle's accessibility has been conducted along three lines of research: accessibility evaluation of Moodle or of some of its specific components, comparison of Moodle's accessibility with the accessibility of other similar platforms, and the analysis of customized solutions based on Moodle.

#### **Accessibility of Moodle and its components.**

Regarding the first line of research, Calvo, Iglesias & Moreno (2011) carried out the accessibility's evaluation of a Moodle installation (ver. 1.9), limiting their analysis to difficulties encountered by users affected by visual disabilities. The evaluation took place in two phases: in the first one, they simulated the access of a group of blind users to the Moodle Installation through two different Screen Readers, while in the second phase an expert performed an accessibility's assessment of the same Moodle installation in compliance with the WCAG 2.0 guidelines. In this paper, researchers highlighted several accessibility issue: most serious detected issues were the usage of tables for the definition of webpage's layout, lack of effective tools for the control of navigation, unsatisfactory support for keyboard navigation and the lack of an editor that natively includes support for the accessibility of generated content. Subsequently, same authors (Calvo, Iglesias, & Moreno 2014) carried out a similar analysis, but using updated versions of the screen readers and providing a set of predefined tasks to be carried out within the Moodle installation. The conclusions were identical to previous work, with the addition of the lack of accessible tools for searching text in generated content.

Recently Casadei et al. (2016) assessed the accessibility of Moodle accessing an installation via mobile devices. In this work, a group of young university students without disabilities accessed to a Moodle installation through its official app, annotated in real time any difficulties encountered during its usage and finally fill in an evaluation questionnaire. Subsequently, authors reprocessed the annotations and the questionnaires from the point of view of accessibility assessment: here again, they detected some



accessibility problems, related to the use of infinite lists, of toggle menus and of icons as an element of communication of relevant information.

In following year, Armano et al. (2017) explored the accessibility of Moodle (ver. 2.7), with particular reference to users affected by visual disabilities and in relation to pages containing formulas and mathematical notations. The analysis was carried out involving a group of users with different types of visual disabilities: they accessed a Moodle installation through some screen readers and performed a set of predefined activities, some of them related to the creation and fruition of mathematical content. Subsequently, authors analysed the recording of the interactions and of the detected errors, in order to provide an evaluation of the accessibility of the platform. The authors' conclusions establish that, while the used version of Moodle was characterized by a good general accessibility, there were numerous issues related to the management of mathematical content, mainly due to the use of the markup language LaTeX, which causes accessibility issues.

Finally, Acosta, Luján-Mora & Acosta-Vargas (2017) investigated the capability of two online content editors to generate accessible contents, and in particular, to produce accessible headings. The two analysed content editors were Atto and TinyMCE, the Moodle's default editors since its 3.3.1 version. In order to evaluate the two content editors, authors selected the subset of WCAG 2.0's and ATAG 2.0's success criteria which refers to headings accessibility, for a total of 15 success criteria. Subsequently, authors manually validated the content generated by Atto and TinyMCE in compliance with the aforementioned success criteria subset. According to authors' evaluation, TinyMCE and Atto comply respectively with 20% and 33% of the considered success criteria: consequently, authors stated that these results demonstrate the lack of accessibility of Moodle's default editors in the production of accessible content.

#### Comparison with other E-learning platforms.

Regarding the second line of research, Iglesias et al. (2014) compared the accessibility of Moodle (ver. 1.9.4) with accessibility of two other E-learning platforms: the evaluation was carried out by some accessibility experts with the support of some automatic validators and in compliance with the guidelines WCAG 1.0. According to this analysis, Moodle was not the most accessible platform among the analysed ones, mainly due to the lack of an accessible default theme, the impossibility to use the platform with the browser's Javascript engine disabled and the lack of an editor that included native features to support the accessibility of the generated contents.

In a recent paper, Acosta and Luján-Mora (2016) compared the accessibility of Moodle (ver. 2.3), with another similar open source platform and a research project having the same purpose: the analysis was carried out by two experts but without the reference to standard guidelines. Authors' conclusions highlighted accessibility issues in all the considered platforms, even if the two open source solutions had better results than the research project. In particular, authors reported Moodle's good performances in generating webpages' titles, navigation bars and menus, links and labels for form fields. Conversely, they criticized the homepage's accessibility, the handling of the session's time-out, the tooltips, and the accessibility of the internal chat.

In the same year, Sanchez-Gordon, Estevez, & Luján-Mora (2016) focused their research comparing the accessibility of eight E-learning platforms, both open source and proprietary: in this case the accessibility's assessment was limited to content editor's features for image management. The analysis was carried out listing 20 sub-functionalities useful for guaranteeing accessibility (a priori defined from various technical guidelines and standards), and subsequently verifying their presence within the

considered E-learning platforms. According to authors, Moodle (ver. unknown) was the most accessible of the considered platforms.

Finally, Calvo, Iglesias, & Castaño (2016) carried out a comparative analysis of the accessibility of Moodle (ver. 2.7) and of two other online training platforms: the accessibility's assessment was limited to the internal chat. Authors performed their analysis through two distinct methodologies: the first evaluation was performed through some accessibility validators in compliance to the WCAG 2.0 guidelines, while the second one was performed through the manual inspection of some accessibility experts, according to a set of self-defined guidelines. The two methodologies showed discordant results. In fact, only the evaluation performed through automatic validators indicated Moodle as the most accessible platform among those considered: however both analyses highlighted several accessibility issues in all the analysed chats.

Analysis of custom solutions based on Moodle.

Regarding the third line of research, Iniesto, Rodrigo & Moreira Teixeira (2014) compared the accessibility of two custom MOOC platforms, respectively based on OpenMoc and Moodle (ver. 2.4). In this work, authors selected a set of Web pages considered particularly relevant for the average user: subsequently, authors used two separate automatic validators in compliance with the WCAG 2.0 guidelines in order to perform the accessibility validation of the selected webpages. Both platforms have shown several accessibility problems: in particular, the solution based on Moodle presented links with the same text but different destinations, form fields without associated labels, incorrect use of headings and CSS properties.

More recently, Batanero et al. (2017) proposed a case study on an installation of Moodle (ver. unknown) customized through two plugins and an ad hoc infrastructure, with the aim of creating an adaptive online training platform, which adapts to the preferences of users with disabilities. The proposed solution is structurally very different from a standard Moodle installation, but demonstrates how such platform has the potential for expanding the complexity of its features and improving the user experience also from the point of view of accessibility.

Finally, Díaz et al. (2017) extended an installation of DSpace, an open source repository software, integrating it with Moodle (ver. unknown): the accessibility of the resulting platform has been evaluated in compliance with the WCAG 2.0 guidelines both through some accessibility validators and by an expert's manual validation. Moreover, a group of blind and deaf users performed a set of predefined activities in order to highlight usability issues. Again, all three methodologies detected several accessibility issues, which have been manually fixed by the authors.

## **A Case Study**

In order to bring an active contribution to research on Moodle's accessibility, we carried out an accessibility evaluation of three Moodle installations. In particular, we selected the installation "Mount Orange School" (Moodle ver. 3.3.1), one of the three demo installations available on the official Moodle website, the E-learning platform of Sapienza University of Rome (Moodle ver. 2.7.13) and the E-learning platform of University of Siena (Moodle ver. 3.1.3). The rationale for this selection was to evaluate both a basic and minimal installation of Moodle (Mount Orange School) and installations used in a real context of use (the two university installations). Regarding the themes used, the Mount Orange School installation uses a customized version of the standard theme "More" (Moodle HQ, 2014), the Sapienza University of Rome (2017) uses a proprietary theme, and the University of Siena (2017) uses the BCU theme developed by Birmingham City University (2015).

For each installation, we selected five different web pages, each of them belonging to a different functional category (home page, user login page, list of available courses, list of courses related to a specific thematic category, lesson of a specific course). Since we do not have a valid student account for the two Italian universities, for those Moodle installation the page relating lesson of a specific course presented an unauthorized access message instead of the course contents.

In order to carry out the evaluation of the selected installations, two different accessibility validators were used: Total Validator (2018), a commercial software for which a free version is available, and MAUVE (Schiavone & Paternò 2015), an online validator resulting from a research project of the Institute of Science and Information Technology of the National Research Council (2018). The evaluation was performed in compliance with the WCAG 2.0 guidelines (Level AA). Both the validators report detected issues in reference to the W3C's *Techniques for WCAG 2.0*.

**Table 1.** Results of the analysis of the accessibility of the selected web pages.

Web Pages	Mauve		Total Validator	
	Errors	Warnings	Errors	Warnings
Orange School Demo - Home	14	0	6	3
Orange School Demo – Login	15	0	4	0
Orange School Demo - Course List	18	0	9	5
Orange School Demo - Course Categories	29	0	5	7
Orange School Demo - Course Lesson	24	6	4	11
E-learning Sapienza - Home	53	20	17	0
E-learning Sapienza – Login	26	0	6	0
E-learning Sapienza - Course List	20	0	13	1
E-learning Sapienza - Course Categories	13	0	1	1
E-learning Sapienza - Course Lesson	26	0	6	0
USiena Integra - Home	93	6	21	18
USiena Integra – Login	57	0	9	1
USiena Integra – Course List	46	1	7	1
USiena Integra – Course Categories	62	7	7	1
USiena Integra – Course Lesson	49	4	7	0

Table 1. shows the results of the evaluation, divided by the used accessibility validator, and subsequently distinguished between errors and warnings. The obtained results highlight that some accessibility issues were detected in all the analysed installations: however, both validators detected a small number of errors and warnings for the Orange School Demo, while the two university installations presented a much higher number of accessibility issues. Consequently, these results seem to indicate a good (even if not complete) accessibility of Moodle basic installation, while in the two considered real contexts of use, particular configurations and / or the usage of specific themes have worsened the general accessibility of the installations.

Regarding the most frequently detected accessibility issues, the evaluation of all the installations highlighted issues both in CSS, mainly concerning the unit of measurement used to define the size of the text (referenced Techniques: C12 and C14), and in the use of the headings (referenced Techniques: F43 and H42). Moreover, university E-learning platforms have highlighted problems in texts and textual link alternatives (referenced Techniques: F30 and H30) and in the separation of information from presentation aspects (referenced Technique: G140).

The results obtained from our analysis agree with the conclusions of some of the papers referenced in Section 3.3, in particular with the conclusions of Iniesto Rodrigo & Moreira Teixeira (2014), who conducted their evaluation with methodologies and purposes similar to ours.

## Conclusions

We have reported the most relevant and recent works in the scientific literature regarding the accessibility of Moodle, one of the most popular and widely used E-learning platform. Although the referred works are different from each other, both for their purposes and the proposed technical solutions, and although some of them may seem inconsistent in their evaluations, it is possible to draw interesting conclusions and identify clear trends in the Moodle's development process.

In the first place, it is possible to notice a clear improvement in Moodle accessibility in its last versions. In fact, while older papers, which refer to older versions of Moodle, provided a negative evaluation of platform's accessibility, the most recent papers, which refer to more recent platform's versions, generally provide a moderately positive judgment.

Moreover, it is worth to note that the most recent papers highlight a general good accessibility of Moodle, but indicate some criticalities within specific features of the platform (such as chat or content editor). Based on these indications, Moodle development community should concentrate its efforts to improve those specific features and adjust the platform in order to comply the most important accessibility standards.

Finally, quite all the cited authors agree in pointing out a general lack of attention to accessibility on the part of LMS developers. This finding should not be an alibi for a lower commitment in this area, but on the contrary, it must be an incentive to a greater common effort by all stakeholders in the sector, including disabled users.

A further analysis, carried out evaluating the accessibility of three distinct installations through some automatic validators, has substantially confirmed the indications obtained from the experiences in the literature: this analysis has however also highlighted how particular configurations or the use of certain themes can further influence the accessibility of a specific Moodle installation.

## References

- Acosta, T., Luján-Mora, S. (2016). Comparison from the levels of accessibility on LMS platforms that supports the online learning system. In *Proceedings of the 8th annual International Conference on Education and New Learning Technologies*, Barcelona. Available from: <https://library.iated.org/view/ACOSTA2016COM>.
- Acosta, T., Luján-Mora, S., Acosta-Vargas, P. (2017, December). Method for Accessibility Assessment of Heading in Online Editors. In *Proceedings of the 2017 9th International Conference on Education Technology and Computers* (pp. 243–247). ACM.
- Almarabeh, T. (2014). Students' Perceptions of E-learning at the University of Jordan. *International Journal of Emerging Technologies in Learning (iJET)*, 9(3), 31–35.
- Armano et al. (2017). Armano, T., Borsero, M., Capietto, A., Murru, N., Panzarea, A., & Ruighi, A. On the accessibility of Moodle 2 by visually impaired users, with a focus on mathematical content. *Universal Access in the Information Society*, 1–10.
- Barana et al. (2016). Barana, A., Bogino, A., Fioravera, M., Marchisio, M., & Rabellino, S. Digital support for university guidance and improvement of study results. *Procedia-Social and Behavioral Sciences*, 228, 547–552.

- Batanero et al. (2017). Batanero, C., Fernández-Sanz, L., Piironen, A. K., Holvikivi, J., Hilera, J. R., Otón, S., Alonso, J. *Accessible platforms for e-learning: A case study*. Computer Applications in Engineering Education.
- Bohnsack, M., & Puhl, S. (2014, July). Accessibility of MOOCs. In *International Conference on Computers for Handicapped Persons* (pp. 141–144). Springer, Cham.
- Calvo, R., Iglesias, A., Moreno, L. (2011). Is Moodle accessible for visually impaired people? In *International Conference on Web Information Systems and Technologies* (pp. 207–220).
- Calvo, R. (2013, May). Accessible chats for computer supported collaborative learning environments in mobile devices: Doctoral consortium paper. In *Research Challenges in Information Science (RCIS)* (pp. 1–6). IEEE Seventh International Conference.
- Calvo, R., Iglesias, A., Moreno, L. (2014). Accessibility barriers for users of screen readers in the Moodle learning content management system. *Universal access in the information society*, 315–327.
- Calvo, R., Iglesias, A., Castaño, L. (2016). Evaluation of accessibility barriers and learning features in m-learning chat applications for users with disabilities. *Universal Access in the Information Society*, 1–15.
- Casadei et al. (2016) November). Casadei, V., Zaina, L., Pinheiro, E., Granollers, T. Accessibility Evaluation of Design Patterns on Moodle Mobile. In *Brazilian Symposium on Computers in Education* (Simpósio Brasileiro de Informática na Educação-SBIE, 27(1), 688.
- Díaz et al. (2017). Díaz, F., Schiavoni, A., Osorio, A., Amadeo, A., Harari, I., & Ray, D. Fixing Accessibility Issues in Open-Source Teaching Repositories. *CLEI Electronic Journal*, 20(3), 1–22. doi:10.19153/cleiej.20.3.9.
- Hanson, R. & Asante, J. N. (2014). An exploration of experiences in using the hybrid MOODLE approach in the delivery and learning situations at the University of Education, Winneba, Ghana. *Journal of Education and Practice*, 5(12), 18–23.
- Iglesias et al. (2014). Iglesias, A., Moreno, L., Martínez, P., & Calvo, R. Evaluating the accessibility of three open-source learning content management systems: A comparative study. *Computer Applications in Engineering Education*, 22(2), 320–328.
- Iniesto, F., Rodrigo, C., & Moreira Teixeira, A. (2014). *Accessibility analysis in MOOC platforms. A case study*, UNED COMA and UAbiMOOC.
- Moore, J. L., Dickson-Deane, C., & Galyen, K. (2011). E-Learning, online learning, and distance learning environments: Are they the same? *The Internet and Higher Education*, 14(2), 129–135.
- Nedeva, V. (2005). The possibilities of e-learning, based on Moodle software platform. *Trakia Journal of Sciences*, 3(7), 12–19.
- Paternò, F., Schiavone, A. G. (2015) The role of tool support in public policies and accessibility. *ACM Interactions* 22.3 (2015), 60–63.
- Sánchez Gordón, S., & Luján Mora, S. (2015) Adaptive content presentation extension for open edX. Enhancing MOOCs accessibility for users with disabilities. In *Proceedings of the Eighth International Conference on Advances in Computer-Human Interactions*.
- Sanchez-Gordon, S., Estevez, J., & Luján-Mora, S. (2016). *Editor for accessible images in e-Learning platforms*. In *Proceedings of the 13th Web for All Conference*, 14.
- Schiavone, A. G., & Paternò, F. (2015). An extensible environment for guideline-based accessibility evaluation of dynamic Web applications. *Universal Access in the Information Society*, 14(1), 111–132.

Uribe-Tirado, A., & Castano, W. (2016). Identifying Information Behavior. In *Information Search and Retrieval Through Learning Activities Using an E-learning Platform Case*, Interamerican School of Library and Information Science at the University of Antioquia (Medellín-Colombia).

### List of Web sources

Birmingham City University (2015). BCU theme: [https://moodle.org/plugins/theme\\_bcu](https://moodle.org/plugins/theme_bcu).

Capterra (2017). The Top 20 Most Popular Lms Software: <http://www.capterra.com/learning-management-system-software/#infographic>.

Commission of the European Communities (2001), *Communication from the Commission to the Council and the European Parliament - The eLearning Action Plan "Designing tomorrow's education"*. Available from <http://ec.europa.eu/transparency/regdoc/rep/1/2001/EN/1-2001-172-EN-F1-1.Pdf>.

Global Industry Analysts (2015). The Top eLearning Statistics And Facts For 2015 You Need To Know: <https://elearningindustry.com/elearning-statistics-and-facts-for-2015>.

Moodle HQ (2014). Standard themes: [https://docs.moodle.org/27/en/Standard\\_themes](https://docs.moodle.org/27/en/Standard_themes).

Moodle HQ (2017). Mount Orange School Demo site: <http://school.demo.moodle.net/>.

Moodle HQ (2018). Moodle: [https://docs.moodle.org/34/en/About\\_Moodle](https://docs.moodle.org/34/en/About_Moodle).

National Research Council (2018). MAUVE Accessibility Validator: <http://mauve.isti.cnr.it>.

Sapienza University of Rome (2017). E-learning "Sapienza": <https://elearning2.uniroma1.it/>.

Stanca Act (2004), [http://www.pubbliaccesso.gov.it/normative/law\\_20040109\\_n4.htm](http://www.pubbliaccesso.gov.it/normative/law_20040109_n4.htm).

Total Validator (2018). <https://www.totalvalidator.com>.

University of Siena (2017). USiena Integra: <http://elearning.unisi.it/moodle/>.

W3C (2008a). Web Content Accessibility Guidelines (WCAG) 2.0 <https://www.w3.org/TR/WCAG20/>.

W3C (2008b). Techniques for WCAG 2.0 - <https://www.w3.org/TR/WCAG-TECHS/>.

W3C (s. a.). Accessibility: <http://www.w3.org/standards/webdesign/accessibility>.



## **Information Science education in Darmstadt**

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### **Abstract**

Information Science can be complicated to explain. This obvious weakness is in fact an asset of the science: Students get a solid basic education with a technological focus and are versatile. Information Science can and must review its content and adapt to the requirements of society and the working environment on a regular basis. Besides the solid basics, the curriculum contains innovative knowledge-driven and project-based content.

**Keywords:** information science topics, research and education, society and education, teaching methodology

### **Introduction**

Information and Library Science is – as the name suggests – a very broad area with many scientific applications (as in Lee 2018). As such, it is hard to explain briefly what this topic is about. This is also reflected in study courses which have to cover a broad variety of topics before students are able to focus on their specific interests and strengths. Additionally, Information Science deals with information, which becomes more and more important in our information society.

A survey of graduates at our University shows that the degree programme effectively prepares graduates for positions not only in libraries, but increasingly also in the data processing industry. At a symposium on information science, the students showed a variety of their projects, which was met with lively interest by the attending companies from the IT sector. The diversity and interdisciplinary nature of the subject should therefore be seen as an opportunity rather than a shortcoming. The necessary constant redefinition of the subject with reference to developments in industry and society is a major strength of information science.

Teachers and researchers in this area therefore have to balance the need for a solid basic education in a vast study field, while also teaching state-of-the-art methods and bring recent research results into the lecture hall as well.

### **Information Science Topics**

Three major areas define Information Science: structuring and presentation of information, search for information and generation of information – independent of whether we are in a digital or analogue domain.

In order to structure and present information, knowledge in databases, thesauri, ontologies and visualization are required. In recent years, this moved from using expert knowledge and hand-crafted data to employing automatic means to extract and aggregate information from more or less structured data. Therefore, a curriculum in Information Science has to cover topics ranging from classical computer science topics, such as basic programming skills, database knowledge and visualization to topics from the area of language technology and linguistics.

Search for information has moved from information broking to information retrieval, which again shares elements with computer science. Additionally, information has to be made accessible from the vast amount of structured and unstructured data, such as e-Mails, blogs, social media, but also audio-visual data. Methods allowing to access these types of data have to go beyond keywords, but rather integrate semantic knowledge and relations.

The third area is the generation of information. The first priority here is to generate high-quality information, i. e. to ensure the quality of information (e. g. Erdmann et al. 2017). In addition, there is the structuring of information with reference to its function (e. g. Muthig and Schäflein-Armbruster 2008), and also the ideas of semantic annotation. Adapting the presentation of information to target groups and thus facilitating inclusion is another important task. Siegel and Lieske (2015) show how this concern can be supported by language technology methods. Finally, this area also includes the translation of information whose support by automatic procedures has nowadays become standard (see Porsiel 2017).

### **Linguistic Information and Language Technology**

A large part of the information is encoded in linguistic form, as text. The information of the characters in the text can only be obtained by determining the meaning of the language, i. e. its semantics. While humans understand language intuitively, understanding is a significant computing power for a machine. How, for example, should a machine automatically recognize what is taught in a "girls' trade school"? This includes cultural knowledge and knowledge about the context in which the word appears. However, information is only really valuable when it is linked. A basic course in the first and second semesters of information science therefore deals with the central questions: What is meaning? What can be done with semantic analysis?

Humans can understand and process language intuitively. We are able to draw considerable semantic inferences. However, in the age of large amounts of data that need to be searched, structured, understood, and produced, we depend on machines that support us in this. For information science, this means focusing on technology that can automatically process the meaning (semantics) of the language, in order to generate information from language, namely semantic technology.

Semantic technology is first of all language technology, such as technology for processing morphology, automatic recognition of named entities, recognition of collocations, recognition of word variants, automatic resolution of ambiguities, semantic analysis of sentences, learning of semantic relationships from annotated texts, and much more. Further, technology to structure texts and information and to present the meaning, such as XML, meta tags and ontology description languages is needed (see also Agogo and Hess 2018)

### **Information Science and Society**

Information Science highly interacts with society. On the one hand, we have to teach our students to make meaningful use of the tools available, on the other hand, we have to teach them to act responsibly. Therefore, they need to acquire knowledge and skills relevant for today's labour market, but which also enable them to adapt to changes that will no doubt occur 10 or 20 years during their active life. But in light of current events, such as the Cambridge Analytica affair and the data protection regulation changes in the EU, we also have to make our students aware of juridical and ethical issues involved in their work and the technology and tools they use.

An important part of information science studies in Darmstadt is an internship. Students get to know the job market for information scientists and the work processes in the companies. Companies are also discovering the study of information science as a qualification that can support important work processes in the company. The compulsory reports written by students once they finished their internship also covers questions concerning the elements of their study course they found valuable, which were unimportant and which should be extended. This information, which comes from about 60 students per year give us useful feedback what could and should be added to the curriculum and what needs to be reduced or even removed.

Additionally, we established a yearly workshop to bring together industrial partners, students and us both as teachers and researchers. Each present their work and their interest. This platform allows us to get and to give an overview on today's topics, but also as researchers to interact with industrial partners and establish research cooperation.

It becomes evident that information scientists can be employed in very different industries. These are of course museums and libraries, but also airlines, pharmaceutical companies, marketing agencies, online shops, information service providers, software companies, automotive companies, technical documentation, film institutes, travel agencies, chemical companies, start-up companies, railway companies, telecommunications companies and others. In all these cases, technical knowledge such as databases, programming skills, search engine technology and semantic data models are at the forefront of our students' practical tasks. In addition, there is knowledge of modern project management methods.

