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# Scaffolding and Play Approaches to Digital Humanities Pedagogy: Assessment and Iteration in Topically-Driven Courses

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## Abstract

Discussions of digital humanities pedagogy have often focused on discussions of “scaffolding” and “play” (alternatively, “tinkering”) approaches, and methods for assessing student work appropriate to both techniques. While these approaches may seem oppositional, we emphasize the need to balance them in most classroom contexts, and explore challenges with integrating new digital humanities platforms in topically-driven humanities classrooms. We examine our experiences as an instructor and a librarian partnering to include a multimedia publishing assignment sequence in a course on the history of children’s literature, and our assessment of our approach to instruction in a distance graduate education context that is not amenable to the “lab”-based learning usually used in person for DH learning. While discussions of assessment of DH classroom projects generally focus on the question of how to grade student work, we argue that assessment is as important for reflecting on and evaluating pedagogy, including how to balance and iteratively improve “scaffolding” and “play” approaches. These issues are important not just for experienced DH instructors, but also humanities instructors without a DH background beginning to integrate digital assignments as a new norm.

Instructors across humanities departments at the University of Illinois, as at other higher education institutions, have increasingly partnered with librarians to integrate digital humanities (DH) tools into their classroom — and not necessarily in courses titled “Introduction to Digital Humanities”. These instructors have already established topics courses in art history, media studies, history, writing studies, literature, and other topics. They want students to experiment with DH tools and methods for a single project in ways that support and enhance deep exploration into the class’s discipline-specific content and add to students’ abilities to synthesize and communicate arguments about this content through new technologies. As colleagues at other institutions report similar trends, this paper responds to an emerging need, anticipated in research by Amy E. Earhart and Toniesha L. Taylor, for portable strategies that instructors and librarians can use to embed DH skills in topics courses [Earhart and Taylor 2016]. This article reports lessons learned from the integration of a digital humanities publishing assignment sequence using the multimodal publishing platform Scalar in an online masters course on the History of Children’s Literature. Certain restrictions unique to this course — covering advanced history content, with heavy reading load, in an online synchronous distance education environment, while teaching an unfamiliar digital publishing platform (Scalar) — challenged the instructor and librarian to devise creative strategies for teaching DH tools using limited class time and without the usual in-person DH lab environment. These strategies are generally transferable as DH skills find their way into different classes and teaching environments. We also report the assessment methods we used to discover these lessons, with recommendations for how instructors and librarians can discover what works and doesn’t work in their own unique classrooms. 1

The fundamental challenge in pedagogical design that we draw attention to here is the balance between what others have discussed as “scaffolding” and “play” (alternately, “tinkering”) approaches to digital pedagogy. As discussed at greater length below, various advocates have emphasized one or other of these approaches, sometimes as opposed, for teaching digital humanities methods and tools. Here we emphasize a more general need to consider these two approaches together to foster strong digital pedagogy appropriate to different course contexts across the curriculum. Thus, in a context such as the course described here, where time is limited and students are learning at a distance, we 2

found that DH projects require careful scaffolding of the assignment to manage anxiety, as students have to learn a tool on their own time, supported virtually through peer discussion boards and online office hours. Indeed, our assessment indicated the need for further development of short lessons on targeted topics, choreographed to intervene at precise moments in the project. At the same time, students need space for some open-ended tinkering in order to develop DH skills that are transferable across tools, not the least of which is the confidence to teach themselves new skills as the need arises in their profession, using support from colleagues and online user communities. Our approach, therefore, might be described as directed tinkering, a strategic combination of scaffolding and play that uses structure to encourage students to experiment in those areas that match a course's particular learning goals.

## Modeling and Assessing DH Instruction

3 In designing the assignments and teaching strategies, we sought to balance the benefits of structured and unstructured learning in ways that would ultimately benefit the students. In the existing literature on DH pedagogy, structured and unstructured approaches generally appear under the discourses of "scaffolding" and "play." Scaffolding in these discussions borrows from instructional design to indicate a structured series of shorter, simpler assignments sequenced to lead into a larger, more complex product that synthesizes the material [Harris 2013] [Chan and Green 2014] [Green 2016]. Other reports of digital humanities or scholarly multimedia assignments in courses echo this approach of cumulative steps toward a major project (often but not always published as an ultimate step) even when not framing their work as scaffolding [Ball 2012] [Draxler et al. 2012]. Play approaches, by contrast, lend themselves to more open-ended explorations of tools and of projects that may not work out rather than a cumulative build toward a major product, and tend to emphasize learning from experimentation and failure [Sayers 2011] [Harris 2013].

4 It may be tempting to think of scaffolding and play as oppositional, but in practice the distinction may blur. Chan and Green, for example, have discussed classes where scaffolding approaches were used specifically to "encourage playful student tinkering" [Chan and Green 2014]. Sayers describes an iterative, sequential assignment as a "play" approach — the distinction in his case is that the final product is not necessarily considered the best version of student work [Sayers 2011, 285–287]. Moreover, although those arguing for play in its manifestation as tinkering sometimes argue that collaborative work is a fundamental component [Sayers 2011], both types of classes as reported in the literature are amenable to an emphasis on collaboration and team learning in a DH context [Sayers 2011] [Draxler et al. 2012] [Harris 2013] [Chan and Green 2014].

5 We consider scaffolding and play as different ways to structure learning that may be blended and balanced depending on course goals. While extensive scaffolding may close down opportunities for play, more often scaffolding prioritizes where play and learning takes place. This balance of scaffolding and play will be important to a future where digital humanities methods and tools have seeped into the curriculum, and humanities students encounter a variety of DH methodologies and platforms across their coursework. Amy E. Earhart and Toniesha L. Taylor similarly reject the idea that DH should be limited to advanced courses and propose teaching DH through "embedded skills development", so that students can more easily transfer these skills across institutional and professional environments [Earhart and Taylor 2016]. Likewise, Scott Selisker and Ryan Cordell have both recently pushed for a shift to integration of DH approaches in more discipline-specific courses, instead of (or in addition to) DH methods overview courses, as a way to focus on fewer tools in the context of deeper topical research [Selisker 2016] [Cordell 2016]. One possible inference from the existing literature, supported by our experience, is that play and failure work most expansively in courses generally devoted to learning DH approaches or to writing courses exploring digital or multimodal writing practices. Play with technology functions in the DH classroom similar to "low-stakes writing" in college writing courses. The instructor's promise to evaluate the work casually builds student confidence and encourages risk-taking in advance of higher stakes assignments [Elbow 1997]. Courses that have other significant disciplinary work to do in covering topical content, however, may have limited time for digital assignments, particularly for fairly time-intensive play approaches, while still having legitimate needs to integrate digital approaches to the topical content [Fraser and van Arnhem 2016].

