

Using Large Digital Collections in Education: Meeting the Needs of Teachers and Students

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SUMMARY

Over the past nine months, the Digital Public Library of America (DPLA) has conducted research, funded by the Whiting Foundation, about how it can best develop resources to facilitate educational use of its partner content. Because DPLA largely aggregates cultural heritage¹ content, the focus of this research was strategies for organizing primary source material for both K-12 and higher education instruction, explored in conversation with both online education resource creators and educators who work in the classroom. This white paper summarizes the findings of those two avenues of research and synthesizes them into a set of recommendations for DPLA's future education work. We learned that educational use for digital cultural heritage content requires a tailored approach to content curation and outreach in order to be successful—an approach that gets education users to content as quickly as possible and gives them useful information about how that content fits into larger cultural and historical frameworks. Our study strongly suggests that DPLA and similar organizations pursue several strategies to facilitate educational use, including the curation of primary source sets on our own site, partnerships with other education projects for content sharing, and targeted outreach to spread awareness of DPLA and engage education users.

¹ Cultural heritage content means documents and artifacts from the past. America's museums, historical societies, libraries, and archives are digitizing this content for preservation and research purposes.

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I. PROJECT OVERVIEW

Following a successful planning phase and launch in April 2013, the Digital Public Library of America is well on its way toward achieving its ambitious goal of bringing together the riches of America's libraries, archives, and museums, and making them freely available to students and researchers around the world. Approaching its second anniversary in April 2015, DPLA contains over 9 million digitized cultural heritage items from 1,400 contributing institutions across the U.S.—up significantly from 2.4 million items and 500 partners at launch. Through the DPLA portal (<http://dp.la>), researchers can discover content from all of these institutions in one place, and use DPLA's innovative map, timeline, and bookshelf interfaces, as well as apps and curated digital exhibitions to explore that content in new ways. As such, it is a uniquely valuable resource for instruction at all levels, since it contains such a variety of cultural material from books and manuscripts, to artwork and everyday objects, to audio and video items.

Although it received widespread recognition and even acclaim in its first year from organizations like the American Association of School Librarians (Best Websites for Teaching & Learning) and popular media (*TIME*'s 50 Best Websites of 2013), DPLA needs to do more to adapt and highlight its value to potential educational users by building resources that help them focus on relevant content more quickly. We are not alone in this pursuit; other large collections of online humanities content remain underutilized because they haven't made their way into the workstreams and syllabi of educators.

In July 2014, the Digital Public Library of America received funding from the Whiting Foundation to learn more about the landscape of online education resources, identify current teacher and student needs, and develop an education strategy. Through this education research project, we wanted to better understand how to connect open digital collections with educational audiences who could make significant use of them. Preliminary feedback from educators in K-12 schools and undergraduate higher education indicated that DPLA had the potential to be critical for classroom use because it offers access to a wealth of primary source materials—a foundational part of any humanities curriculum and the related development of research skills. But educators also told DPLA staff that, as with many digital portals, we offer so much content that it is hard for them to know

where to get started and how to quickly assess the depth and breadth of available materials related to specific topics.

The Whiting grant project gave us a chance to learn from the experiences of organizations that build and maintain online education projects as well as educators who work with students and curricula and understand those needs. Before we made any decisions about the kinds of education resources DPLA might build, it was important that we learn about the landscape of existing work and teacher needs, and identify how DPLA could most effectively contribute.

Our research was guided by a set of broad questions:

1. What kinds of education projects have digital cultural heritage organizations created and what have they learned from this experience? What is the nature and utility of online education resources created outside of these organizations?
2. What do teachers and students want to do with online cultural heritage content and how can web projects and tools meet these needs?
3. How should DPLA engage education audiences and what might DPLA contribute in this field that is unique?

Through numerous interviews and focus groups, we engaged two major groups of participants: creators of online education resources, and diverse educators currently working with students in K-12 and undergraduate higher education.



II. EDUCATION RESOURCE PROJECTS

We learned about several different kinds of online education resources projects through our research. At the center of our investigation were projects produced by cultural heritage organizations around their own digitized content or digitized content they aggregate from partners. Education projects from this group are generally designed to facilitate meaningful teacher and student engagement with digital content and provide the closest analogs in terms of what DPLA might offer teachers and students.

We spoke with a range of federal and state-based projects, including but not limited to organizations that also serve as hubs for DPLA. At the federal level, organizations like the [National Archives](#), the [Smithsonian Institution](#), and the [Library of Congress](#) have a long tradition of providing support for education that predates the digitization of content (although digitization and online education resources catalyzed major growth in education programs). They create classroom resources at the national level because of both the breadth of the content in their collections, and the national reach of their missions. At the state level, because we spoke most often with state digital libraries, there is less often a long history of educational engagement prior to the digitization of content. Not surprisingly, state-based projects are also primarily interested in reaching out to classrooms within their states because of the content they make available. Our study included state-level projects, like California Digital Library's [Calisphere](#), the Portal to Texas History's [Resources 4 Educators](#), and the [New York State Archives' education resources](#), that have been working in education for some time, as well as newer initiatives, like the [Montana Memory Project's educational resources](#), that are currently in development.

To supplement our research with cultural heritage organizations, we also interviewed leaders in other areas of online education work. These included projects like [The National Endowment for the Humanities' EDSITEment](#) and the Roy Rosenzweig Center for History and New Media's History Education Clearinghouse ([TeachingHistory.org](#)) that describe and index vetted educational resources from around the web and work with educators to create and share activities—but do not hold or aggregate cultural heritage content themselves. This other cluster included groups, such as creators of open textbooks, who use open content, and projects designed to think about how and

when students and teachers engage with archives, like [TeachArchives.org](https://teach.archives.org). In all, we spoke with forty-one professionals representing twenty-seven projects—a wide range of resources and approaches.