The graduates of information science accompany the digitalization of society and economy. Topics that are emerging in the economy, such as information in the digitalized industry 4.0 and the natural language interface to information, must be integrated into the curriculum flexibly and quickly.

Industrial cooperation is also ensured by the fact that many students write their final theses in companies and contribute information science content there. In practice-oriented research projects between companies and the university, innovative topics are tested for practical relevance.

### **Innovative Teaching Methods**

Innovative content also requires innovative teaching methods that integrate society and industry. The traditional lecture is not the only useful method when it comes to preparing students for digitization processes in business and society. Here are some examples of innovative teaching methods in information science.

We have replaced some of the lectures with a blended learning. Here, the lecture content has been recorded on video. Documents are made available to the students for reading. Students are given multiple-choice tests for a self-check whether they have understood the content. Every week there are also exercises that are solved in working groups. The working groups are supervised by student tutors. In the plenary session, which replaces the lecture, students' questions on the respective topic are discussed. This allows to integrate basic knowledge with current issues relevant for the topics discussed, combining the grounding education with state-of-the-art information.

In addition to classical seminars and lectures, there are projects. Here, students work in working groups on projects on a topic that is also relevant in research and industry (see also Trinh, Nguyen, and Minh 2017). An example: In the project "Opinion Mining" there were working groups on these topics: systematic evaluation of sentiment analysis systems, implementation of a system for automatic trend detection in Twitter, implementation of a system for the sentiment analysis of Amazon reviews of

technical products, automatic creation of a lexicon for sentiment analysis of the German language, creation of a research map on the topic, and automatic detection of opinion spam in Amazon reviews.

The form of examination in these projects is the learning portfolio. Although they work in workgroups and produce a workgroup report, each student writes an individual report about her learning success and contribution to the project. A special project is the participation in a research competition, such as a Shared Task in NLP. This is where students come into contact with research groups, where they can compete and exchange ideas with them. At the same time, they not only learn to master a complex programming task, but also to document their work professionally and scientifically.

The teaching conference is another teaching method in information science: The task for the students is to write a scientific paper on an information science topic and to present it at the end of the semester in a "conference". The first version of the scientific paper is uploaded anonymously via Moodle, just like in a scientific conference. Each student then writes a peer review report of three different papers, not knowing the author. On the basis of the reports, the papers are then revised and presented at the end of the semester. The examination of the course is made up of the assessment of the reports written by the student, the paper in the updated version, and the presentation.

## Conclusion

Information science is a discipline that cannot be explained in a few words, especially because of its interdisciplinary nature. However, this supposed weakness of the subject is actually its strength: the students receive a broad basic education with a technological focus and can be employed in many different ways. The subject itself can and must regularly revise its contents and adapt them to the requirements of society and business. This (and a strong focus on innovative technology) creates a need for innovation and constant discussion. Visionary scientific work is necessary in order to advance the subject and to be able to survive in the future.

## References

- Agogo D., and Hess T.J. (2018). Scale Development Using Twitter Data: Applying Contemporary Natural Language Processing Methods in IS Research. In: Deokar A., Gupta A., Iyer L., Jones M. (eds) *Analytics and Data Science. Annals of Information Systems*. Springer, Cham
- Erdmann, E., Johnson Coenen, K., Link, L., Longbotham, J., Nickl, M., Reuther, U., Schöffler, A., and Siegel, M. (2017). *Regelbasiertes Schreiben. Englisch für deutschsprachige Autoren*, 2. edition; Tekom; Stuttgart.
- Lee, Roger (ed.) (2018). *Computer and Information Science. Studies in Computational Intelligence*, 719.
- Muthig, J., & Schäflein-Armbruster, R. (2008). *Funktionsdesign® – methodische Entwicklung von Standards. Standardisierungsmethoden für die Technische Dokumentation*, tekomp-Hochschulschriften, 16.
- Porsiel, Jörg (2017): *Machine Translation. What Language Professionals Need to Know*. Berlin: BDÜ Weiterbildungs- und Fachverlagsgesellschaft mbH.
- Siegel, Melanie und Christian Lieske (2015). Beitrag der Sprachtechnologie zur Barrierefreiheit: Unterstützung für Leichte Sprache. In: *Trans-kom* 8(1), 40–78.
- Trinh, Son, Luu Nguyen, and Minh Vo (2017). Combining Lexicon-Based and Learning-Based Methods for Sentiment Analysis for Product Reviews in Vietnamese Language. In: (ed. R. Lee) *Proceedings of the proceedings of the 16th IEEE/ACIS International Conference on Computer and Information Science (ICIS)*. Springer, Cham.

## **Unified entry requirements for information science programmes? Do we know who we want to attract?**

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### **Abstract**

The paper aimed to find out (for IS masters programmes): 1) numbers and disciplines, formal characteristics (duration of study, ECTS, disciplines); 2) similarity of entry requirements within different programmes of one partner; 3) similarity of entry requirements between study programmes of different institutions; 4) alignment of the entry requirements with the contents and focus of the study programmes and their learning goals; 5) employment situation in various countries in terms of IS learning goals; 6) attitude of partners towards the EINFOSE Summer school as an entry requirements option; 7) opinions of various partners on 2017 round of the Summer school.

Methodology used was qualitative samples being representatives of all partners, texts with entry requirements. We also did the content analysis of entry requirements and open-ended survey among partners, done by email in March 2018.

Differences are found in all categories: number of study programmes per partner, disciplines, possible combinations, duration of study, expected learning goals. Entry requirements vary greatly. EINFOSE partners also have varied views of the Summer School as entry requirements option, the main obstacle being that the Summer School is not formally accredited. Summer School is not viewed as equal to entire courses due to its duration and because it does not cover all necessary contents.

The paper offers insights that may help in preparation of further versions of the Summer School and contribute to the thoughts on IS education in Europe. In Conclusion we argued that the question of IS education is also the question of identity of IS and its promotion.

**Keywords:** information science programmes, entry requirements, EINFOSE project

### **Introduction**

The question of education for information science is undoubtedly also a question of the identity of the discipline, its relations and overlaps with Library Science (and some other areas). While in this paper we do not want to add to the debates about the identity of information science, we must note that these identity issues also have a strong influence on the education in the field. While there is no doubt that it is possible to draw parallels between information science, library science etc., we do not have a consensus on what the differences and similarities are, or where boundaries should be drawn.

According to Bawden and Robinson (2013), information science overlaps with numerous other disciplines with interest in studying communication and is unique that it tackles the entire communication chain with all its aspects and the interactions between them. A while ago Saracevic (1992), interestingly, noticed many similarities and interdisciplinary relations between information science and library science, while arguing that they are separate fields: both share the social role, both are concerned with effective use of records. He also lists some fundamental differences (p. 13): (1) selection of problems addressed and in the way they were defined; (2) theoretical questions asked and frameworks established; (3) the nature and degree of experimentation and empirical development and the resulting practical knowledge/competencies derived; (4) tools and approaches used; and (5) the nature and strength of interdisciplinary relations established and the dependence of the progress and evolution of interdisciplinary approaches. According to Saracevic, information science and library science are two different fields in a strong interdisciplinary relation, rather than one and the same field, or one being a special case of the other. Another fundamental difference seems to be that information science is mainly done by scientists while library science (or librarianship) is more practice-oriented. Also, library schools seem to be more concerned with education of public and/or school librarians while

information science schools concentrate more on academic, research and special libraries, specialized (and often more IT oriented) information tools and services, and more general information competences that are also aimed at other information organizations. Also, it seems that more empirical research is done within the field of information science.

It has also been noticed that the identity of the field has not been established as strongly as it is the case with some other fields:

"The question, 'What is library and information science?' does not elicit responses of the same internal conceptual coherence as similar inquiries as to the nature of other fields, e.g., 'What is chemistry?', 'What is economics?', 'What is medicine?' Each of those fields, though broad in scope, has clear ties to basic concerns of their field. [...] Neither LIS theory nor practice is perceived to be monolithic nor unified by a common literature or set of professional skills. Occasionally, LIS scholars (many of whom do not self-identify as members of an interreading LIS community, or prefer names other than LIS), attempt, but are unable, to find core concepts in common. Some believe that computing and internetworking concepts and skills underlie virtually every important aspect of LIS, indeed see LIS as a sub-field of computer science! Others claim that LIS is principally a social science accompanied by practical skills such as ethnography and interviewing. Historically, traditions of public service, bibliography, documentalism, and information science have viewed their mission, their philosophical toolsets, and their domain of research differently. Still others deny the existence of a greater metropolitan LIS, viewing LIS instead as a loosely organized collection of specialized interests often unified by nothing more than their shared (and fought-over) use of the descriptor information. Indeed, claims occasionally arise to the effect that the field even has no theory of its own." (Konrad, 2007, p. 652–653).

Buckland (2004) discussed educational programmes in LIS (and documentation) as being specific due to their interdisciplinarity and orientation towards people and knowledge instead of technology. Information science programmes are even more specific because they wish to attract graduates from other fields, thus emphasizing the applicative nature of information science to specific disciplines. For example, Abell & Oxbrow (2006) argue how important information and its management are in the success of any organization, and how information professionals possess just the right skills to successfully do these jobs. Also Blankson-Hemans and Hibberd (2004) mention the specific skills needed by information professionals in the special or corporate libraries of the private sector. Therefore, it is very important to have in mind the entry requirements for these educational programmes. Gerolimos (2008, p. 536) has identified some specific skills that seem to go beyond "traditional" library skills and are found in many curricula:

"A curriculum that incorporates courses emanating from traditional and digital environment gives LIS students, at least in theory, the possibility to attain suitable qualifications for professional work in the modern hybrid environment of a typical library. .... There have been some efforts to develop generic and social skills. Of particular importance appears to be the development of leadership skill and understanding of ethical issues."

Gerolimos (2008, p. 530) also writes that "One major change of the past two decades affecting the structure of modern LIS courses is the, so called, 'I-School movement'. (...) He argued that, following this 'movement', many traditional library schools have changed their titles from 'library' to 'information', preferring some more generic terms to name themselves, like 'school of information', and their courses have been renamed 'information studies'."

Although some analyses show that LIS programmes seem to be linked and related (see for example Juznic and Badovinac 2005), an important issue is internationalization which seems to be going slower than one would want (see for example Gerolimos 2008, Virkus 2007, 2008, Kajberg 2004, Abdullahi & Kajberg 2004). As Kajberg (2004) writes, internationalization and mobility encouragement has been the focus of many LIS schools, but some steps still need to be taken, as some obstacles hamper this process and the pace of this internationalism European LIS education appears somewhat uneven. An analysis of



current situation within Europe (Borrego, 2015) has shown lack of common approach to LIS education and a very low level of activity in domestic or international partnerships. Most undergraduate degrees combine a grounding in general culture with courses in technology, languages and practical training. In many cases there are no clear differences between undergraduate and graduate programmes; the programmes have similar names and no target audiences are specified. In addition to the general postgraduate degrees in librarianship and archive studies, most programmes revolve around digital curation, business information services and data analytics.

## Research problem and research questions

Some initial informal analyses have already shown some significant differences in information science masters programmes which exist in the countries participating in EINFOSE project – on the level of number of programmes, content, employment opportunities etc. Within this context and focusing only on entry requirements, not other issues (although equally important), we were interested to find out (for Masters programmes):

- How many study programmes are offered by the project partners and in which narrower disciplines? To what extent are the study programmes comparable between institutions based on various formal criteria (duration of study, ECTS, disciplines)?
- How unified are the entry requirements between various study programmes within the same partner, in case one institution offers several programmes?
- How unified are the entry requirements between comparable study programmes of different institutions?
- How aligned are the entry requirements with the contents and focus of the study programmes and their learning goals?
- What is the employment situation in various countries in terms of IS learning goals?

Within the context of entry requirements, it was also our motivation to find out:

- What is the attitude of various partners towards the EINFOSE Summer School as an entry requirements option?
- What are the opinions of various partners on the first round of the Summer school, executed in August 2017 in Katlenburg, in terms of its content and organization?

## Methodology

We used qualitative methodology, samples being representatives of all partners and texts containing entry requirements of their study programmes. The study had two parts: 1) Simple content analysis of entry requirements, as supplied by each partner. Criteria were: a) Number of study programmes per partner/institution, their basic characteristics, coverage, title awarded; b) Entry requirements per single study programme; and c) Learning goals; 2) Short opinion-oriented survey among participating partners, done by email in March 2018. It contained open-ended questions on: a) How (if) the Summer school is recognized in the light of entry requirements; b) What would need to be changed in order for it to be recognised as partial/full fulfilment of entry requirements? and c) Opinions on the first round of summer school in relation to organization, content and other issues.

In this part we received answers from all partners except Sweden, so the survey results do not contain their information.

## Results and discussion

### Content analysis

Tables 1 – 3 give an overview of the Masters study programmes. In Table 1 we see basic characteristics while Tables 2 and 3 overview the entry requirements and learning goals.

**Table 1.** Basic information on the study programmes

Partner	UL	UO	HU	UBA	UH	IUG	UP	UBO
City	Ljubljana	Osijek	Ankara	Barcelona	Hildesheim	Graz	Pisa,	Boras,
Country	Slovenia	Croatia	Turkey	Spain	Germany	Austria	Italy	Sweden
Number of programmes	1 direction	3	1	3	1	1 (basic/advanced)	1 4 directions	3
Major/minor course	MA	MI	MA	MA	MA	MA	MA	2MI, 1MA
Discipline(s)	IS	IS, IT, P	IM	LS, IS, CH, LM, DL	IM	BA	DH, LT, DP, KM, G, I, VE	LS, IS, DL, C
Duration (semesters)	4	4	4	2	4	2 (B)/2-3 (A)	4	4?
ECTS	120	60	120?	60	120	60 (B)/60 (A)	180	60/120
Title	M. of LIS&BS, direction IS	M. in IS, IT, P	M. in IM	/	M. A. ?	/	/	M. of LIS, DL, IS, M.S. in IM

**Note:**

*Abbreviations for partner institutions:* UL – University of Ljubljana, Faculty of Arts, Department of Library and Information Science and Book Studies; UO – University of Osijek, Faculty of Humanities and Social Sciences, Department of Information Sciences; HU – Hacettepe University, Department of Information Management; UBA – University of Barcelona, Faculty of Library and Information Science, and Documentation; UH – University of Hildesheim, Faculty of Linguistics and Information Science; UG – University of Graz, Institute of Information Science and Information Systems; UP – University of Pisa, Department of Computer Science; UBO – University of Borås, School of Library and Information Science.

*Abbreviations for programme:* IS – Information Science; LS – Library Science; IT – Information Technology; P – Publishing, IM – Information Management; DL – Digital Libraries; CH – Cultural Heritage; LM – Library Management; BA - Business administration; DH - Digital humanities; LT - Language Technologies, DP - Digital Publishing, KM – Knowledge Management, G - Graphics, I – Interactivity, VE – Virtual Environments, C – Communication; B/A – Basic/Advanced

As seen from Tables 1 – 3, quite significant differences are found in all categories:

1. Number of study programmes per partner varies from one to three.
2. Programmes, judging from their names, cover various disciplines to various levels of granularity. There are also differences in possible combinations: some programmes require another discipline to be studied simultaneously while others are one-major.
3. Duration of study varies from one to two years (2–4 semesters) and is linked to number of ECTS (60–180). Interestingly, there is a 4–semester programme in Pisa with 180 ECTS (a normal amount for a 3–year programme).
4. Entry requirements vary greatly:
  - Some institutions allow entry to candidates with finished 1<sup>st</sup> level programme of LIS or related field without additional obligations while candidates who had finished an unrelated 1<sup>st</sup> level programme, need to pass additional entry (differential) exams. These exams differ from institution to institution.
  - Other institutions give candidates without 1<sup>st</sup> level LIS education additional obligations upon entering the studies and it is unclear how the ECTS points in the whole master's programme are distributed, compared to the candidate without these additional obligations.
  - In some cases, treatment of candidates is the same regardless of their previous education and additional conditions are given to all (such as knowledge of English).

Judging from this, we can ask whether the circumstances in which the teaching of information science is done are at all comparable. We can assume that particular circumstances, such as the competition of other programmes in the same country or in the vicinity, job market etc. greatly influence the way in which IS education is organised.

5. Expected learning goals are also presented rather differently in the study programme descriptions. While some institutions are quite scarce and only state the overall goals, others list the expected competence in more detail.

**Table 2.** Entry requirements and view of EINFOSE Summer School

Partner	UL	UO	HU	UBA	UH	IUG	UP	UBO
<b>City</b>	Ljubljana	Osijek	Ankara	Barcelona	Hildesheim	Graz	Pisa	Boras
<b>Country</b>	Slovenia	Croatia	Turkey	Spain	Germany	Austria	Italy	Sweden
<b>Entry requirements (ER)</b>	Finished 1st level programme (180 ECTS)	Finished 1st level programme (180 ECTS + 3 GPA)	Written ICS oral exams ALES KPDS ÜDS	& Finished programme or 1st level programme (depending on chosen programme)	1st level programme + 1st level programme + 8 courses	1st level programme or equivalent	Basic IM programme: Matura Advanced programme: assessment (non-selective) before admission	1st level Social Science programme + proficiency in Eng. (for LIS&DL&IS) Finished any level programme (for LIS pr.) Finished any level programme + 1 year of experience (for IM)
<b>EINFOSE</b>	Fully	Partially	Partially	Not	Not	Not	Partially	/
<b>ESSIS</b>	Recognized;	recognized;	recognized;	recognized	recognized	recognized	recognized;	
<b>ER</b>	Substitutes entry exams	On level of courses /credits	On level of entry procedure				On level of entry procedure	

The question also remains whether a person studying information science would gain comparable competences in any of these institutions.

We should note that due to time constraints we analysed the programmes only on top level and did not go deeper, to the level of individual courses, to verify the disciplines, topics, learning goals.

It is also quite interesting to observe the statements regarding employment market. In some documents there are explicit references to the types of institutions where the graduates are expected to work. Some mention libraries (sometimes in connection with only certain study programmes), some also mention other types of information organizations (details are mostly not given).

### Survey

The survey showed that EINFOSE partners obviously have varied views of the Summer School. In terms of recognition of the Summer School in the light of entry requirements, some partners recognize it as a substitute for the entry exams, some only recognize individual ECTS within some courses/subjects, and some regard the Summer School as an advantage for the candidates upon entry procedures.

Obviously, this also depends on whether the study programme includes formal entry exams or not and how many semesters it lasts. In case the programme only lasts one year, as is the case of Barcelona and Graz, it would be difficult to take the attendance at Summer School as a substitute for many credits, as this could cause many study topics to be avoided in a short time available. Some partners raised the question of Summer School not being formally accredited which presents a formal obstacle in recognizing it as entry requirement.

**Table 3. Learning goals**

Partner	UL	UO	HU	UBA	UH	IUG	UP	UBO
<b>City</b>	Ljubljana	Osijek	Ankara	Barcelona	Hildesheim	Graz	Pisa	Boras
<b>Country</b>	Slovenia	Croatia	Turkey	Spain	Germany	Austria	Italy	Sweden
<b>Learning goals</b>	organization of information within profit and non-profit sectors independence theoretical base-knowledge practical use of theory	search retrieval organization of information products services teaching IL presentation of inf. ICT applications communication entrepreneurship media competences civic competences cultural awareness & expression	& creativity, problem-solving self-confidence & leadership capabilities design, implement., operation of information systems research skills theoretical base-knowledge practical use of theory team work LLL & communication	management, treatment, dissemination & promotion of cultural assets information systems public and private organizations development of projects and evaluation of products services related to heritage collections theoretical base-knowledge practical use of theory ICT application digitization organization of information user research rights data protection communication	problem-solving independent quick, purposeful work in new contexts team-work and social skills and moderation skills intercultural, multilingual and skills to	/	theoretical base-knowledge knowledge management use of ICT tools building databases and archives with management systems in specific areas of expertise	development, management, evaluation of IS and CS, and in advanced IM in libraries and other knowledge-intensive organisations with development and management of digital collections and services in libraries and other cultural, research, business, and public organisations

When asked what would need to be changed in order for the Summer School to be recognised as partial/full fulfilment of entry requirements, they mostly mentioned that the main obstacle is that the Summer School is not formally accredited. They also mentioned that the Summer School is not viewed as equal to entire courses due to its duration and because it does not cover all necessary contents.

Some partners believed that the Summer School should be prepared in more detail and have more strict structure, also that the teachers should be present all the time to be able to follow each other's in-class activities and refer to them in their lectures and that students should receive more practical assignments. However, opinions of some partners were that the programme, structure and content of the Summer School is fine and does not need any changes.

### Conclusions

The analysis has shown that complete unification is most probably not possible due to rather fundamental differences between partners. Another question is also quite different ideas regarding

employment market in various countries. Entry requirements are closely linked to, on the one hand, expected learning outcomes, and on the other, job market requirements. Namely, some changes that have occurred have big impact on the field of Information Science. In some countries the employment market for (L)IS programmes has widened to include work-posts that have to do with information organization in a wide array of organizations: government agencies, commercial firms, web design firms etc. In some other countries, this is still closely linked only to libraries.

It seems that we speak about a continuum of development of perceptions of (L)IS area: where the competences are needed/useful, how the studies are perceived (who is interested to study), how to treat entry requirements into the study programmes. It is also evident that different EU countries are on different sides of this continuum. This is also related to social attitude towards the role of information in the society and in the economy, the role and image of libraries and the overall social attitude towards culture and knowledge. In some countries it is more acceptable to find IS graduates working in areas of information organization thus contributing to the success of their organizations while other countries these programmes still mainly educate library staff and are faced with the problem of the job market being static and offering few openings.

All this is actually a debate on the identity of information science and its perception from various stakeholders: decision-makers, employers, educators, (potential) students:

- What is the role of information science in society, in economy? How should this role be changed?
- What do we teach when we teach information science?
- Why study information science? (And how difficult should this study be?)

In fact, an important factor in this is promotion of information science, which can only be done by us in information science:

- To the decision-makers in the context of national policies, legislation, curriculum content,
- To existing and potential employers about the benefit of IS skills for their ‘business’ (also using best-practice examples),
- To educators on all levels of formal schooling,
- To potential students when they contemplate what to study and why (to attract candidates from areas other than humanities and social sciences; also using the case of i-schools as an example),
- To the society as a whole about the role of information and knowledge in the development.

All of these areas require a good plan on how to approach this process, in which phases it should be divided, which stakeholders to be addressed first. Also, educational programmes need to think thoroughly about their structure, contents, and expected learning goals. And, above all, who they want to attract in the first place.

## References

- Abdullahi, I. & Kajberg, L. (2004). A study of international issues in library and information science education: survey of LIS schools in Europe, the USA and Canada. *New Library World*, 105(9/10), 345–356.
- Abell, A & Oxbrow, N. (2006). *Competing with Knowledge: The information professional in the knowledge management age*. London, Facet.
- Bawden, D. & Robinson, L. (2013). *Introduction to information science*. Chicago: Neal-Schuman Publishers, Incorporated.
- Blankson-Hemans, L. & Hibberd, B. J. (2004). An assessment of LIS curricula and the field of practice in the commercial sector. *New Library World*, 105(1202/1203), 269–80.
- Borrego, Á. (2015) Library and Information Education in Europe: an overview. *BiD: textos universitaris de biblioteconomia i documentació*, 35 <http://bid.ub.edu/pdf/35/en/borrego.pdf>.