6 Successfully developing some core DH capacities among students — including collaboration and multimodal writing strategies — will require taking a curriculum-level view of where these skills are integrated into various courses, sometimes extensively, as the primary focus of instruction, but other times strategically, while pursuing other primary

learning goals. Rebecca Frost Davis has noted collaboration needs to be taught not just via one course experience but across repeated engagements given the varying nature of collaboration across different types of projects [Frost Davis 2012]. Likewise, students need to practice DH skills across a variety of course contexts, much like they have done with writing skills in traditional essay writing assignments in humanities curricula, if those skills are going to become lasting learning outcomes of a degree program rather than an experience sequestered in a particular line-item of a transcript. Brandon Locke has recently called this integration of digital humanities across the curriculum the "digital liberal arts," expanding the existing humanities mission to foster a "skilled, literate, critical culture" in world of digital technologies [Locke 2017]. At the level of individual courses, scaffolding and play are pedagogical tools that instructors must balance to contribute to this "digital liberal arts" mission.

7 As with other teaching, finding the balance of play and scaffolding for any particular course will require tinkering from semester to semester. In this article we explore assessment as a strategy not for grading student work or demonstrating the value of DH methods or tools in the classroom, but rather for adjusting pedagogical approaches to achieve learning outcomes. Several researchers have explored options for assessment in the context of grading student DH or multimodal work [Ball 2012] [Mostern and Gainor 2013] [Green 2016], including those that examine the problem of teaching and grading "soft skills" like collaboration that are essential to much DH work [Harris 2013]. Likewise, some research seeks to establish the value of DH pedagogy through such evaluations of student work. These two intentions for assessment are both important and share a focus on student learning with our focus on assessment for (re)shaping pedagogy. But it is not the case that the two approaches would necessarily come to similar conclusions about quality. Student work that doesn't meet an instructor's initial expectations, for example, might be graded highly in the context of a course as it is taught in a particular instance [Harris 2013], but systematic problems in the student work, or simply ways it deviates from intended course outcomes, may reveal a necessary adjustment to the teaching more than they point to student problems.

8 Our assessment strategy draws from evaluation of student coursework in order to identify ways to strengthen both specifically digital components of the pedagogy (i.e., digital literacy issues related to publishing in Scalar), and the integration of the publishing assignment with other components of the course. By "student work", here, we importantly do not mean only the final products students created in Scalar (although it includes those); we also mean their engagement in the course in a variety of ways that exhibit collaboration or engagement with digital tools, and also reflections on their work with digital tools. Julianne Nyhan, Simon Mahony, and Melissa Terras have noted that reflective writing can exhibit student learning of key outcomes [Nyhan et al. 2015]. Draxler, et al. have similarly made productive use of student reflective writing in assessing student learning in DH assignments [Draxler et al. 2012]. We suggest this strategy applies more broadly in DH learning, and that it is particularly important for assessing development of skills (e.g. collaboration), as well as for students' ability to think forward to applying and teaching these skills in other situations, as students in the class we discuss are likely to do as library and information science professionals.

9 Such reflections are not just evidence of learning but pedagogical strategies in and of themselves when they ask students to synthesize and externalize learning. Regarding collaboration, for example, we hoped for students to think forward to how they might approach future collaborations differently in light of successes and failures in this experience. The multimodal assignment was, likewise, a designed learning opportunity and not just a product that exemplifies learning. When developing our own assessment rubric and examining student work for this study, then, we sought to evaluate student learning, but for the purposes of understanding the effectiveness of our pedagogy rather than to assign a grade.

## History of the Class

10 In our partnership, the instructor for a history of children's literature course and the subject librarian worked together to design a multimodal publishing project combining technical and social learning objectives. Working in six groups, students created a multi-media web resource on "diverse history" in children's literature. The class began this project with a discussion of what is included or omitted from the narratives that children encounter in historical fiction and history textbooks, before contemplating this selection and canonization process in children's literature itself. We discussed: Why are some books taught and not others, or why do some books or stories disappear from our historical

record? What voices and perspectives are not included in history through these omissions?[1] The librarian introduced students to the DH publishing landscape, the platform Scalar, and to issues related to responsible use of multimedia, through in-class sessions and a self-guided tutorial (completed outside of class). Then each group chose an issue related to "diverse history" and built one section of a Scalar "book" (or website) shared by the whole class.

11 The long-term goal of this project is for successive classes of students who take History of Children's Literature to edit, revise, and expand this project so that it can become a unique resource that provides high school and university teachers with access to contextualized historical materials that supplement available anthologies or commonly taught texts. The goal for this first class of students was more modest. We imagined what this future resource might encompass by having each group sketch out an introductory page to a topic their members deemed important. The six groups chose to explore the following: selection and canonization, K-12 reading instruction, prizing, publishing and power, diversity in illustration, and censorship. Future classes will add more focused historical case studies, including materials marginalized in the historical record.

12 Our approach to scaffolding and play might be contrasted against the assignment previous used in this course. Formerly, students worked individually to build web pages that document a first edition of a historically prominent children's book, using a platform of their choice (e.g., Weebly, WordPress). Detailed scaffolding predetermined the content and organization of the web pages that students created. The instructor provided five extensive assignment prompts that corresponded to five required web pages, and each prompt precisely stipulated information for students to investigate. Play took place while hunting down and synthesizing difficult-to-find materials, such as old reviews, author obituaries, dust jackets, and book advertisements. These instructions corralled students into creating a dependably professional final product, without lessons or assistance from the instructor on using the publishing tool, which made the project manageable for an online course with limited class time, but also limited the complexity of decisions students had to make about how to best select and arrange content to anticipate user needs.