Findings

- *While education resources projects have strategic value for cultural heritage institutions, they are not always well supported.*
- *The success of education resource projects is often measured by web traffic.*
- *Most projects try to engage teachers as their primary audience, most often with primary source material for History/Social Studies instruction in grade 4-12.*
- *Education resources generally contain some combination of lessons plans, primary source sets, and alignment to education standards.*
- *Projects face challenges around item metadata, rights, and teacher involvement.*
- *It was hard to gather information about use, but for some projects that have done this research, results indicated that teachers were not their largest audiences*
- *Projects say outreach to educators is crucial to the success of their projects, and their outreach strategies include social media, promotional items for teachers, and professional association conference participation*
- *Emerging trends in education resource projects includes a shift to students as the primary audience, interactive sites that allow users to build their own resources, networked opportunities that bring siloed education resources together, and an increased emphasis on science education.*
- *Cultural heritage institutions saw DPLA's potential education contributions as broad content coverage, offering a place to network existing resources, and providing space for a community of practice around education content and outreach*

In our interviews with other cultural heritage organizations, we discovered a common institutional justification for creating education resources. Potential student engagement with digitized primary sources provides part of the justification for expending funding on digitization itself and helps ground a digitization project in a clear public interest. Students are of course not the only group who might benefit from the availability, abundance, and openness of online research materials, but because students are such a large and ubiquitous population, they are a critical and central outreach community for most cultural heritage organizations.

Although educational use for digital content almost universally has strategic value reflected in mission statements and education-specific outreach efforts, this rhetoric does not always translate into strong organizational support for an education project. In our interviews, we saw a wide range of institutional support, from dedicated teams of multiple staff members with healthy marketing budgets to individual staff members for whom education outreach was but one in a list of job

responsibilities, and who had to get by with minimal funds for outreach. (The small budget can be related to the overall size of an organization, of course, but also often reflects organizational priorities.) Furthermore, staffing for education projects sometimes does not include anyone with demonstrated education expertise. Generally, there is a strong correlation between the level of use an education project sees online and the level of institutional resources it gets, although this raises an interesting chicken-and-egg question that arose in multiple interviews: when does less use justify fewer resources, and when do fewer resources result in less use?

For most cultural heritage organizations we met with, the education community requires a sufficiently tailored user experience and substantial, targeted outreach. It is not enough to design a great search or browsing experience for digital content with teachers and students in mind—the education world needs dedicated, more curated resources that link digital content to relevant topics and particular uses. This tailored user experience most often comes in the form of an “education resources” section of the organization’s website that is clearly marked and easily found from the organization’s homepage. More rarely, as in the case of the National Archives’ [DocsTeach](#), this is a project with its own website, but which is still easily identified as part of, and linked to from, the originating organization.

A. Audiences

Digital cultural heritage projects overwhelmingly take *K-12 teachers* as the primary audience for their education resources. This decision reflects the belief that outreach to teachers is the most effective route to responsible and meaningful student engagement. In these resource sections, primary sources from a digital collection are organized topically and paired with supplementary content like standards-alignment information, lessons plans, and other teaching activities—in short, aimed at the teacher’s core need to quickly create a syllabus. K-12 teachers are also the primary audience for education projects that index vetted education resources.

In contrast with the K-12 realm, most of the conversation we discovered about primary source research in the higher education classroom was happening not at cultural heritage organizations but through the work of professional organizations like the American Historical Association’s [Tuning Project](#), the Society of American Archivists’ [Teaching with Primary Sources working group](#), and Association of College and Research Libraries [Rare Books & Manuscripts Section’s Committee on Teaching](#). These discussions focus on student engagement with physical, rather than digital, archives. Creators of open educational resources (OER) are interested in open content for both K-12 and higher education teacher audiences but cultural heritage (i.e., primary source) materials are but one small component used in the making of a much broader field of teaching materials, such as open textbooks.²

Resources specifically designed for higher education instructors are generally much harder to find online than resources for K-12 teachers. There are many reasons for this, including an uneven emphasis on professional development for teaching in higher education, the absence of state and national standards and assessment at that level, and the smaller size of the educator market. Research instruction is supported at the level of the individual higher education institution through

² An open textbook is a textbook licensed under an open copyright license and made available online for free use and reuse.

its library. Reference librarians work with individual students and instructors and visit classrooms to teach a variety of research approaches that may include primary source work but also emphasize methods for discovering secondary sources online and in the library. Less universally, archival instruction happens through a special collections division if one exists on a higher education campus. Occasionally, as in the case of the [TeachArchives.org](https://teach.archives.org/) project from the Brooklyn Historical Society, local cultural heritage institutions are working with higher education instructors to engage students with archival materials held outside their college or university.

B. Disciplines

Within the K-12 teacher audience, digital cultural heritage education projects most often create education resources for either state or national *History/Social Studies* instruction. This is likely the case because of the traditional emphasis on primary sources in social studies, although many disciplines now encourage the inclusion of primary source work motivated in part by the broader interdisciplinary value placed on it in the [Common Core State Standards](https://www.corestandards.org/).³ The focus on History/Social Studies instruction informs the basic organization of resources by time period, historical figure, or particular event.

At the national level, this organizational structure can meet the basic needs of English/Language Arts teachers as well, who are often looking for primary sources that give context to a literary work or informational texts from a particular era. At the state level, the target audience for education resources is often teachers of state history courses⁴, because of the constraints of state-based content.

Resources structured explicitly for English/Language Arts or Science instruction are rare. Sometimes this is content-related—an institution does not have the right primary sources to support science instruction. Occasionally a few history of science and technology topics are mixed into the chronologically organized resources. But even when resources are organized for social studies use, they are often aligned to an interdisciplinary array of humanities standards in History/Social Studies, English/Language Arts Reading and Writing, and Visual Arts.

The emphasis on state and national history instruction is also evident in the outreach strategies that many cultural heritage institutions pursue to target teachers. At both the state and national level, these institutions are most likely to attend History/Social Studies conferences, collaborate with projects like [National History Day](https://www.nationalhistoryday.org/), and recruit content and feedback from History/Social Studies teachers.