- Buckland, M. K. (2004). Reflections on social and cultural awareness and responsibility in library, information and documentation: Commentary on the SCARLID colloquium. In: Rayward, W. B. (Ed.). *Aware and responsible. Papers of the Nordic- International Colloquium on Social and Cultural Awareness and responsibility in Library, Information, and Documentation Studies (SCARLID)*. Lanham, MD: Scarecrow Press. (pp. 169–175).
- Gerolimos, M. (2009). Skills developed through library and information science education. *Library Review*, 58(7), 527–540.
- Juznic, P., Badovinac, B. (2005). Toward library and information science education in the European Union: A comparative analysis of library and information science programmes of study for new members and other applicant countries to the European Union. *New Library World*, 106(3/4), 173–186.
- Kajberg L. (2004). A Survey of Internationalisation Activities in European Library and Information Science Schools. *Journal of Studies in International Education*, 8(4), 352–376.
- Konrad, A. (2007). On inquiry: Human concept formation and construction of meaning through library and information science intermediation (Unpublished doctoral dissertation). University of California, Berkeley. Retrieved from <http://escholarship.org/uc/item/1s76b6hp>.
- Saracevic, T. (1992). Information science: origin, evolution and relations. In: *Conceptions of library and information science. Historical, empirical and theoretical perspectives*. (Eds. Pertti Vakkari & Blaise Cronin). (pp. 5–27). London: Taylor Graham.
- Virkus, S. (2007). Collaboration in LIS Education in Europe: Challenges and Opportunities. In: *Proceedings of the World Library and Information Congress: 73rd IFLA General Conference and Council "Libraries for the future: Progress, Development and Partnerships" 19–23 August 2007, Durban, South Africa*. [archive.ifla.org/IV/ifla73/papers/134-Virkus-en.pdf](http://archive.ifla.org/IV/ifla73/papers/134-Virkus-en.pdf).
- Virkus, S. (2008). *LIS Education in Europe : Challenges and Opprtunities*. In: *Informationskonzepte für die Zukunft : ODOK '07*. (pp. 191–204). Neugebauer Verlag. [http://eprints.relis.org/14978/1/odok07\\_virkus.pdf](http://eprints.relis.org/14978/1/odok07_virkus.pdf).



## **Systems librarian, IT librarian, data librarian: Demand for graduates in Germany, Austria and Switzerland: A quantitative job advertisement analysis**

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### **Abstract**

This paper deals with new job profiles in libraries, mainly systems librarians (German: Systembibliothekare), IT librarians (German: IT-Bibliothekare) and data librarians (German: Datenbibliothekare). It investigates the vacancies and requirements of these positions in the German-speaking countries by analyzing one hundred and fifty published job advertisements of OpenBiblioJobs between 2012-2016. In addition, the distribution of positions, institutional bearers, different job titles as well as time limits, scope of work and remuneration of the positions are evaluated. The analysis of the remuneration in the public sector in Germany also provides information on demands for a bachelor's or master's degree. The average annual increase in job vacancies between 2012 and 2016 is 14.19%, confirming the need and necessity of these professional library profiles.

The higher remuneration of the positions in data management, in comparison to the systems librarian, proves the prerequisite of the master's degree and thus indicates a desideratum due to missing or few master's degree courses. Accordingly, the range of bachelor's degree courses (or IT-oriented major areas of study with optional compulsory modules in existing bachelor's degree courses) for systems and IT librarians must be further expanded. An alternative could also be modular education programs for librarians and information scientists with professional experience, as it is already the case for music librarians.

**Keywords:** Systems Librarian, Data Librarian, Job advertisement analysis, Job profiles, New competencies

### **Introduction**

In today's world, information is no longer disseminated only through print media, but increasingly through digital publications and data. Due to the growing digitization and data intensity of the sciences, new fields of activity are growing, and new professional areas of work are emerging, while previous ones are changing. Especially in dealing with research data and open data/science, trained specialists as an interface between library, science and IT department are needed. This development is accompanied by current projects at European level, for instance the flagship project European Open Science Cloud (EOSC, s. a.), which tries to create an open platform and infrastructure for the exchange of FAIR (s. a.) (FAIR data principles for research data: findable, accessible, interoperable und reusable) research data for the common use and reuse in order to generate interdisciplinary and international new knowledge. The Commission High Level Expert Group on the European Open Science Cloud (2016) estimate that half a million 'core data scientists' are needed to make the most of open research data in Europe and recommend the funding of a concerted effort to develop core data expertise. The RfII (2016) – German Council for Scientific Information Infrastructures – argues in the same direction and recommends

promoting the general and specialist competence of young researchers with regard to digitalization. New job profiles (such as data archivist, digital documentary, data librarian, data scientist, data curator) should be made possible and corresponding full courses of study should be developed in order to bridge the gap between scientists and information infrastructures.

Data librarians and systems librarians have been trying to fill in the intersection between IT department and library in English-speaking countries for some time. In the German-speaking countries, the term systems librarian is used, but also IT librarian or library informatics specialist (German: Bibliotheksinformatiker), some of whom are used synonymously. There are also specifications of the other roles — data manager (research data, metadata, etc.), data scientist, data curator, data analyst, and data creator — in data management. Caspers (2015) gives a similar overview of job descriptions in his work, showing that other terms are also conceivable. There are no clearly formulated definitions of the individual designations yet, but there are gradual delimitations in the literature.

- Systems librarian:
  - According to Caspers (2015), the systems librarian is a professional specialization that has both information technology and library tasks (with a focus on library systems).
- IT-librarian:
  - According to Caspers, it is synonymous with a systems librarian, especially before the name of the systems librarian could become accepted in job offers due to the increased occurrence of jobs.
- Data librarians:
  - Following Büttner, Rümpel and Hobohm (2011), there are four roles in data management:
  - Data Creator, which produces data
  - Data Scientist, which supports e.g. data analysis
  - Data Manager, who is responsible for technical aspects such as storage and access
  - According to Büttner, Rümpel and Hobohm, data librarians are responsible for the development, evaluation and conservation of data and also provide their own services in the research process
- Library informatics specialist:
  - According to Caspers, library informatics specialists are not an alternative term for the systems librarian. They could be considered as a higher education level for systems librarians, as their IT skills are even more pronounced.

In the journal article "Data Librarian: Das moderne Berufsbild", Hapke (2016) briefly presents the changes in the professional profile of librarians in practice and in studies as well as the delimitation of new job titles. The working paper by Pampel, Bertelmann and Hobohm (2010) deals with the management of (research) data and related fields of activity/roles and new competences for librarians and how libraries as service institutions could structurally address these fields of action. It also provides an overview of American job advertisements and their requirements for Data Librarians. The sixth Bibcast by Seeliger, Hoffmann and Kiefer (2016) entitled "Systembibliothekar, Bibliotheksinformatiker, IT-Bibliothekar – lässt sich dieses Anforderungsprofil akademisieren für eine Klientel im Berufsstand?" (2016) deals with the changing tasks due to the complexity of new systems and the growing demand in academic libraries. In addition, the master's programme of library informatics specialists at the University of Applied Sciences Wildau is presented, which focuses on basic knowledge of computer science, Java programming, databases, search engine technology, interfaces and data formats, library management systems, app development, and IT security. Markus

Caspers (2015) has researched and confirmed the necessity of systems librarians in his work and has created a description of the job profiles in Germany using expert interviews and literature research. It also notes that an analysis of job advertisements is still needed and would be useful.

About systems librarians and the other job specifications, there have been few or no scientific publications on the actual quantitative job requirements in the German-speaking countries so far, so that these blank spaces are answered with this work. The research question arises accordingly:

What is the current quantitative demand for systems librarians, IT librarians, library informatics specialists and data librarians and other data management positions in the German-speaking countries?

## Data and Analysis

The data for the analysis are taken from a data publication by Blümel et al. (2017) on Zenodo, which includes all published job offers — a total of 8,291 — on OpenBiblioJobs (<https://jobs.openbiblio.eu/>) between 17.07.2012 and 31.12.2016.

This data publication has been analyzed regarding various job titles to filter the matching and relevant job advertisements.

Afterwards, the data was combined and assigned to Excel files (one for systems and IT librarians and one for data management positions). For each Excel table, the job advertisements that can still be called up are broken down into their individual information. In addition, there is a general overview with job advertisements for which the URL was no longer available.

- Systems and IT librarians combined:
  - 24 of 90 job offers were still available => ≈26,67%
- Positions in data management:
  - 13 off 55 job offers were still available => ≈23,64%
- The job advertisements for library informatics specialists were not summarized in an Excel spreadsheet due to the small number of jobs (five job offers); one of five were still available on the web and thus fully evaluable (=20%)

Of the total of 150 jobs filtered, 37 were still available on the web, resulting in a ratio of ≈24.67%. Since all values remain below 30%, the results cannot be regarded as representative, but can be considered significant.

From the job offers that were no longer available on the web, only basic information (metadata) that was entered directly on OpenBiblioJobs when the advertisement was uploaded could be extracted (e.g. job title, institution, deadlines, time limits, scope of duties). Any multiple entries from the data publication are eliminated in the Excel files. Entries with multiple job titles (e.g. job advertisers advertised with "systems librarian or IT librarian" in their advertisements) were assigned to only one Excel spreadsheet.

Due to their project character, positions in which scientific staff were sought are not considered. Job offers with the job title "data logger" (German: Datenerfasser) as well as offers for student assistants were also not taken into account, as these do not reflect the job specification with a university degree due to the low remuneration. Job offers for which pure computer scientists were sought were also not included in the analysis.

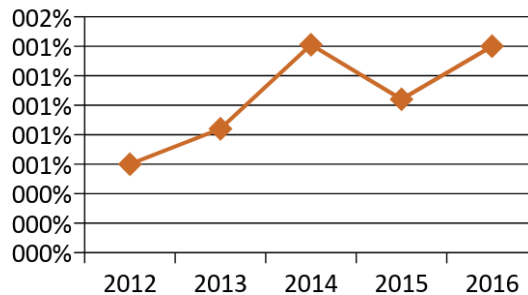
## Results

Systems and IT librarian's job demand:

– Quantitative job demand and trend

90 of 8291 were assigned to the job title systems librarian/IT librarian, which corresponds to:  $\approx 1,09\%$ .

2012: 6 of 999	→ $\approx 0,60\%$
2013: 19 of 2262	→ $\approx 0,84\%$
2014: 23 of 1636	→ $\approx 1,41\%$
2015: 16 of 1535	→ $\approx 1,04\%$
2016: 26 of 1859	→ $\approx 1,40\%$



**Figure 1.** Job demand of system and IT librarians

Job distribution in the German-speaking countries

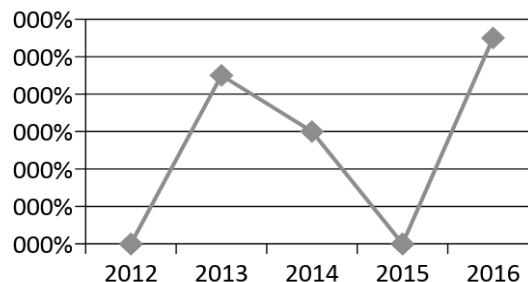
- 70/90 of the positions were sought in Germany (=77.77%), in Austria twelve (=13.33%) and in Switzerland eight (=8.88%).
  - o Breakdown of institutional bearers in Germany: 1x municipality – public library; 60x states – approx. 30% network centres, approx. 60% university libraries, approx. 6% state libraries (rest: archives, etc.); 4x private companies; 1x church; 4x at federal level

Library informatics specialists job demand:

– Quantitative job demand and trend

5 of 8291 were assigned to the job title library informatics specialists, which corresponds to:  $\approx 0,06\%$ .

2012: 0 von 999	→ $\approx 0,00\%$
2013: 2 von 2262	→ $\approx 0,09\%$
2014: 1 von 1636	→ $\approx 0,06\%$
2015: 0 von 1535	→ $\approx 0,00\%$
2016: 2 von 1859	→ $\approx 0,11\%$



**Figure 2.** Job demand of library informatics specialists

Job distribution in the German-speaking countries

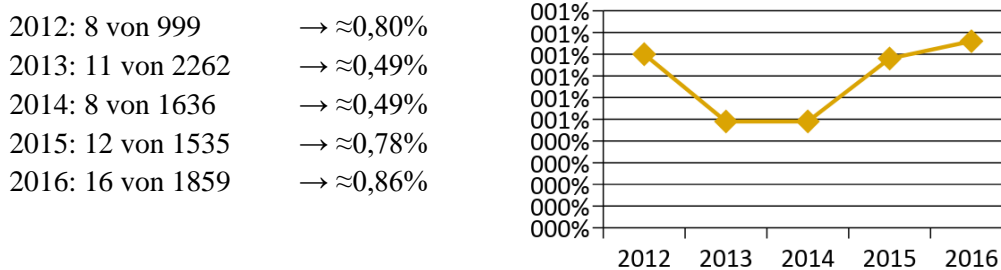
3/5 of the positions were sought in Germany ( $\approx 83,64\%$ ), in Austria zero (=0) and in Switzerland two ( $\approx 5,50\%$ ).

- o Breakdown of institutional bearers in Germany: 1x municipality; 1x states; 1x at federal level

Job demand data management:

– Quantitative job demand and trend

55 of 8291 were assigned to data management positions, which corresponds to:  $\approx 0,66\%$ .



**Figure 3.** Job demand in data management

**Job distribution in the German-speaking countries**

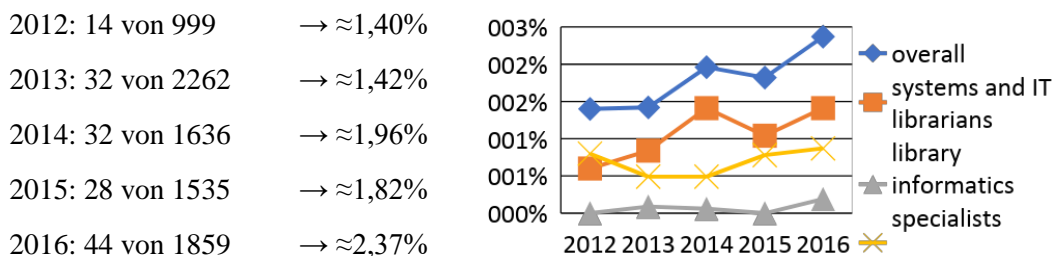
46/55 of the positions were sought in Germany ( $\approx 83,64\%$ ), in Austria six ( $\approx 10,91\%$ ) and in Switzerland three ( $\approx 5,50\%$ ).

- o Breakdown of institutional bearers in Germany: 1x municipality; 32x states – one network centres, approx. 78% university libraries and approx. 12% states libraries (rest: e. g. special libraries); 2x at federal level; 11x private companies – over half in publishing houses.

**Summary:**

- Quantitative job demand and trend

In total, 150 out of 8291 job offers with systems librarians, IT librarians, library informatics specialists and data management jobs (= occupations in which IT skills and library knowledge constitute a core competence) were published in the period under review. This results in a rate of 1.81%. Broken down by year, this shows the following trend:



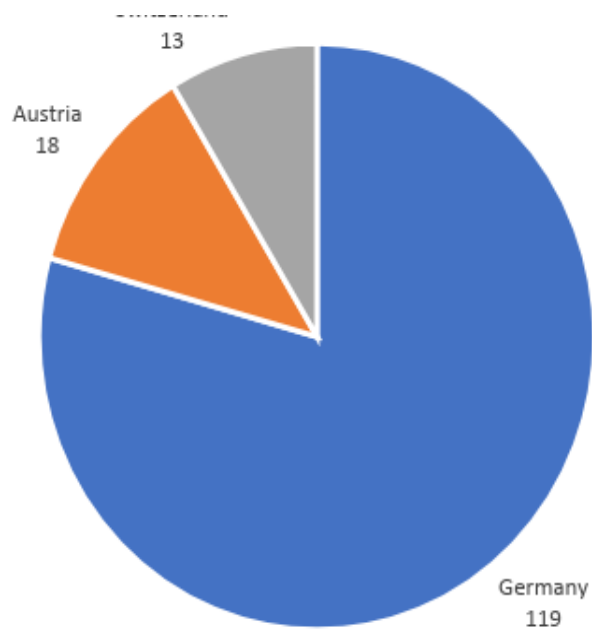
**Figure 4.** Job demand overall

**Figure 4.** Job demand overall

With the formula for calculating average annual growth, the average annual growth between 2012 and 2016 is 14.19%.

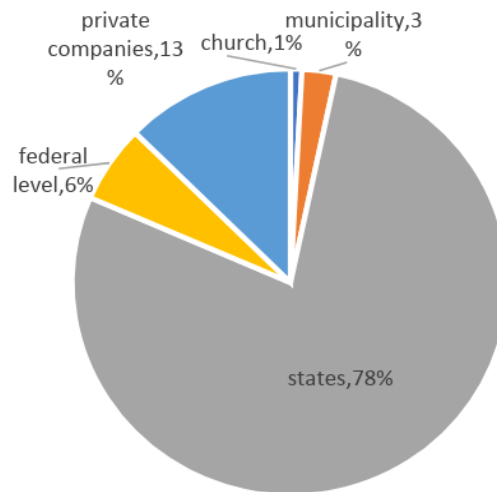
**Job distribution in the German-speaking countries**

119 of the 150 vacancies were searched for in Germany ( $\approx 79,33\%$ ), 18 in Austria (12%) and 13 in Switzerland ( $\approx 8,67\%$ ).



**Figure 5.** Job distribution in the German-speaking countries

- Breakdown of institutional bearers in Germany: 1x church; 3x municipality; 93x states – approx. 25% network centres, approx. 65% university libraries, approx. 9% states libraries (the rest varies); 7x at federal level; 15x private companies



**Figure 6.** Institutional bearers in Germany

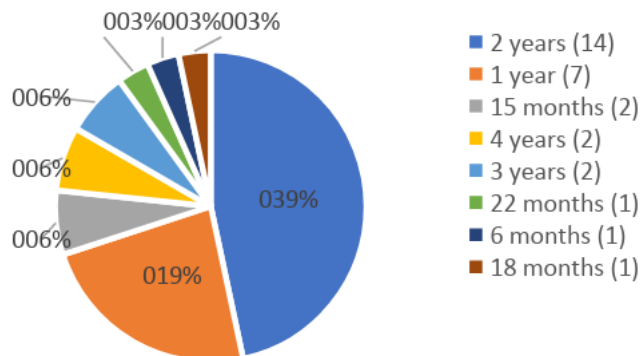
Time limits, remuneration, scope of work IT- und Systembibliothekar:

**Time limits**

68% (62/90) of the job offers could be evaluated on the subject of fixed-term contracts:  
 ≈41.94% (26) of these are permanent positions and ≈58.06% (36) are temporary positions.  
 ≈38.88% (14) are initially/for the time being limited or their delimitation is planned.



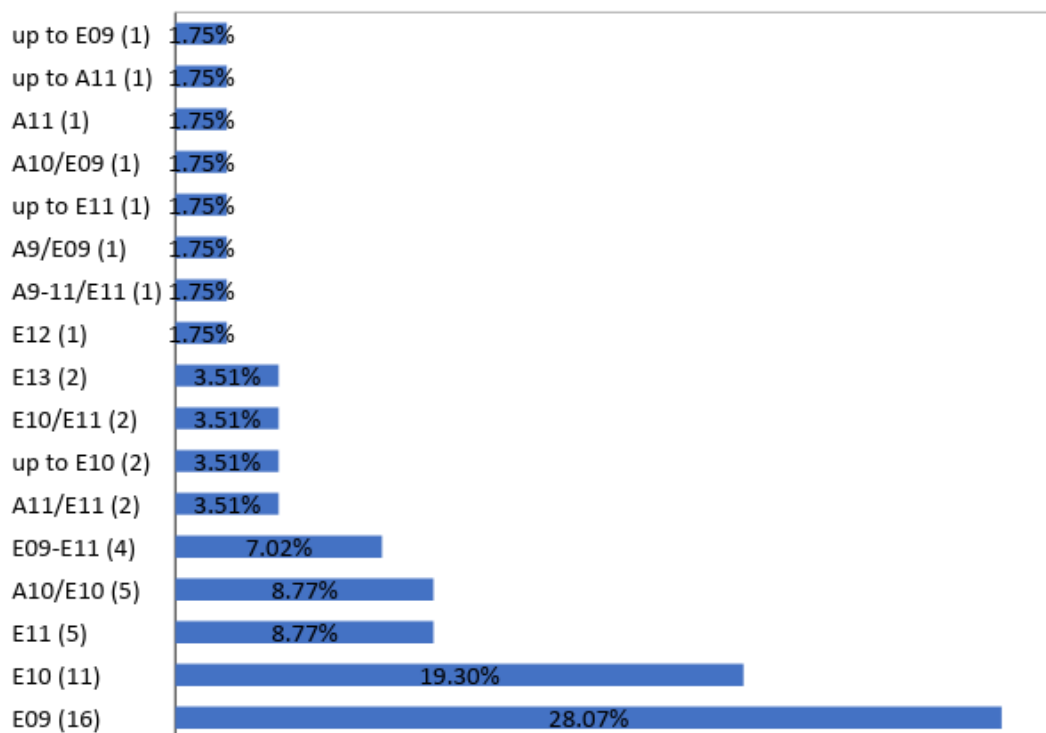
Duration of fixed-term jobs (with 30 of 36 positions, ≈83.33%, a duration was given):



**Figure 7.** Time limits of systems and IT librarians

### Remuneration of public service positions in Germany

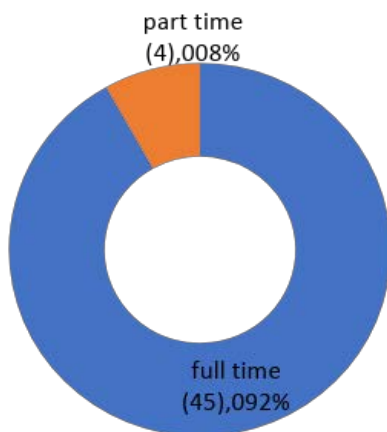
Of the 70 jobs in Germany, 57 positions on the subject of remuneration (whether TVöD/TV-L or TV-Bund etc. was not taken into account; only if payment according to BBesO was possible, a separation was made) were evaluated, which corresponds to ≈81.43%.



**Figure 8:** Remuneration of public service positions in Germany (systems and IT librarians)

### Scope of work

54,44% (49/90) of the jobs had information on the extent of the weekly working time or the percentage of workload:



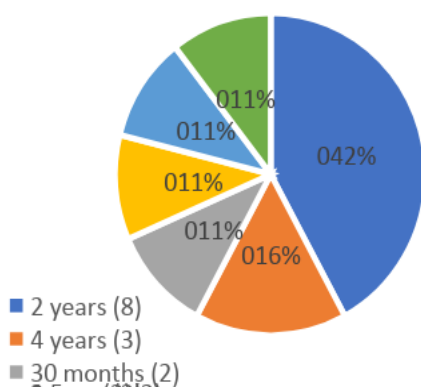
**Figure 9. Scope of work of systems and IT librarians**

Time limits, remuneration, scope of work of library informatics specialists:

As with systems librarians and IT librarians and data management positions with regard to contract conditions, no evaluation was carried out here due to the low data availability.

