Embedding *immersive* informatics research data management within the iSchool curriculum: a laboratory-based action research Case Study.

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Abstract

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Introduction and Focus

Academic libraries are repositioning, restructuring and reskilling staff to take on new roles in research data management (Lyon 2012, Webster 2012). These roles embrace elements of data stewardship, data management, data science and data visualization (Lyon & Takeda 2012). iSchools and Library Schools are introducing data curation into the curriculum, to prepare students for these roles. This paper presents a Case Study where an "immersive" approach to teaching research data management (RDM) constructs, is embedded within a Doctoral Seminar Program and an MLIS Special Topic at the University of Pittsburgh iSchool.

The methodology builds on the initial immersive informatics pilot study, where a novel RDM training course was developed and delivered in a partnership with the University of Melbourne (Shadbolt et al, 2014). The *immersive* informatics concept is based on the placement of students within a research environment i.e. faculty science laboratory, during the course. The placement facilitates a bilateral exchange of RDM experience, questions and knowledge, between the LIS student and the practicing research scientist.

The paper also provides reflections on the relevance of this education for future service development, within the Carnegie Mellon University Libraries.

Methodology

The paper focuses on the collaboration, preparation and implementation of the immersive placements in the University of Pittsburgh Departments of Public Health and Medicine, and specifically within the Renal-Electrolyte and Epidemiology laboratories. Student pairs were allocated to a researcher (doctoral student, instructor, post-doctoral researcher). The lab settings provided each student pair access to live data-sets, laboratory notebooks, sophisticated instrumentation and observation of day-to-day research workflows.

Feedback and analysis from the participating students and from the faculty research team, was collected through a focus group and semi-structured questionnaire. Students also had the opportunity to draw on their laboratory placement experience in subsequent coursework assignments.

Results

The development of the RDM course will be presented, noting the fusion of theoretical constructs with disciplinary data practice and institutional exemplars. Course participants include iSchool PhD students and practising librarians from University of Pittsburgh and Carnegie Mellon University Libraries.

The focus group and questionnaire feedback provided qualitative evidence of the broad scope of student-researcher conversations, the lessons learnt about the data challenges faced by researchers, the complexity of laboratory workflows, data sharing practices and culture. Participants identified ways to enhance the experience from each perspective.

Contribution to Body of Knowledge

Key outcomes:

- Critical importance of <u>extending</u> library-faculty partnerships by taking library and informatics expertise and knowledge, into the laboratory, to work alongside practising researchers

- Advantage of <u>first-hand</u> understanding of the laboratory setting, bench-based workflows, instrumentation outputs and day-to-day data challenges faced by researchers (Ferguson 2012)
- How faculty researchers can learn from librarians, gaining guidance on software, methodologies and data-handling
- How the knowledge can empower LIS students and library staff to adopt new RDM roles
- Potential benefits for library senior managers when considering how best to structure their organization to deliver research data services
- Wider applicability of the immersive approach within iSchool courses.

In conclusion, we will briefly report on progress with the research follow-up study.

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