³ Released in 2010, the Common Core State Standards identify a core set of Reading, Writing, and Mathematics skills necessary for students to develop through the course of their K-12 education. They are skill-based, not content based, meaning they would place various analytical skills like compare and contrast on a skill development timeline without identifying works of literature or historical events to work with. Many, but not all, U.S. states have adopted the Common Core standards. To learn more, visit: corestandards.org.

⁴ In U.S. states, a state history is required at some combination of grades 3 or 4 and 7 or 8.

C. Grade Levels

Projects also most often create resources for instruction at grades 4-12, although a small number of federal projects offer lessons and activities across the K-12 spectrum. This narrowed grade range makes sense given the trajectory of primary source skills in standards. The Common Core, for example, emphasizes reading informational text from the lower elementary grades (K-5) but does not begin to emphasize research with primary and secondary sources until grades 6-12. K-3 instruction focuses on the development of foundational reading comprehension, writing, and math skills. Resources may also include grades 4 and 5 either because they focus on a particular state history course at this grade level or because they are providing activities intended to prepare fourth and fifth graders for deeper work with primary sources by grade 6.

D. Resources

The digital cultural heritage education resources we surveyed generally include one or more of the following features:

Lesson Plans

Especially for projects in early stages, shared lesson plans serve as both use cases for the organization's primary source content and resources for teachers. The lesson plan is a familiar format for teachers because they are required documentation for schools and districts to show what an individual teacher is doing in the classroom. Shared lesson plans can be either created by in-house staff or contributed by outside teachers and share a few common characteristics:

- They identify specific primary source content from the cultural heritage organizations' digital collections
- They describe a learning objective they used that content to meet, and activities they did with students to achieve that objective
- They identify a grade level or grade range for the activity, sometimes by formally aligning the learning objective with a standard or indicator in state and/or national standards

What constitutes a "lesson," in terms of duration, proves trickier though, as a single lesson plan might be used to describe a single class session, several sessions, a month-long unit, or other span of time. Lesson plans in certain formats, such as downloadable PDFs, can also present some formatting challenges that limit their use. When parts of a lesson plan, like the sources, a single discussion question, or a section of an activity, are hard to excerpt and reuse, organizations find that their overall value to teachers decreases.⁵

Primary source sets

Many digital culture heritage projects also create primary source sets in-house for teacher use with students. Popularized by the [Library of Congress's work with this format](#), primary source sets are small groups of highlighted items organized around a popular education topic. Generally 20-40 items in scope, primary source sets are designed to show teachers the best resources from a large collection about a topic without overwhelming them with too many options. They provide historical context for the set in the form of introductory text, but item-level metadata is minimal. Items in a set are identified with linked titles and thumbnails that connect users as directly as possible to full-

⁵ For examples, see these from the [Smithsonian](#), the [Library of Congress](#), and the [Portal to Texas History](#).

sized, downloadable images or documents. Primary source sets generally come with some level of suggested activities like discussion questions or links to primary source analysis tools and teacher guides. They may or may not be formally aligned to standards although most are grounded in standards research that determines topic relevance. One example is the [era framework](#) that the National Archives' *DocsTeach* uses, which comes directly from the National History Standards.⁶

Filtering resources by standards

When education projects have a fair number of resources online, they may offer users the option to [filter by national and state standard](#). Standards alignment works differently depending on the standards involved and their balance of skills with content covered. The National History Standards and state social studies standards, for example, give teachers information about which historical content they should cover and which skills they should use that content to teach. As such, a primary source set with minimal activities or, in some cases, a single item, might be aligned to a standard by content coverage. In the case of standards like the [Common Core State Standards](#) and the related [College, Career, and Civic Life \(C3\) Framework for Social Studies State Standards](#) that do not prescribe content coverage, only resources that include activities and learning objectives can be aligned to those frameworks. Alternately, a cultural heritage project could choose to align all of its resources to two or three primary source-related standards in the Common Core, although this would significantly diminish the usefulness of filtering for the user. Finally, a single resource is generally aligned to multiple sets of standards as well as in multiple subject areas across one set of standards.

Almost all of the staff we interviewed spoke about how time-consuming standards alignment work is and how often it requires updating in order to stay current. When asked if this work was worth the time it required, some participants said that they thought subject and grade level suggestions were sufficient while others saw alignment as necessary if laborious. Alignment to standards is then a serious undertaking for education resource projects—one that requires substantial resources to create and maintain. Its value to teachers should be scrutinized and weighed against the project time and energy it will require.

E. Challenges

Cultural heritage professionals face a few distinct challenges in their digital education resource projects.

Metadata

Many of them spoke to us about the “lost in translation” moment that happens when educators and students encounter cultural heritage metadata⁷ as it appears natively in digital collections. Teachers are generally making decisions about the usefulness of an item based on any contextual information they can get about it. This contextual information might or might not appear in the title, description,

⁶ For examples, see sites mentioned above as well as Calisphere's [Themed Collections](#).

⁷ For the purpose of this project, metadata is the descriptive information that travels with a cultural heritage item. It might include a title, description, creator, and more. DPLA offers metadata records for all the items accessible through its website. Here's an example of a DPLA metadata record:
<http://dp.la/item/737dcf32ea14534989114b734dfb680d>

or subject heading of a record, as well as in date and location fields. The quality and usefulness of that information for teachers can vary widely depending on whether it is present and how easy it is to find quickly. Additionally, full metadata records from libraries, archives, and museums can be overwhelming, particularly for students.

Education projects thus contend with description challenges in the way they structure their resources. Some have worked around the issue by writing a new title or descriptive sentence for an item within an education resource and then linking to the full-sized item in the collection (which retains its original metadata). In a few projects, useful primary sources have been cherry-picked from the collection, moved to a new education project database, and re-described. Still others are bound by institutional policies to use the descriptive information as it appears in the collection, which can create friction with educational goals and methods.