Time limits, remuneration, scope of work in data management positions:

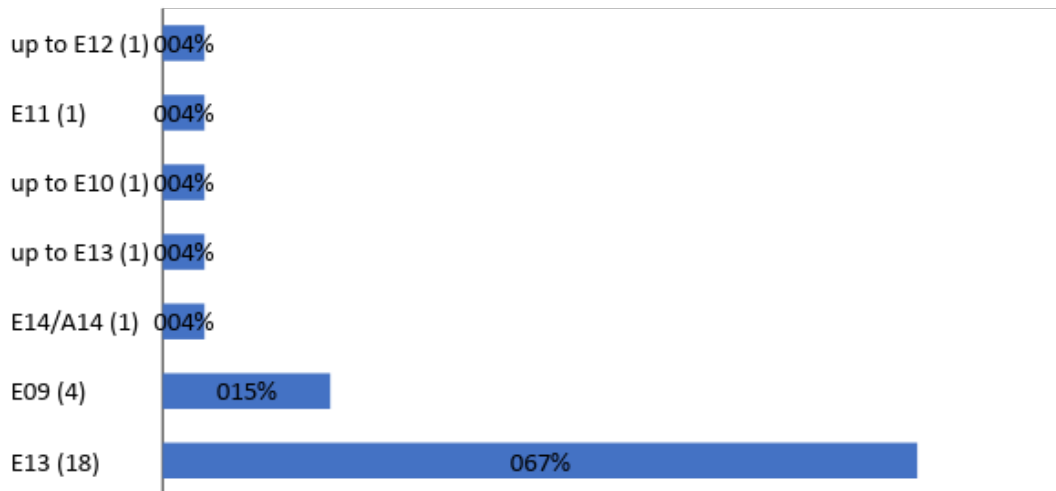
- Time limits
  - ≈56,36% (31/55) of the job offers could be evaluated on the subject of fixed-term contracts:
  - ≈16,13% (5) of these are permanent positions and ≈83,87% (26) are temporary positions.
  - ≈6,45% (2) are initially/for the time being limited or their delimitation is planned. Duration of fixed-term jobs (with 19 of 16 positions, ≈73.08%, a duration was given):



**Figure 10. Time limits of data management positions**

### Remuneration of public service positions in Germany

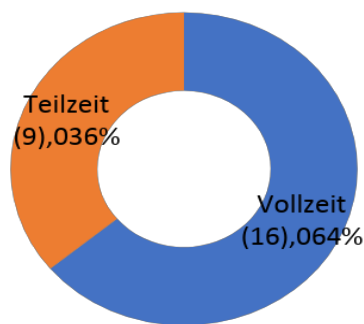
Of the 46 jobs in Germany, 27 positions on the subject of remuneration (whether TVöD/TV-L or TV-Bund etc. was not taken into account; only if payment according to BBesO was possible, a separation was made) were evaluated, which corresponds to  $\approx 58,70\%$ .



**Figure 11** Remuneration of public service positions in Germany (data management)

### Scope of work

$\approx 45,45\%$  (25/55) of the jobs had information on the extent of the weekly working time or the percentage of workload:



**Figure 12.** Scope of work (data management)

### Total remuneration of public service positions in Germany:

Whereas for systems librarians & Co. the wage classification is mainly set in the remuneration group 09-10, the jobs in data management are mainly in area E13.

### Conclusion

The term "systems librarian" has established itself clearly ahead of all others in terms of numbers. The data librarian is basically — there was only one job posting — not used as a job title in the German-

speaking countries in the published job offers on OpenBiblioJobs. This means that the system librarian's job title has become established instead.

The higher wage classification of the positions in data management, E13 compared to E9-10 for systems librarians & Co. shows that a master's degree is increasingly required for data management positions; the analysis of the required degree with regard to the concrete positions would be useful for this purpose. The evaluation shows that systems librarians & Co. can be employed with bachelor or diploma. However, a detailed analysis of the requirements in practice is recommended.

The necessity of the systems librarian, which has already been researched in science, is confirmed by the evaluation of the job demand (with the average annual increase in job vacancies between 2012 and 2016 of 14.19%).

Whether a rising rate of job offers to system librarians & Co. (last with a value of 2.37%) is sufficient to establish further and increased degree course offers would have to be investigated or whether this value continues to rise slowly as expected. The need for a master's degree course in data management should be examined; an analysis would make sense for this purpose. A master's degree course for systems librarians is not likely to be needed, since on the one hand the remuneration is too low and on the other certified further education is possible.

Alternatively, parts of the normal bachelor's degree course as elective modules could also provide the opportunity to acquire deeper knowledge of computer science in order to meet the need for systems librarians. Accordingly, it would make sense to research library courses of study on the basis of module manuals to determine the extent to which content is already represented and where there is a need for improvement. Furthermore, the possibility of an additional qualification, similar to that for music librarians, would be conceivable, but it would have to be checked whether the content is adequate or whether the number of hours is high enough to convey the content sufficiently deep.

A further analysis would have to deal with the tasks and competences (requirements profile: required degree, expertise and key qualifications) of the systems librarians in order to compare the tasks and skills mentioned in the theory with practice. There is not enough data available on the library informatics specialist to support Casper's statement in the introduction that it could be a higher education level of the systems librarian. On the one hand, there are positions that use the term as a synonym for IT or systems librarians, on the other hand, it is also used as a stand-alone job title in job offers.

In order to check whether the library informatics specialist is an independent occupation specification when the tasks and competences are evaluated, further job offers of pure library informatics specialists, especially with regard to tasks and knowledge, would have to be compared with those of the system librarian. However, the prerequisite for this would be a sufficiently high number of job offers that are currently not available according to this data situation.

Moreover, there is no clear definition of the systems librarian's job title; a future task of library associations and educators as soon as an analysis of the actual areas of responsibility and competencies has been carried out and the necessary information is available.

## References

Blümel et al. (2017). Blümel, I., Raster, M., Tu, P. N. P., & Zellmann, C. Openbibliojobs Export 2012-2016. *Zenodo*. doi:10.5281/zenodo.322783

- Büttner, S., Rümpel, S., & Hobohm, H.-C. (2011). Informationswissenschaftler im Forschungsdatenmanagement. In S. Büttner, H. C. Hobohm, & L. Müller (Eds.), *Handbuch Forschungsdatenmanagement* (pp. 203–218). <https://opus4.kobv.de/opus4-fhpotsdam/files/208/HandbuchForschungsdatenmanagement.pdf> (last accessed 3/22/18).
- Caspers, M. (2016). Der Systembibliothekar an deutschen Bibliotheken (Bachelorarbeit). Fachhochschule Potsdam, FB 5 Informationswissenschaften. <https://opus4.kobv.de/opus4-fhpotsdam/frontdoor/index/index/docId/1390> (last accessed 3/22/18).
- Commission High Level Expert Group on the European Open Science Cloud. (2016). Realising the European Open Science Cloud. <https://ec.europa.eu/digital-single-market/en/news/first-report-high-level-expert-group-european-open-science-cloud> (last accessed 3/22/18).
- EOSC (s. a.). EU-Kommission. s. a. European Open Science Cloud. <https://ec.europa.eu/research/openscience/index.cfm?pg=open-science-cloud> (last accessed: 3/22/18)
- FAIR (s a.). Data Publishing Group. n. d. „The FAIR Data Principles. FORCE11. <https://www.force11.org/group/fairgroup/fairprinciples>. (last accessed: 3/22/18).
- Hapke, H. (2016). Data Librarian: Das moderne Berufsbild, 19(2), 159–164. <http://www.b-i-t-online.de/heft/2016-02-fachbeitrag-hapke.pdf> (last accessed 3/22/18).
- Pampel, H., Bertelmann, R., & Hobohm, H.-C. (2010). „Data Librarianship“ – Rollen, Aufgaben, Kompetenzen. In U. Hohoff & C. Schmiedeknecht (Eds.), Ein neuer Blick auf Bibliotheken (p. S. 159-176). Hildesheim : Olms.
- RfII – German Council for Scientific Information Infrastructures. (2016). Enhancing Research Data Management: Performance through Diversity. Recommendations regarding structures, processes, and financing for research data management in Germany, Göttingen 2016, 90 p. <http://www.rfii.de/de/category/dokumente/> (last accessed 3/22/18).
- Systembibliothekar (2016). Systembibliothekar, Bibliotheksinformatiker, IT-Bibliothekar – lässt sich dieses Anforderungsprofil akademisieren für eine Klientel im Berufsstand? (2016). [Mp4]. TH Wildau. <https://opus4.kobv.de/opus4-bib-info/frontdoor/index/index/docId/2603> (last accessed 3/22/18).

## **Accepted posters**



## **How to make new in the age of competition? Creating new education offer in the field of Information Science in Poland on the example of the University of Łódź**

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University of Łódź, Poland

### **Abstract**

This presentation is based on the analysis of the education market in the field of LIS in Poland with a goal to discover main factors which caused the crisis of academic education of librarians. The main research problem on which the authors focused was: how to make new in age of competition. The question concerned a new educational proposal that would stand out from other offers in Poland and could become an attractive proposal for young people who want to work with information in many companies in the profit and non-profit sector not excluding modern libraries.

**Keywords:** LIS, University of Lodz, Informatology, Informatology with Business English

### **Introduction**

In the face of a few years of decreasing of interest in library studies in Poland, the Department of Informatology and Bibliology of the University of Lodz undertook a development of a new program of informatology studies on Master's level, which was named Informatology with Business English.

The development of the new concept was supported by a number of analyzes: quantitative – which concerned professional competences preferred by employers in the field of information management – on the basis of current job opportunities; new LIS educational proposals in the country and overseas; legal acts concerning libraries and the profession of a librarian in Poland; available information about the salaries of librarians and those people who deal with information management in their professional activity – on the basis of the Nationwide Remuneration Research ranking from 2018. The aim of the authors is to present results of market analysis of employers' expectations in the field of information management and to present the concept of a new field of study at the master level, which is a result of the conducted analysis.

### **Research and Methodology**

In the course of preparations to the realisation of the given task such question has been asked as: 'How to make New in the age of competition? What is more, such detailed research problems were formulated to which solution methods were planned as:

1. What are the factors of the crisis of academic education of librarians in Poland? – methods: documentary analysis of websites of universities which conduct studies from the scope of LIS, analysis of legislation connected to libraries and library science and education in that scope, comparative analysis of salaries of librarians in connection to other occupations also connected with information management: statistical analysis of demographic data;
2. What are patterns of solutions in educating in the scope of LIS in Poland and overseas? – method: analysis of study programs and websites of universities which offer LIS education;
3. What are potential places for professional career and what are employers' expectations towards LIS graduates? – methods: deduction on the basis of job offers and the list of new occupations valid in Poland, ranking of expected competencies which are searched for by employers in the scope of information management;

4. What is the main reason for modernisation of educative initiatives on the scope of LIS and what should be taken into consideration when establishing new course of study? – methods: revision of conclusions from the conducted analyses, conceptualisation of new course with results which were taken into consideration.

### **State of the art**

Academic education of librarians in Poland.

The higher education in LIS in Poland, as in most of the other European countries, consists of 3 steps: bachelor, master and doctoral studies. After finishing Master studies there is a possibility to continue education on doctoral studies or postgraduate studies, what results from implementation of Bologna process of studies in Poland in 1999. The LIS offer on different levels is offered at most of public universities. The offer of private academies and higher institutions is mainly concentrated on organization of postgraduate studies.

The change of law caused decreasing interest in studying librarianship and information science. It also caused the necessity of looking for the new propositions by universities which would be up to time in changing educational market and would not be only concentrated on educating future librarians. Although many universities decided to continue traditional education (Marie Curie-Skłodowska University, Silesian University, University of Łódź, Warsaw University, Wrocław University, Nicolaus Copernicus University in Torun) the decreasing number of matriculated students caused that university authorities often did not agree on starting new academic year if the groups are small.

### **Factors of crisis in academic education of librarians in Poland**

Deregulation and need of library personnel.

In 2013 the profession of librarian has been deregulated in Poland and became a one of many other professions which do not need to be regulated governmentally (Antczak 2013; *Ustawa z dnia 13 czerwca 2013*). As a consequence, it was expected that after implementing of the legislative documents there will be a better access to work for young people – diminishing of unemployment, shorter time for getting a job in professional environment after graduation and as a result quicker process of entering the job market, low costs for employers and higher quality of services.

According to the authors of this article neither of the factors described above were connected to the necessity of deregulation of the profession of librarian, which can only result in the decrease in quality of reader's service and in the abandonment of profession standards which were established with so much toil after five years from the implementation of the deregulation we still observe lack of job opportunities for new librarians (reduction of regular posts, closures of libraries) and graduates of library science choose another professional path due to low salaries in the trade.

Salaries of librarians.

The salaries of a librarian change in connection to place of work, seniority, post and region. However, it is estimated that the average salary for people who work in this occupation is about 2500 PLN gross (1 EURO = 4,29 PLN exchange rate as for May 19, 2018) which gives around 583 EUR (Szymczyk 2017). It is a similar amount to the one calculated on the basis of surveys from 2018 which was carried out as part of the Nationwide Remuneration Survey. The results were given on a portal – the median which was 2671 PLN gross (about 616 EURO). The participants in the study were 830 librarians (Sedlak & Sedlak 2018). For comparison, the median salaries of medical doctors in Poland is 3607 PLN (841

EUR). Moreover, they have a big opportunity to supplement their remuneration and so they do when undertaking additional work. The librarian does not have such a possibility.

The analysis of the collected data shows that the librarian's profession is not well paid. However, information competences are much better appreciated which is reflected in salaries. The highest salaries – in the given selection – receive: administrators of e-mail systems and IT systems (1484 EURO) and Business analysts (1666 EURO). It becomes clear why candidates for studies tend to choose courses which are related mostly to Informatology than to Bibliology.

Demographic factors.

The reasons for reducing the number of candidates for LIS studies can be seen in demographic phenomena. The low demographics affects the number of candidates in all courses of study. From 2002 in Poland, the population of 19-year-olds who constitute a group of potential candidates for first level studies is reduced by 20,000 a year on average. Among the 22-year-olds who could contribute to the master's studies a similar loss started three years later. Further reduction in the number of these age groups will last from 5 to 8 years reaching a lower level by half than the top of the high peak at the beginning of the century (*Struktura* 2016).

If we want to take into consideration a specific number of potential candidates for studies meaning people taking the A-level examination in the last three years, their number decreased in Poland in the years 2015-2017 from 275,568 to 258,030 – by about 17,000, i.e. around 9 % (Smolik 2015; Smolik 2016; Smolik, 2017).

Demographic phenomena result in the reduction of the entire population of students which is a challenge for all faculties. For those ones which are less popular or niche it may mean that they have to be suspended or even liquidated. The problem began to be noticed in the studies related to library science which is not attended by the appropriate number of candidates which enable to open the faculty.

### **The New Solutions in the Market of Higher Education in LIS in Poland and Worldwide**

Education in the field of LIS in Poland and in the world in recent years evolved considerably. The tendencies to eliminate the word 'library' from the name of the course of study – due to negative connotations and narrow meaning – were initiated in the 1970s and 1980s (Mutula 2013). The current trends reflect the content identified with the digital age: web design and technology, digital preservation and digital image management (Virkus 2012).

The conception of studies can be also found in information science combined with language skills and business issues. The closest example is in Spain where at The University of Barcelona the Master degree studies named Information and Document Management in Businesses (*Gestión Documental e Información en las Empresas*) may be found (Facultat de Biblioteconomia i Documentació 2018). Then in the Centre of Information Management in Loughborough (Great Britain) there are Master degree studies named Information Management and Business Technology (Loughborough University 2018).

Focusing on selected European examples, it should be noted that LIS education is often combined with additional skills or implemented in a precisely defined area, most often associated with digital space. In Austria at The Jan Kepler University in Linz a course in online knowledge has been launched (*Webwissenschaften* 2018). On Glyndwr University in United Kingdom, we can find a BA studies entitled Library and Information Management (Glyndwr University 2018). The University of Borås in Sweden offers Master degree studies: Library & Information Science, Digital Library & Information Services (Master's Programme 2018). Since 2007 German and French universities have also cancelled

traditional librarian education. The proposed didactic offer focused on digital services (Schniederjuergen 2007).

Also in Poland all universities got round to prepare new offers dedicated not only to those people who are interested in libraries and about information science but it is also opened to people who are fascinated in information architecture, organization of knowledge, websites projects, managing different kinds of information etc. The precursor project of the faculty was prepared by Stanisław Skórka, PhD from Pedagogical University of Cracow (2013). He modeled it on the basis of achievements of Peter Morville and Louis Rosenfeld in the field of their creation of The Argus Center for Information Architecture.

The University of Lodz started a new Bachelor studies named The Information in Digital Environment in 2015. The first group finished the studies in the academic year 2017/2018 by writing the Bachelor thesis and passing the Bachelor exam.

### **Analysis of labour market needs on the scope of LIS and occupations connected to informatology**

In April 2017, quantitative research was conducted on the job opportunities in Polish companies in terms of their competences required from candidates to work in professions related to information management (Antczak and Czapnik In press).

There have been 500 job offers which were selected for research posted in online job opportunities services. The analysis showed a high demand of the labour market for knowledge, skills and attitudes related to the acquisition, processing, analysis and the use of information – 63 offers of companies and institutions (12.5% of all offers) were identified which constituted the proper research group. A set of desirable competencies was developed from these offers. Then they were ranked in terms of frequency of occurrence. The following hard competences were mentioned mostly often:

- command of English (in 67% of selected offers)
- command of MS Office (43%)
- command of MS Excel (30%).

The soft ones were:

- good organization of work (in 38% of selected offers)
- analytic thinking/skills (33%) communicativeness and interpersonal skills (32%)
- ability to work in a team (24%).

To verify the attractiveness and usability of the new programme the authors also communicated with some local employers. The opinion prepared by The University of Łódź Library Director as well as the representatives of Ericsson Company and Łódź Business Council – all of them reacted positively and enthusiastically on submitted proposal.

The graduates of Informatology with business English studies will be able to pursue in the future, that is: analyst of information and media reports, analyst of traffic on websites, information broker (researcher), content manager of websites, specialist in scientific, technical and economic information, information management specialist, documentation management specialist, publishing editor, website editor, blogger/vlogger, organizer of conference services, librarian, technician of scientific information, library resources consultant, web designer (webmaster).

## Results of analysis and practical implications

On August 8, 2011, the name of the discipline was changed to Bibliology and Informatology by the Regulation of the Minister of Science and Higher Education (Rozporządzenie Ministra Nauki 2011)<sup>57</sup>. Thus, the greater emphasis was placed on the position of the second part of the discipline – Informatology. It soon turned out that the change of name and the introduction of a new course of study combined with the promotion of these events are perceived positively in the scientific, professional and student environment.

In 2017 the authors of this paper begun the preparation of a new programme of studies on Master level designed as a continuation of Bachelor studies not only limited to graduates of the Information in Digital Environment but also addressed to students of other humanistic and social sciences. The new programme has been named Informatology with Business English.

The new concept fits into the wider context of strategic planning of university operations by building a competitive advantage in creating a unique course of study on the national scale and resulting from an in-depth market analysis and employers' expectations in relation to the profiles of graduates of the University of Lodz. During the education participants may choose from two specializations:

1. Information Architecture – for those who prefer the information design as well as substantive and qualitative assessment of information; the first specialization will mainly cover content related to information management in business, including, among others: Document Management in the Company, Information Audit, Management and Marketing.
2. Modern Librarianship – for students who prefer to work in scientific and public libraries in the future. Within the specialization, there would be such subjects as: Library Law and Management of Library Documentation, Bibliometry, Digitalization of Collections, Electronic Book, Library Efficiency Analysis, Animation of Culture in the Library, Library-Information Systems.

The analysis of job opportunities has brought one more reflection to the authors – in the area of emphasizing the specific soft competences, which become the priority requirements of employers more and more often, placed even before hard competences. During the studies, we will try to develop and improve the social (soft) skills necessary for work, including: interpersonal communication, entrepreneurship, accuracy, creativity, resistance to stress, responsibility, independence, regularity, timeliness, time management, group work skills, economic organization of work, as well as we will pay attention to the high personal culture of students.

## Conclusion

The development of information technologies and new expectations of employers in relation to university graduates require rethinking of the study programs in the field of LIS and a creative approach to the concept of education in this scope. The main research problem on which the authors focused was: how to make new in age of competition. The question concerned a new educational proposal that would stand out from other offers in Poland and could become an attractive proposal for young people who want to work with information in many companies in the profit and non-profit sector not excluding modern libraries.

The article presented the analysis of the education market in the field of LIS in Poland and diagnosed factors which caused the crisis of academic education of librarians. The most important ones include:

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<sup>57</sup> The name of the LIS Department was changed at the request of the Head of the Department – professor M. Antczak due to the Ordinance No. 107 of the Rector of the University of Lodz from July 11, 2016.

demographic situation, deregulation of the occupation in Poland, low salaries of librarians, development of advanced technologies which results in a decrease in the number of job opportunities for librarians and the emergence of new professions and jobs related to information management and the digital environment.

Based on the analysis of selected offers on the labor market, the expectations of employers were established which became the basis for the modernization of the educational offer of the Department of Informatology and Bibliology of the University of Lodz and the development of the course of study – Informatology with Business English. When planning a new direction, the most such important hard competences were taken into consideration as: competences connected to development, search, processing, selection, documenting and publishing of information (including infographics). What is more, there are specific soft competencies which were taken into consideration.

The effect of our work is an innovative proposal, standing out among other offers of universities in Poland. The program of study has taken into account national and world trends that will be – as the authors believe – dominating in the future of education in Information Science.

## References

- Antczak, M. & Czapnik, G. (In press) Oczekiwania pracodawców a koncepcja nowego kierunku studiów Katedry Informatologii i Bibliologii UŁ. *Praktyka i Teoria Informacji Naukowej i Technicznej*.
- Antczak, M. (2013). *Deregulacja zawodu bibliotekarza. Przegląd najważniejszych zmian proponowanych w latach 2011-2012* In: H. Brzezińska-Stec & J. Żochowska. (pp. 295-315). Białystok: Wydawnictwo Uniwersytetu w Białymstoku.
- Facultat de Biblioteconomia i Documentació* (2018). Available from: <http://www.ub.edu/biblio/introduccio/versio-anglesa.html>.
- Glyndwr University* (2018) Available from <https://www.glyndwr.ac.uk/en/Undergraduatecourses/LibraryandInformationManagementtopup/>.
- Loughborough University* (2018). Available from: <http://www.lboro.ac.uk/study/postgraduate/masters-degrees/a-z/information-management-business-technology>.
- Master's Programme* (2018). In: University of Borås. Available from: <http://www.hb.se/en/International-Student/Program/Programmes-Autumn-2018/Masters-programme-Library-and-Information-Science-Digital-Library-and-Information-Services/>.
- Mutula, S. M. (2013). The Changing Face of Library and Information Science Profession, *African Journal of Library, Archives and Information Science* 23(2), 89–92.
- Schniederjürgen, A. ed. (2007). *World guide to library, archive and information science education* München: K. G. Saur.
- Sedlak & Sedlak (2018). *Wynagrodzenia.pl*. Available from: <https://wynagrodzenia.pl/moja-placa/ile-zarabia-bibliotekarz>.
- Smolik, M. (2015). *Wstępna informacja o wynikach egzaminu maturalnego przeprowadzonego w maju 2015 r.* Available from: [https://www.cke.edu.pl/images/\\_EGZAMIN\\_MATURALNY\\_OD\\_2015/Informacje\\_o\\_wynikach/2015/20150630\\_Wstepna\\_informacja\\_o\\_wynikach\\_egzaminu\\_maturalnego\\_Maj\\_2015.pdf](https://www.cke.edu.pl/images/_EGZAMIN_MATURALNY_OD_2015/Informacje_o_wynikach/2015/20150630_Wstepna_informacja_o_wynikach_egzaminu_maturalnego_Maj_2015.pdf).
- Smolik, M. (2016). *Wstępna informacja o wynikach egzaminu maturalnego przeprowadzonego w maju 2016 r.* Available from: [https://cke.edu.pl/images/\\_EGZAMIN\\_MATURALNY\\_OD\\_2016/Informacje\\_o\\_wynikach/2016/20160705%20Wstepna%20informacja%20o%20wynikach%20egzaminu%20maturalnego%202016.pdf](https://cke.edu.pl/images/_EGZAMIN_MATURALNY_OD_2016/Informacje_o_wynikach/2016/20160705%20Wstepna%20informacja%20o%20wynikach%20egzaminu%20maturalnego%202016.pdf).