13 These pages were quality work, but the assignment had several limitations for LIS professionals. Students lacked opportunities for collaboration that is more typical of librarian involvement in online publishing, information work in general, and particularly librarian partnerships with scholars on DH projects. Although intended to showcase technology skills to employers, the pages quickly looked outdated as students moved on, and the web pages were unlikely to be used by the public because they were difficult to find with an online search of the book's title. Lastly, over the years, as student familiarity with online publishing in the form of basic websites became commonplace, the assignment seemed less likely to challenge students. LIS professionals continually learn new and unfamiliar platforms on the job, and students in the iSchool's professional degree program frequently express a desire to learn more new technologies in the classroom. Integrating a more advanced digital publishing tool that meshed with the needs of the class offered an opportunity to further students' professional growth by encountering and troubleshooting an unfamiliar technology while not detracting from the primary digital literacy learning outcomes related to organizing digitized historical content with critical reflection.

14 The instructor hoped to adopt a different platform of the sort that librarians and archivists increasingly encounter as they partner with others on DH publications. Using another platform increased the need to support students while they learn the tool, but the obvious solution, a DH lab, was impractical for a distance learning course. To complicate matters, an evolution in the department's online program eliminated a previous mid-semester residency requirement, when students traveled to campus for a few days and could work directly at the library, using library references and troubleshooting with the subject librarian. The nature of the partnership with the librarian needed to change for the assignment to continue in an entirely distance-learning environment. The course instructor explained the need to reimagine the project as a collaboratively built online resource. The subject librarian suggested Scalar, a platform that would suit an ongoing collaborative project needing longer-term maintenance, revision, and supplementation in future semesters to make it a strong public resource, and which had a growing community of users on campus.

15 Developed by the Alliance for Networking Visual Culture, Scalar (http://scalar.usc.edu/) is a multimodal publishing platform that offers a few key features of interest for this course. First, it allows for simple and attractive integration of media (including images, video, and audio) alongside text so that authors can create long-form argumentative academic

writing that includes a broader range of evidence. Scalar is especially useful for integrating digitized primary sources key to the study of any historical topic, and the history of children's literature offers especially rich content for such integration due to the visual nature of the medium. Second, Scalar allows for the creation of multiple "paths" through book content, facilitating structures that might deviate from a single linear progression through the content. While any single path is itself a linear reading structure, authors can create path structures that overlap, merge, and diverge in ways that could not be achieved as seamlessly in print, and even a Scalar site with a single path allows readers to diverge into nooks and crannies by clicking on particular media or on visualization options. These two organizational issues: relation of text and media, and organization of reader flows through the book, were two fundamental digital literacy challenges we wanted students to confront in thinking through how to represent a multimedia historical argument in a web environment.

With no opportunity for a lab, we needed new scaffolding that would enable tinkering with Scalar in a distance learning environment. The librarian created a guide for discovering and using information resources and a tutorial that streamlined the process of learning Scalar outside of a lab. He also presented twice during class, which made the librarian's expertise and support accessible in a distance-learning classroom. The librarian was also embedded in the course management system in order to be able to answer DH publishing related questions, and especially technical questions, in a public forum. Using Scalar encouraged students to tinker with an unfamiliar technology outside of class, supported by posting questions in class message boards. Encouraged by Scalar's affordances, students also tinkered with integrating multimedia and organizing paths through their content. 16

## Integrating Digital Publishing in the Topic-Centered Humanities Classroom

One challenge of our collaboration was to integrate a digital humanities publishing assignment into a course that already contains a heavy reading load and challenging historical content. Teaching the history of children's literature requires orienting students in time (and these are not necessarily humanities students with a comfortable knowledge of history), while challenging what "everyone knows" about children by examining difficult texts and unfamiliar constructions of childhood from the past. The course covers children's literature in English from the seventeenth century to 1980. Each week's reading selections juxtapose works from across history, which together illuminate shared traditions and influences. In one week, students explore allegorical quests with selections from *Pilgrim's Progress* by John Bunyan alongside "The Golden Key" by George MacDonald and *A Wrinkle in Time* by Madeleine L'Engle, or survey pastoral idealism through William Blake's *Songs of Innocence,* paired with Maria Edgeworth's *Simple Susan* and Francis Hodgson Burnett's *The Secret Garden.* Weekly student presentations add further selections that round out these themes with contemporary examples from the same tradition. Add additional lectures on book history, child readers, and children's illustration — and we have plenty of material to shoehorn into two hours of class time a week, even before adding the scaffolding for the multimodal publishing assignment sequence. 17

As an additional challenge, we designed our assignment for a distance learning course that meets synchronously one evening a week, the common model for online courses in the university's LIS master's program. This program admits both on campus and online students, with a majority completing their degrees remotely — a common feature of LIS programs. In our curriculum, the course on the history of children's literature attracts students specializing in public libraries, youth services, K-12 librarianship, and special collections, who can choose to take the course for 2 or 4 credits. (This assignment is required for both credit options.) More often than not, professional master's degree students who take evening distance courses have families and full-time jobs, which makes meeting with project collaborators difficult. Students may feel additional stress regarding playful assignments with unclear outcomes or uncertain grading because their career goals are so immediate. Based on our prior experiences teaching undergraduates, limited classtime and student anxieties are common challenges in courses that integrate digital writing projects with topical course content. 18

We developed an iterative approach to teaching writing with Scalar based on our experiences with the tool, previous experience teaching writing courses, and a prior study of successes and failures with Scalar on campus conducted by the librarian [Tracy 2016]. Although the librarian's previous study of use of Scalar on campus found the media upload 19

process a pain-point with Scalar, mulitmedia integration was, nevertheless, the Scalar capacity most enthusiastically pursued by participants. By contrast, in prior course uses of Scalar on campus, students seldom employed Scalar's capacity for alternate book structures with multiple paths, and they experienced some difficulties creating paths, perhaps because assignments had primarily focused on creation of single-author essays [Tracy 2016]. The History of Children's Literature class offered a useful case for asking students to consider possible deviations from the single-path Scalar book: groups would be working on different sections of related content and figuring out how to put them together as a whole work related to inclusion and exclusion in the history of children's literature.