Rights

Some of the projects we interviewed were concerned about the ways that teachers would understand and interpret the copyright and access information that accompanies their digital content because teachers generally receive little to no training about copyright. In addition, with scarce time to create lesson plans and slides, teachers face pressure to quickly use resources, and studying complex rights statements is a hurdle that some may be averse to surmounting. All of the institutions in the study are making access to digital content possible for teachers and students by sharing content online, but the issue of teacher and student reuse was more cloudy, particularly for the digital libraries that aggregate content from multiple institutions and thus deal with a larger variety of rights and access statements (some of which are clearer than others). Teachers' ability to deal appropriately with copyright and reuse was of intense concern to a few institutions but not universally viewed as a challenge. A number of institutions in this study, particularly federal ones, incorporate only public domain material into their education projects and so were not concerned with rights issues. Other participants were unconcerned about teacher reuse of content because of the applicability of the principle of fair use. But all agreed that clear and simple rights statements are extremely useful for educators to understand where and how they could reuse content.

Teacher involvement

All but the oldest and best-resourced education projects have difficulty finding consistent avenues for teacher involvement. While this involvement is key for all education projects because it keeps them in touch with trends in contemporary classrooms, it is particularly important for smaller projects that may not have the funding to hire staff with education expertise. Whereas teacher engagement positions teachers as *users* of resources, teacher involvement requires teachers to be *co-creators* through the process of contributing their lesson plans and activities, vetting resources contributed by other teachers, and providing feedback on the strategic direction of an education project. Such higher-level involvement is crucial to the production of education resources that resonate with teachers and meet their specific needs. Education projects that primarily post teacher-generated content like NEH EDSITEment are particularly skilled at maintaining a robust network of involved educators.

F. Use

The value of many education resource projects is conceived in terms of use, often somewhat narrowly measured as traffic to the education resources section of the institutional website. Because these traffic metrics are generally created for internal use only, it was sometimes difficult to get interviewees to share information about use. For the federal organizations, there are limits to

the kinds of user tracking they are allowed to do on projects. For many institutions, use information (or traffic) is an important part of the way their success is measured and can determine whether they get an increase in or reduction of resources. As such, the professionals who work on education projects are very conscious of use but are not always given the time, funds, and staffing to gain a better understanding of this use than through web stats (if they have those), for instance through surveys, focus groups, and other means.

For those who have done more extensive use studies, the results have been surprising. Although these projects almost universally see their primary audience as K-12 teachers, a few have discovered that greater use of their education sites comes from college students seeking resources on their own, “other” researchers including family historians, and independent K-12 student researchers. Staff members at California Digital Library’s *Calisphere* project and the Smithsonian’s Center for Digital Learning and Access have done particularly interesting studies along these lines—research that has significantly changed the direction of their project development plans. Instead of devoting future resources to standards alignment, lesson plans, or other features designed specifically with teacher users in mind, these projects are planning for a more open-ended design that factors in a broader audience. These new designs keep curated content at the center but anticipate for multiple reasons for engagement and cases for reuse. They avoid explicit teacher scaffolding and other features that might frustrate or alienate this broader user group.

G. Outreach

Like any professional community, educators have their own methods for discovering new resources and trusted sources for information. Online education projects in the study used a few methods to effectively reach their potential audiences.

Social media

Online education projects generally make use of Facebook and Twitter for engaging teachers. On Twitter, teachers follow hashtags like #edchat and #sschat for resource sharing so these hashtags can be used to mark resources relevant to those audiences. Larger cultural heritage institutions also create specific Facebook and Twitter accounts for education work that teachers can follow. Increasingly, cultural heritage institutions are branching out into other social media forms—Pinterest and Tumblr in particular—to share their primary source content.

Swag for teachers

The teacher audience also has particular needs when it comes to handouts and promotional items. Teachers, for example, make use of full-color posters as classroom decoration that can promote an education project. For example, TeachingHistory.org hands out these large-format posters and the Portal to Texas History makes [printable posters](#) available for download. National History Day prepares large, glossy brochures with details about its program that directs teachers to online resources for additional information. This kind of brochure is particularly valuable as a takeaway item at the education conference exhibitor booth. Bookmarks, pens, and stickers also make appealing items for teachers to share with students.

Professional association meetings

Online education projects of all kinds value professional conferences as places to raise awareness, present their most recent work, and grow and strengthen their network of teachers. At the national level, these organizations include the National Council for Social Studies, the National Council for History Education, and the National Council of Teachers of English. Conferences like the American

Association of School Librarians also provide avenues to do outreach to school librarians who can raise awareness of an education project within their school and district. State-based digital cultural heritage projects have an analog set of professional organizations at the state level, which can serve a similar networking purpose. At all professional association conferences, these projects appear as exhibitors in addition to participating in presentations. Projects that can capitalize on frequent conference networking opportunities are generally supported by healthy outreach budgets and staffing.

H. Future Directions

We had many inspiring conversations with education outreach staff about how they are rethinking their approach to educational engagement for the future. We look forward to following these emerging trends:

Student use

A number of projects are also rethinking their traditional focus on teacher use. Instead of designing projects for teacher engagement, cultural heritage organizations are moving towards a model of direct student use (with or without teacher guidance). This model would place groups of minimally described primary sources at the center and move scaffolding for teachers (lessons plans, activities, alignment to standards) into linked teacher guides or out of the project completely.

Empowering users to curate primary sources

The National Archives' DocsTeach project was one of the first sites that gave teachers a place to build their own [skill-based activities](#) using the primary source collection. Increasingly, cultural heritage organizations want to put the power to create projects using primary sources in the education user's hands, whether they are annotating primary sources in iBooks (Library of Congress) or saving primary source items to public or private lists. Giving teachers and students the power to create their own resources also gives projects valuable information about these users that the projects find useful.

Networking education resources

Across the world of online education resources, organizations are starting to think about networking their projects together with related projects. In the past, education projects built local subsites and worked to drive user traffic to them. Initiatives like the Learning Registry (<http://learningregistry.org/>) allow these institutions to "share" content by sharing metadata and URLs. The Learning Registry uses this information to refer new users to the existing educational resource while providing them a rich, aggregate research experience. Many of the organizations with a large number of lesson plans and other teacher resources are also looking to the [Learning Resource Metadata Initiative](#) (LRMI) to tag their education content in meaningful, interoperable ways.

