iSchool Best Practices – information and proposal form

Please fill in the information below and upload the proposal form (in PDF format) at the secure submission website for consideration for presentation at the *iSchool Best Practices Track* at the 2018 iConference in Sheffield, UK. Please keep to the advised length or the proposal will not be considered for review.

Please consider also the key review criteria for selection:

- Observable results
- Grade of innovation
- Pedagogical dimension
- Degree of knowledge transfer

Questions about the *iSchool Best Practices track* should be directed to the chairs of the track:

iSchool Best Practices Chairs

- Ann-Sofie Axelsson, University of Borås, Sweden
- António Lucas Soares, University of Porto, Portugal

For general questions about the iConference, please contact iConference Coordinator Clark Heideger.

Name(s) of Author(s): Richard Arias Hernandez, Luanne Freund University of British Columbia
Title of submission: Raising the baseline: self-directed technology skills assessment and learning
Area (please check the applicable area description with an x): Curriculum X Teaching Student experience

Research
Administrative management
Other (please enter the applicable keyword):

Submission abstract (max 150 words):

Addressing the disparate information technology literacy levels of incoming students, while promoting self-directed, life-long learning predispositions among incoming students of our iSchool at the University of British Columbia (UBC) prompted us to design and implement the Technology in the Core Program. In this presentation, we introduce the rationale and motivation for this program, its current characteristics, its evaluation framework, and current reception by students. We consider that the structure and evaluation framework we have developed can be adopted by other iSchools interested in establishing a minimum baseline of information technology literacy skills and knowledge while fostering self-directed and life-long learning attitudes and behaviours among their students and programs.

Submission description (max 2,350 words):

We present our Technology in the Core Program, an innovative approach implemented in the University of British Columbia (UBC) iSchool to address the challenges associated with student technological competencies. The portal includes a suite of technology tutorials offered together with a self-administered technology competency assessment and it is hosted on an Edx edge platform. Students registered in our master's programs are invited to do the self-assessment prior to starting their program to determine their information technology literacy level, and then to make use of the tutorials to reach a minimum baseline level before or within their first term of studies. Students' individual work with the Tech Portal is supplemented with a series of optional introductory face to face, workshops, taught by other graduate students.

The primary motivation for the Tech Portal is to address the wide ranging levels of technology competencies within our incoming student cohorts, that include students with no prior technology education or training to students with computer science degrees or a considerable number of years of relevant IT-related work experience. This variation had been growing over time, as the school has transitioned from a focus on professional education for librarians and archivists to an iSchool with a broader mandate. As a result, addressing technology competencies through a required "introduction to information technology" course was no longer effective. A secondary motivation for the Tech Portal was to prime students to engage in self-directed learning, a competency that is a necessary component of digital literacy and life-long learning and is a skill that is clearly in demand in todays' workforce (Information and Communications Technology Council, Canada, 2016). This goal reinforced the decision to move away from a required 3 credit course in information technology to a self-directed online learning environment.

Technology Competencies

The UBC's iSchool's competencies have a strong emphasis on information and communication technology. Three competencies explicitly state the ability of students to (1) design, provide, and assess information resources and systems; (2) their ability to apply knowledge of information technologies and resources to real world situations from a user-centred perspective; and to (3) use tools to communicate effectively (SLAIS, 2016). These competencies are aligned with professional competencies, including the American Library Association's Core Competency #4 -technological knowledge and skills (ALA, 2009) and the Special Library Association's competencies #2 and #4 that also emphasize information and knowledge systems and technologies as well as information and data retrieval and analysis (SLA, 2016). Common to all of these is the need to develop among students minimum levels of information technology literacy to identify and respond to the

information needs of communities and organizations. Students are required to have working knowledge and skills to design and use information technologies and systems, identify technology trends and relevant emerging technologies, assess information technologies in terms of their appropriateness to information needs, cost/benefits, and impact on specific community contexts, and be able to engage in life-long, self-learning, professional development to be up to date with new and emerging information and knowledge systems and technologies (ALA, 2009; SLA, 2016).

For years, we had addressed the need to secure a minimum baseline of information technology skills and knowledge among our students through reliance on LIBR 500: Foundations of Information Technology. LIBR 500 was a required course taken by students during their first semester, which taught the basics of interacting with operating systems, presentation software, word processors, spreadsheets, HMTL/CSS for web design, and operating knowledge of Microsoft Access. However, in time the school evolved from being solely dedicated to prepare students to librarian and archival careers to become an iSchool that aimed to prepare students for a broader range of careers and professions, including data scientist, user-experience designer, and information systems designers. As a consequence, a broader range of students with highly diverging technology literacy skills joined our programs. Students with computer science backgrounds, for example, found LIBR 500 to be far too basic. On the other hand, students with limited information technology knowledge found it uncomfortable to be paired with and compared to students who were proficient at programming and whose knowledge and skills were clearly beyond the scope of this class.