20 Students created and revised content through a series of scaffolded stages that encouraged them to consider the strengths and weakness of traditional text-based essays versus a multimodal publication. We developed these stages to minimize unproductive levels of frustration that students reported in less successful course integrations of Scalar on campus. In the first third of the semester, student groups developed a traditional essay covering their topical area and located media related to their topic. For this part, they used a custom research guide prepared by the librarian for the course. Creating this more traditional writing product before learning about Scalar served two purposes. First, it allowed students to see more fully how the later multimodal product ultimately required significant revisions to writing and presentation in order to fit the new genre, an approach that echoes advice from Sayers to allow student exploration of the affordances of different genres [Sayers 2011]. Second, drafting an essay first also ensured that students had content to work with when they began authoring in Scalar. The librarian's prior research into use of Scalar had revealed that student frustration was maximized when they tried so use Scalar as a content drafting platform, creating text and integrating media "on the fly".

21 The librarian worked with the instructor to introduce students to Scalar over the course of two classes, with an initial Scalar book creation assignment in between these classes. In an initial class visit, placed mid-semester, the librarian introduced the context of DH publishing projects generally and the role of information professionals in such projects. Students learned about the increasing variety of DH publications, and were introduced to ways in which technical and social issues converge in their production. They also learned about some of the existing tools for DH publication and why Scalar was chosen for this particular class over other options such as a WordPress website, an Omeka exhibit, or a TEI-based web publication. This included a discussion of strengths and weaknesses of Scalar, and discussion of approaches to learning Scalar. The primary goals of this class were to give students the broad context of DH publishing; to mentally prepare students to think about what they might expect when they started to use the platform; and to involve them in thinking about how multimodal writing strategy relates to the platform used and the ultimate goals for the publication.

22 In between the first and second classes with the librarian, students completed a self-paced text tutorial with screenshots introducing students to the Scalar platform. The librarian created this text tutorial rather than a video tutorial in order to allow true student self-pacing with the ability to quickly skim back to earlier parts or move forward more quickly in sections that were easier for individuals. An online course forum and direct email allowed options for technical questions if they arose. For an in-person class, or previous semesters in the LIS distance program where students would have attended an on campus day for their distance course, it would be a default activity to teach the basic technical procedures of using a tool like Scalar in a live session to allow the librarian and instructor to help troubleshoot as needs arose [Green 2016]. In this distance course, the lack of an in-person component facilitated greater rethinking of delivery of technical instruction, and the changes ultimately allowed for more in-class time to be spent on discussion of the ideas that drive DH projects and conceptualization of the multimodal writing issues that would materialize in the Scalar publication.

23 The self-paced tutorial, developed and organized by the librarian based on the strengths and weakness of Scalar and writing issues discussed with students in the first session, led students through the technical aspects of Scalar use in a way that also suggested a creation strategy to minimize the most frustrating features of the platform. For example, it introduced media importing as a process to complete prior to page construction (for initial content), and then introduced creation of a single basic path out of their pages. A few other Scalar functionalities were suggested as areas for side exploration, but the point here was for student to learn the most basic tasks in Scalar as a baseline for being able to do more as their groups later revised and finalized their Scalar content. In other words, the tutorial provided necessary

scaffolding that provided strong creation processes for students to go from media upload to page creation and ultimately path creation, but it also encouraged them to “play” with some optional elements. It is possible to imagine a course situation where a less structured introduction to a platform would be desirable in order to provoke (bigger) useful failures and reflection on strengths and weaknesses of the platform. While we wanted students to achieve some reflection of this kind, though, we wanted them to focus more on the issues of how to successfully integrate multimedia and create unique and appropriate organizational structures in Scalar, and we did not want frustrations with Scalar to derail the progress of the groups.

Students completed these tutorials individually, but used the text their groups had drafted and media the group had gathered. This approach allowed everyone to become familiar with Scalar, but it also required each student to think through the process of how they would integrate media with text. Individuals were encouraged to make whatever edits they thought necessary to their group’s text and media selection as part of this process, and after the due date group members shared their solutions so they could see how decision-making in this process affected the final outcome and how they had produced different Scalar books out of similar original content. 24

For the librarian’s second visit, a week after the introduction of DH publishing and Scalar, we began with some time for students to discuss their experiences completing the tutorial, but then focused more generally on the idea of paths. We wanted the students to think through the options for organizing content in Scalar more substantially, and to begin discussing how they thought the different groups’ pieces of the larger project should fit together. The class discussed different ways paths could be organized, and the fact that the drop-down table of contents in Scalar gives a second organizing principle to Scalar books that may or may not mirror the structure of paths embedded on pages. After the initial discussion, small groups broke out and used the digital whiteboard to create their own imagined outlines of how the different groups’ content would relate in a structure of paths. Groups then presented their visions for the book structure to the class as a whole for further discussion. 25

In subsequent weeks, groups compared their individual versions of their books, revised text and media selections, explored ways to expand their use of Scalar features, and created final versions of their pages. One student was assigned the task of working to pull the different group products into a coherent structure of paths and a Table of Contents. 26

Our experience revising this assignment showcases how scaffolding supports play, while different scaffolding shifts student play onto activities with different learning outcomes. For the previous assignment iteration, scaffolding prioritized the hunt for information by telling students what information to find and how to organize it. By contrast, the revised assignment gave students broader responsibility for content and synthesis of that content. Students decided what a resource on diverse history should include, who might use this resource, and how to best organize the information for those users within Scalar’s interface. This revised scaffolding emphasized play in relation to multimodal writing strategies rather than, for example, exploration and evaluation of more fundamental user experience issues or the technical structures of the Scalar platform, which might be the object of exploration in other contexts. By evaluating what students learn, instructors can revise their scaffolding between semesters to achieve their desired learning outcomes. 27

## Assessment of Learning Technical and Multimodal Writing Outcomes

Our goals for student learning in the course of the Scalar project included several specific outcomes outlined for the students: 28

- Beginning understanding of how the choice of digital publishing tools effect users, staff training, and content (and vice versa).
- Experience with collaboration on a DH publication.
- Familiarity with Scalar as one particular digital publishing platform.
    - Practice considering the unique organizational options of Scalar and crafting an appropriate approach for authoring content that is appropriate to the tool.
    - Ability to create Scalar content and navigate rough patches as a natural part of learning new

and evolving technology tools.
- Ability to evaluate the strengths and weaknesses of Scalar.