More focus on science

A number of organizations told us that they want to build out their resources to do more with primary sources in science education, perhaps unsurprisingly given the national emphasis on STEM subjects. For cultural heritage organizations, this means focusing on primary sources that tell stories about the history of science, medicine, public health, and environmental change. As the Common Core Standards encourage reading, writing, and related work with primary sources across

the curriculum, science classes will increasingly need good education resources for this kind of teaching.

I. Value of DPLA for Education

In every interview with education project staff, we asked what, if anything, DPLA could contribute uniquely to the world of online education content. It is important to us as an organization to work in complementary ways with our partners and other cultural heritage institutions and we want DPLA to support their efforts, not distract from them.

Interviewees were universally excited by the idea of a DPLA education engagement project for two reasons. First, these organizations have created resources with the content available to them but run up against topic coverage limitations. At the state level, this means that a state digital library might, for example, have a trove of great content about local WWII veterans but no broader WWII content with which to make a meaningful WWII education resources that engage standard skills and content. They would love for these items to be used by educators in another context as part of a larger project. For the national institutions, topic coverage challenges emerge as natural limits at institutions with particular collection strategies and mandates. For participants, the same “one-stop shopping” function that makes DPLA appealing to users in general gives it potential for the broadest degree of educational topic coverage through partner content.

Second, participants were interested in the ways DPLA could support a network of online education resources and a community of practice around education strategy for cultural heritage institutions. In an education meeting with DPLA Hubs, we learned how much work partners do without learning from the experiences of other organizations and how much they benefit from sharing ideas. Other organizations expressed interest in incorporating DPLA education resources into their existing line-up and appearing in an index of projects on DPLA’s education site.



III. EDUCATORS

In addition to interviewing staff from education projects, we also spent time learning from educators. We held two focus groups—one for instructors in higher education and one for K-12 teachers. We supplemented these meetings with additional interviews with individual teachers. Some of these interviews served as preparation for the focus groups, while others provided an avenue to speak with educators in new disciplines or grade levels. In all, we spoke with 38 educators during the period of the Whiting grant.

2014 focus groups

We held our first focus group for instructors in higher education at the Boston Public Library on October 9-10. In selecting participants, we selected educators working with undergraduates and the early years of undergraduate education specifically. Our group included faculty from a range of geographically diverse institutions including community colleges, land-grant and private research universities, liberal arts colleges, and historically black colleges, and a variety of disciplines such as History, English, Women's Studies, American Studies, Psychology, and library research instruction across disciplines.

Our second group, held on November 3-4 at the Boston Public Library, focused on K-12 education. We invited teachers from public and private schools across the country as well as a small number of professors of education who work with pre-service teachers. Here, we focused our efforts on History/Social Studies and English/Language Arts in Grades 6-12, although participation from a strong group of school librarians and media specialists helped us include other subjects in the conversation.

Before attending a focus group, each participant did a brief interview with the DPLA staff and completed a survey that gave feedback about DPLA's website as well as the instructional resources they use and prefer. Both focus groups followed the same general discussion format based on these questions:

1. Which online educational resources do teachers use?
2. What do they like and dislike about available resources? What is missing from the landscape?
3. How do students and teachers currently use cultural heritage materials in the classroom?
4. What do they think of the DPLA's current site and how can we build it out to meet their needs?
5. Through what channels do they learn about useful resources for instruction?

Findings

- *Instructors in higher education search for and use online resources in a highly idiosyncratic way, whereas K-12 instructors were generally familiar with a core group of resources.*
- *K-12 instructors are more interested in resources accompanied by guidance for use than high education instructors.*
- *Instructors in both groups selected useful resources based on their assessment of the quality of curation and the teaching or content expertise it reflects.*
- *Instructors from both groups valued the ability to interact with a resource by building their own projects.*
- *Both groups agreed that the best student engagement with cultural heritage material happened around research with primary sources.*
- *Teachers use primary sources in a few universal ways: to spark discussion, to deliver content, to answer an inquiry, and as material in group projects.*
- *For types of primary sources, teachers value photographs, documents, and audiovisual materials in particular.*
- *For students, the amount and quality context is the single most important factor in deciding whether a primary source is useful. This context can be discovered in metadata or within the organization and description of a set of resources.*
- *Participants in both groups were most interested in resources for direct student use with teacher guidance. This was important for grades 6-14.*
- *For instructors in both groups, DPLA's value for education was two-fold: first as a one place to discover material from many collections, and second, because of this diversity, as a site with content to support local and underrepresented stories that students have not seen before.*
- *Both focus groups gave DPLA good usability feedback about unclear interfaces, faceted searching, and the absence of topical organization.*

- *In the focus groups, participant responded well to the primary source set mock-up we shared and gave us feedback for improvement.*
- *Participants also commented on the potential value of the exhibitions but noted their scattered topic coverage and lack of supplemental activities.*
- *Instructors in both focus groups reported little awareness of DPLA in their professional worlds, and reported that they learn about new teaching and research resources from word-of-mouth, social media, and professional organizations.*

Perhaps not surprisingly, instructors in K-12 and higher education follow fairly different patterns when they search for online education resources. This search was highly idiosyncratic for participants in the higher education focus group, whereas K-12 participants were generally familiar with a core group of resource sites such as the Library of Congress and PBS LearningMedia.

In addition, higher education participants were more interested in finding raw materials by themselves than finding materials that came with preset ideas for instructional use. This is likely due to the absence in higher education of the formal standards that guide skill development in K-12 education, as well as the general emphasis in higher education on content expertise over professional development around pedagogy. (The exception in higher education is teaching-centered institutions such as community colleges and in some cases liberal arts colleges.) The K-12 educators, in contrast, sought resources that combined relevant raw materials with suggested uses. Interestingly, educators in both groups reported that they participate in syllabus and activity sharing with colleagues.