This disparity in information technology literacy skills and knowledge was our motivation to start the Technology in the Core Program in 2015. The school's technology committee conducted a scan of information technology literacy initiatives and practices at ALA accredited schools and iSchools. Among 20 MLIS programs surveyed in May 2015, 11 programs required all incoming students to enroll in an introductory information technology (IT) course, some of which waived the requirement based on previous experience/knowledge or success on an IT test. Two others set a baseline for information technology literacy skills and knowledge for admission to the program. Seven programs had no clear or explicit ways of addressing basic information literacy during the core of their programs nor had any explicit technology-related admission requirement. In summary the approaches followed by the surveyed schools followed four methods:

1. Require all incoming students to enroll in an introductory IT course during their core
2. Require all students to pass an IT test, demonstrate previous IT knowledge or experience, or enroll in an introductory IT course
3. Require all incoming students to have acquired a list of IT skills before starting the program. Online resources may be provided (e.g. Lynda.com).
4. No explicit IT requirements

Institutions that were members of the iSchool caucus primarily used the first or second methods. Based on this scan, we decided upon a blended approach that includes a self-administered IT test, self-learning modules, and providing additional face-to-face workshops for students who may benefit from this pedagogical format more than from solely online instruction.

Technology in the Core

We started our Technology in the Core Program in Summer 2015 by surveying all instructors at our iSchool on the minimum information technology skills and knowledge that MLIS students needed to acquire during their core (first semester of the program) before taking any more advanced courses and electives, making sure that these skills and competencies were also mapped to the program's technology competencies.

Based on this set of minimum skills and knowledge, we designed an information technology literacy

test that indicates students which of these skills and knowledge they have and which of these they need to acquire. The test is based on a set of specific tasks and challenges that students need to complete to demonstrate they have acquired and can apply knowledge. If a student cannot complete a task, then the student is directed to a series of online modules to learn the skills and knowledge and then repeat the task until it is completed. We developed a series of online modules using the online learning platform EdX edge. The test and the designed modules covered the topics, knowledge, and skills captured in our internal survey. Among them: Productivity Software (i.e. uses of word processor, spreadsheets, and presentation software), Basics of Web Design (e.g. HTML5 and CSS3), Connectivity and Collaborative Software (e.g. Google Docs, Wikis, VPN, FTP, etc.), and Basics of Databases (e.g. designing and querying a simple database in MS ACCESS).

For those students interested in supplementing their online learning and for those who learn more effectively through step-by-step guided instruction and collocated learning, we complemented the online components of Technology in the Core, with three, 1 hour workshops followed by 1-hour personalized consultations with a technology facilitator. The three selected workshop teach some of the most difficult skills and knowledge to be acquired, namely: Basics of Web Design –one workshop on HTML followed by one workshop on CSS- and Basics of Databases –one workshop on designing and querying databases in MS ACCESS. These three workshops are offered in two cycles during the semester so that if a student misses one workshop, she will have another chance during her first semester to attend it, if so she wishes.

The completion of the test, the review of the online modules, and attendance to the workshops are not mandatory, but they are strongly recommended. This point is reinforced by clarifying to students that advanced courses assume that students have basic information technology literacy and that it is their responsibility to ensure they are prepared. Students receive instructions and invitations to start this program one month before starting classes and are recommended to complete it by the end of their first term of studies.

With the basic design of the Technology in the Core Program in place, LIBR 500 was discontinued and the first version of the program was rolled out in the fall of 2015. Since then approximately 200 students in two master's programs have gone through this program that runs every Fall and Spring. In the fall of 2016, we started developing a framework and data collection methods to evaluate the program and direct ongoing improvements. A pilot of the evaluation framework was initiated during Spring 2017 and is ongoing.

Assessment and Outcomes

We currently have in place an evaluation model that has been designed to (1) evaluate the influence of Technology in the Core (TIC) on students' performance; (2) analyze other factors that may influence students' performance in Technology in the Core; and (3) to collect data on students' perceptions of Technology in the Core (See Appendix 1). The model targets performance components such as participation in on-line and off-line components, achievements in test, perceptions of quality, and the influence of some demographic and academic variables. For each of these dimensions of evaluation we proposed indicators and variables that are currently being captured by an online survey that students complete at the beginning and at the end of their first term at the iSchool. Additional data such as enrollment, coverage of the modules, completion of the test, and engagement is also captured by using the EdX logs and analytic reports.

A full cycle of assessment has not yet occurred; however, this will be complete early in 2018. We will be able to report on details of participation, achievements and perceptions of the program in detail at the 2018 iConference. With respect to the role of the Technology in the Core program within the school, we have already seen a number of positive outcomes and indicators of success:

- Strong uptake by students through use of the self-test and learning modules and a steadily

growing number of participants in the workshops.

- The workshops are taught by fellow graduate students using a peer-instruction model that helps to break down barriers to technology use and encourage collaborative teaching and learning.
- As a result of the new program, we have been able to introduce new technology-focused electives (python programming, data analytics) that build upon the basics covered in the Tech Portal and provide greater depth in our technology offerings.
- Our approach has been positively received by information professionals and employers of our graduates for its emphasis on self-guided acquisition of technology skills, something they value in their organizations.
- Removing the introductory technology course from the first term of studies in the MLIS program made room for a course in methods of research and assessment, which has raised the level of student research throughout the program.
- Students' perceptions of their own technology competencies, collected through periodic surveys, have stayed constant, indicating that the Tech Portal is an effective substitute for the introductory technology course.

Advantages of this approach to enabling technology learning include its flexibility, extensibility and low cost. Following the evaluation currently underway, we hope to begin offering it as an open access resource for use by our alumni and community members to gain or refresh skills.

References

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