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Collaboration in the cloud
Untethered technologies for scholarly pursuits

April 2011 was an especially tough month for cloud computing—Amazon's cloud went down, the Sony PlayStation network was hacked, and Verizon's LTE network was unavailable for more than a day. However, if loving the cloud is wrong, we don't want to be right. Our story of life in the cloud begins in the fall of 2009, when we produced a book manuscript relying almost exclusively on Web-based applications and services.[1] Although using these mobile-friendly tools while writing a book about building mobile-optimized Web sites wasn't a conscious or purposeful decision, integrating a suite of portable technologies, like Google Docs and Dropbox, transformed our workflow, sparked our creativity, and improved our eventual product.

Despite the fact that we were geographically co-located at the time of the book project—we worked at the same institution and even had offices along the same hallway—our schedules were anything but compatible. As we kept trying to fit the pieces together to find a way for the three of us to collaborate on a book manuscript, we realized the answer was in the cloud. Each of us brought her favorite application or tool to the table, and before we knew it, we had created a new working structure for our publication process from start to finish, integrating the tools and leveraging the strengths of their various features. The ease of creating—and deleting—content, and the ability to comment freely on the ideas of collaborators, promoted freewheeling ideation at the brainstorming stage. In later stages, the ability to incorporate real-time updates and edits without the requirement of physical proximity supported independent work schedules, which in turn increased efficiency and helped us stay on task. Built-in versioning simplified the proofreading and editing process, and Zotero's shared libraries feature streamlined the collection and formatting of citations.

Using our experience writing a book using various applications as a case study, we've focused on practical tips and best practices for maximizing the possibilities of emerging technologies for academic pursuits. We will also consider the implications of choosing to rely on the cloud for the production, storage, and dissemination of your research.

Brainstorming

We used Delicious, a social bookmarking service, to gather ideas—sort of like an inspiration board. The ease of quickly noting promising

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materials for ourselves and our collaborators promoted rapid idea generation. Since the service simply holds links referred to you by other users in an inbox, we avoided a lot of disruptive e-mail and could both share and review items on our own schedules. Later, it was really easy to retrieve the items for reading and then for citing.

Delicious is just one of many social bookmarking services; you might prefer another. You should know that after acquiring Delicious in 2005, Yahoo! announced in December 2010 that they were shutting the service down. It has since been purchased by two founders of YouTube who plan to continue and enhance the service.[2] Some other options to consider include Digg, Diigo, Pinboard, Reddit, StumbleUpon, and Google Bookmarks.[3]

Whatever social bookmarking service you choose, some ideas to consider

Create a separate shared account for the group. This reduces clutter and makes it easier to keep track of project links. Also, it creates an ongoing resource for you, your collaborators, and for anyone interested in your work. We were able to use the shared account as an additional resource in presentations on our book topic, and we have continued to add items and update it.[4]
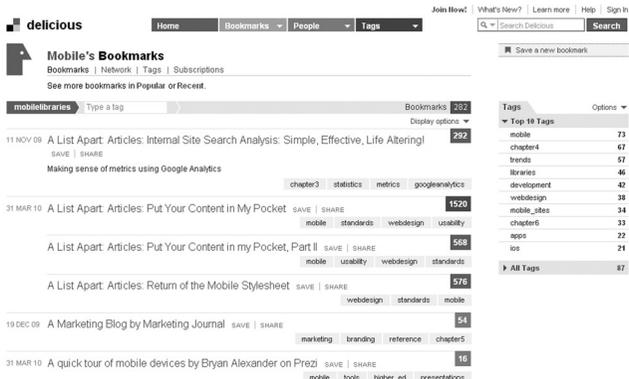
In the "project" account, tag items by chapter or section. It'll save time later on when you come to citations.

Writing

As far as we can tell, Google Docs does nearly everything but the actual writing for you. Integrated group chat makes it easy to get

Project bookmarks on Delicious. Visit this article online for detailed images.

feedback from collaborators near or far, you can edit synchronously (useful and magical!), and it's accessible anywhere…so you can work wherever you like (well, wherever you like that has Wi-Fi). Plus, with the new features they've released since we completed our work, now it's even more robust. You can organize documents into collections and work with a much larger array of file formats than was previously possible. With the ability to work with text documents, spreadsheets, presentations, drawings, and forms, Google Docs is quite flexible. One possibly unexpected, but definitely fun use from our project: when we couldn't decide between several options for a title, we created a form and did a quick straw poll of our friends.

Handy tips and some questions to consider when using Google Docs

It's easy to share your Google Docs files with anyone; even better, you can assign different levels of permission. Just want someone to be able to read and not edit? No problem.

Version control means that you can see the first…or fortieth…draft of that sentence. If you like the old one better, just roll back.

Here's where we get to the tough stuff: Are you going to leave your backup to the Goog? Yes, the uptime on their services is good, but assuming you don't consider whatever you're working on to be disposable, we're going to recommend you avoid simply crossing your fingers and muttering "In Google We Trust." (In fact, if you've experienced a tragic file loss before, we're willing to bet you're probably still wincing from the painful memory.)