- Smolik, M. (2017). *Wstępna informacja o wynikach egzaminu maturalnego przeprowadzonego w maju 2016 r.* Available from:  
[https://www.cke.edu.pl/images/\\_EGZAMIN\\_MATURALNY\\_OD\\_2015/Informacje\\_o\\_wynikach/2017/20170630%20Wstepna%20informacja%20o%20wynikach%20egzaminu%20maturalnego%202017.pdf](https://www.cke.edu.pl/images/_EGZAMIN_MATURALNY_OD_2015/Informacje_o_wynikach/2017/20170630%20Wstepna%20informacja%20o%20wynikach%20egzaminu%20maturalnego%202017.pdf).
- Struktura (2016). *Struktura ludności według wieku od 1970.* Available from:  
<http://stat.gov.pl/obszary-tematyczne/ludnosc/ludnosc/struktura-ludnosci,16,1.html>.
- Szymczyk, J. (2017). *Bibliotekarz – ile zarabia I jak nim zostać?* Available from  
<https://poradnikpracownika.pl/-bibliotekarz-ile-zarabia-i-jak-nim-zostac>.
- Ustawa z dnia 13 czerwca 2013 roku o zmianie ustaw regulujących wykonywanie niektórych zawodów (Dz. U. 2013 poz. 829)* (2013). Available from:  
<http://prawo.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20130000829>.
- Virkus, S. (2012). *Challenges of Library and Information Science (LIS) Education.* Available from:  
[http://www.unica-network.eu/sites/default/files/Sirje%20Virkus\\_0.pdf](http://www.unica-network.eu/sites/default/files/Sirje%20Virkus_0.pdf).
- Webwissenschaften* (2018). Available from: <https://www.webwissenschaften.at>.

## Which ICT competencies should be required by students enrolled at graduate programs in Information Science?

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### Abstract

The objectives of this research is to explore teachers' attitudes in regards to the ICT (Information & Communication Technology) competencies required by students enrolled at graduate programs in Information science (IS). Investigation is based on an online interview which involved eight EINFOSE project coordinators who are teaching information science courses at their universities. In regards to the theoretical part of the paper, the notion of competency in Higher Education (HE) was highlighted. The pilot study has shown that participants couldn't have given the uniform answer about their satisfaction with ICT competencies of students enrolling in the IS graduate study at their universities. From one side, they are satisfied with ICT competencies of students who completed IS undergraduate studies at a particular university; from the other side, they just expressed average satisfaction with the mastered ICT competencies of students who enrolled in the IS graduate studies at their university. As study has shown, the most essential ICT competencies are XML usage in general and website design, while the most desirable ICT competence highlighted was the advanced programming in general.

**Keywords:** ICT competencies, digital competencies, Higher Education, Information Science

### Introduction

Together with the other competences and skills (communication, social, personal, literacy and language, etc.), the students of Information Science at the undergraduate level acquire also ICT and related digital competencies. The notion of competence is widely used in relation to human resources in different area of human activity. This term is used in many fields such as knowledge management, education, management, etc.

According to *English Oxford Living Dictionaries* (2018) a competence (also competency) is "...the ability to do something successfully or efficiently". The *BussinesDictionary* (2018) defines the term competence more strictly as "(...) a cluster of related abilities, commitments, knowledge, and skills that enable a person (or an organization) to act effectively in a job or situation". The word is used in a different context and fields such as law (where it is called legal capacity), biology (the ability of a cell to take up DNA), medicine and linguistics (the ability to speak and understand language), etc.

In a context of lifelong learning it is worth mentioning a phrase 'key competences' which is suggested by *European Commission*. According to the European Parliament and the Council (2006 key competences include: literacy and languages; maths, science and engineering; digital competence; personal, social and learning competence; civic competence; entrepreneurship; and cultural awareness and expression.

In the literature focused on human resources the term "competence" first appeared in the paper by R. W. White titled "*Motivation reconsidered: The concept of competence*" which was published in 1959. In the 1970s, for instance, Dell Hymes (1972), David McClelland (1973), Thomas F. Gilbert (1978) and others wrote about the notion of competence. F. E. Weinert (2001) made a conceptual clarification of

the concept of competence in broad context at the beginning of the 21 century. He differentiated the following competencies: economic, technological, technical, methodological, business, traffic and age competencies as well as "(...) cognitive, social, motivational, personal, and other competencies".

In this poster presentation we intend to focus on ICT competencies which represent the unified shortcut phrase for two kind of competences defined by European Parliament and the Council: maths, science and engineering competence and digital competence. ICT competences also may refer to technological and technical competencies in Weinert's meaning as well as digital competencies in a broad context. We explore which of these competences are required by students enrolled at graduate programs in Information science (IS) by interviewing the eight coordinators of EINFOSE project, which are the IS teachers in the same time. The benefit of this research should have a significant impact on a process of student mobility in the field of IS.

### **Competency in education**

The notion of competence is recognized as key term for educators, policy makers and human resources staff of the organizations closely involved in the curriculum design and development of professional skills. Regarding the term competency in a context of education a few papers attracted our attention.

In his book Ronald Barnett (1994) differentiated two kind of competencies: academic and operational. For Barnett, both competences are just ideology, with an addition that academic competence, based on knowledge, is being displaced by operational competence which is merely oriented to particular skills. A paper entitled *Competences in education: a confusion of tongues* by W. Westera (2001) is considering the relation between a competence and related terms of knowledge, skills and attitudes. In that sense, Westera claims that this "(...) term has no additional significance to the term skills".

Barth and others (2007) are considering the relationship between formal (and informal) learning and competence development within higher education. Among many recommendations regarding the development of competence policy, they determined a variety of contexts in which the competence development can be enhanced.

Finally, regarding digital competency in a context of higher education, it is worth mentioning a short policy brief *Digital competence for Lifelong Learning* prepared by the Institute for Prospective Technological Studies (IPTS) which summarized key messages from recent IPTS research relating to the needs for digital competence for the purposes of work, leisure and learning in the European Information Society (Ala-Mutka, Punie & Redecker, 2008).

### **Research Methodology**

The investigation is based on interview as a main research method. Study involves eight EINFOSE project coordinators from eight institutions involved in the project.<sup>58</sup> The EINFOSE is the first EU project on LIS/IS university education in European Higher Institutions (EHI) to be funded after the joint EUCLID and RSLIS project on curriculum development in 2005. In this project, funded under Erasmus+ Key Action 2 – Strategic Partnerships for Higher Education for the period 2016-2018, partnering institutions from eight European countries collaborate in order develop educational

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<sup>58</sup> The eight EINFOSE project coordinators participating in this research are coming from the following institutions: University of Osijek (Croatia), University of Barcelona (Spain), University of Pisa (Italy), University of Ljubljana (Slovenia), University of Graz (Austria), Hacettepe University in Ankara (Turkey), University of Boras (Sweden) and University of Hildesheim (Germany).

guidelines and recommendations for entry requirements and learning outcomes harmonization in LIS/IS. One of the project's goals is to investigate ways and means of lowering barriers to the students' enrolment at graduate programs in LIS/IS and to discuss various social, cultural and technological experience in IS education across Europe (EINFOSE, 2016). While the EINFOSE project coordinators are also IS teachers, we presumed that they are good choice to take part in this study.

### **Interview**

The questionnaire had nine questions, two of them were rate questions (scale 1...5) and seven of them were open questions. It was conducted via EINFOSE platform during the second half of March 2018. The questionnaire was set up on EINFOSE platform and participants were invited to attend it. After answering the online questionnaire, in several cases it was necessary to contact individual participants for additional questions and answers. The results are represented in the next section.

The first group of questions relates to the place of work and teaching courses of all participants. The next question compares the importance of ICT competences in relation to other known competencies. Are the participants satisfied with ICT competencies of their undergraduate students and are these competences, in their opinion, important for students' enrolment at the IS graduate programs, were the focus of next two questions. What are the most essential and the most desirable ICT competencies students need to master during their IS graduate study was the next question addressed to participants. Finally, participants were asked to rate the degree of students' acquisition of ICT competencies at the IS undergraduate studies at partners universities, and evaluate the importance of a particular ICT competence acquired by students at the IS undergraduate study program for enrolling in the LIS graduate study.

### **Results**

It should be emphasized that between eight institutions involved in the EINFOSE project, two of them do not have IS graduate study by itself. University of Pisa offer graduate programs in digital humanities, while at the University of Graz there is only a graduate programme on Business Administration, and not in IS. However, both programmes are related to IS and offer courses that are relevant for the field, e.g. Information Retrieval, Information literacy or Digital libraries.

In relation to other competences (communication, social, etc.), participants mostly agree that the ICT competences are important for successfully studying of the IS graduate program. For the only one participant ICT competencies are "somewhat important". One participant answered that "...technical competencies [are] very important, since there is almost no part in the profession we can be realized without technology".

In answer to the question "Are you satisfied with the technical/digital competencies of students enrolling in the IS graduate study at your University?" the opinions of participants were divided. Two participants are satisfied with students' ICT competencies which they have acquired at the undergraduate level of the study, and another two participants are not. However, the participant who is not satisfied with the students' ICT competencies said: "In general the competences are low. However, students usually learn quickly those digital competences they need." Furthermore, the remaining four participants took the middle position: for them, some students have good and high level competence and some much lower than is expected.

However, in answering to the next question – do students have mastered ICT competencies for enrolment in the IS graduate study at your University – the participants mostly answered positively. Only two participants have answered "Yes, on the average" and "Medium".

The most essential ICT competencies for studying IS at a graduate level were: XML usage in general (four participants), website design (four participants), basic competencies in MS Office (three participants), working with relational databases (three participants) and simple (basic) programming (three participants). Interestingly, the most desirable ICT competencies for studying IS graduate study, for the four participants were advanced programming in general. Other ICT competencies were not specified as especially desirable.

Finally, from the predetermined ICT competencies offered in the questionnaire, the participants marked the "Creating a simple XML document" as the most mastered ICT competency by the students at the undergraduate level of the IS study at their institutions. At the same time, ICT competencies like "Scanning", "Optical Character Recognition (OCR)", "Processing of multimedia content" and even "Programming", were marked as the least mastered at the undergraduate IS study.

But, interestingly, in answering to the last question, participants marked the same ICT competencies as the least important for enrolling in the IS graduate study. In an opposition, they highlighted "Working with relational databases", "Creating a web page in XHTML/HTML" as very important, and, what is a little surprising, "Working with Microsoft Office".

## Conclusion

As this pilot study has shown, participants are considering ICT competencies as important as other competencies (communication, social, etc.). On the other hand, they couldn't have given a uniform answer on their satisfaction with ICT competencies of students enrolling in the IS graduate study. However, most participants answered that students who completed the IS undergraduate studies at their University have mastered ICT competencies required for enrolment in the IS graduate study. It could be also concluded that significant number of students who enrol the IS graduate programme after graduating from non-IS undergraduate programme have a low level of ICT skills. That could explain why participants are not entirely satisfied with ICT competencies of students enrolling in the IS graduate study.

Finally, the study has shown that the most essential ICT competencies are XML usage in general and website design, but at the same time, the most desirable ICT competence is the advanced programming in general.

For further research we intend to extend the sample of participants and conduct a wider study in other IS Higher Education Institutions in Europe. This is important since ICT competencies are becoming more and more important in IS education as well as the notion of competency is becoming one of the more important issue in education in general.

## References

- Ala-Mutka, K., Punie, Y., & Redecker, C. (2008). *Digital competence for lifelong learning*. Institute for Prospective Technological Studies (IPTS), European Commission, Joint Research Centre. Technical Note: JRC, 48708, 271–282.
- Barnett, R. (1994). *The limits of competence: knowledge, higher education and society*. Open University Press, 1900 Frost Rd., Suite 101, Bristol, PA 19007.
- Barth, M., Godemann, J., Rieckmann, M., & Stoltenberg, U. (2007). Developing key competencies for sustainable development in higher education. *International Journal of Sustainability in Higher Education*, 8(4), 416–430.

- Bosancic, B., Badurina, B., Tanackovic, S. F., & Mandl, T. (2017). EINFOSE project: Stimulating diversity of students and teachers' engagement in the European higher education area. In *Proceedings of the Association for Information Science and Technology*, 54(1), 627–629.
- BusinessDictionaries.com (2018). Retrieved from:  
<http://www.businessdictionary.com/definition/competence.html>
- EINFOSE (2016). EINFOSE: European Information Science Education: Encouraging Mobility and Learning Outcomes Harmonization (2016). Summary of the project. Retrieved from:  
<http://einfose.ffos.hr/summary/>.
- European Parliament and the Council (2006). Recommendation of the European Parliament and the Council of 18 December 2006 on key competencies for lifelong learning. *Brussels: Official Journal of the European Union*, 30(12), 2006.
- Gilbert, T. F. (1978). Human competence—engineering worthy performance. *Performance Improvement*, 17(9), 19–27.
- Hymes, D. (1972). On communicative competence. *sociolinguistics*, 269293, 269-293.
- McClelland, D. C. (1973). Testing for competence rather than for "intelligence.". *American psychologist*, 28(1), 1.
- OxfordDictionaries.com (2018). Retrieved from:  
<https://en.oxforddictionaries.com/definition/competence>.
- Weinert, F. E. (2001). Concept of competence: A conceptual clarification. Retrieved from:  
<http://psycnet.apa.org/record/2001-05275-003>.
- Westera, W. (2001). Competences in education: a confusion of tongues. *Journal of Curriculum studies*, 33(1), 75–88.



# **OPERAS: bringing the long tail of Social Sciences and Humanities into Open Science**

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## **Abstract**

We shall present OPERAS, a comprehensive project aimed at providing an open, pan-European infrastructure to rethink and reshape publishing, discovery and dissemination in the SSH.

The poster briefly outlines the status of scholarly communication, the developments of Open Access and Open Science, the specific demands for SSH and how OPERAS meets these needs.

OPERAS original approach is to unite researchers, libraries and publishers in a common effort, in order to take back control over scholarly communication. Not merging nor replacing, but nurturing existing realities, OPERAS provides innovative services to bring SSH into Open Science.

OPERAS is designed to elaborate effective and scalable long-term strategies for the future development of the digital infrastructure and community building needed to innovate scholarly communication in SSH. OPERAS pervading idea of science as communication holds an immense potential for an inspiring model of Open Science with direct societal impact.

**Keywords:** Open Science, Open Access, Publishing, Social Sciences and Humanities

## **Introduction**

In the common perception of “scholarly communication”, the publication is often considered as the last step, a sort of subsequent output and manifestation separated from research. But what if communication were constitutive to scientific communication? Science itself could be conceived as a communication practice (Nielsen 2013), or, as Jean Claude Guédon (2017) puts it, “communication is, indeed, the essence of science”.

If you add the idea that “publication [...] is part of a continuous cycle of reading, writing, discussing, searching, investigating, presenting, submitting, and reviewing” (Borgman 2010) even the related infrastructure must be envisaged as a hub of dynamic and interactive networks.

Instead of the current “scanned copy of the paper-based system” (Van de Sompel et al. 2004), scholarly communication deserves a framework of fluid, identifiable, machine readable elements (Van de Sompel & Lagoze 2009) and a distributed, decentralized system (Van de Sompel 2018).

Beyond the traditional focus on published outcomes, like books and articles, the changing idea of “scholarly record” encompasses materials generated both in the process – methods, evidence, discussions – and in the aftermath – debates, revisions, reuse. The emergence of this more liquid and composed output also affects the traditional roles in its stakeholder ecosystem: creating, using, collecting and fixing the “scholarly record” become more blurred or interconnected, or simply played by different actors – authors, publishers, readers, librarians - than in the past (Lavoie et al., 2014). Moreover, we are not only in the digital age: we are now in the age of Open Access and Open Science.

## **State of the art**

To set the scene, we shall try to briefly contextualize the specificity of the Social Sciences and Humanities (SSH), broadening more and more our perspective to get to Open Science paradigms. In

SSH, research and authorship are deeply connected and research and publication are linked through the editing process. As single, SSH researchers tend to be individualistic: co-authoring is rare. As a community, SSH is fragmented across multiple disciplines and subdisciplines, as well as in small research units, and, of course, different languages.

Moreover, SSH research is often grounded in specific cultural or geographical areas, hence the persistence of native languages opposed to English as *lingua franca* in STEM. Multilingualism is still a clear trait which shapes publications in SSH despite a trend in internationalization, which often takes the form of “transnational regionalization” (Heilbron et al. 2017).

The fragmentation in disciplines and languages results in a fragmentation in the publishing landscape, with a huge number of small size players of different types and quality serving local scientific communities and specializing in narrow fields of research. Sometimes it also results in a lack of appropriate skills, know-how, adoption of common standards, and a scarce attitude towards collaboration and innovation; the quality of the outputs, therefore, vary widely (OPERAS 2017a).

If you consider the situation of oligopoly characterizing the STEM publishing world, where 5 big publishers share the market (Larivière, Haustein, & Mongeon 2015), the contrast with SSH could not be more marked, all the more so when referring to monograph.

SSH go digital: digital publishing and the Digital Humanities.

Going digital doesn't mean just “place material online” and it doesn't come labour-free or cost-free (Eve 2014); moreover, “digital humanities” cannot be mistaken with digital publishing. Going digital means going through digital networks, so that interaction and connectivity must be taken into account when writing; the focus should then be on facilitating the process of scholarly work instead of concentrating on the single product (Fitzpatrick 2011).

Integrating all the potentiality of digital techniques into SSH is not just a matter of practice, it requires a cultural change in education and training and know-how. But being digital is not enough: successful researches rely on unrestricted access to high quality scientific outputs and cross-disciplinary, international collaboration fostered by Open Access to scientific research (OPERAS 2017b).

### **Open Access and SSH**

Despite the well-known official definitions of Open Access (Berlin Declaration 2003, Bethesda 2003), let's stick for our purposes to the plain albeit powerful one by Jean Claude Guédon (2017): “Open Access is simply a way to express the cross-fertilization of the very culture of science with new technologies to create the optimal communication system science needs” (ibid. 2017). Open Access is functional to the great conversation. It helps solving the paradox Glyn Moody (2016) stigmatizes: “All human knowledge is there—so why can't everybody access it?” However, current system of publishing, closed behind price and permission barriers, is under accusation: when the content is closed, one is not allowed to read, explore, use, address societal challenges, or simply allowed to rise further questions.

In the SSH, the basic transitioning to Open Access publishing practices is even more complicated by uncoordinated activities, a lack of common standards, different levels of quality assurance, and business models not yet sustainable (OPERAS, 2017 b, p. 48). Monographs are particularly at stake, both for technical and financial reasons (Ferwerda, Pintèr, and Stern, 2017). Open Access to publications, even once achieved, is just the first step: a change is needed in the research evaluation system, as well as a new approach in managing research data, and more transparency in the scholarly communication market costs (Amsterdam Call for Action, 2016).

## Open Science and SSH

Open Science is an ongoing process; according to Burgelman (2016) it is irreversible, so it is not a matter of “if” but “when” it will be achieved. The European Commission (2018) is launching two projects aimed at making Open Science a reality: the European Open Science Cloud (EOSC) (European Commission, 2018) and the Open Research Publishing Platform (European Commission 2017). In a joint effort, they may serve as a robust starting point for the development of EU-wide infrastructures dedicated to effectively disseminating peer-reviewed scientific output (OPERAS 2017b, p. 48) and to take the best out of data-intensive science: “if SSH disciplines do not integrate with the OpenScience Cloud, the entire scientific ecosystem will fail to reach its full potential since it will be missing the publications and other research outputs from half of the scientific disciplines” (Mounier 2017).

Scholarly communication cannot ignore the “fourth paradigm” of data-intensive research (Hey, Tansley, & Tolle 2009), nor can be kept hostage in a “deadly embrace” continuing to “conduct, publish and judge research” like in the past (Mons 2016). That is the reason why Open Science should be an encompassing practice, aimed at opening up the whole cycle of the research. There are more than 400 innovation tools covering all the phases of the research communication cycle – preparation, search, analysis, writing, publication, outreach, assessment – iconocally pictured as a rainbow to open it up (Kramer & Bosman 2017, 2018).

In the end, Open Science perfectly resonates with a more inclusive and dynamic idea of publication. In STEM it corresponds to the recent preprint rise (Bourne et al. 2017). In SSH it is clearly expressed by Kathleen Fitzpatrick (2011) as the “process” of “being engaged” with our texts. In a nutshell, “Despite the existence of important and pioneering initiatives, further effort is required in order to support a truly innovative vision for scholarly publishing in the digital age”, and, we should add, in the Open Science era (OPERAS 2017b).

## Methodology

OPERAS stands for ‘Open Access in the ERA through scholarly communication’. It is not just an acronym. It means that the best way to achieve Open Access “is to do it *through* scholarly communication, which simply means *from within* the scientific community” (Mounier 2017). OPERAS’ main goal is that of a research infrastructure, that “should stand by the researchers and operate *inside* the scientific community to support an essential part of its activity: scholarly communication” (ibid.). OPERAS started gathering partners of different nature (35 among publishers, research performing organizations, universities, libraries, consortia) and geographical distribution (12 countries involved).

OPERAS’s vision is to coordinate services, practices and technology across main actors in the SSH scholarly communication in Europe to provide joint services; to align activities of strategic actors and stakeholders (research institutions, libraries, platforms, publishers, funders) in their transition to Open Science as the standard practice. Its main principle is subsidiarity, meaning that each partner provides publication and communication services to their own scientific community, but collaborates and shares technologies, know-how, practices. OPERAS seeks to a concrete outcome: a more efficient, fair, inclusive and sustainable scholarly communication ecosystem for European researchers. Its mission is to provide a pan-European infrastructure for open scholarly communication and the strategy to fulfil this mission is not supplanting actors but reinforcing their presence, by providing coordination and a distributed

service infrastructure; not building the latter from scratch, but leveraging on existing platforms already in place and scaling them at European, multilingual level.

## Results

OPERAS will operate at three main levels:

1. service alignment and sharing – OPERAS partners offer services covering the whole research life cycle. OPERAS added value is to provide support to current activities, resulting in improved specialization and complementarity in terms of services and business models, leading to more efficiency and innovation. OPERAS approach is respectful of single players: instead of merging, supporting improvement and service upgrade, instead of replacing, sharing and align.

2. EOSC integration – EOSC is governed by the FAIR principles, where data must be Findable, Accessible, Interoperable and Reusable (Wilkinson et al. 2016). OPERAS drives the partners to adopt common standards (PIDs, metadata, machine readable content to allow Text and Data Mining). HIRMEOS, a project funded in Horizon2020, not only it develops common standards, but also deploys a common methodology that enables different partners operating with different software and technologies to implement the developed common standards. At European level, OPERAS increases connectivity and achieve collaboration with complementary infrastructures (DARIAH, CLARIN, CESSDA, OpenAIRE). The outcome will be a better integration of SSH disciplines into Open Science and will make the resources available for the development of innovative services.

3. services to certify, find and activate research – OPERAS will develop integrated services at European level. The 3 platforms will leverage on existing sound ones, currently lacking resources to scale up:

- the Certification platform will be based on the Directory of Open Access Books (DOAB): it will provide an international list of SSH open access publications that meet minimal quality criteria regarding peer-reviewing and licensing. It is worth highlighting that good and independent certification services enable better evaluation systems, allowing authors to demonstrate the value of their research outputs and their impact, and of the serious editorial workflow behind their work.
- the Discovery platform will be based on Isidore, developed by Huma-Num. It will allow all European researchers in SSH to discover, from a single point of entry, open resources (data, publications and other materials) relevant to their research. The added value consists in the feature of indexing resources with disciplinary ontologies and thesauri and to align them across several languages. Moreover, the system can enrich metadata by linking publication to the underpinning datasets, working in synergy with OpenAIRE. Researchers in SSH have longed for such a service for ages: currently, they have to access and search several different platforms providing uneven and inhomogeneous data and not allowing multilingual searches.
- The Research for Society platform will be based on Hypotheses, currently the largest academic platform in the world with more than 2000 blogs. The service will develop social networking functionalities to facilitate collaboration between researchers and socioeconomic actors on research projects. This will be the most innovative of the three platforms, the one that better interprets OPERAS pervading idea of science as communication.

## Conclusion

OPERAS tackles the challenge of renewing scholarly communication practices in SSH in the digital age and in the era of Open Science, at the same time reclaiming control in the hands of the researcher community. The landscape is dotted with an array of initiatives (presses, library projects, platforms,

service providers, researchers networks), innovative and sometimes with disruptive potential, but mostly small-size, localized, addressing small communities' needs, fragmented, not very collaborative and communicating poorly with their peers. The ecosystem is very fragile, and lacks resources (in terms of skills, know-how and funding) to efficiently manage the digital turn and the integration in the European Open Science Cloud. OPERAS meets the need of synergizing and creating a critical mass, without replacing but nurturing existing realities. As a distributed research infrastructure, OPERAS will open the many locks that prevent SSH sector from upgrading their practices and integrating into the Open Science paradigm, providing a pan-European platform dedicated to open scholarly communication including publications.