But participants across the focus groups shared important priorities when selecting online education resources as well. Specifically, instructors at all levels made an assessment of the quality of curation itself part of their decision to use a curated resource. For a subset of instructors in the higher education focus group, this followed traditional academic standards for subject expertise and peer-reviewed vetting of resources. For other participants in higher education and participants in K-12, the teaching expertise of the curator was generally evident in both the content selection and the recommended activities. For K-12 instructors, this expertise grew from both classroom experience and deep knowledge of standards. When resources are developed from a strong foundation of standards, they are more relevant and useful to teachers. While standards should guide content selection and activity design for education resources, teachers agreed that the formal alignment of standards to individual resources was not necessary.

Finally, instructors from both focus groups valued resources that offered opportunities for user interaction. They wanted resources that provided students and teachers the chance to build something from the resource and/or its raw materials and share that creation. Instead of being given information, they want to actively engage with the resource content to generate something new. This is even better when students can interact with the resource to create something that teachers might use to assess their progress.

A. Primary Sources

For educators, research with primary sources offers the best use for cultural heritage content. While primary source research is an important part of education at all levels, it is important to

remember that it is but one part. In higher education in particular, there is often more emphasis in using online databases to identify *secondary* sources in research than primary ones.

All participants in the focus groups reported use of primary sources in instruction and these sources appeared in instruction at remarkably similar moments. Instructors said they use primary sources in the following ways:

- To spark curiosity and discussion, at the beginning of a content unit, within direct instruction, and as a writing prompt
- To deliver content in direct instruction, as part of a group of readings/viewings within a unit
- To provide information that is useful in answering an inquiry in individual research or group projects
- To build group projects outside the traditional research paper (such as exhibitions)

In both groups—but K-12 particularly—participants emphasized the importance of using primary sources for deep inquiry beyond simple illustration. Practices around using primary sources for inquiry emphasize close reading, considering sources in a broader historical context, and sharpening research information skills (like understanding and interpreting metadata).

We also discussed the kinds of primary sources that were particularly useful for instruction. Across the focus groups, there was a particularly high demand for audiovisual materials—both audio recordings of music, speeches, radio, oral histories, and video from news, documentary film, and creative video projects. Participants were also universally interested in photographs, digitized artworks, and images of artifacts as well as documents, maps, political cartoons, and newspapers, although items in this second group often required more context and instructional assistance (and in the case of documents, legibility for students) to be useful in the classroom.

B. Context

In the focus groups, participants uniformly emphasized that the quality of contextual information that accompanies a primary source is the *most important factor* in its future classroom use. This context is useful as an introduction to a group of items, as well as at the item level, to give a sense of how a particular primary source fits into a specific historical moment and what relationships it shares with recognizable people, places, and concepts. Participants shared frustrating experiences with digital cultural heritage content that appears useful but loses their attention with inadequate context or overly extensive metadata. Using DPLA metadata records as an example they identified the fields most likely to make or break the value of a primary source in terms of contextualization: the title, description, and subject headings. Secondarily, they were interested in date and location information. The quality and amount of context is important to both teachers and students in different ways. Teachers want to see how a primary source fits into their larger education unit so lots of context is useful for them. In contrast, students need enough context to start making connections but not a level of context that forecloses the possibility of questions, connections, and original thought (i.e. context shouldn't give students all the "answers").

C. Audiences

Participants in both focus groups were most interested in resources created for student use with teacher guidance. In higher education, this teacher guidance might constitute a brief demonstration of the resource for individual research purposes, whereas in K-12 teacher guidance would be a more monitored and sustained process depending on grade level. The presence of too much content

for teachers (an abundance of context, lessons, activities, use cases) in a resource can make it less useful for students.

What does this mean in terms of how a resource is best structured? Participants advocated for topical groups of items with high quality but basic contextual information that students can explore directly. These groups would highlight the best content (including items from multiple perspectives) on a particular topic, rather than a massive set of search results that could overwhelm students. For K-12 teachers, this meant groups of roughly 20-30 items; for instructors in higher education, 50-100 items. Educators emphasized the importance of a clean, simple interface that relies on visual elements more than text to draw students in. Item groups are most useful when they come with citations for items and pathways for further research in the form of suggestions for related items in the collection or links to other projects on similar topics. Participants also noted that these item groups are most valuable when they are available to students alongside access to a full database.

But for K-12 participants, resources for teachers are still important even when they are not structurally the main event in an education resource. They recommended linking the student-centered item group pages to supplemental teacher guides and primary source tools. These connections would offer teachers supplemental information without distracting students from directly interacting with content or identifying a page as “for students.”

Focus group participants said that primary source analysis tools (like the genre-specific ones offered by the [Library of Congress](#)) were useful because they are topically agnostic but give educators a starting point for primary source analysis with students. Late middle school and high school students can also use these tools directly. Teacher guides might include standards-based skills to practice using a single primary source or multiple sources from the set (i.e., compare and contrast, finding evidence, analyzing data, etc.) or they might suggest activities like discussion questions and writing prompts to guide student interaction with the sources.

In our discussion of useful appended teacher resources, K-12 participants said that activities should be based on standards research but need not be aligned to standards formally. When asked about lesson plans, participants said that lesson plans can be useful for seeing what other teachers have done with sources but are not necessary for a useful education resource. They helpfully reported that they never use lesson plans in full but instead might excerpt and reuse part a lesson plan (a source, a writing prompt, a few discussion questions) or just use the lesson plan to spark their own ideas. Easy printing used to be a higher priority for teachers than it is today.

Finally, in both focus groups, we discussed the importance of seeing a student’s education as a unified K-16 learning trajectory instead of separate K-12 and higher education sections. Higher education instructors found it productive to think about the “bridge years”—grades 11-14—in which students transition from high school to college, develop increasing research independence, and take on increasingly complex research projects. Thinking more broadly, instructors in the K-12 focus group suggested that it was useful to think of grades 6-14 as the period in which students develop this research independence, and that a good set of education resources for students should include material that appeals across these grade levels. While the need for explicit teacher guidance diminishes as students move to the later grades, access to well-organized, contextualized primary source materials remains a core need in student research activities that education resource projects can support.