Best practice for backups? Multiple and distributed. At significant points, pull a copy down to a flash drive, and save one to another location (the network drive on your work computer, or a service like Dropbox, discussed below). If you're working with a group, you may want to agree on who's going to take primary responsibility for this, so you don't end up in a pinch.

Citing

Phew, the writing's over. Thought the hard part was done when we finished the content? *Wrong.* Now we had to cross our t's and dot our i's as we reviewed and formatted all our citations…and with six chapters and three authors, there were plenty of citations flying around. Happily, we live in a time where that wondrous invention called citation-management software is now Web-based, so it's even more flexible. We used Zotero 2.0 and its group libraries feature to more easily collect all of our references in one place.

Group citation library in Zotero.

Zotero began its life as a Firefox browser extension. It cleverly recognizes when the user is viewing an article or library catalog record, and makes it very simple to save the item's citation information to a library where it can later be organized, tagged, and output in numerous citation styles to a variety of formats. Users can sync citation libraries across multiple devices, and enabling the creation of groups streamlines the process of sharing references on topics of mutual interest. A new release, Zotero Everywhere, is slated to be coming soon and includes browser extensions for Chrome, Safari, and Internet Explorer, as well as a stand-alone application and other enhancements.

Again, you might have another favorite Web-based citation management option: CiteULike, EndNote Web, RefWorks, or Reference Manager, to name just a few. Had we been aware of it when we were writing our book, we might have been tempted by Mendeley, a desktop/Web-based application that integrates citation management with social-networking features geared to making it easy for the academic community to collaborate and share information.

Lessons we learned about managing citations

At the time of our writing, citations weren't a strength of Google Docs. For any project involving numerous references, we recommend that you consider exporting formatted citations to Word or Open Office and manage them as a separate document.

If you use Zotero for works with lots of citations, create folders within your group library by chapter or section so that it's easier to process, double check accuracy, or quickly find a specific item by browsing later.

Editing

One common question we hear is "Why do I need Dropbox when I've got Google Docs?" Though at first glance their purpose appears to be similar—easy document sharing and storage—Dropbox gave us the flexibility we needed to share not only documents but charts and images as well, and in a very streamlined way. We found Dropbox to be essential during the editing stage of our book, when we went from working with discrete sections to pulling together a finished manuscript.

As a project in process, Google Docs more than met our needs, but as we drew closer to

completion, we hit two roadblocks. One was the previously mentioned citation problems, something Google docs has since improved upon. The second was the requirement that we deliver our manuscript in .doc format to our editor.

These two issues prompted us to export our book, chapter by chapter, into Word, after which our individual contributions began to take shape as a finished product. However, we didn't want to fall into the vicious cycle of continuously e-mailing multiple versions of Word docs, constantly checking if we had the most current version open, and hoping we didn't cancel out someone else's edits.

Another reason Dropbox quickly became a fan favorite is not just its platform independence—it doesn't care whether you use it on PC or a Mac—but its extreme mobile-friendliness. It made sharing files easy, as we were in almost constant communication at a time of intense editing, even though one of the authors was crossing the country on Amtrak. Dropbox let us share changes in real time, and we were then able to discuss the changes using e-mail, IM, and SMS (and even occasionally a phone call). Given this, you won't be surprised to hear that we're intrigued by the possibilities of a new (free) application for Mac OSX, called Chatbox, which supports collaboration by allowing discussion, annotation, and chat around Dropbox files.[5]

Dropbox features we love

Dropbox lets you upload multiple files at the same time. Plus, it keeps track of file history, so you always know you're working from the latest version.

The Dropbox client on your desktop computer will alert you when collaborators change or update files. You can share whole folders, as well as individual files, which means you don't have to worry about setting permission levels for every file you want to share.

Where next?

Whatever your feelings about the impact technology might have on the character of writing, it's hard to dispute that the mechanics of planning and executing a scholarly publication have been made more efficient by these, and other, new tools. There are pitfalls to this new crop of technologies, of course; in addition to the failures we mentioned previously, the unexpected and unexpectedly swift decommissioning of Google Wave is just one more example of the risks associated with cloud computing. Controversy swirls around issues of privacy, ownership, access, and archiving, but there remain exciting opportunities despite the many valid concerns.

These tools are still in many ways in their infancy, and necessary improvements to security, stability, and accessibility can and should continue to be addressed. For brevity, we'll give just two specific examples, both involving Dropbox. A complaint was filed with the FTC in early May 2011, claiming Dropbox misled users into believing that their files were encrypted and that employees had no access to view them;[6] they responded by saying that it was a misunderstanding.[7] In June 2011, a flaw in security resulted in a short window during which passwords were optional—and about 100 accounts were breached.[8,9] Both incidents are cause for concern. Our take-away from these examples: as always, be mindful about how, and where, you store sensitive information (e.g., passwords and financial information).

As these and other emerging technologies transform our workflows and habits in both our professional and personal lives, and our collective comfort level increases, so does the potential for revisiting, revitalizing, and revamping processes in writing, publishing, and other collaborative pursuits. Scholarly output is critical to our profession. For many academic librarians, in addition to being an important part of continuing professional development, it is also a crucial part of promotion and tenure.