## References

- Amsterdam Call for action on Open Science* (2016). Dutch presidency of the European Union, Open Science – from vision to action conference, Amsterdam April 5, 2016 Available from: <https://www.government.nl/documents/reports/2016/04/04/amsterdam-call-for-action-on-open-science>.
- Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities* (2003). Available from: <https://openaccess.mpg.de/Berlin-Declaration>.
- Bethesda Statement on Open Access Publishing* (2003). Available from: <http://legacy.earlham.edu/~peters/fos/bethesda.htm>.
- Borgman, C.L. (2010). *Scholarship in the digital age: information, infrastructure, and the Internet*. Boston: MIT Press.
- Bourne et al. (2017). Bourne P. E., Polka J. K., Vale R. D., et al. (2017) Ten simple rules to consider regarding preprint submission. *PLoS Computational Biology* 13(5), e1005473. <https://doi.org/10.1371/journal.pcbi.1005473>.
- Burgelman, J. C. (2016). *The role of research data & Open Science*. Presentation conference New Roles in Open Science and Data Stewardship. Venezia, 25 novembre 2016. Available from: [https://phaidra.cab.unipd.it/detail\\_object/o:307440?mycoll=o:306049](https://phaidra.cab.unipd.it/detail_object/o:307440?mycoll=o:306049).
- European Commission (2018). *EOSC implementation roadmap*. Available from: [https://era.gv.at/object/document/3898/attach/st07188\\_en18.pdf](https://era.gv.at/object/document/3898/attach/st07188_en18.pdf).
- Eve, P. M. (2014). *Open access and the humanities*. Cambridge: Cambridge University Press. <https://doi.org/10.1017/CBO9781316161012>.
- Ferwerda, E., Pintèr, F., and Stern, N. (2017) *A landscape study on open access and monographs: Policies, funding and publishing in eight European countries*. Knowledge Exchange. DOI: <https://doi.org/10.5281/zenodo.815931>
- Fitzpatrick, K. (2011). *Planned obsolescence: publishing, technology, and the future of the academy*. New York: New York University Press.
- Guédon, J. C. (2017) *Open Access: towards the Internet of the mind*. Report, BOAI15 Available from: <http://www.budapestopenaccessinitiative.org/open-access-toward-the-internet-of-the-mind>.
- Heilbron et al. (2017). *European Social Sciences and Humanities (SSH) in a Global Context. Preliminary findings from the INTERCO-SSH Project*. Report available from: <http://interco-ssh.eu/wp-content/uploads/2017/02/European-Social-Science-in-a-Global-Contextv2.pdf>.
- Hey, T., Tansley, S., & Tolle, K. (ed.) (2009). *The fourth paradigm: data-intensive scientific discovery*. Microsoft. Available from: <https://www.microsoft.com/en-us/research/publication/fourth-paradigm-data-intensive-scientific-discovery/>.

- Kramer, B. & Bosman., J. (2017). *101 innovations in scholarly communication*. Available from: <https://101innovations.wordpress.com/>.
- Kramer, B. & Bosman., J. (2018). *Rainbow of Open Science practices*. Available from <https://doi.org/10.5281/zenodo.1147024>.
- Larivière V., Haustein S., & Mongeon P. (2015) The Oligopoly of Academic Publishers in the Digital Era. *PLoS ONE* 10(6): e0127502. <https://doi.org/10.1371/journal.pone.0127502>.
- Lavoie et al. (2014). *The Evolving Scholarly Record*. Dublin, Ohio: OCLC  
<https://www.oclc.org/research/publications/library/2014/oclcresearch-evolving-scholarly-record-2014-overview.html>.
- Mons, B. (2016). Preface, in *Realising the Open Science Cloud. First report and recommendations of the Commission High Level Expert Group on the European Open Science Cloud*, Brussels: European Commission. Available from: <https://ec.europa.eu/research/openscience/index.cfm?pg=open-science-cloud>.
- Moody, G. (2016). Open access: all human knowledge is there—so why can't everybody access it? *Ars technica*, 6 June 2016. Available from: <https://arstechnica.com/science/2016/06/what-is-open-access-free-sharing-of-all-human-knowledge/>.
- Mounier, P. (2017) The structure of research in social sciences and humanities, in *OPERAS Design study*. Available from: <https://doi.org/10.5281/zenodo.1009543>.
- Nielsen, K. H. (2013). Scientific Communication and the Nature of Science. *Science & Education*, 22, 2067-2086. doi:10.1007/s11191-012-9475-3.
- OPERAS (2017a), *OPERAS Design study*. Available from: <https://doi.org/10.5281/zenodo.1009543> .
- OPERAS (2017b), *Landscape study on Open Access publishing. Annex 1 to the OPERAS Design study*. Available from <https://operas.hypotheses.org/design-study/ds-annex-1-landscape-study>
- Van de Sompel et al. (2004). Rethinking scholarly communication: building the system that scholars deserve. *D-Lib Magazine*, 10(9)  
<http://www.dlib.org/dlib/september04/vandesompel/09vandesompel.html>
- Van de Sompel H. and Lagoze C. (2009) All aboard: toward a machine-friendly scholarly communication system, in: Hey, T. et al.: *The fourth paradigm: data-intensive scientific discovery*. Redmont: Microsoft Research (pp.193–199).
- Van de Sompel, H. (2017) *Scholarly Communication: Deconstruct & Decentralize?* Video, Paul Evan Peters Award & Lecture, December 12, 2017. Available from: <https://www.youtube.com/watch?v=o4nUe-6Ln-8>.
- Wilkinson et al. (2016). The FAIR Guiding Principles for scientific data management and stewardship. *Nature Research*, 3, 160018, [doi:10.1038/sdata.2016.18](https://doi.org/10.1038/sdata.2016.18).



## **Library and Information Science education in Europe: Building an interactive map**

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### **Abstract**

The project described in this paper aims at presenting an interactive map of library and information science (LIS) education in Europe. In the individual countries, institutions of LIS education all have different origins and specializations. The map shall help in getting an overview on the different possibilities students and researchers have regarding LIS education in Europe. Further, it summarizes the several types of departments, programs and learning modalities in European countries, as well as teaching languages, thus addressing the curricular internationalization of LIS education. The project demonstrates gaps in current internationalization of LIS education and shall strengthen collaborations among the institutions and departments, whereby new Erasmus+ partnerships could arise. Only a few of the investigated institutions offer programs taught in English, which should be improved in the future.

**Keywords:** Education, Europe, Internationalization, Library and Information Science, Map

### **Introduction**

Information science, especially in Europe, has not yet established as a clearly defined discipline in the academic landscape with specific methods and paradigms (Warner et al. 2016). There are major differences in the understanding of the term information science and its educational programs e.g. regarding Scandinavia, France and former Yugoslavian countries (Ibekwe-SanJuan et al. 2010). Nonetheless, the field of Library and Information Science (LIS) education is growing in some regions such as Scandinavia or Eastern Europe (Spink & Heinström 2012). Due to the differences in academic programs and foci of the specific countries, several obstacles arise for scholars. Sheila Webber (1999) emphasizes that it can be difficult for information professionals to get a job in any country in Europe due to differences in educational backgrounds and programs. The differences in educational programs further complicate exchange possibilities for students in the field of LIS. An internationalization of LIS education is often discussed in this context (Abdullahi & Kajberg 2004, Tammaro 2014). This includes curricular internationalization, for example, by offering programs taught in English (Tammaro 2014) or joint programs delivered by institutions from more than one country (Dixon & Tammaro 2003).

As the educational systems regarding information science in Europe are not uniform, students need an overview on the different programs. There exist some study guides listing the possibilities for students in Europe (e.g. Schniederjürgen 2007, Schröder 1994). Further, Borrego (2015) conducted an analysis on existing LIS education in Europe. He identified 220 institutions offering LIS programs in 26 countries. From these, 88% offer undergraduate degrees and only 65% a master's degree.

A visual representation of all possibilities would enhance the overview on all of the offered programs. Filtering options e.g. for degree or language could further improve the idea of giving an orientation in the academic landscape of information science in Europe, especially regarding aspects of internationalization. Accordingly, the goal of this project is to present such a visualization in form of an interactive map.

## Methodology

The creation of an interactive map can be divided into two stages – data gathering and building the map. In the data gathering process, listings of educational programs were consulted (Schniederjürgen 2007) and reviewed with information that is given on the web for the specific institutions. Thereby, undergraduate and master programs, as well as PhD programs were considered. In total, 51 European countries (including Israel) were analysed. Further, contact persons in some of the countries were consulted who helped with gathering the data, especially members of the ASIS&T European Chapter. In addition to information like country, city, university, department, title and duration of the program, details like the amount of ECTS required, learning modalities and available places were retrieved if possible. Addressing the aspect of curricular internationalization, the teaching language and partner universities were listed. Not in all cases, especially regarding PhD programs, all the data could be found.

All the gathered data was stored in a SQLite database. The actual map and website were developed with the help of several software packages. Considering the front-end development, *Bootstrap*<sup>59</sup> was used as a framework. For the web map itself, the open-source JavaScript library *Leaflet*<sup>60</sup> was chosen as it is a well-known tool for mobile-friendly interactive maps. Search functionalities were realized with the help of the library *typeahead.js*<sup>61</sup>. Further, the back-end web application framework *Django*<sup>62</sup> was used because of its customizable admin interface.

## Results

The prototype of the map can be accessed online<sup>63</sup>. Figure 1 shows the initial map listing all retrieved programs of LIS education in a clustered format. A user has the possibility to filter for degrees (Undergraduate, Master, Diploma, PhD), to change the map type and to change the listing from clustered to non-clustered (Figure 2).

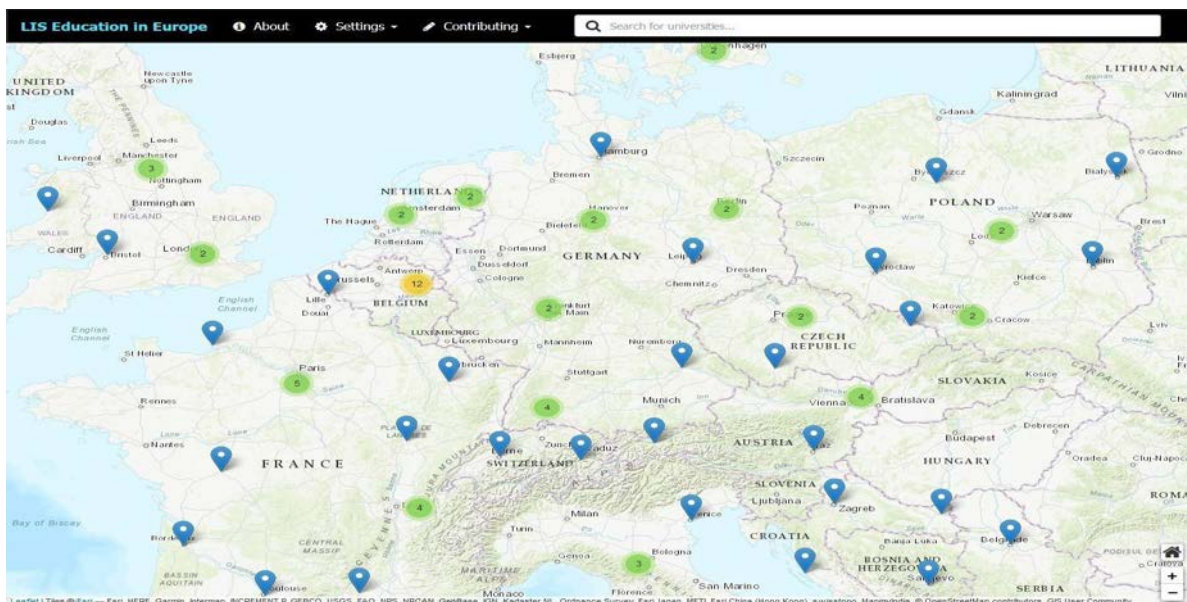


Figure 1. Excerpt of the map of LIS education in Europe

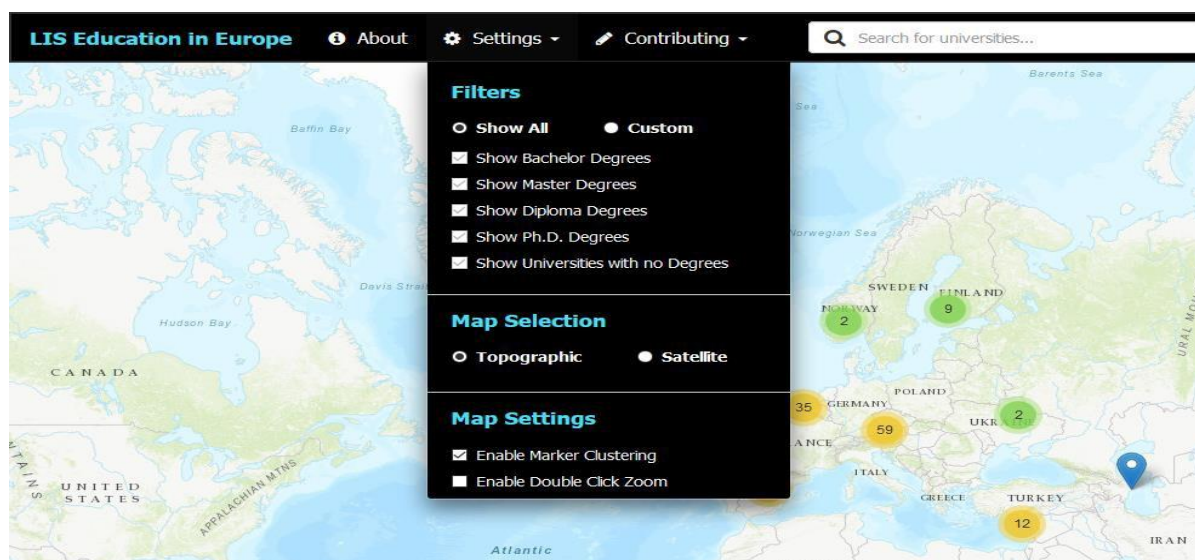
<sup>59</sup> <https://getbootstrap.com/>

<sup>60</sup> <http://leafletjs.com/>

<sup>61</sup> <https://twitter.github.io/typeahead.js/>

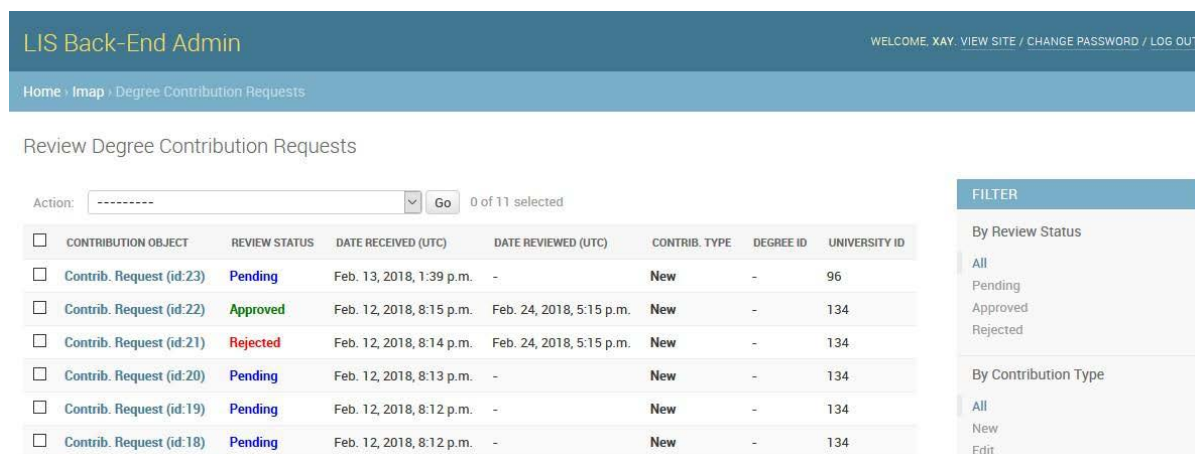
<sup>62</sup> <https://www.djangoproject.com/>

<sup>63</sup> <http://lismap.inf-d.de/>



**Figure 2.** Settings dropdown

Beside the data that was already gathered, it is possible for any user to add universities and programmes as well as to edit existing ones. Through this collaborative approach it will be assured to keep the data up-to-date. To avoid spam, any new entry has to be approved by an admin who receives an email when an item has been added. Figure 3 shows the admin panel with pending, approved and rejected objects.

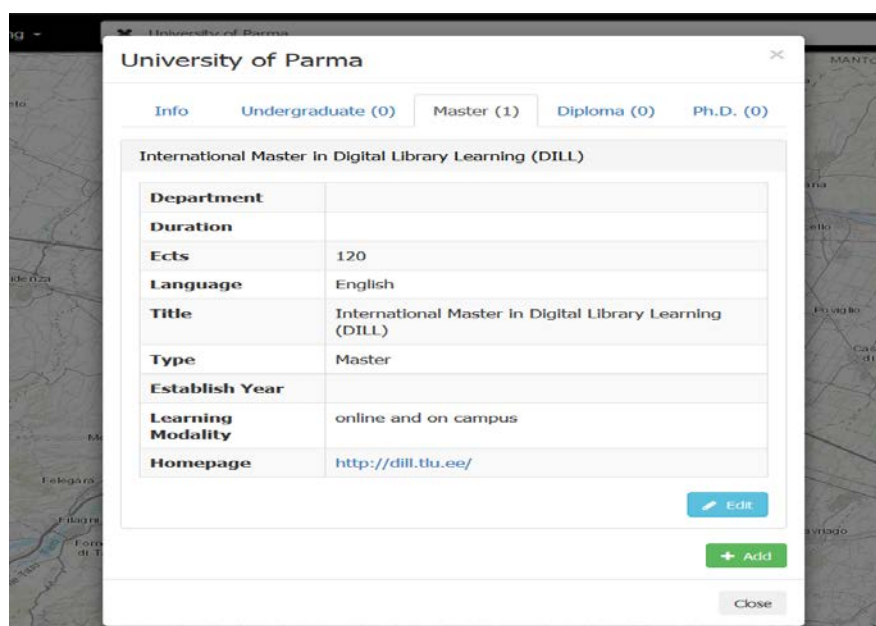


**Figure 3.** Admin view of edited and newly submitted universities

By clicking on one markers of the map, information on the corresponding program is displayed. As an example, Figure 4 depicts the information on a Master’s program of the University of Parma, Italy. The International Master in Digital Library Learning (DILL) is a prime example for the internationalization of LIS education. Curricular internationalization exists by offering a program in English language as well as through the partnership with Tallinn University, Estonia. Graduates of the program acquire a joint Master’s degree recognized by both universities. Further, students spend semesters both in Parma and Tallinn (“DILL. Digital Library Learning,” 2018). Examples like this are still rare regarding the LIS education in Europe.

Out of 51 investigated countries, 32 (62%) offer some kind of LIS education. In total, 140 institutions could be identified, altogether offering 157 undergraduate programs, 150 postgraduate programs and 41 PhD programs. Countries with the most institutions offering LIS education, are France (17), Spain (16) and Germany (14). Only in 45 of the programs, English could be identified as the teaching language.

From these, 26 programs are located in the UK, Ireland or Malta. Only 19 programs offer English as a language different from the country’s own language.



**Figure 4.** Program details for the International Master in Digital Library Learning (DILL)

The diverse foci of the programs come clear when taking a look at the disciplinary affiliations (Table 1). Nearly 40% of the programs could be dedicated to the discipline Library and Information Science.

**Table 1. Disciplinary affiliation**

Discipline	No. of programs	%
Library & Information Science	121	33.89
Communication Science	55	15.41
Arts & Humanities	38	10.64
Knowledge & Information Management	15	4.20
Media Studies	11	3.08
Archival Studies	11	3.08
Computer Science	10	2.80
Social Sciences	9	2.52
Documentation Studies	5	1.40
Linguistics	4	1.12
Business & Economics	2	0.56
Other	16	4.48
Ambiguous	34	9.52
No information	26	7.28



Not included in Table 1 are country specific tendencies to certain disciplines. Upon looking at the departments in each country using the developed map, there are indeed trends showing in certain countries. Estonia, Denmark, Malta, Slovakia, Latvia, the United Kingdom, Switzerland, Poland and Azerbaijan show almost a complete tendency towards Library & Information Science. Germany and Spain include a lot of LIS links as well, though there is also a smaller tendency towards Communication Sciences present in both countries. In Lithuania in contrast, all of the listed degrees are linked to Communication Science. France has most of their degrees linked to Communication Science as well. In Sweden, Italy and Belgium, almost all of the offered degrees are linked to Arts & Humanities. Knowledge & Information Management links are mostly present in Portugal and Turkey, which combined almost make up for the complete amount of Knowledge & Information Management links presented in Table 2. Most of the Media Studies links belong to the Netherlands and almost all Archival Studies links are present in the Czech Republic and Norway. With regards to Computer Science, Austria links Information Science to Computer Science the most. Countries with very varied tendencies include for example Finland, where Communication Science, Social Science and Library & Information Science links are found.

## **Discussion and Conclusion**

Education in LIS in Europe is widespread. The most offered programmes are those of undergraduate and master's degrees, those of doctorate are scarcer. The observations have shown that, even though there are degrees available in many countries throughout Europe, there remain discrepancies between how institutions handle LIS, as visible within the variety of disciplinary affiliations.

In addition to that, only a small part of all gathered degrees in Europe provide approachability for international students by offering degrees in the English language. Student mobility in Europe in the area of LIS may thus be tampered in those countries where English degrees are not being offered. Although this is not an optimal situation for European students to find themselves in when student exchange is regarded as one of the core concepts of internationalization (Abdullahi & Kajberg 2004, Tammaro 2014), the ability of universities to internationalize in general in the current time when there is evidently no unification of LIS curricula among European universities yet has to be addressed.

One of the main objectives of the research carried out and the creation of an interactive map is to promote greater mobility and exchange in Europe, both students and teachers, and promote a better visibility and possible confluences.

In future work it would be very interesting to analyse the study plans in depth. In this way, their strengths and weaknesses could be analysed with ways to improve them. New professional profiles are required and programs must be updated to meet the demands of society. This map could contribute to know more about each other. Nonetheless, the project has some limitations. As the data presented depends on information sent to us by others and a review of the institutions' websites, it cannot be precluded that some information is missing or incorrect. But as further collaboration with users may unfold over the upcoming years, the application may ultimately turn into a timeline representing the development of European or perhaps even worldwide LIS education and internationalization, if the data range of the application were to spread to more continents than just Europe.

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## References

- Abdullahi, I., & Kajberg, L. (2004). A Study of International Issues in Library and Information Science Education: Survey of LIS Schools in Europe, the USA and Canada. *New Library World*, 105(1204/1205), 345–356. <http://doi.org/DOI.10.1108/03074800410557303>.
- Borrego, Á. (2015). Library and Information Education in Europe: an overview. *BiD*, 35.
- DILL. Digital Library Learning. (2018). Retrieved February 14, 2018, from <http://dill.tlu.ee/>.
- Dixon, P., & Tammaro, A. M. (2003). Strengths and Issues in Implementing a Collaborative Inter-University course: The International Masters in Information Studies by Distance. *Education for Information*, 21(2–3), 85–96.
- Ibekwe-SanJuan et al. (2010). Ibekwe-SanJuan, F., Ingwersen, P., Aparac-Jelušić, T., & Schloegl, C. Information Science in Europe. In *Proceedings of the ASIST Annual Meeting* (vol. 47). <http://doi.org/10.1002/meet.14504701154>.
- Schniederjürgen, A. (Ed.). (2007). *World Guide to Library, Archive and Information Science Education*. Munich, Germany: K.G. Saur.
- Schröder, T. A. (1994). *Information Science in Europe: A Study Guide*. Amsterdam, Oxford, Washington, Tokyo: IOS Press.
- Spink, A., & Heinström, J. (2012). *Library and Information Science Trends and Research: Europe*. Bingley, UK: Emerald Group Publishing Limited. [http://doi.org/10.1108/S1876-0562\(2012\)0000006010](http://doi.org/10.1108/S1876-0562(2012)0000006010).
- Tammaro, A. M. (2014). Internationalization of LIS (Library and Information Science) Education: The Bologna Process Approach. In S. Chakraborty & A. Kumar Das (Eds.), *Collaboration in International and Comparative Librarianship* (pp. 314–320). Hershey PA: Information Science Reference.
- Warner, et al. (2016). Warner, J., Ibekwe-SanJuan, F., Peters, I., Lund, N. W., & Buckland, M. (2016). Tamato Tomahto: European Perspectives on Information Science. IN *Proceedings of the Association for Information Science and Technology* (1–4). (vol. 53).
- Weber, Sheila (1999). Information Science in Europe. *Bulletin of the American Society for Information Science*, June/July, 27–29.



