

Building Capacity for Library Participation in Open Civic Data Work with the Civic Data Education Series

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ABSTRACT

This paper reports on the development and first phase evaluation of the Civic Data Education Series, a modular instructional series that builds civic data literacy and supports library workers' participation in their civic data ecosystems. The series, funded by the IMLS, is intended to be integrated into LIS coursework and used for professional development training in libraries. The modules encourage information professionals to work alongside community members as they use civic data to uncover structures of oppression, tell their own stories, and address information needs. Through the series and its integration in LIS courses and library training, we aim to prepare library workers to be data intermediaries who contribute to equitable civic data creation, stewardship, and sharing.

ALISE RESEARCH TAXONOMY TOPICS

education of information professionals; community engagement; community and civic organizations; data curation.

AUTHOR KEYWORDS

open data; civic data literacy; LIS education.

INTRODUCTION

This project focuses on open civic data, or publicly available datasets that provide insight into our communities, and associated data literacies. We build on work that recognizes that libraries, as trusted information intermediaries, are well-positioned to be conduits to open civic data (Civic Switchboard Project Team, 2019; Twidale et al., 2013; Robinson & Mather, 2017; Enis, 2020; Palmer et al., 2021). Through the development of the Civic Data Literacy Series, we

aim to prepare Library and Information Science (LIS) students and current library workers to be advocates for and intermediaries to open civic data within their communities. In doing so, library workers can support community members as they use civic data to tell their own stories and address information needs.

To prepare library workers and other information professionals for these roles, we have created a modular Civic Data Education Series premised on the belief that strong partnerships between libraries and other local civic data intermediaries better serve data users, further democratize data, and support equitable access to information. This paper reports on our instructional design analysis to prioritize areas of need, identify guiding questions and learning outcomes, and develop modules to address these foci. We also report on the findings from the first evaluation phase of the modules, conducted with MLIS students.

BACKGROUND

Open civic data initiatives have been steadily growing in number and support, with governments and community organizations increasingly making civic data available through data portals. However, while the availability of civic data has grown, not all community members know how to access this data or feel equipped to leverage it (Yoon & Copeland, 2020). Twidale et al. (2013) argue that the growth of available data calls for a simultaneous growth of the public's data skills, with information professionals playing "critical" roles "as teachers, facilitators and intermediaries in data literacy interactions" (p. 247).

In libraries, there is indeed a growing community of practice around open civic data that seeks to empower citizens to leverage their talents and knowledge to contribute to equitable data creation and use. However, through the Civic Switchboard Project and in research by our project team, we have learned that professionals both entering and currently in the library field do not feel sufficiently equipped to join this community of practice.

In winter 2020-2021, we conducted a survey of 91 library workers on civic data literacy and existing civic data work in libraries. A majority of library respondents believed that civic data literacy competencies would be of value to their work and, in turn, to their patrons. Moreover, many respondents indicated they wanted to move into more community-engaged roles that would support patrons to leverage open civic data, but that they were not currently as active in these efforts as they desired. The survey found that "there is an evident gap between the current comfort, skills, and roles and the desired directions for civic data work, and this presents an opportunity for on-the-job upskilling and graduate-level education" (Chaar-Pérez et al., 2021).

This project focuses on building the library workforce's civic data literacy, or "the ability to collect, manage, evaluate, and apply [civic] data, in a critical manner" and, in turn, the civic data literacy of community members (Ridsdale et al., 2015, p. 2). We aim to close a capacity gap that impedes library workers from engaging with civic data. Building on the survey data on existing civic data literacy and guided by a set of civic data intermediary roles for libraries that the Civic Switchboard project identified through case studies, we have created a series of instructional modules designed to be integrated into LIS curriculum and professional

development opportunities for libraries. These modules support libraries in serving as “civic data intermediaries,” or organizations that help people find and use civic data to improve their communities.

DESIGN

Instructional design is the systematic process of creating learning materials and learning environments. While there are many instructional design models for this process, most take the general framework of the ADDIE model. ADDIE stands for analysis, design, develop, implement, and evaluate, but is an iterative cycle. This is the general process for the development of our instructional materials.

However, we also worked to ensure the voices of our learners are heard and that we are implementing strategies that recognize the importance of community and social justice in working with open civic data. Here, we are inspired by critical instructional design, which “prioritizes collaboration, participation, social justice, learner agency, emergence, narrative, and relationships of nurture between students, and between teachers and students” (Morris, 2017). Thus, while we have identified learning outcomes and competencies that we believe will speak to our learners, we have also integrated storytelling and examples that highlight social justice in open civic data.