29 These outcomes related to the broader course and degree program outcome of preparing students for the professional workforce as well as the course-specific outcomes related to learning the history of children's literature. As with other courses with humanities content, a fundamental part of students' mastery of that content is the ability to synthesize it and communicate arguments about it with a broader audience. As [Locke 2017] notes, doing so with digital humanities methods and tools updates and expands these fundamental liberal arts skillsets. In the case of this course, where the historical content had significant visual components and involved a variety of intersecting issues, multimodal authorship in Scalar allowed building skills in the unique writing organization issues that arise with integration of multimedia and text, and of content that offered more than linear possibilities for structure.

30 We assessed the success of our pedagogy through their individual Scalar pages and the final Scalar product, contributions to the course conversation in the course forums, and a final reflective essay that prompted students to discuss their experiences. We used a rubric to score success for each of the above measures, with some items scored by individual and others by group product. It is worth emphasizing, though, that the rubric-based assessment we are reporting here is an assessment of our pedagogy and not simply an assessment of student work. Student products, as in most classes, included a range of more and less successful work, and for grading purposes the same issues were examined as we report here. However, our emerging understandings of challenges in the structure of the assignments, as well as the fact that this was a significant evolution in course design, factored in to reading of student products (particularly the essay). As Harris notes, courses that integrate novel DH assignments require accounting for unanticipated pedagogical challenges when assigning grades [Harris 2013]. As the discussion that follows indicates, we see future iterations in pedagogical approach as a driving reason for this assessment not just of students but of our own practice to account for what worked and what did not.

31 Our assessment of the individual sample pages created in Scalar, the final product, and the changes and decisions groups made in the course of revision, showed that the instruction related to Scalar successfully made students comfortable with the platform. The class was almost universally successful in creating a single path with pages that integrated annotated media, and in the second Scalar-focused class, students reported that the self-paced tutorial was straightforward and easy to understand. More promisingly, a number of students also explored some of the options for creating a table of contents, background images, footnotes, and links to external content, which were not required for the assignment but encouraged for consideration. As the groups compared versions and provided a final text, they extended this exploration by integrating more unique kinds of media or Scalar options for organizing that media.

32 Few technical problems cropped up during the creation of the individual pages, and students proved diligent at troubleshooting when necessary. One problem that did come up revealed a bug in Scalar but provided a good opportunity to discuss file management as part of digital work. Specifically, a few individuals created image annotations that did not show up correctly when published. After some investigation and troubleshooting, we discovered that these were all cases where uploaded media files had spaces in the title, and that caused problems with the appearance of annotations and some other media display features. This issue presented a good opportunity to talk about file naming conventions and the problems spaces and some special characters can present to a wide variety of digital systems.

33 Perhaps unsurprisingly, though, the technology itself was the easy part. As we assessed the final Scalar products, we felt the biggest challenges students faced were the writing and conceptual issues in the integration of media with text. For example, a few groups made media choices that were conceptually inappropriate: a background or chapter splash page image that did not have a clear relationship with the text or was too frivolous for the imagined audience for the resource. In other cases, some media integrated alongside the text, although related to the topic, did not clearly help advance the argument.

34 While much of the content used was in the public domain or available via a Creative Commons license for re-use, the lack of connection of some media to the text poses a particular problem for in-copyright media. Students were introduced to fair use guidelines for use of media in scholarly work that emphasized the need for specific analysis of

images and video rather than simple illustration, similar to those described by Scalar's partner organization Critical Commons and in Best Practices in Fair Use guidelines for media.[2] Groups did not consistently apply these principles, which means significant work would need to be done for any final public availability of this work as originally intended. The problem especially arose in relation to video, which caused problems that would be familiar to composition instructors working with students on the integration of textual secondary sources. Specifically, groups tended to use video either decoratively or to provide expert quotes that were loosely related to their page content, but without explanation of why the quote was there or analysis of the content that would be transformative (in the sense used for fair use analyses). There are opportunities here not just to improve the understanding of the copyright issues but to see those as directly related to the composition issues of how to integrate media sources in multimodal writing.

35 On the other hand, students engaged with class discussion about the organizational possibilities with Scalar in thoughtful ways that showed a willingness to explore the compositional possibilities of the tool. This discussion took place after students had created their individual Scalar sites with a single path integrating media. The librarian led the class in a discussion about the ways Scalar could allow different kinds of content organization, including different starting points and paths through the text, paths that branch off, and other options. The students then broke into their topic groups and used the whiteboard functionality of the distance learning platform to imagine how their several group contents would combine into a shared class project, by brainstorming possible reading flows through the class Scalar book. Specifically, we asked students to sketch out how the six different groups' content paths would link up in Scalar. Should there just be a single path that led from a starting page through a set sequence of topics, like a print book? Or would they recommend some more unique arrangement?

36 The groups imagined several arrangements of the group paths beyond a simple, single linear structure. For example, one group projected that a reader should start with a unified introduction and then read the path on canon formation in children's literature as a unifying first "chapter," but then allowed the reader to split off from there to choose any of the other paths. This group also suggested specific links between the other five paths: a reader might choose to go from canon formation to the section an awards, for example, but then be able to go from awards to either the section on the publishing industry or on illustration and design (See Figure 1). Another group ambitiously proposed two alternate options. One would have readers start with the section on awards, go to the section on the publishing industry, and then have the choice of moving on into illustrations or diverging onto a separate path that would take them through the sections on canon formation, corruption of youth, and educational influences (See Figure 2, on the right). Their second option, though, was perhaps the most radical proposal: they imagined an organization where readers could choose between two starting points, either the canon section or the awards section, and then have different options for continuation (See Figure 2, lower left).

