The times they are a changin' - implementing a modern library and information science curriculum

Special session

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Keywords: library and information science education, information technology education, library and information science competencies, library and information science curriculum

Abstract

In the past decade, the consensus of what kind of competencies a graduate with a library and information science degree should have has started shifting. With the ongoing digitization of workflows and the creation of new online services, IT competencies have risen in demand.

3 years ago, the school of library and information management at Stuttgart Media University started with the process of overhauling their curriculum in response to this change. The process was part of a larger, department-wide effort to renew all curricula and prepare the students better for a workplace that demands adaptability, the ability to work in interdisciplinary teams and focuses more on project-oriented than regular tasks. On the department level, a decision was made to shift the content of the final two semesters from elective seminar- or lecture-based modules to project-based teaching. Projects will have a determined goal and are conducted together with external partners that need solutions to real-world problems. Project groups will be comprised of students from different schools and are managed and organized by the students themselves, with the professors more in an advisory and mediating role. Vonhof (2017) explains this department-wide process and its influence on the library and information management curriculum as a whole in more detail.

As part of the re-evaluation of all modules and topics in the curriculum, IT competencies were earmarked for a complete overhaul. Before, IT topics were consolidated into three modules: In the first semester the module “IT1”, focusing on very basic concepts, like hard- and software, GUI and command line and personal IT security. In the second semester followed “IT2” which focused on the relational data model and SQL and used MS Access as the main implementation. Finally, in the third semester “IT Management” gave a very broad, but not very deep overview on topics concerning library information systems, IT service management and digital library technologies like identifiers, authentication and digital preservation. Simon and Vonhof (2008) give an overview of the full curriculum. Our internal analysis showed that while students could follow the topics well and got to know many important concepts, they could not do very much with them. The new curriculum was designed to focus more on doing, thus enabling students to not only use common software products, but to adapt existing solutions to a specific problem and to create their own programs if necessary.

Again, the contents are divided into three modules during the first three semesters. All modules are taught in the flipped classroom style, with homework projects to be worked on in groups as well as material for individual study and experimentation. Classroom hours are used to discuss different approaches to solving the assigned problems, share ideas and reinforce important topics. “Information Systems 1: Programming” is designed to offer a low-barrier entry into programming. The graphical Snap! programming environment offers an intuitive interface and

1 https://snap.berkeley.edu/
can be used in any web browser. Students can focus on the important principles of programming languages first and need not worry about syntax or obscure command names. After the basics are understood and the limits of the web-based graphical system become apparent as the projects grow larger, students make the transition to the Python programming language. “Information Systems 2: Data” follows with a pragmatic approach to data storage and access. By reading and manipulating existing data from different sources students learn about formats and conventions while writing their own programs. In other assignments, students need to create an internal model for their data and then map it to either files or databases for storage. Here, both relational databases and document-based databases are introduced. Finally, “Information systems 3: Web” gives an overview of web technologies like HTML, CSS and JavaScript as well as an introduction to the http protocol. Students program their own small web server in Python and serve data from files or databases in dynamic web pages. In group projects they can deepen their understanding by either designing or programming a web service of their own choice. These three modules provide a very solid foundation to build on in further IT-focused elective modules or the projects of the last two semesters.

This new curriculum has been in place for two years now and the results are positive. The low barrier of entry proved to be very beneficial, as students quickly had a sense of achievement and felt motivated to continue on. While the flipped classroom concept was considered taxing by the students, as they had to continually keep up with assignments and small projects they liked the fact that they could learn much in their individual pace and could choose from different learning materials: Some students used instructive videos from Youtube, while others preferred more traditional materials like books or online text resources. All in all, most students considered the workload to be quite high, especially compared to other modules. A small but very vocal group had more fundamental complaints about the requirement to learn programming, as they considered it a completely useless competency for their future workplace. On the other hand, many students managed to overcome their initial skepticism and did rather well on the assignments. Group projects from the “Information Systems 3: Web” module regularly exceeded our expectations and showed that the students can make good use of their newly learned skills. We also noticed a significant uptake in the more advanced IT-centered elective classes.

In 2018, the curriculum was renewed again. The triggers for this change were structural issues, as the staff of the school had been reduced from 12 to 9 professors in the past five years as well as a desire to further streamline the curriculum and make it more appropriate for the ever diverging skillsets that the information service sector requires. Thus, the program now offers a curriculum with a choice of two focus areas: After the second semester, students chose between the “Library, Culture and Education Management” and the “Data and Information Management” focus areas. We hope that this distinction makes the curriculum both easier to market to prospective applicants as well as helps them understand that the workplace has very differentiated needs and required skillsets.

During the first two semesters, students attend the modules “Introduction to IT and Programming” and “Web Technologies” together. The first module extends the former programming class to include a more thorough practical training in a diverse set of software, from office programs to A/V manipulation and creation. It is also now a 10 ECTS module, to accommodate the higher workload. The latter module is more or less identical to the web class before. For the “Data and Information Management” focus students, the next classes are “Data and Data Analysis” which corresponds to the former data class and two additional required modules: “Web Programming” which will follow up on the web class with topics like design and creation of more complex database-driven web applications as well as RESTful services and “Internet of Things” applications. “Metadata Management” will bridge the topics from our cataloging class and the data class to enable students to integrate bibliographic datasets from different sources in different formats. It will include topics like automatic classification or data enrichment using open data.
This curriculum starts in October of 2018. We are hopeful that it is a good fit to both the requirements of the workplace as well as the diverging interests of our applicants.

References