## **Curriculum design: How can the development of information science curricula benefit from interdisciplinary cooperation?**

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### **Abstract**

This poster summary offers a brief overview of the methodical approach behind the process of curriculum development for the design degree programmes at the University of Applied Sciences Potsdam (Fachhochschule Potsdam [FHP]), in adherence to the underlying principle of an iterative ideation process as part of the interdisciplinary project entitled “Design NOT plain vanilla”. It presents an approach enriched by the example of “student” stakeholder group integration. First, the shared attributes linked to digitalisation that characterise the transformation of job descriptions found in the epistemic cultures of design and information sciences, and the differences in existing curricula concepts were outlined. Based on this, an explanation is provided as to why – as per the authors’ interpretation – the methodical approach that shapes the development of curricula as well as the underlying paradigms of the curriculum concept within the design degree programmes could provide prudent impetus for the process of curriculum development, as well as for the structure of curricula in information Science degree programmes.

**Keywords:** curriculum development, interdisciplinary participation process, didactic framework, teaching and learning content, future work skills

### **Introduction: Why comparative curriculum development in design and information sciences?**

At first glance, the disciplines of design and information science display few similarities, but upon closer inspection, a number of interesting parallels become apparent. Designers view themselves as problem-solvers, designing hands-on items of utility and living habitats, as well as digital services and complex ecosystems with increasing frequency. Traditionally speaking, designers learn the methods that allow them to determine the requirements of future users, to structure information and to develop and test prototypes, with the ultimate goal of creating a design form that is both high quality and aesthetically pleasing. More recent, methodologically aligned degree programmes place the learning and application of participatory problem-solving methods and innovation processes in the spotlight, while making superior use of digital tools to a lesser or greater extent, and establishing the design of digital services and smart objects as a key component of learning content respectively (Banz 2016, Stickdorn & Schneider 2010). The newest developments are accompanied by the advance of design into new application domains and an expansion of design artefacts – moving away from physical products and towards complex services and systems rooted in both the economy and society.

Information scientists investigate societal concepts pertaining to “data”, “information” and “knowledge” from the vantage point of information retrieval, as well as the evaluation, provision, search for and ascertainment of information from a host of technical, socio-political or ethical perspectives (Kuhlen 2013, Floridi 2010). When operating in a professional context, information scientists manage the structuring of (and access to) data, information and knowledge, and advise users within the scope of their own interaction with information. In doing so, methods that support the analysis of user information behaviour also become relevant for information scientists in the course of their endeavours to develop a fundamental understanding of a socially contextualised interaction between man and information, for

the target group-specific structuring of information and the development of appropriate information-didactic knowledge transfer concepts. (Case & Given 2016, Hobohm 2013, Michel 2016). The increasing prominence of digital presentation and representation vis-a-vis information and knowledge has helped to transition the use of digital tools and their ongoing development into a key, lifelong learning component for information scientists.

Consequently, while a number of parallels have been identified in the transformation of job descriptions as a result of digitalisation in the epistemic cultures of design and information sciences, the concepts that dictate the development of degree programmes in the respective disciplines in Germany has, to date, remained vastly different. The bachelor degree programmes within information sciences remain conceptually aligned with the transfer of knowledge, and lean towards the use of small-scale formats when structuring lectures and seminars (as a rule 3-4 ECTS points per class). In particular, at universities of applied sciences the curriculum is structured predominantly linear which, by default, results in a very limited scope for the student's autonomous selection of course content. Degree programmes in design enjoy a far greater level of conceptual flexibility as a result of their theoretical, insight-based status as an experimental profession and – as postulated by the author – are better suited to reacting to the challenges posed by the digital transformation process, than can be said of degree courses in information sciences. It may therefore be said that the curriculum concept behind design degree programmes as well as the conceptual approach within curriculum development as presented in the following should (within the framework of the “Design NOT plain vanilla” project) serve as a catalyst for the ongoing development of information science degree programmes.

### **Initial situation description: Essential paradigms and current challenges in design (education)**

The design process and the overwhelming proportion of methods applied in design are based on iterative attempts to develop solutions (framing and reframing), which also consistently imply the failure of a particular solution approach (Dorst 2018). This systematic grappling with mistakes and constructive feedback forms the foundations for the envisioning and design of new solutions in what is an open, complex, and profoundly networked world.

The curricula used in design degree programmes respond to these paradigms by ensuring the clear accentuation of project-related teaching and learning offers and modules, which tend to be generously rewarded by the credit points system (as a rule 10-20 ECTS points), frequently spanning two semesters, and which provide the necessary temporal framework for requirements analysis, prototyping, testing, reframing and documentation. The necessary declarative and procedural knowledge in each instance is either rendered accessible in the form of compact tutorials (e.g. for the introduction of methods and tools) or in streamlined blocks of lectures. Importantly, the project degree programme's close association with real-world partners operating in business, research, administration and civic society afford participants the advantage of practice-centric scenarios and project backdrops.

It should be noted that designers increasingly find themselves unable to solve a design task on their own (Sanders & Stappers 2014). The role of designer transforms into that of a moderator and tutor, who as before requires his or her fundamental conceptual skills as a core competency, but who uses them in what can be characterised as a significantly more complex process and in what are increasingly sophisticated trans-disciplinary utilisation contexts, and who requires a deeper understanding of research methods, above all in relation to quantitative and qualitative social research and economic expertise.

When considering the curricula that shape design degree programmes, this development signals a strengthening of teaching formats in terms of communication, moderation and management skills. New degree programmes such as business design and service design as well as the phenomenal success of design thinking take account of this development through to co-design. The challenge facing current curriculum development efforts can be found in establishing the appropriate balance between traditional teaching offers that channel their focus on formal-aesthetic design principles, method teaching and an understanding of the latest digital technologies and materials.

Tomorrow's designers will have to face complex, quantitative briefings with increasing frequency. These are the consequences of an ever-growing expansion of sensors, communications and computational services that have become embedded in day-to-day items and environments (IoT), and which trigger a previously unseen deluge of data (big data). The product of such a development is an increase in the level of demand for skills that allow individuals to interact with data, identify patterns in data – with the help of machine learning – and reach data-based decisions.

The curricula found in design degree programmes have yet to incorporate – to any significant extent – modules that comprise specific learning content that is tailored to the prior experience and particular motivation of students in creative disciplines, specifically with regard to data quality and data uncertainty, machine learning and data mining, statistical quantitative analysis or (big) data ethics. The most frequent observation made in design degree programmes concerns data visualisation modules, which offer a direct link with the designers' core competencies.

### **Methods and results: Exemplary process of curriculum development for design degree programmes**

Curriculum development within design at the University of Applied Sciences Potsdam (FHP) adheres to a participatory approach, which unifies the perspectives of those central stakeholders at the university and those found in potential professional disciplines (university lecturers, students, employers). The following should provide insight into those experiences with participatory formats, which place the student centre stage as a provider of both impetus and ideas.

The initial situation concerns a project course (10 ECTS points) in the summer semester 2017 with 30 students from the design degree programmes of interface, communication and product design at the FHP. The course entitled "Getting a Design Job in 2030" addressed the question as to whether the current curriculum and the design principles, methods, technologies and application domains contained therein are deemed sufficiently feasible and robust in the face of increasingly rapid development cycles witnessed in various technology fields and disruptive innovations in business. The course culminated in the question regarding the responsibility of designers and their role to be played in an era when political and societal discourse is shaped more by emotion than fact, and in which the criticisms expressed about our consumer society and the catastrophic consequences for the environment have also created a link with the actions of designers.

Such an intense topic focus was broken down into the following phases:

The first half of the course was built around a research and knowledge acquisition phase, during which papers were developed and submitted on predefined topics, with the aim of shedding greater light on a loosely defined topic area. Students then went on to develop their own formats in the second half of the course on the basis of these results and subsequent to a process of critical reflection, with which they

were able to express their ideas regarding the requirements anticipated with tomorrow's world of work and the associated ongoing development of design curricula.

The following contains a presentation of three methodological approaches for student participation in the context of curriculum development, which all found application in the above-stated course – as well as the content-specific results attributable to their application for the continuous development of design curricula.

(1) Job offers for designers in 2030. The task faced by students was to formulate job offers for designers for the year 2030. The task stipulated a future-oriented projection of those skills acquired in one's own degree subject. When undertaking such a challenge it is necessary (1) to consider the latest technological, business and societal developments, (2) to relate these to those skills and competencies gleaned from a person's studies to date, (3) to develop scenarios for the projection of these trends up until 2030 and (4) to implement those anticipated competencies believed to be necessary in future in specific job descriptions.

This exercise resulted in 15 fictional requirements profiles for designers, which harness the latest technological megatrends (a) **artificial intelligence**: job descriptions “Algorithm Designer”, “Artificial Life Designer”; (b) **big data**: job descriptions “Data Analytics Designer” and (c) **immersive technology & augmentation technology**: job descriptions “Designer for Virtual Reality Therapies”, “Designer for Wearable/Implanted Technology”, “Artificial Life Designer”, “Sensorial Experience Designer”.

These job profiles offer a number of clear indications from students regarding the ongoing development of professional environments and, at an implicit level, the development of design curricula in sync with the three major disciplines of artificial intelligence, big data and immersive technology & augmentation technology.

(2) Additional teaching offers for designers from the viewpoint of students. The second task faced by students consisted of formulating new teaching offers for a design degree programme, which from the vantage point of students should supplement the existing curriculum in the following semester.

This resulted in 16 fictional course offerings, of which 50% were built around the topics of communication, participation, design processes and methods; 25% honed in on technological topics such as AI and coding, and 25% on general orientation aids for designers (e.g. “How do I plan my studies to ensure that I can find a job in future, in spite of AI?”). In contrast to the fictional job profiles for the year 2030, which were dominated by a focus on technological skills profiles, the desire was established to bolster the integration of development efforts into the design curricula in the direction of participatory design formats and the associated methodological and communicative skills required.

The third task concerned the design of alternative future scenarios in the context of digital transformation. In doing so, design was utilised for hypothetical and speculative means, in order to determine how things such as technological or societal development, consumer culture etc. could exist and function differently. Instead of employing real, market-oriented products, the focus of “Speculative Design” was far rather guided by the development of hypothetical possibilities, utopian concepts and dystopian counter-products. The results of this methodology have been summarised on a website. By sticking closely to this time line up until the year 2034, the fictional events and results were developed in the form of press releases concerning superordinate topic areas such as big data, AI, filter bubble, new work, design approach(es), e.g. 2029.

**“There is no privacy.** All data concerning every individual is publicly accessible. The notion of a private sphere has completely disappeared. Anyone can profit from this data if they are able

to generate value from it, such as through the intelligent linking of datasets and good user experience”.

The result validates the relevance of those discursive and reflective formats ingrained in existing design curricula that facilitate the development of a professional approach vis-a-vis the ethical questions stemming from technological developments. As part of this process, the shared responsibility of designers in society regarding the development and use of technology becomes the subject of intense consideration.

The information-didactic accompanying research in the form of “Concept Mapping” at the beginning and end of the course led to the conclusion that, in comparison to lectures and seminars in other degree programmes at the University of Applied Sciences Potsdam, a verifiable above-average level of reflection was identified among those participants of the course. This was able to be determined thanks to the complex structure of the “Concept Maps” that remained stable throughout the course, as well as the scope of their semantic fields (Hay, Kinchin & Lygo-Baker 2008). In addition, observations revealed a slight displacement in the lexical field over the course of the seminar, from the process description of the design profession to a reflection of the professional “approach” taken as a designer. These results lead to the conclusion that the content generated by seminar participants translates into a wealth of tangible feedback for the ongoing development of design curricula, thanks to the students’ professional approach to the seminar topic.

## **Conclusion and outlook**

The content results pertaining to the above seminar methods are specific to the design disciplines. The methodological approaches remain, however, structurally transferable to information science degree programmes, in order to stimulate the students’ individual contemplation of their future professional fields, and to ascertain the resulting requirements placed on the curriculum development of their degree programmes.

The seminar’s presented methodology is structurally rooted in two key components, which characterise design degree programmes and which could offer real benefit for Information Science degree programmes when transferred. On the one hand, large-format courses can accommodate the processing of complex questions as part of a holistic, project-based approach. This approach facilitates the targeted coverage of various knowledge acquisition levels, the process of reflection, the application of complex, theoretical, insight-based approaches and methods (relating to design fiction, critical design and design thinking), creative ideation and multimedia design implementation, as well as the development of interactive participatory formats. On the other hand, the iterative methodology of the design cycle enables the multidimensional analysis of complex problems by applying interlinked and consecutive approaches, thus allowing for their complexity to be recognised instead of electing to reduce the subject matter prematurely to a more manageable model.

The options available for the transfer of those methods and fundamental components of the design curricula presented here to the information sciences bachelor degree programmes shall be the subject of discussion and experimental testing during the next phase of the project entitled “Design NOT plain vanilla” with academic staff and students.

## **References**

Banz, Claudia (Ed.) (2016). *Social Design. Gestalten für die Transformation der Gesellschaft*. Bielefeld: Transcript Verlag.

- Case, D. O., & Given, L. M. (Eds.). (2016). *Looking for information: A survey of research on information seeking, needs, and behavior* (Fourth edition). Bingley: Emerald Group Publishing Limited.
- Dorst, Keen (2018). *Notes on design: How creative practice works*. Amsterdam: BIS Publishers.
- Floridi, Luciano (2010). *Information: A very short introduction*. (Very short introductions: Vol. 225) Oxford: Oxford University Press.
- Hay, D., Kinchin, I., & Lygo-Baker, S. (2008). Making learning visible: the role of concept mapping in higher education. *Studies in higher education*, 33(3), 295–311.
- Hobohm, H.-C. (2013). Informationsverhalten (Mensch und Information). In R. Kuhlen, W. Semar, & D. Strauch (Eds.), *Grundlagen der praktischen Information und Dokumentation* (6th ed., pp. 109–125). Berlin: De Gruyter Saur.
- Michel, A. (2016). Informationsdidaktik - Skizze eines neuen informationswissenschaftlichen Forschungsfelds. *Information-Wissenschaft & Praxis*, 67(5-6), 325–330.
- Sanders, Liz, & Stappers, Pieter Jan (2014). From designing to co-designing to collective dreaming: three slices in time. *Interactions* 21(6) November 2014, 25–36.
- Stickdorn, Marc, Schneider, Jakob (2010). *This is Service Design Thinking. Basics, Tools, Cases*. Amsterdam: BIS Publishers.



## **Education in standardization at the University of Library Studies and Information Technologies – Sofia**

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### **Abstract**

This poster aims to present the experience and good training practices on the subject "Standardization in Libraries" in the University of Library Studies and Information Technologies, Sofia, Bulgaria. The methods of enhancing the information competence and knowledge of students with regard to the current standards in the library area are revealed.

**Keywords:** Standards, Libraries, University of Library Studies and Information Technologies, Sofia, Bulgaria

### **Introduction**

Nowadays the importance of knowledge and innovation is intensively growing. They increasingly become an integral part of every day's life. In this situation of crucial importance is to raise awareness and knowledge of the standards and their distribution as a powerful instrument for the application of the new technologies in organizations of the material and non-material fields, including in the information exchange. In the context of the EU, the standardization could be seen as a way to build a regulatory capacity and as a form of co-regulation (Borraz 2007).

Standards are documents, developed by consensus based on the consolidated results of science, technologies and experience. (BIS 2018) The subject "Standardization in Libraries" in the University of Library Studies and Information Technologies (UniBIT) stimulates the excellence in research and scientific achievements in the field of library and information science with its partnerships and international common criteria. This discipline is able to provide the strategic advantage of the graduated specialists and contribute the discoveries and global share of knowledge and information volumes.

Knowledge of standardization and specific standards in all areas of human activity are not only useful, but also necessary in the direct work of specialists and managers in the different organizational structures. Moreover, the contemporary training of students in standardization will prepare them for future challenges and will save them a lot of efforts, time and resources to achieve and implement the requirements, rules, standards, approaches, methods, etc. established by the highest qualified specialists at international, European and national level and included in the standards developed by them. The purpose of the standard (Botzem & Dobusch 2012, Brunsson 1999) is the achievement of a comprehensive compatibility, high quality and efficiency.

The Bulgarian Institute for Standardization (BDS) is the national executive body for standardization in the Republic of Bulgaria. BDS develops and approves Bulgarian standards and participates as an active and full member in the work of the European and international standardization organizations. Taking into account the principles of standardization – equal footing, transparency and consensus, BDS makes efforts to balance the interests of all stakeholders both in private and public sectors which means clearly established balanced participation in the national standardization process of producers, traders,

suppliers, consumers, research and academic establishments, conformity assessment bodies, state bodies and other public organizations. (BIS, 2018).

As a result of negotiations, an agreement was signed between the University of Library Studies and Information Technologies and the Bulgarian Institute for Standardization. It's established and functions a collaborative information system for standardization in the UniBIT. The system offers controlled completely free access of university teaching professionals, staff, PhD Students and students from UniBIT who would be able to have cognizance of the full version of the requested all aid Bulgarian standards in force and harmonization of Bulgarian standards with European and International standards in one of the academic rooms. In view of the fact that the complete standards text's access of all kinds: international, European and national is against payment, as the world practice is, the free access to full texts of Bulgarian standards through BIS is extremely useful for both the students of UniBIT and all interested university lecturers and employees.

For almost 20 years, subjects related to standardization have been taught at UniBIT. The University trains students in the following professional areas and specialties:

- Professional field "Public Communications and Information Sciences", specialties: "Library Science and Bibliography"; "Library and Information Management"; "Print Communications"; "Information Funds of Cultural Heritage"; "Archiving and Documentary"; "Information Resources of Tourism"; "Communications and Information"; "Public Policies and Practices";
- Professional field "Informatics and Computer Science", specialties: "Information Technology"; "Information Brokerage"; "Information Security"; "Computer Science"; "Information Technology in the Court Administration";
- Professional field "National Security", specialties "National Security and Cultural-Historical Heritage", "National Security" (UniBIT, 2018)

In all three professional fields are delivered lectures on Standardization-related disciplines.

An educational practice is covered in the lectures of "Standardization in Libraries" where the following further standardization activities are provided: working with the full text of the specified library standards. The aim is to clarify and specifies the optimization requirements of existing practices and its synchronization with the international library activities. Applying standards will help the future professional class of librarians and information managers with the ability to implement the principles of communication in the information society based on standardized model to reach the knowledge.

## Research

In order to obtain adequate feedback a questionnaire was given to the students in the graduating class 2017/2018. It aims on one hand to assess the benefits of the study of standardization at the University of Library Studies and Information Technologies and on the other hand to provide a student self-assessment of the extent of the taught information which successfully transformed into knowledge.

Almost half of the surveyed students (45.3%) have an opinion that the subject "Standardization in Libraries" contributes to the enhance of their information literacy; 32.1% responds that present education contributes to their professional advantage; 17% - to a certain extent; challenged in their assessment are 4.7%, and 0.9% (one student) sees no benefit from the standardization at all.

In statistics, one-way analysis of variance (abbreviated one-way ANOVA) is a technique that can be used to compare means of two or more samples (using the F distribution). In order to illustrate in the

most comprehensive way the results of the questionnaire were processed using exactly one-way ANOVA.

**Table 1.** Students self-assessment of their knowledge on the subject “Standardization in Libraries”

Students specialties	N	M	SD	F	Sig.
Information Brokerage	27	2,29	,541	2,90	,009
Information Technology	13	2,38	,506		
Information Funds of Cultural Heritage	14	1,85	,662		
Library Science and Bibliography	25	2,08	,571		
Library and Information Management	27	2,33	,679		

In the compilation of the questionnaire was used to present the results a 5-degree Likert scale, at which 0 means “no”; “not at all”; 1 – „to a small extent“; 2 – „partly“; 3 – „to a large extent“; 4 – „to a very large extent“ (Look at the marked in yellow results).

The final phase of this training on the subject “Standardization in Libraries” includes an objective creation of assessment of the application and opportunities ensured to the specialists when using the standards. It was achieved by conducting a round table with participants from the University of Library Studies and Information Technologies from selected specialties who are trained on the subject “Standardization in Libraries”.

### Conclusions and Recommendations

The following proposals can be made for expanding and more effective education in standardization in University environment:

- For the formation and implementation of a successful national policy for university training in standardization, it is appropriate to set up an expert body (or named otherwise), for example: National Council with representatives of university lecturers on standardization to the relevant national standardization body, Ministry of Education or other appropriate institution.
- Design and implement an information portal with Web site, providing communication and information on the training in standardization, both for the students and the lecturers in the universities and other categories of higher schools;
- Appropriate forums must be organized on a regular basis: conferences, seminars, round tables, etc. to discuss good practices of training in Standardization.

### References

Borraz, O. (2007). Governing standards: The rise of standardization processes in France and in the EU. *Governance*, 20, 57–84. doi:10.1111/j.1468-0491.2007.00344.x.

- Botzem, S., & Dobusch, L. (2012). Standardization cycles: A process perspective on the formation and diffusion of transnational standards. *Organization Studies*, 33, 737–762. doi:10.1177/0170840612443626.
- Brunsson, N. (1999). Standardization as organization. In M. Egeberg & P. Laegreid (Eds.), *Organizing political institution: Essays for Johan P. Olsen* (pp. 109–128). Oslo: Scandinavian University Press.
- BIS (2018). Bulgarian Institute for Standardization: [Official Web site]. // <http://www.bds-bg.org/en>.
- University of Library Studies and Information Technologies: [Official Web site]. // *Information System Standards UNIBIT*. URL: <https://www.unibit.bg/news/important-info/is-standards>.

## **Social media in higher education: a new “collegiality” for students and researchers? The case of Italian LIS studies**

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### **Abstract**

In this poster the case of Italian Library and Information Science studies is analyzed to understand the level and nature of use of social networks in a small area of Social sciences and humanities. We explored the presence of ten Italian LIS tenured researchers and university professors on six different social platforms (Mendeley, Academia.edu, ResearchGate, Slideshare, LinkedIn, Twitter) selected according to the kind of tool, level of national use, relevance to academic field. The data collected in September 2016 and updated in March 2018 shows a limited presence of Italian LIS tenured researchers and university professors on social media.

**Keywords:** social networks, Higher Education in Italy, Library and Information Studies, research

### **Introduction**

The development of the formal process of scientific communication is due to the need of scholars to contribute to knowledge and, at the same time, to set the stage for their career and academic reputation; sharing of research results with the scientific and professional community is closely linked to these objectives. There are various stakeholders of this process: first of all, authors, but also publishers, libraries, universities and research centers, each one with different tasks and purposes.

“Traditionally, most scholars have primarily disseminated their work through journal articles, books, book chapters and conference presentations. In line with this, the impact of a scholar’s work has often been assessed by, or with the aid of, the number of citations to their publications from other scientific publications, often extracted from the Web of Science (WoS) or Scopus. Nowadays, however, scientists may also disseminate their research through the web in various ways, for example by listing their publications, skills or achievements in the web or in social websites” (Mas-Bleda et al. 2014, p. 338).