What we learn individually and collectively through the process of inquiry benefits our community of practice; in turn, the results improve the experience of our end-users. To our minds, there's no better testimony to the utility of a service or application than being able to

share a great, concrete personal example: our fellow coauthor reports that simply being able to demonstrate the group library for our book project to faculty and research assistants at her current institution has resulted in quick, enthusiastic adoption of Zotero.

Libraries have long been masters of doing more with less, and while our resources are stretched in the current economic environment, the opportunities afforded by technologies like these not only provide the chance to integrate efficiencies where possible (reduced travel funding, working remotely), but also are exciting in their own right and can lead us to new ways to collaborate and create knowledge.

Notes

1. Courtney Greene, Missy Roser, and Elizabeth Ruane, *The Anywhere Library: A Primer for the Mobile Web* (Chicago: Association of College & Research Libraries, 2010).

2. Erica Naone, "Are Social Bookmarks Still Delicious?" *Technology Review,* April 29, 2011, www.technologyreview.com/web/37490/?a=f.

3. Not sure why you might use a social bookmarking service, or need to explain it to colleagues? Common Craft has a great video at www.commoncraft.com/bookmarking-plain-english.

4. For example, we stored our links here: www.delicious.com/mobilelibraries.

5. Finley, Klint. "Use Dropbox for Project Collaboration with Chatbox." ReadWrite-Cloud. May 18, 2001, www.readwriteweb.com/cloud/2011/05/use-dropbox-for-project-collaboration-with-chatbox.php.

6. Ryan Singel, "Dropbox Lied to Users About Data Security, Complaint to FTC Alleges," Wired.com, May 13, 2011, www.wired.com/threatlevel/2011/05/dropbox-ftc/.

7. Drew and Arash, "Privacy, Security and Your Dropbox (Updated)." The Dropbox Blog. May 16, 2011, blog.dropbox.com/?p=735.

from their familiar method. Had I known, I could have been more specific about my own teaching style and my expectations for student discussion.

5. *Solicit feedback.* Many graduate instructors will say "it was great/fine" though they may not mean it. How do you get them to tell you the truth? Ask for specifics, such as, Did I talk for too long? Was my approach to teaching what you were looking for? Do you think your students were engaged? What can I improve next time? What would you like me to do differently?

For example, I showed some first-year students a database that I later heard the instructor tell her students she didn't like, something I didn't know after meeting with her class multiple times. If I had asked for more specific feedback, I might have been able to discover this and discuss our differing opinions and discover the best strategies for helping her students find what they needed to know. Unless you ask for feedback, especially the critical kind, many graduate instructors may not want to bother you, or may not feel it is their place to be critical. Again, if you've established a strong rapport, this step is much easier.

6. *Be a good resource for their students.* More than anything, I appreciated the librarian's help as a graduate instructor. Some instructors may want to do it on their own, but with graduate teaching assignments and a hefty course load, I was grateful for any help I got.

7. *If they give you time limitations, follow them.* Especially in my first semester as a graduate instructor, I over prepared and planned everything to a T. I often crammed a lot into sessions and became frazzled if I got off course. If you say you're going to take five minutes, take only five unless they give you a clear okay to keep going.

8. *Ultimately, it's their class.* Sometimes, I disagree with an activity, assignment, or teaching approach I see from graduate instructors. Perhaps I notice it more with graduate instructors because I am familiar with teaching English and have a

concept of "the way I would do it," which is not the case with higher-level courses I partner with. Even in those instances that I disagree, I try to support the teacher. I simply refer them to the instructor, follow the guidelines the instructor has given me, and remind the student that their instructor has the final word on decisions relating to their assignments.

Sometimes my previous experience makes me more sympathetic to the behaviors of new graduate instructors teaching composition, and sometimes I find myself thinking, "I would never give my students that assignment or why isn't she…etc…" But I am always reminded that ingenuity and enthusiasm go a really long way, even when you don't yet have decades of subject matter knowledge tucked under your belt.

Obviously, a lot of these suggestions apply to any instructor/librarian partnership. I think one of the major differences is how willing so many graduate instructors are to co-teach with a librarian. They are open to suggestions and often eager to try new things. Many graduate students have been more than willing to open their classrooms to participation in research studies and to pilot new information literacy approaches. Librarians should recognize the unique position graduate instructors hold at our institutions, and the unique opportunity they offer librarians to work with them in providing quality instruction to students. ꝗ

8. Jason Kincaid, "Dropbox Security Bug Made Passwords Optional For Four Hours. TechCrunch," June 20, 2011, techcrunch.com/2011/06/20/dropbox-security-bug-made-passwords-optional-for-four-hours/.

9. Jason Kincaid, "Dropbox Breach: Fewer Than 100 Accounts Affected, But One Person Actively Exploited Security Hole," TechCrunch, June 24, 2011, techcrunch.com/2011/06/24/dropbox-breach-fewer-than-100-accounts-affected-but-one-person-actively-exploited-it/. ꝗ