DPLA Feedback

Through the focus groups, we also had the opportunity to get some feedback about our current website, demonstrate some potential resource formats, and discuss what DPLA might be able to uniquely contribute to the landscape of online education resources.

A. Value of DPLA for Education

As with our partners, educators were excited about the unique, “one-stop shopping” nature of DPLA that allows them to find an abundance of great material without visiting many different sites. This was useful to all participants but especially K-12 teachers who are more strapped for time and are at times required to have a more general content knowledge for their instruction. Educators were also excited about DPLA’s ability to surface new, local primary source content that they (and their students) had not seen before. Content from smaller, local institutions—possibly even institutions in their own communities—presents exciting, new instructional possibilities for approaching national subject matter.

Educators were also eager to see DPLA use its breadth of content to tell underrepresented stories that diversify the narratives they currently find online. In the higher education focus group, for example, we discussed the ways that great local content might be used to highlight important, local civil rights activists who have not featured in canonical work on civil rights. In the K-12 group, we considered historical moments around which DPLA could support new stories that challenge traditional narratives or help students consider the roles of women, people of color, LGBT people, the disabled, and other underrepresented communities.

B. Usability

Focus groups and other educator feedback sessions gave us useful ideas about how we can improve the DPLA user experience for these audiences.

Instructions

Educators identified interfaces (map, timeline, bookshelf, Boolean search) where directions should be more readily available. They were also interested in the addition of an overview for the exhibitions—where they come from, who works on them, what our exhibition goals and strategy are.

Searching

Educators found searching straightforward in DPLA although they had questions about how search relevancy was determined and whether we would add an advanced search option. They also valued faceted browsing (subcategories in the left-hand navigation) but recommended moving “institutions” down and “subjects” and “location” up on that list. Our pre-survey demonstrates that, using search, educators were fairly often not finding what they expected to find in DPLA. They also repeatedly noted that they found (and students would find) the volume of results for many searches overwhelming.

Browsing

Educators also noted the absence of the ability to browse by topic on our site, which currently offers users only keyword searching. They expressed interest in basic topic browse functionality that would give them a sense of the coverage within DPLA for particular subjects.

DPLA Records

Educators generally found the structure of DPLA item-level records clear and useful with the exception of the “View Object” link to access full-sized versions of items. They wished that DPLA record pages showed them a list of related items in DPLA. They asked questions about DPLA’s plans for metadata cleanup when they found inaccurate or missing metadata, or when they felt item descriptions lacked important context. Some were also concerned about the lack of consistent rights information about copyright and reuse, although others were less concerned because they believed that classroom use of the materials would be covered by the principle of fair use under U.S. copyright law. Finally, while some of the higher education participants liked that DPLA sends users to a new site for full-sized items, because it expanded the research network, most other participants noted that such click-throughs would be frustrating for students as it exposed them to a varied and often confusing set of interfaces.

C. Demonstrations

Through the focus groups, we also had the chance to demonstrate two experimental resources and get educator feedback: a group of primary source sets we created for the focus groups that aren’t publicly available on the site, and our existing exhibitions collection.

The purpose of showing unpublished primary source sets was two-fold: first to specifically show participants what DPLA offers access to in terms of primary sources, and second to give them something rudimentary to respond to. We anticipated that the primary source set would be a useful conversation starter (although not a format unique to DPLA). The primary source sets we showed included 25-35 primary sources arranged on a page with thumbnails and one-sentence contextual descriptions. When users clicked the thumbnail or description, they were taken to the page where the full-sized item lives (not the DPLA record page as they would be in regular DPLA search results). In terms of format, these sets were generally well received by both the K-12 and higher education instructors, although some of the sets did not work as well as others. For example, an American Literature set was too broad and contained too many portraits of authors whereas participants had expected to find correspondence and manuscript material. When the sets were organized around a particular event, they worked considerably better. Sets around events in the twentieth century, for instance, benefited from a diversity of item types and perspectives.

Participants were interested in the primary source sets as a starting point for student research but also wanted students to be able to make their own sets and share them via social media. Teachers would benefit from being able to create and share sets for instruction as well.

Participants also gave us feedback on our existing exhibitions, which had already received considerable praise from educators who were not a part of the study. Participants were very excited about the exhibition format for student research but reported that the current topical coverage of the exhibitions is scattershot from an education point-of-view: some topics are of perennial utility while others are on subjects that are not regularly taught. K-12 educators also wished that the exhibitions were supplemented with suggestions for classroom activities. Both groups expressed interest in the idea of DPLA allowing users to create exhibitions using content available through its site, and identified this as a unique and exciting contribution DPLA could make to the landscape of education resources.

D. Outreach

Educators in K-12 and higher education identified three primary avenues for learning about new, high-quality instructional resources: word of mouth, social media, and professional organizations. To effectively disseminate an education resource, organizational staff must learn the conventions of K-12 and higher education professional development (distinct from one another and sometimes different across disciplines) and meet educators where they work and interact. Focus groups also reported a broad lack of awareness of DPLA in both K-12 and higher education due to the relative newness of the project.



IV. Recommendations for DPLA

- *Develop resources to serve the needs of K-12 students with teacher support (as well as higher education students and non-students who also use the site), by developing curated primary source sets that can be used in a K-12 classroom or outside of one.*
- *Offer users tools to curate their own sets.*
- *Implement usability feedback from the focus groups to improve the search experience on dp.la.*
- *Build a network of educator advocates to create and review sets and offer feedback on DPLA's education strategy as part of the governance structure.*
- *Once initial sets are published, pursue a broad outreach strategy that includes social media, promotional materials, and professional organization conference participation.*
- *Support a community of practice for cultural heritage partners around education outreach through regular meetings, resource sharing, and other networking opportunities.*
- *Share DPLA's education resources and open content with other open education projects.*
- *As DPLA makes plans to work with ebooks, incorporate ebooks into education resources.*

- *Evaluate API documentation and coding resources for the student coder audience and promote DPLA for student app development.*

Based on the extensive findings from this research project, DPLA plans to pursue several related initiatives that will facilitate and expand classroom use of content from our large, aggregated collection.