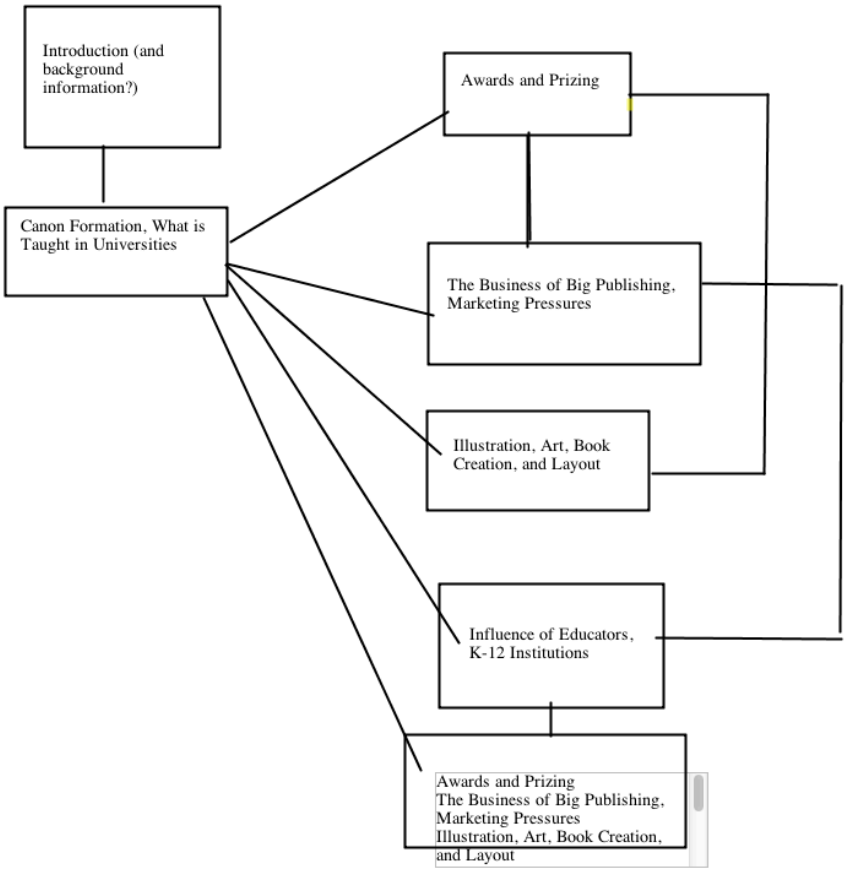


**Figure 1.** First group's brainstorming of path structure

Awards and Prizing
Big Publishing and Marketing
Canon Formation
Corruping and Shaping Youth
Illustration, Art, Book Creation, and Layout
Influence of Educators

Awards/Prizing-- Publishing - illustrations

Canon Formation, corrupting youth, influence of educators

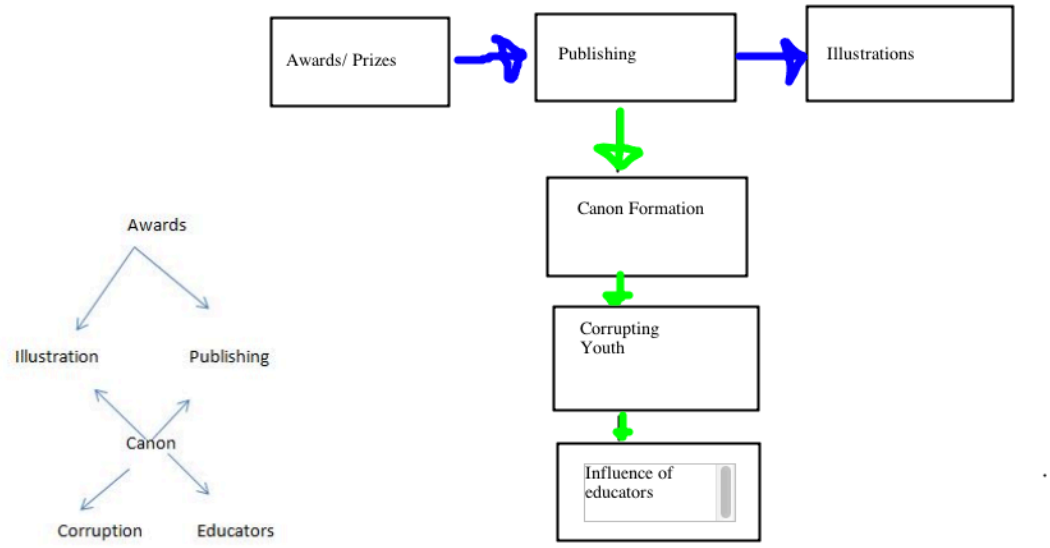


**Figure 2.** Second group's brainstorming of path structures

The final Scalar book produced by the class wound up with a simpler organization, although more than just a linear progression: after a brief introduction, readers can choose any of the sections, or proceed through sets of them as possible paths. One particularly inventive group, working with the topic of illustration and design, also made more advanced use of paths within their section in order to create an offshoot, appendix-like path related to the history of diversity within children's literature illustrations. 37

However, while the students proved willing and able to think creatively about organization, the actual process of creating multiple paths proved to have some technical complications. In particular, as decisions about paths changed, the management of paths within Scalar proved a challenge: old paths were left rather than removed, for example. The primary method for managing paths in Scalar is within the context of individual pages that serve as the beginning of paths. What students (and instructors) really needed was an interface to solely manage paths and the pages they contained that would more easily enable clean-up and revision of path structures — that is, enable a greater ability to tinker with organization. 38

## Collaboration Challenges and Successes

Students reported difficulty with communication and coordination, which was complicated by distance learning. As one student explained, "The majority of us have jobs, children, other classes, homework, chores," and without a "physical class together," meeting is difficult. The group who worked on K-12 education, which self-selected to include fulltime teachers with families, chose to divide up their work so that each student completed one page, then linked these pages together in a predetermined path. This up-front division of labor discouraged members from reimagining alternative 39

Scalar paths or reordering/expanding content across pages, but this workflow was easier for these students because they were employed as fulltime teachers. If instructors want distance-learning students to work together throughout the creative process, they might need to provide regular meeting time during synchronous class sessions.