Instructional Design Analysis

The first step of any instructional design project is to analyze the current situation and understanding related to the instructional content. For our project, the findings from the survey of library workers helped us to prioritize areas of need. In particular, the respondents’ strong desire to foster patrons’ civic data literacy and to serve as advocates for responsible, ethical, and accessible civic data helped to focus the content of the instructional materials (Chaar-Pérez et al., 2021). Additionally, interviews with LIS educators provided insight into the instructional needs of students and where civic data literacy competencies may be integrated into LIS curriculum.

After collecting this data, we determined our most important project goals and developed the following: Information professionals will work alongside their communities to use civic data to uncover structures of oppression and fight for justice and would empower community members to leverage their talents and knowledge to contribute to equitable civic data creation. Information professionals can learn to steward and share data and can play data intermediary roles that support their broader civic data ecosystem and complement the work that other intermediaries are playing in their communities. We believe that preparing information professionals to develop their patrons’ civic data literacy is a means to a greater end of using and creating civic data to make a difference in their lives and their communities.

After establishing these important project goals, we also identified the guiding questions that would help to direct the focus of the instruction. These included: How can our communities use civic data to tell their own stories? How can we prepare learners for roles as civic data officers or in civic data programs? How can we prepare learners to be advocates for open civic

data within their organizations? These questions ensured we were considering the varied roles that information professionals may take as they worked with open civic data.

Next, we identified the learning objectives we wanted to address. These learning objectives developed over time as we reflected on the results from the survey and interviews and sought input from civic data officers and other experts. We identified two major learning objectives: To support information professionals to be civic data intermediaries and advocates; and to prepare information professionals to support community engagement with civic data.

After this step, we began breaking down the broader learning objectives into more focused learning outcomes as we began considering the content covered in each section. Through an iterative process of considering the content and revisiting learning outcomes, we identified five major sections for the materials:

1. Introducing Civic Data
2. Civic Data Ecosystems, Partnerships, and Community Needs
3. Preparing Libraries for Sharing their Data
4. Community Engagement through Civic Data
5. Data Science and Civic Data Work

Modular Structure

Because we wanted to create instruction that was flexible and could meet a variety of learner needs, we used a modular structure. Each section contains 3-6 modules, each of which covers a major learning outcome. For each module, we include guiding questions, a script for the lesson, and slides for the lesson. Modules also include 6-15-minute-long recordings of the instructional content (with and without captions) and instructional activities. Prior to the evaluation of the modules, some but not all modules included an “Additional Resources” section with relevant resources and readings. The instructional content can be integrated into a course, facilitated live, or completed by an individual at their own pace.

Technical Decisions

For recording the videos, we used Camtasia, a screen recording and video editing software suite that features caption creation and editing for both visual and audio elements. We published these materials as files and embedded content through the GitBook platform. To support discoverability, the Civic Switchboard GitHub Pages website links to the instructional content. We selected GitBook and GitHub to align with Civic Switchboard Project’s already published materials and because Markdown, the plain text formatting syntax used by GitBook and GitHub Pages, accommodates sustainability and versatility across programs. We made document and presentation files available in both Microsoft Office formats and the PDF format. Because of these decisions and the Creative Commons Attribution license assigned to the modules, anyone with Internet access can interact with and reuse the materials.