1. DPLA will conduct in-depth **standards research** and use this research to build sets of **curated content** for student use at various levels of education. Sets will include introductory information as well as revised description at the item level, and will link to related resources in other education projects. They will be designed to appeal to a broad audience including K-12 students and teachers, higher education students, and users outside the classroom. While these sets will be somewhat larger than the traditional 25-item primary source set to accommodate undergraduate research needs, they will be appended with tools for primary source analysis as well as recommended activities that can be used by teachers. We will mark activities built around the sets by subject and grade level and will ground them in standards that encourage teachers to use primary sources for deep inquiry (although we will not formally align content to them). Curation will happen not just through the selection and arrangement of sources, but through revision of item metadata to make all contextual information as useful as possible. For set topics, DPLA will strive for coverage of History/Social Studies topics in the National History Standards and topics it can meaningfully support in the history of science and technology, and will experiment with sets organized around an array of English/Language Arts uses for primary sources. In addition to building primary source sets, DPLA will also develop its collection of exhibitions based on standards research with the goal of eventually incorporating recommended activities into exhibitions as well.
2. In addition to curating its own sets, DPLA will also encourage students and teachers to **interact** with content by saving and sharing their own sets on DPLA's website. DPLA currently has a save/share list feature, but it needs improvement to work well in the education context. Specifically, users need to be able to add their own notes and make their own descriptive metadata at the item level. Tracking teacher and student interaction with content will also provide DPLA with considerable user feedback about the kinds of sets that education users find meaningful. In the longer term, DPLA will explore the possibility of offering space for users to create exhibitions on its site—an offering that would be unique in the education world and would allow students to build projects using DPLA partner content on the site.
3. DPLA will work to address **usability** issues identified by the focus groups, which will improve the search experience for students and teachers as well as other user groups. These modifications will counter confusion around how and when to use interfaces, fulfill requests for greater attention to topical organization, and give users the ability to refine searches by genre (a more granular way to see "Item Type" than DPLA currently uses). In the longer term, DPLA should also consider ways to get users to the full-sized image more quickly, and without the variety of interfaces audiences currently face. As DPLA pursues work in education, we must do more usability testing with teachers and students on the site in general, and with the education resources we have and will develop.

4. DPLA will build a **network of educator advocates** and pursue funding that will allow them to participate in the process of content curation, resource review, and organizational priority setting. With funding, DPLA can invite teachers to participate in a summer institute where they would curate and review content the education staff has created and suggest new areas of need. Teacher involvement will also be crucial within DPLA's open committee system, which would benefit from the addition of an education-specific committee that could help advise the staff on new directions for education partnerships and resources.
5. In order to raise awareness of DPLA and build this network of educator advocates, DPLA will need to devote considerable resources to **outreach** in the education world. This will mean building specific social media channels for teacher engagement, capitalizing on vendor, presenter, and general networking opportunities at professional association conferences, and designing marketing materials with appeal for educators. This marketing should take a broad view of education that approaches not only teachers in traditional public and private school environments, but also teachers working in homeschools, public libraries, museums, and other settings where students explore and learn.
6. Because of our network of partners, DPLA should help support a **community of practice** for digital cultural heritage organizations around educational use. This research project has demonstrated for us how much interest there is in this world from learning from each other's experience and building resources that work together. Periodic discussions about trends in education resources as well as shared feedback from teacher and student surveys can benefit the larger network of cultural heritage institutions with digital collections and help bridge the persistent communication gap with instructors. Any educator-focused portion of DPLA's site should include referrals to education resources from its partners just as DPLA will rely on partners to help refer users to its resources.
7. In addition to making its site more accessible to teachers and students and building out education resources, DPLA should also look for opportunities to **share open content** through partnerships with other education resource providers. This strategy would be in keeping with DPLA's broad emphasis on use and would help move partner content into several spheres simultaneously where it would find new education users. There are precedents for this within the partner network already as several state digital libraries contributed primary source content to state online encyclopedias and the National Archives has moved content to Wikimedia Commons. DPLA should consider these kinds of education partnerships broadly and at multiple levels of education—including large resource clearinghouse projects, aggregators of education content, and open educational resource developers. Of course, a key component of networking content will be attention to copyright issues as well as finding meaningful ways to track and report use to partners.
8. Because DPLA contains cultural heritage content at this stage, it makes sense to start an education project with primary sources while remembering that they are but one aspect of a much broader curriculum. With a much more expansive aggregation mission, however, the organization should continue to conceive of education resources and partnerships broadly, including secondary sources. In particular, **ebooks** will offer whole new ways to engage students, teachers, and education standards that will greatly extend DPLA's use in classrooms.
9. As DPLA grows its education project, it should also consider usability testing and specific resources around use of its API for **student coding** projects, particularly in light of the

growing popularity of the makerspace movement. Student app development is an exciting educational use for DPLA but it will require specific resources that accommodate beginning coders and guide student projects.

With these additions, DPLA and similar large collections will be much more useful and used in education at all levels. We look forward to doing this work and helping educators and students use DPLA to develop research skills and explore new topics and sources.

Timeline and Priorities

In the next year, DPLA staff plans to do a first round of work based on these recommendations on this timeline and in this order of priority:

Apr-June 2015	July-Sept 2015	Oct-Dec 2015	Jan-Mar 2016	Ongoing
Standards research	Build first group of primary source sets and teacher guides	Continue to build teacher network	Build additional primary source sets	Follow ebooks discussions
Build capacity for user-generated sets	Meet with small group of teachers for review and revisions	Recruit user-developed sets	Plan for next teacher review	Recruit feedback on API documentation for student coders
Gather first group of educators for first review	Continue to implement usability feedback	First meeting of education committee	Pursue partnership opportunities to network existing sets	Build student-focused resources for app development with DPLA API
Organize first education meeting of partner institutions	Build social media channels	Work on outreach initiatives including conference presentations	Assess program progress with usability and use measures	
Implement usability feedback				