While students cited personal lives in relation to communication challenges, their frustrations (most often with failure to answer email) were tempered with satisfaction, mutual sympathy, and appreciation for the way peers stepped up as each group member faced emergencies. Several groups used Google Docs to draft text on their own initiative, a solution made familiar through other courses. Students often remarked that difficulty with communication or group dynamics are endemic to any group work, regardless of the publishing platform, but that Scalar made collaboration possible among an entire class, all editing one website simultaneously. In many ways these challenges, and their willingness to push through them, reflect common issues with DH projects involving busy colleagues, some of whom may be at other institutions. In that sense the assignment was successful in giving students experience with issues in DH collaboration, which may be messy and require good will among participants. 40

Even though our assignment design and Scalar's affordances both encourage collaborative authorship and nonlinear writing, the way students coordinate within groups is partly determined by their past experiences with other publishing platforms. Familiar with web pages and blogs, students' first instinct was to assign each group member a page, allowing each person to pursue their own separate project with little need to worry what other group members are doing. But when groups allocated one page to each group member, they circumvented the kind of tinkering with different ways of organizing information that Scalar makes possible (and that we hoped to facilitate). The way Scalar paths guide readers requires more coordination to create a consistent narrative across each path. Exacerbating this issue, groups that divided up content generation by page expressed more reluctance to edit and expand one another's writing, since each page seemed "owned" by a particular author. One student recognized the difficulty of "figuring out how to combine our different research areas and found literary objects into a single book/website in a cohesive way" so that "the final project felt like one larger project, and not three different projects lined up," and connected this challenge with Scalar's unique "organization" which "keeps a Scalar project from resembling much of the what the rest of the internet looks like in terms of apps and webpages." 41

One way that students addressed this problem was to have a single person put together the initial draft of their group page. They often describe delegating work by different "strengths," a phrase that usually meant strong writers did the writing and people with digital publishing experience created the first group draft. Celebrating this aspect of collaboration seems most common among students who describe themselves as either "technology savvy" or uneasy (inexperienced) with online publishing. This solution echoes realities of DH projects that pull together collaborators with different disciplinary and functional strengths, but in the context of this class it could allow some students to evade engaging with the opportunity to build specific strengths. 42

The greatest amount of reorganization, expansion, and transformation of content happened in groups that delegated work by project stages, with one or two members taking over the editing process during the later weeks designated for revision. While this strategy accidentally arose to accommodate personal emergencies, it successfully encouraged revision and co-ownership of content among group members. Instructors could purposefully structure this workflow by scheduling groups to assume responsibility for a project at different stages, before passing it along to new writers. We tried this strategy in a limited way by assigning a single editor who linked together pages at the project's conclusion, an unplanned adaptation of the assignment that accommodated a student who joined the project late. The entire project, however, could be reorganized this way, for example with one group devoted to locating and annotating multimedia, and another to investigating fair use, which may help focus energy on aspects of the project we saw neglected. 43

These challenges of meeting at-a-distance, balancing personal lives, dividing up work, creating a unified publication, and tinkering with Scalar are all interconnected. As one student explains: 44

> I felt like everyone worked independently and at the end, our pages were put together one after the other. We had more of a pieces/parts type of project, rather than a holistic project. For me this jigsaw approach was challenging because I felt like we could have pulled resources together to make a more harmonious

> product. Our group met twice via Skype, but not everyone was able to make the meetings. I remember thinking at a certain point putting aside my attempts to unify the project. I'm not sure if this is how my teammates perceived the work. It might have just been me or, perhaps it might be part of the conditions of online group work (this is the first time I take an online class). For my next go around in online classes, this experience will definitely be beneficial as I'll understand some of the challenges of collaborating online. So, I'm very grateful for this experience! Everything is a learning experience (cheesy, but true for me!).

Despite these reservations, this group's project was quite successful and innovative. The instructor interceded after a group's first meeting, when they reported dividing up the work by page in advance, and suggested that students draft material and brainstorm content before deciding how many pages they would need and how to link them. This group followed the instructor's suggestions and ended up producing one of the most expansive sections in terms of content and media items. This group wrote the only section to implement multiple paths. 45

## Tinkering for Future Iterations of the Course

The successes and failures described above suggest several lessons for scaffolding and tinkering in the context of digital pedagogy. First, even highly structured assignments allow room for tinkering, encounters with technology failure, and resultant troubleshooting; but this type of play in the DH classroom has a different focus and scale than it might in a methods or writing-focused course. While the final product created by the class was "messy" and would need revision for final publication, it showed willingness by some groups to go beyond the minimally required functionalities to explore some other Scalar options. Second, from a more general perspective, valorizations of tinkering and encountering failure or technical challenges in DH projects need to be contextualized in specific learning outcomes, since usability challenges can interfere with specific tinkering goals of greater interest to a particular course. The challenges students faced in making edits to paths in Scalar without leaving odd remnants of prior structures, for example, meant time spent troubleshooting path management instead of actual tinkering with path and argumentation organization — not necessarily productive in the context of this course. In short, the user experience of particular tools is part of the scaffolding that instructors need to include in their planning. 46

Because it offers dedicated time to meet and tinker, the synchronous course experience is indispensable in a distance learning course. We quickly discovered the need for more structures to encourage tinkering during class. The assignment revision most frequently suggested by students (unprompted by any question from us) was having more time to discuss progress during class so that they can coordinate with group members and seek inspiration from what other groups are doing. Class time is at a premium in a content-heavy distance-learning course, but fortunately our program has the option to add 30 minutes (increasing to two-and-a-half hours per week), providing a structure to allow groups to work on content and technical issues in class. This would help address the issue of busy student schedules, but also provide a forum for more immediate feedback and class learning with specific groups as they run into obstacles. The extra time in other weeks could be used for additional interactive exercises related to the issues of writing with multimedia that would address the intellectual property and argumentation concerns with some of the media integration. As a more general rule, play in the context of a topical course with a DH assignment needs a lot of scaffolding to make students comfortable with imperfection and uncertain outcomes. 47