Information technologies, particularly the Web 2.0, are changing the ways that scientists communicate; scholars have many ways to disseminate research findings quickly and there are some useful tools to strengthen academic reputation. Social media have become very popular in the last few years and even among scholars their adoption for professional and scientific purposes is increasing; they could be very useful for a widespread circulation of ideas, mainly in social sciences and humanities where several factors - the use of national language, the form of publications, etc. - delay the dissemination of research findings.

It has been shown that “social media attention increases article visit” (Wang et al. 2017); furthermore, perhaps social channels have “the potential to transform the practice of knowledge production” (Gibson & Gibbs 2013) by offering a new paradigm for communication in science and suggesting how digital media might bring new roles and functionalities to participants. Social networking should be considered as an ingredient of scholarly profession (Bonaiuti 2015).

The degree of use of social media platforms by researchers depends on various factors, such as disciplinary area, age, country.

In Italy the “culture” of social networks is not yet substantially permeated in academic life. From a recent study that investigated the reasons for using social media sites for scholarly communication among a large sample of Italian university scholars, it emerged that Italian tenured researchers and university professors prefer academic social tools and the influence of the scientific field on academic practices (Manca & Ranieri 2017).

The goal of this research is to analyze Italian Library and information science studies in order to understand the level and nature of use of social networks in a small area of Social sciences and humanities. We explored the presence of ten Italian LIS tenured researchers and university professors on six different social platforms (Mendeley, Academia.edu, ResearchGate, Slideshare, LinkedIn, Twitter) selected according to the kind of tool, level of national use, relevance to academic field. The data which we collected in September 2016 and updated in March 2018 showed a limited presence of Italian LIS tenured researchers and university professors on social media.

**Table 1.** Presence of a sample of Italian LIS tenured researchers and university professors on social platforms (March 2018)

	Mendeley	Academia.edu	Research Gate	Slideshare	LinkedIn	Twitter
Scholar 1	1	1	1	1	1	1
Scholar 2	0	1	1	0	0	0
Scholar 3	0	1	1	0	0	1
Scholar 4	0	0	0	0	0	0
Scholar 5	0	0	0	0	0	0
Scholar 6	0	1	1	1	1	1
Scholar 7	0	1	0	0	0	0
Scholar 8	0	1	0	0	0	0
Scholar 9	0	0	0	0	0	0
Scholar 10	1	1	0	0	0	0
	<b>2</b>	<b>7</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>3</b>
	Mendeley	Academia.edu	Research Gate	Slideshare	LinkedIn	Twitter

The limited presence of Italian LIS tenured researchers and university professors on social media is apparent. The most used platform is Academia.edu (in 2018 seven accounts activated, among which two not active), followed by ResearchGate. Mendeley, Slideshare and LinkedIn are the social media less popular. In September 2016 only two scholars had a registered account on five out of six social media analysed and, in March 2018, one scholar has an account on all social platforms but not all profiles are really used. One of Italian scholars uses strongly Twitter, while others employ the academic social network Academia.edu as a repository of their scientific publications to increase the interdisciplinary circulation and spread of their output. As shown by the Table 2, Academia.edu is highly used by four scholars. The widely different patterns of social media use by the researchers in the sample may be, and



often appear, to be strongly related to the specific profile of their research interests: e.g., professors working on network communication and interaction may prefer quick media while others mainly interested in the more traditional paper sharing between colleagues may prefer other, more formal platforms.

**Table 2.** Detail of the presence of a sample of Italian LIS tenured researchers and university professors on Academia.edu and ResearchGate (March 2018)

	Academia.edu	ResearchGate
Scholar 1	337 followers 200 following 9 co-authors 3286 total views (top 2%) 66 works	59 followers 3 following 5 co-authors 419 reads, 72 citations 33 research items
Scholar 2	0 followers 1 following 0 co-authors 2 total views 0 works	14 followers 1 following 10 co-authors 103 reads, 1 citation 27 research items
Scholar 3	434 followers 186 following 11 co-authors 13564 total views (top 1%) 158 works	45 followers 13 following 3 co-authors 328 reads, 21 citations 12 research items
Scholar 4	0	0
Scholar 5	0	0
Scholar 6	1233 followers 744 following 3 co-authors 4541 total views 44 works	45 followers 8 following 7 co-authors 554 reads, 34 citations 21 research items
Scholar 7	0 followers 1 following 0 co-authors 1 total views 0 works	0
Scholar 8	36 followers 4 following 3 co-authors 462 total views 1 works	0
Scholar 9	0	0
Scholar 10	399 followers 278 following 10 co-authors 8397 total views (top 2%) 81 works	0
	Academia.edu	ResearchGate

## Conclusion

Although the partial framework of Italian LIS scholars and despite all limitation of alternative metrics, it is possible to notice that scholars who use regularly one or more social networks have created a system

of relationships with other researchers that could be a valid way for a further openness between scientists. There are other interesting issues to consider, but it is not possible to go into in more depth here.

The positive influence of social media deals also with students. It would be important for teachers to develop social skills in Library and information science students both for future jobs and to encourage their participation in scholarly communication. Through social media students can get in touch with other young scholars from other countries, share their essays and set up a network of contacts for the future. Although the use of social tools among students seems to be limited to general and popular media with a lack of awareness of more specific platforms (Bibsonomy, CiteULike, Delicious, Mendeley, Zotero, or “Facebook for scientists”, as ResearchGate and Academia.edu) (Ashraf & Haneefa, 2016), academic social networks seem particularly suited for students to keep trace of new publications by the academic authors they follow and to leave a trace of their interest - and of their names - in the formal and controlled setting of those networks, as an alternative to the more informal and friendly relations established in general social networks such as Facebook.

The use of social media in higher education has, in our opinion, the potential to encourage exchanges between scholars and students of the same and different fields and facilitate the dissemination of research findings beyond geographical and cultural boundaries. But there is more.

Social media has the capacity to become a hypercompetitive form of academic enterprise. But it also has the capacity to generate new forms of collegiality, through everyday practices and interactions. The choice is both personal and political: social media as space in which to enact prosaic forms of solidarity (Gibson & Gibbs 2013, p. 90).

## References

- Ashraf, K. & Haneefa K., M. (2016). Scholarly use of social media. *Annals of Library and information studies*, 63, 132–139.
- Bonaiuti, G. (2015). Academic social networks: how the web is changing our way to make and communicate researches. *Research on education and media*, 7(2), 3–14. <https://doi.org/10.1515/rem-2015-0010>.
- Gibson, C. & Gibbs, L. (2013). Social media experiments: scholarly practice and collegiality. *Dialogues in human geography*, 3 (1), 87–91. <https://doi.org/10.1177/2043820613486430>.
- Manca, S. & Ranieri, M. (2017). Networked scholarship and motivations for social media use in scholarly communication. *International review of research in open and distributed learning*, 18(2), 123–138.
- Mas-Bleda et al. (2014). Mas-Bleda, A., Thelwall, M., Kousha, K., & Aguillo, I. F. (2014). Do highly cited researchers successfully use the social web? *Scientometrics*, 101(1), 337–356. <https://doi.org/10.1007/s11192-014-1345-0>.
- Wang et al. (2017). Wang, X., Cui, Y., Li, Q., & Guo, X. Social media attention increases article visits: an investigation on article-level referral data of PeerJ. *Frontiers in research metrics and analytics*, 2. <https://doi.org/10.3389/frma.2017.00011>.

## **Records management and data management quite literally mean the same thing: The Integration of archives, records and data management into the MLIS Programme at UCL Qatar**

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### **Abstract**

UCL Qatar has restructured its MA in Library and Information Studies and included an optional specialisation in Archives, Records and Data Management. This approach combines two separate strands of information science under the premise, that the required skills and knowledge to successfully handle and manage complex digital information is similar in both cases.

**Keywords:** Archives and Records Management, Data Management, Curriculum Development

### **The Need for archives, records and data management in Qatar**

The CILIP accredited master's course in Library and Information Studies at UCL Qatar has been running successfully since 2012 and graduates of the program attained key positions within the library sector in Qatar. The fast expansion of library services in the country coincides with the need for more specialized professionals. UCL Qatar works closely with the new Qatar National Library and other institutions to meet this demand with professional development courses. While these efforts will continue, the lessons learned in regard to the need of the sector informed the restructuring of the master's course.

Archives, records and data management are not yet taught in Qatar, but trained professionals in these areas are needed to support the transition of Qatar into a knowledge-based economy as outlined in the Qatar National Vision 2030 (2008). This need goes beyond the library sector. Trained archivists are required for the further development and professionalization of the expanding heritage sector. Government agencies and private corporations need record managers to handle an ever-increasing amount of business records. The emerging research sector and the e-government initiatives needs to be supported by data professionals (Shaon, Straube & Chowdhury 2018).

To enable UCL Qatar to cater for these requirements without increased resources or staffing levels, existing modules have been restructured and coordination between modules has been improved. The key to success however is the integration of archives and records management with data management in one pathway of specialization.

### **The Integration of archives and records management with data management**

Although the best way forward in the integration of data management into MLIS and iSchool curricula is not yet clear, it is consensus that data management is a crucial topic for libraries (Burton at al. 2018) and is being integrated in some shape or form in many courses around the world (Ortiz-Repiso, Greenberg & Calzada-Prado 2018).

McDonald (2010 p.53) comes to the conclusion that "Records management and data management quite literally mean the same thing." This view is backed up by Grant (2017) and lead to the establishment of an interest group in the Research Data Alliance to further explore what the emerging field of data management can learn from archives and records management. The need to make decisions on appraisal, to record provenance, describe records or data sets in context and the need to manage very diverse

material is present in both cases. Integrating them into a LIS course can also be beneficial in regard to acquisitions of any born-digital material into libraries (Dooley 2015).

This line of thinking informed the planning of the pathway of specialization in Archives, Records and Data Management outlined below.

### Restructuring the MLIS at UCL Qatar

So far, the master’s course at UCL Qatar consisted of six core modules, two optional modules and a dissertation. From the academic year 2018/19 the number of core modules is reduced to three. Students then choose a pathway composed of three modules that constitute a specialization in a particular area. This is complemented by two optional modules (which could be taken from the other pathways) and a master’s thesis. The available areas of specialization are shown in Figure 1.

Pathways	Leadership and Management in Libraries	Librarianship for the Education Sector	Middle Eastern Librarianship	Archives, Records and Data Management	Modules
<b>Term 1</b> Workload: Three core and one optional modules from your pathway	UCLQG409 Research Methods in Information and Library Science UCLQG414 Reference and Information Services UCLQG404 Knowledge Organisation and Access				Core
	UCLQG420 Cultural Institutions Management	UCLQG420 Cultural Institutions Management	UCLQG402 Archives and Records Management	UCLQG402 Archives and Records Management	Core optional
	UCLQGnew Cultural Heritage and Ethics UCLQG315 Digital Cultural Heritage				Additional optional
<b>Term 2</b> Workload: Two modules from your pathway and two from any other pathway and/or from the additional optional modules.	UCLQG406 Library Collection Management	UCLQG434 Services to Children and Young People	UCLQG405 Arabic Cataloguing	UCLQG407 Data Management	Core optional
	UCLQG012 Collections Care and Management	UCLQG432 Information Literacy and Education	UCLQG122 Islamic Manuscripts	UCLQGnew Data Environments	
	UCLQG430 Professional Awareness UCLQGnew Information Visualisation UCLQG408 Digital Resources in the Humanities UCLQG412 The Book in the World				Additional optional
<b>Term 3</b>	UCLQG499 Dissertation				Core

Figure 1. Pathways in the MA in LIS

While the first three specializations consist of modules successfully thought in the past, the new focus on pathways helps re-evaluate their content and focus on future roles of graduates.

1. The Leadership and Management in Libraries pathway is concerned with the management of cultural institutions with large and diverse collections and students will learn how to adapt institutions to changing needs and requirements.
2. The Libraries in the Education Sector pathway prepares students to become educators in information literacy and to deliver services to children and young people.
3. Middle Eastern Librarianship will teach students the necessary skills to provide library services with the full range of Arabic language resources. A special focus is the management of cultural heritage material like Islamic manuscripts.

The fourth pathway is called Archives, Records and Data Management and will prepare students to work as archives, records and data managers in public administration, the heritage sector or in private corporations. The focus is on the sustainable management of the growing amount and variety of digital information. The introductory module in archives and records management is shared with the Middle Eastern Librarianship pathway. This module is covering a huge variety of both digital and analogue material and teaches the skills necessary to appraise, describe, manage, preserve and handle them.

The next two modules in the pathway are focussing on digital material. The module on data management confronts the students with the need to handle a very broad variety of digital material including archives, research data sets, video collections, file folders or database content. The students learn how to extract and map metadata in multiple standards using XML and get experience in the use and evaluation of tools. In the module on data environments the focus is on the analysis of infrastructure and systems. Students analyse complex workflows and tools for ingest, digital preservation and access and plan repository development. Both courses take examples from a variety of potential job roles from working in a museum with digitized 3D objects to the records manager tasked with the deployment of an EDRMS.

UCL Qatar aims to prepare its students for roles within a rapidly changing information landscape and to enable them to plot their own course on learning and development. The described pathways are therefore only recommendations. Depending on their aspired future roles further optional courses can be recommended to students. Modules on collection care or Islamic manuscripts are available for future archivists, while the aspiring research data manager may choose information visualisation or digital resources in the humanities.

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## References

- Burton, Matt, Liz Lyon, Chris Erdmann, & Bonnie Tijerina (2018). Shifting to Data Savvy: The Future of Data Science in Libraries. *Monograph*, 2018. <http://d-scholarship.pitt.edu/33891/>.
- Dooley, Jackie (2015). *The Archival Advantage: Integrating Archival Expertise into Management of Born-digital Library Materials*. Dublin, Ohio: OCLC Research. Available from: <http://www.oclc.org/content/dam/research/publications/2015/oclcresearch-archival-advantage-2015.pdf>.
- Qatar National Vision 2030 (2008) General Secretariat for Development Planning. Qatar National Vision 2030, Doha Available from: <https://www.mdps.gov.qa/en/qnv1/pages/default.aspx>.
- Grant, Rebecca (2017). Recordkeeping and Research Data Management: A Review of Perspectives. *Records Management Journal* 27 (2), 159–174.
- McDonald, John (2010). Records Management and Data Management: Closing the Gap. *Records Management Journal* 20 (1): 53–60. <http://0-dx.doi.org.library.qnl.qa/10.1108/09565691011039825>.
- Ortiz-Repiso, Virginia, Jane Greenberg, & Javier Calzada-Prado (2018) A Cross-Institutional Analysis of Data-Related Curricula in Information Science Programmes: A Focused Look at the iSchools. *Journal of Information Science*, January, 1-17. <https://doi.org/10.1177/0165551517748149>.
- Shaon, Arif, Armin Straube, and Krishna Roy Chowdhury (2018). Setting up a National Research Data Curation Service for Qatar: Challenges and Opportunities. *International Journal of Digital Curation* 12 (2), 146–56. <https://doi.org/10.2218/ijdc.v12i2.515>.

## **FEIS Programme**



## Monday, September 10

- 08:30-09:00    **REGISTRATION**
- 09:00-09:15    **OPENING AND WELCOME**  
Francesco Marcelloni, Vice Rector for International Cooperation and Relations,  
University of Pisa  
Gian-Luigi Ferrari, Director of the Department of Computer Science, University of  
Pisa  
FEIS 2018 Chairs
- 09:15-10:00    **EINFOSE project**  
Tatjana Aparac-Jelušić and Kornelija Petr Balog (University of Osijek, Croatia)  
*Presentation of the EINFOSE project: challenges and outcomes.*
- 10:00-10:50    **INVITED TALK**  
Leif Kajberg (School of Library and Information Science, Denmark)  
*Has-been reflections from backstage: A still keen LIS observer's look at LIS education  
and Europe.*
- 10:50-11:20    **Coffee break**
- 11:20-11:50    Polona Vilar and Maja Žumer (University of Ljubljana, Slovenia)  
*Unified entry requirements for information science programmes? Do we know who  
we want to attract?*  
and  
*Presentation of the Policy recommendations for entry requirements and  
harmonization of learning outcomes.*
- 11:50-13:00    General discussion with the audience about requirements and EINFOSE policy  
recommendations
- 13:00-14:30    **Lunch**
- 14:30-16:00    **TOPIC: INFORMATION SCIENCE IN DIFFERENT COUNTRIES**  
(Parallel session, Room TBD)  
Valentina Brezhneva, Anna Gruzova, Albina Krymskaya and Linara Soloveva (Saint  
Peterburg State University of Culture, Russia)  
*LIS education in St. Petersburg State University of Culture: trends and traditions.*  
Birgit Hörzer and Christian Schlögl (University of Graz, Austria)  
*Library Education in Austria.*  
Katherine Howard (Flinders University, Adelaide, Australia)  
*Information science: An emerging generalist discipline in Australia?*  
Alena Katina (Saint Peterburg State University of Culture, Russia)  
*BiblioFest as an educational practice for starting professional career: Russian  
experience.*  
Rositsa Krasteva, Daniela Pavlova and Tsvetelina Nakova (State University of  
Library and Information Technologies, Sofia, Bulgaria)  
*Opportunities of continuing education in the implementation of Standards in the  
library-community centers of Bulgaria.*

Sanjica Faletar Tanacković, Jure Žilić (University of Osijek, Croatia), Serap Kurbanoglu and Yurdagul Unal (Hacettepe University, Turkey)  
*Student perceptions of LIS programs and profession: Study among undergraduates in Croatia and Turkey.*

14:30-16:00 **TOPIC: THEORETICAL ISSUES AND RESEARCH INTO EDUCATION**  
(Parallel session, Room TBD)

Mario Hibert (University of Sarajevo, Bosnia and Herzegovina)  
*Posthuman Condition – Epistemic Disruption: How Information (Science) Lost Its Body to Data-Based Knowledge.*

Cedrik Zellmann and Ina Blümel (German National Library of Science and Technology & University of Applied Sciences and Arts, Hannover, Germany)  
*Systems librarian, IT librarian, data librarian: Demand for graduates in Germany, Austria and Switzerland: a quantitative job advertisement analysis.*

Julia Göretz, Christine Meschede, Daniel Witte and Kathrin Knautz (Heinrich Heine University, Düsseldorf, Germany)  
*Enhancing e-Learning experiences in Higher Education: Implementation of QR codes in a gamified environment.*

Antonio Giovanni Schiavone (IEEE, Roma, Italy)  
*Is Moodle accessible? An Analysis through experiences in scientific literature and a case study.*

16:00-16:30 Coffee break

16:30-17:20 **INVITED TALK**

David Bawden (City, University London, UK)  
*"Never again the in the history of humanity": information education for onlife.*

17:20-18:00 **TWO MINUTES MADNESS**

Presentations of posters (2 minutes each)

18:00-20:00 **POSTER SESSION** (Wine and cheese)

Antje Michel, Constanze Langer and Frank Heidmann (Fachhochschule Potsdam, Germany)  
*Curriculum-Design NOT plain vanilla.*

Tsvetelina Nakova, Daniela Pavlova and Rositsa Krasteva (State University of Library Studies and Information Technologies, Sofia, Bulgaria)  
*Education in standardization at the University of Library Studies and Information Technologies – Sofia.*

Christine Meschede (Heinrich Heine University Düsseldorf, Germany), Virginia Ortiz-Repiso (University Carlos III, Madrid, Spain) and Marco Kluin (Heinrich Heine University, Düsseldorf, Germany)  
*Library and Information Science education in Europe: Building an interactive map.*

Alberto Petrucciani Sapienza (Sapienza University in Rome, Italy) and Simona Turbanti (University of Pisa, Italy)  
*The dissemination of research findings with social media: towards a further openness and closer bonds between scientists? The case of Italian LIS studies.*

Armin Straube (UCL Qatar, London, UK)  
*“Records management and data management quite literally mean the same thing.” –  
The Integration of Archives, Records and Data Management into the MLIS  
Programme at UCL Qatar.*

Boris Bosančić and Boris Badurina (University of Osijek, Croatia)  
*Which ICT competencies should be required by students enrolled at graduate  
programs in Information Science?*

Elena Giglia (University of Torino, Italy)  
*OPERAS: bringing the long tail of Social Sciences and Humanities into Open Science.*

Mariola Antczak and Zbigniew Gruszka (University of Łódź, Poland)  
*How to make new in age of competition? Creating new education offer in the field of  
Information Science in Poland on the example of the University of Łódź.*

## Tuesday, September 11

### 09:00-09:50 INVITED TALK

Gary Marchionini (School of Information and Library Science, University of North  
Carolina at Chapel Hill, USA)  
*Information Science Roles in Data Science.*

### 09:50-11:00 TOPIC: CHALLENGES

Matilde Fontanin (Sapienza University in Rome – University of Trieste, Italy)  
*Information professionals taking charge of their career: competencies and attitudes to  
sail safely on the sea of digital revolution.*

Primož Južnič (University of Ljubljana, Slovenia), Flavia Renon (Carleton University,  
Ottawa, Canada), and Tilen Heco (University of Ljubljana, Slovenia)  
*Towards building strong LIS education: Preliminary findings from an international  
environmental scan of LIS education, certification and professional identity  
(European focus).*

Melanie Siegel (Hochschule Darmstadt, Germany)  
*Information Science Education in Darmstadt*

Zinaida Manžuch and Edita Sėdaitytė (Faculty of Communication, Vilnius University,  
Lithuania)  
*Thriving at work: understanding how initiative librarians take opportunities and cope  
with challenges.*

### 11:00-11:30 Coffee break

### 11:30-13:00 PANEL

*In search of a balance among human, technology, and information dimensions in  
creating a new curriculum.*

Panel moderator: Javed Mostafa (University of North Carolina at Chapel Hill, and  
editor-in-chief of the Journal of the Association for Information Science &  
Technology – ASIS&T)

Panelists: Gary Marchionini (University of North Carolina at Chapel Hill, USA)  
Fidelia Ibekwe SanJuan (University of Aix-Marseille, France) David Bowden (City  
University, London, UK) Sanda Erdelez (Simmons College, USA) Tatjana Aparac-  
Jelušić (EINFOSE coordinator, University of Osijek, Croatia)

### 13:00-14:30 Lunch

14:30-15:20 **INVITED TALK**

Anna Maria Tamaro (DILL International Master Digital Library Learning, University of Parma, Italy)

*The Benefits and challenges of internationalization of LIS education: Cooperative efforts and joint courses experiences in Europe.*

15:20-16:45 **TOPIC: INTERNATIONALIZATION AND INTERNATIONAL COOPERATION**

Thomas Mandl (University of Hildesheim, Germany), Stefan Dreisiebner (University of Graz, Austria), Paul Libbrecht (DIPF, Germany), and Juan-Jose Boté (University of Barcelona, Spain)

*Challenges for International und Multilingual MOOCs: A case study for the ILO Information Literacy online learning service.*

Tor Arne Dahl (Oslo Metropolitan University, Norway), Mats Dahlström, Alen Doracic and Elena Macevičiūtė (University of Borås, Sweden)

*Scandinavian cooperation in teaching a joint Master's course on e-books.*

Folker Caroli (University of Hildesheim, Germany), Dowan Kim (Pai Chai University, South Korea), Sangwok Kim, Thomas Mandl (University of Hildesheim, Germany), Christian Schlögl (University of Graz, Austria), Dongback Seo (Chungbuk National University, South Korea) and Christa Womser-Hacker (University of Hildesheim, Germany)

*Multidisciplinarity and interculturality in higher education: The case of the Joint degree Master Programme Global Studies on Management and Information Science.*

Virginia Ortiz Repiso and Ana R. Pacios (University Carlos III of Madrid, Spain)  
*European trends in LIS Education, as represented in WoS: 2000–2017.*

16:45-17:15 **CLOSING REMARKS**

**Wednesday, September 12**

09:00-13:00 **WORKSHOP OF ASIS&T EUROPEAN CHAPTER**

13:00-14:30 **Lunch on your own**

14:30-17:30 **MEETING OF ASIS&T EUROPEAN CHAPTER**