Figure 1
Example Module in GitBook

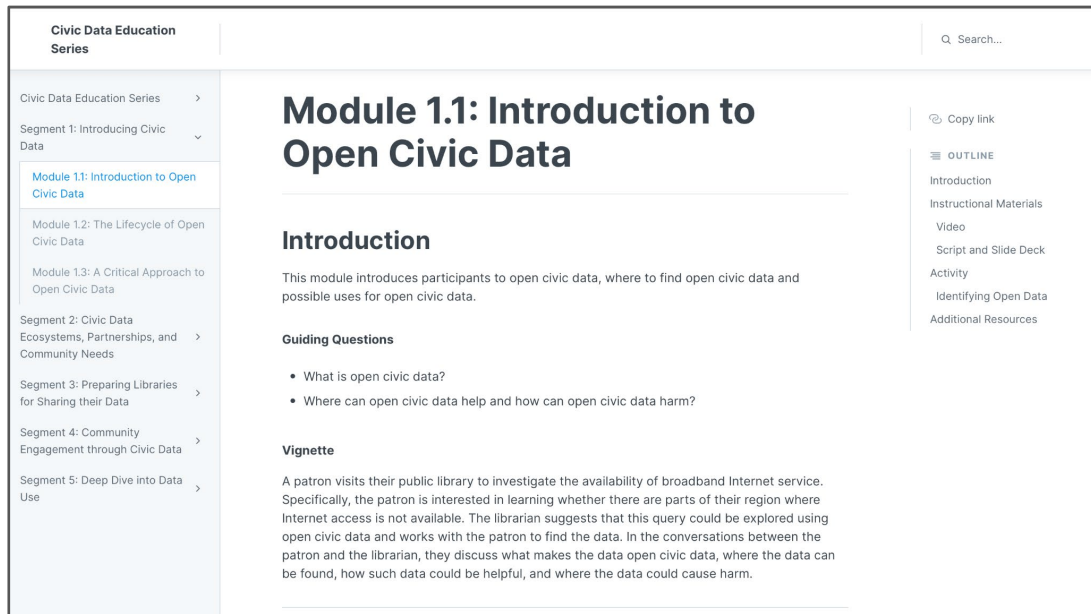
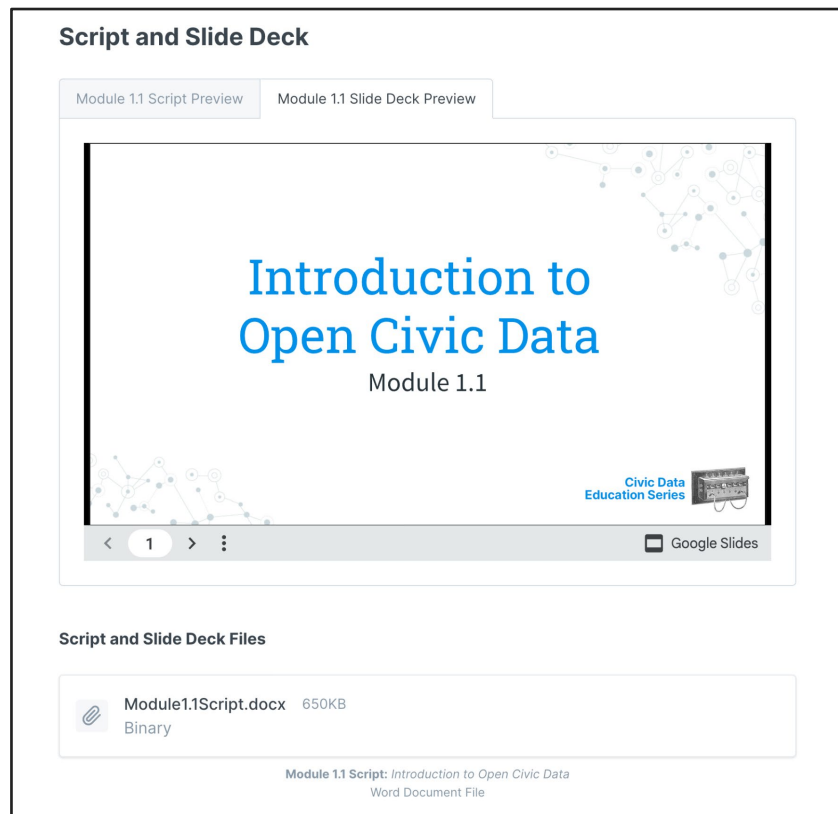


Figure 2
Example of Embedded Content and Files in GitBook



EVALUATION

Methodology

The ADDIE instructional design model recognizes the importance of evaluation and iteration of instructional materials. In alignment with this model, we designed a three-phase evaluation process that seeks feedback from our core intended audiences for the education series: MLIS students, MLIS educators, and library workers. In our first phase of evaluation, reported here, we obtained IRB approval to involve MLIS students at the University of Pittsburgh to evaluate the modules. Recruited through online course announcement boards, a total of ten students with at least one term of their MLIS completed participated in the evaluation.

We assigned each student reviewer three modules to review asynchronously, sharing the links to the modules via email. To ensure that all students acquired foundational knowledge of open civic data, we assigned all students our introductory module on open civic data as one of their three modules to review.

Along with the links to their assigned modules, we shared a Qualtrics questionnaire with our reviewers and asked them to complete the questionnaire after reviewing each module. The questionnaire invited qualitative feedback on the clarity, format, and applicability of the modules. We also asked student reviewers to indicate, through a Likert scale, their prior familiarity with key concepts introduced in the modules. Each module was assigned to two reviewers.