Scaffolding creates opportunities for play by managing student anxiety, which is elevated when the students know an assignment is graded, but they feel unable to control the quality of the final product. Instructors may be satisfied with evidence of intrinsic motivation in their students (experimenting, evaluating, sharing ideas, inspiring one another, and revising their writing), even if outcomes are messy. But messy products can make students uneasy. Not only are some master's students uncomfortable with failure, but their past experience leads them to assume that teachers will grade assignments based on a final outcome, especially when other assignments in the class conform to traditional humanist writing formats with individualized grading of polished products (e.g. a final research paper). 48

In future iterations of the assignment, the instructor plans to narrate more explicitly to students the pedagogical approach of the assignment and explain how play will be positively evaluated, which not only prevents anxiety but saves 49

instructors time. Since it is difficult for students to believe that process is more important than product, tinkering should be not only built into the assignment, but its uses and logic made explicit by discussing what tinkering is and why we value it. If students do not realize that tinkering is a goal in itself, they may assume the instructor has failed to give enough guidance and ask endless clarifying questions, trying to avoid “wasting time” or “dead ends”. These are negative labels for tinkering outcomes, which show a misunderstanding of the assignment design. The instructor can prevent some of this frustration by introducing the assignment with a discussion of tinkering. Students can interview one another about their experiences tinkering as they learn something new and compare tinkering with technology, with writing, and with hobbies, before reporting back as a class.

50 These fears are amplified in a professional degree, where students expect online projects to yield material for job portfolios. The temptation to translate “play” as “wasted time” is even stronger among career-oriented masters students who may associate experimentation with their early twenties in undergraduate education. We should have anticipated that even though tinkering was built into the assignment design (with students individually working on different configurations of their group content before comparing and reconciling ideas by rebuilding in a shared class “book”), students would try to circumvent this step. At their first meeting, one group plotted out all of the pages they intended to create and how they would link together, as well as the pages they imagined my future students might add to the publication — all before conducting research, drafting content, or experimenting with Scalar to learn its affordances. Later, when students completed their individual portions (the tutorial), many of them asked whether they need to “do everything over again” to produce their collaborative group page.

51 Additional low-stakes exercises that do not directly lead to graded material would help accustom students to play, graded informally by participation and risk-taking. Students could investigate other Scalar publications and report on features that they find attractive and innovative, allowing for a longer period for dreaming and inspiration that would prompt students to investigate more Scalar features; students would experiment linking together pages and save different configurations, then try out the paths created by others and report on the user experience. We would practice annotating images and evaluate whether these images are fair use (areas where final projects showed the greatest weaknesses.) For a topic-centered course, we would prepare these exercises in advance, as much as possible, so that students do not feel that the technology impedes their learning of the primary course material. (Scalar could use a new feature that allows easy duplication of instructor-created “starter” books that students can quickly manipulate and discard.) Students also benefit from receiving an informal grade of their assignment participation early in the semester so that they understand how play is evaluated and participating in that grading process through frequent reflection exercises.

52 In the next iteration of the course,[3] the instructor plans to experiment with an alternative way of structuring co-authorship and group work, by creating groups devoted to specific tasks, such as initial research and writing, locating and annotating multimedia, and investigating fair use. Since this division of labor allows students to learn fewer skills in greater depth, the instructor would retain the initial phase when all students experiment with all of the writing and technical tasks while using the self-guided tutorial; furthermore, groups could show drafts to their peers and receive feedback and present what they learned at the close of the semester. This strategy gives students flexibility to choose project deadlines that work best with their personal schedules, and it forces students to relinquish ownership over their work as new groups assume responsibilities, which approximates how many professionals engage in collaborative online publishing.

53 While student reflections on collaboration indicated realistic challenges and revealed ways for us to improve the structure of the course in the future, we found that for future iterations of the course we would likely want to edit this reflection prompt to improve student opportunities to reflect critically on their collaborative processes. The original prompt, as framed, asked students to discuss benefits and challenges of collaborative digital work based on their experience, and this led to responses that were more general than we had hoped for. For the future, we would specify the prompt to ask them to put their experience to work more explicitly to frame some best practices for collaborative work that they would employ in the future to address the challenges they identified. This revision would better fit our desire for students to further synthesize their experience in a way that would lead to greater learning.

While describing these changes, we cannot help but reflect with chagrin how often pedagogical research describes classrooms with none of the discomforts and failures, doubts and revisions, that are part of the teaching process. When the classrooms described by the literature resemble machines without friction, instructors, too, become uncomfortable with failure. One role of the digital humanities is to encourage playful innovation with assignments, knowing these changes may produce problems. When Katherine D. Harris describes how her own pedagogy changed as a result of bringing digital humanities into her classroom, she reflects that teaching assignments, like digital humanist work, involves "productive failure for both me and my students" [Harris 2013, 6]. Some instructor "failures" are necessary tinkering. As instructors of topical courses like the History of Children's Literature increasingly integrate small- to medium- scale assignments with DH methods and tools in their courses, such failure and revision has a refreshed necessity. When instructors experiment with and improve such projects, DH skills become integrated across the curriculum, promising more frequent student encounters with collaboration and technical troubleshooting. Learning these underlying DH dispositions requires practice across different contexts, and they are as much a part of future humanities education as particular technologies, methods, or topical content.

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### Notes

[1] There is an opportunity in this discussion to tie these problems in the history of children's literature to similar issues of diversity and inclusion in the creation of DH projects as well [Earhart 2012] [Martin and Runyon 2016]. This allows the students to think of the class publication's potential impact not just on the history of children's literature but the DH publishing landscape.

[2] http://www.criticalcommons.org/; http://cmsimpact.org/codes-of-best-practices/

[3] The instructor has since taught this course again in fall 2017 using many of the revisions described in this article, as well as others. Interested readers are welcome to contact the instructor for assignment prompts and updated findings.

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