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Digital badges

Preparing subject librarians for an evolving research environment

An architect analyzes landscapes using geospatial information, while an engineer layers extant public health data onto primary survey data to develop a new predictive algorithm, a social scientist conducts empirical research on the entire corpus of verdicts made by the U.S. Supreme Court, and a humanist maps and creates electronic 3-D models of Shakespearean England. Though seemingly disparate, what these examples have in common is the management of large amounts of data and the use of geographic information systems (GIS). Increasingly, liaisons find themselves in the position of supporting these digital methods of analysis or information, and must be equipped with the relevant skills.

Background

The subject librarian, or liaison, has served as a curator of collections and an expert of domain-specific information. They understand their researchers' scholarship and methods, which traditionally meant that the librarian's practice focused on collection management and the handling of print collections.[1] However, research methods and access to information have significantly changed in the last few years.[2] Given the liaisons' established relationship with faculty, they have the potential to apply their domain expertise to the growing area of data and GIS services, but training is required to build confidence in these service points.

Digital badging is a growing trend in continuing education, training, and professional development. As a record of achievement, the badge serves as a nontraditional credential for interest-based and project-based learning on a variety of topics. Unlike traditional certificate programs, badging has been credited for its openness and motivational potential. Thus, a well-designed program can help students chart their own path of learning and move toward expertise in a given topic.[3, 4]

At its essence, a successful badge program creates a worthwhile experience to the earner. It is suggested that users who form affinity groups around topics are often most fulfilled.[5]

However, concerns exist around badging. Critics feel badges offer a limited view of learning and promote superficial motivation, meaning that earning the badge becomes more important than the learning. Whether employers place value on badge credentials is currently unknown. To achieve buy-in, methods, assessment, credentials, and documentation must be produced. A well-designed, high-quality badge program must be accompanied by documentation that includes a description of the criteria for earning the badge and indicate by whom it was given.[6] Documentation allows consumers to see the program and the badged librarian's credibility.

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With the value of badging in mind, the GIS and data librarians at Washington University in St. Louis (WUSTL) developed and implemented a digital badge-learning program. The program is aimed at equipping subject librarians with the skills necessary to assist their researchers in writing data management plans and using spatial thinking and GIS as research tools.

Badge framework

The first offering of the badge program focused on data management planning (DMP) and Geographic Information Systems (GIS) and took place over four afternoons in the summer 2014. Each afternoon session lasted approximately three hours, with one-and-a- half hours dedicated to the data management services track and one-and-a-half hours dedicated to GIS skills track. A capstone project was completed over the period of a weekend. The last session was dedicated to project demonstrations and in-depth discussions and applications of the concepts learned throughout the program. Attendance and participation was optional, but individuals who attended each session and completed the capstone project were awarded a digital badge. Librarians could choose to attend one or both of the badge tracks.

Examples of badges from the WUSTL program.

DMP Skill Building Sessions

Session One: At the start of the first session, each participant chose a project description, research abstract, or grant proposal from which to work from through the duration of the program. An overview of data management plans was provided, which included a general breakdown of the components that comprise a data management plan. Examples of the "roles and responsibilities" and "data description" sections were analyzed and compared with the written requirements provided by the grant-funding agency. Using the example grant proposal as their guide, participants were then asked to write text addressing these components.

Session Two: This session focused on what type of information faculty should include in the "metadata standards" and "policies for access, sharing, reuse" sections of the data management plan. Librarians researched relevant metadata standards that would be applicable to their example grant proposal. They were then asked to map the core elements of the standard and draft text on the best practices for metadata for the DMP.

When discussing the "policies for access, sharing, reuse" section, data ownership and the complexities of data rights was a strong driver of conversation. Participants were asked to analyze the funding agency requirements to determine to what extent sharing, embargoes, and policies of access were required.

Session Three: The final two components of the DMP were covered in this session, "plans for preservation" and "budget." After a general discussion about best practices for digital preservation, participants used online tools such as Databib.org and re3data.org to search for and evaluate discipline repositories. It was stressed that many of the digital preservation best practices, discipline-specific metadata standards, and costs should be strongly scrutinized before making repository recommendations to faculty. In the event that a relevant and trusted discipline repository was unavailable, librarians were encouraged to assist faculty in depositing data in to the WUSTL institutional repository, OpenScholarship.

The "budget" section discussion included an overview of acceptable costs based upon funding agency (including hardware, software, personnel, and archive fees) and an overview of how best to estimate expenses using online tools and cost models in use elsewhere.

Capstone: Participants had two options with which to complete the capstone. The first option was to choose a funding agency and draft a template customized with WUSTL-specific resources. The second was to evaluate a faculty data management plan or draft a complete data management plan based upon a project description.

Session Four: This session allowed librarians the opportunity to share their capstone projects and discuss any challenges they faced.