Findings of Evaluation

Student Familiarity: In order to contextualize student responses, we asked student reviewers to rate their familiarity with concepts that carried across the modules: open civic data and data intermediaries. On a scale from 1 to 5, with 1 being “not at familiar” and 5 being “extremely familiar,” students reported a mean of 2.55 familiarity with the concept of “open civic data”, and 1.73 familiarity with the concept of “data intermediaries.” There is local context that helps us to understand the moderate familiarity with the concept of “open civic data;” MLIS students at the University of Pittsburgh often work with open civic data as part of a core course and a small number of reviewers had taken an elective LIS course in government information and data.

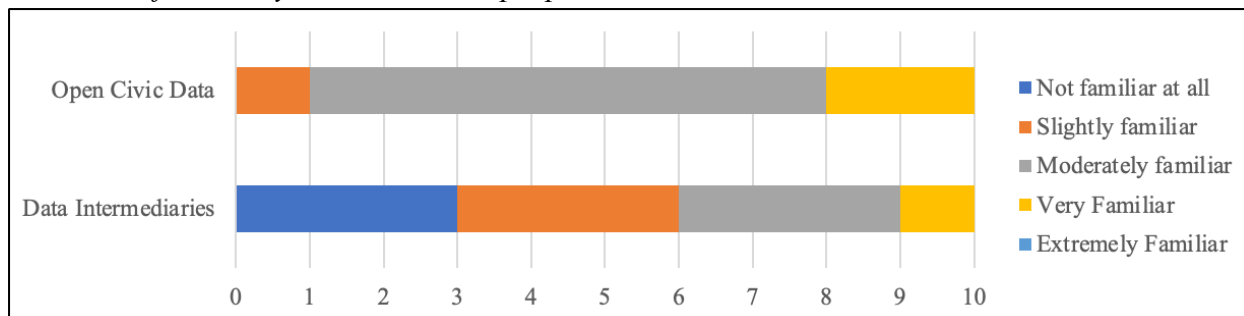
Table 1

Mean values of reviewers’ familiarity with core concepts prior to modules

Concept	Prior Familiarity
Open Civic Data	2.55
Data Intermediaries	1.73

Table 2

Reviewers' familiarity with core concepts prior to modules



Clarity: The reviewers' qualitative feedback identified terms and concepts that were unfamiliar and in need of greater definition (e.g., the distinction between “data producer” and “data intermediary”). Some reviewers also expressed concern about the use of terms that have not reached a consensus among community groups (e.g., the use of Latinx instead of Latine or Latino/a). Terms that are in the process of being adopted more widely were also marked for attention (e.g., we used “minoritized” as has more recently become best practice). We will not avoid talking about identities or minoritized communities because of these complexities, but we will revisit terms and concepts periodically. We used Camtasia partially because it allows us the flexibility to edit and support clarification efforts such as these.

Format: The majority of reviewers appreciated having all content available to them in GitBook. The most substantial format-related feedback concerned the videos, with students expressing an interest in greater interactivity within the video, such as an integrated quiz, rather than a post-module activity alone. In addition, some evaluators expressed an interest in control over the video speed. These findings highlighted the need to consider the affordances of the selected technology. Some of the format-related requests were not possible given the limitations of the technology, but we balanced these considerations with the advantages the GitBook/GitHub environment provides to openness and reuse.

Inclusion of additional resources: Prior to the evaluation, only some of the modules included an “Additional Resources” section. This section was included with the introductory module that all students reviewed, but we were inconsistent in this inclusion of the section in the modules we made available for evaluation. We received feedback on the value of these supplemental resources to learners and, through this feedback, determined that all modules should include this section.

Improvements to evaluation tool: Qualitative responses were productive in identifying terms to clarify and formatting weaknesses, as well as highlighting perceived connections to existing coursework and concepts in librarianship. However, we recognized that providing an opportunity for respondents to offer quantifiable feedback, using Likert scales and multiple-choice questions, would enrich our findings. We also recognized that collecting demographic information about our participants would improve our ability to ensure, when considering issues like the aforementioned terminology decisions, that we are listening to the voices of affected

populations. These findings supported the improvement of our evaluation instrument to be administered in the next phase of evaluation with library workers.

CONCLUSION

This paper provides an overview of our instructional design process for creating the first iteration of the Civic Data Educational Series and findings from the first phase of evaluation. Based on the ADDIE model, we developed the foundation of this modular, open educational resource with the intention of evaluation for further iterations. The first of these evaluations, conducted with LIS students, identified opportunities to clarify the content, revisit the format, and connect learners to additional resources. In addition, the results of the questionnaire have informed modifications to our evaluation approach with our second group of learners: library workers.

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