GIS Skill Building Sessions

GIS skills were divided in such a way to attempt to scaffold the learner. Scaffolding introduces a topic step-by-step, supporting the learner to master one step and then building upon that step to achieve proficiency. The starting point was to explore why and when to use spatial thinking, develop a project, and then lead into how to use GIS to accomplish project goals. The objective was to give librarians experience in building a project together so they could feel more prepared in talking to faculty and students who want to employ GIS.

Session One: The program began with an introduction to spatial thinking, which emphasizes approaching problems through space and relationships of objects (physical or abstract) within it. Researchers can use spatial thinking to describe or analyze the relationship, to infer evolution or predict change. The end goal was to build spatial thinking literacy, which includes data assessment, reasoning, and evaluation. Participants looked at problems using GIS analysis and visualization to explore how different disciplines would interpret the data and what questions may arise.

Session Two: The whole group chose one perspective from which to work with the data. Together, participants brainstormed associated questions and what feature data might be useful to work on the problem. Using GIS software and found data, the group created a basic, descriptive map of our research area. Specific focus was on the former Cabrini Green Housing Project area in St. Louis. Participants mapped the area using georeferenced aerial images and both recent and historical data.

Session Three: Using GIS software, participants began to analyze relationships of objects and how they fit together within the problem. Questions, such as how many schools were within walking distance and where were police stations in relation to the buildings, were explored and we considered what inferences might be made. The group also discussed adding public transit and food centers. Participants asked further questions and made predictions.

Capstone: Using a provided template, participants were asked to sketch out a spatial problem in a faculty member's work to help them begin a GIS project.

Session Four: The group explored presentation possibilities to best tell the project's story. The advantages of both web and print deliveries were discussed (e.g., web maps are dynamic/interactive and print maps deliver a specific, static message) for the final product. Participants reviewed answers to prompts on the provided template, which they were asked to use to help faculty get started. The group revised the template in real time to improve usability.

Results

In total, nine badges were awarded to professionals in the organization. Two individuals completed both tracks and the remainder completed one track or the other. A few days following the end of the badge program, an assessment was sent to individuals who attended any of the sessions, even if they did not complete the entire badge program. The assessment evaluated student learning as well as provided feedback on instructor teaching methods. The feedback on instruc-

tor teaching methods was predominately positive, though many felt there was too much content covered in the sessions and that instructors needed to slow down when covering complex material.

Moving forward

To develop a program that incorporates the needs and interests of librarians and paraprofessionals, an internal survey was conducted. Participants were asked to indicate training needs in both technical and soft skills. To assess whether digital badges are appropriate incentives or rewards, the survey asked participants to rate their interest in acquiring a digital badge.

Survey results demonstrate continued and significant interest in training for data management, spatial analysis, visualization, and other data and GIS-related skills. Participants also showed strong interest in topics of collections reports, copyright, promotional materials creation, effective research support materials creation, digital collections, time management, and team dynamics. There was also interest in identifying and developing existing professional strengths. However, interest in obtaining a digital badge was low: 45% of respondents were definitely not interested, while 33% were unaware of digital badges, and only 9% were positive about this type of certification.

DMP and GIS training will run again in spring of 2016 with a number of changes to incorporate participant feedback and additional, in-depth skill development. Training in other areas will be developed and incorporated into a larger training program. The ongoing use of badges to demonstrate accomplishment is in question and will require further discussion.

Notes

1. University Leadership Council, *Redefining the Academic Library: Managing the Migration to Digital Information Services,* Educational Advisory Board Company, 2011.

2. Tony Hey, *The Fourth Paradigm: Data-Intensive Scientific Discovery,* Microsoft Research, 2009.

3. Andi Rehak and Dan Hickey, 2013. "Digital Badge Design Principles for Recognizing Learning," HASTAC, 2013, www.hastac.org/blogs/andirehak/2013/05/20/digital-badge-design-principles-recognizing-learning.

4. Carla Cassilli and Erin Knight, "7 things you should know about badges," Educause, 2012, www.educause.edu/library/resources/7-things-you-should-know-about-badges.

5. Scott Nicholson, "Because Play Matters - Blog - Meaningful 'Badgification,'" 2012, http://becauseplaymatters.squarespace.com/blog/2012/3/1/meaningful-badgification.html.

6. Jonathan Finkelstein and Erin Knight, "The Potential and Value of Using Digital Badges for Adult Learners," American Institutes for Research, 2013, http://lincs.ed.gov/publications/pdf/AIR_Digital_Badge_Report_508.pdf.

Learn more about digital badges

Interested in learning more about digital badges? ACRL has several resources for additional information.

Connect with colleagues through the ACRL Digital Badges Interest Group. The group provides a forum for discussion and the exchange of ideas related to digital badges, particularly as they relate to libraries (of all types) and information literacy.

Read more about digital badges, including background information and applications, in "Keeping Up With . . . Digital Badges for Instruction" by Nicole Pagowsky. "Keeping Up With . . . Digital Badges for Instruction" is available on the ACRL website at www.ala.org/acrl/publications/keeping_up_with/digital_badges.