

To: Library Lab Committee
From: Suzanne Wones (HLS), Prof. Jonathan Zittrain (HLS/SEAS/HKS)
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Subject: H2O, Adaptable Digital Textbooks

The modern college textbook, often written with a specific course in mind, is expensive, inflexible, and hard to customize or update. Professors who wish to teach courses without adhering to a syllabus completely aligned with a particular text have only a few options: either force students to buy expensive books that they'll only use a percentage of, or spend large amounts of time compiling other source materials into a custom course pack. The result is a net loss – students lose out on innovative materials while racking up costs (and half-used texts), and professors lose opportunities to pursue new directions and develop custom courses without a significant initial investment.

Over the past 18 months, the Berkman Center for Internet & Society, with support from the Harvard Law School Library, has developed a web-based platform, H2O, for creating, editing, organizing, consuming, and sharing course materials. With this capacity to develop countless customized electronic textbooks, we envision building a corpus of open source materials available for dynamic use by faculty and students at Harvard and beyond. Piloted with legal casebooks, H2O has been received with broad approval in Professor Jonathan Zittrain's Torts class, with planned expansion into a number of additional courses in Fall 2012.

Using H2O, professors can freely develop and collate course materials by selecting cases from a wide—and growing repository, editing those cases to the sections that are most relevant to their particular pedagogy and approach, and grouping them into readings for each day, week, month, and semester. Once the materials are assembled, they can be copied in part or in whole by other interested faculty and then edited further.

H2O charts an important path towards the development of twenty-first century textbooks,, that builds upon the ethos of open, shared, and available online materials. We envision a community of professors who share their materials, allow others to tweak them, and return the new versions to the community for further use and additional development. H2O is based on the open source model, originally a method of writing software that relies on the strength and skills of a community, rather than a single person, to develop a product. Instead of locking down materials in formalized casebooks, we believe that course books can be “free” (as in free speech) for everyone to access and build upon.

H2O in Practice

Currently, H2O has a single primary casebook, Jonathan Zittrain's “Torts,” and offers access to a number of texts based on course packs. Development of the Torts casebook was a summer-long process that relied on Professor Zittrain's torts expertise and the substantial efforts of Berkman Center staff and interns. The Torts casebook was rolled out this fall to a class of 82 students, who used the H2O platform exclusively.

Responses from students were overwhelmingly positive. Multiple surveys over the course of the semester showed that approximately 80% of students preferred the H2O platform to a traditional casebook. One student asked, “Can you please advertise this to other professors? It would be amazing if the rest of law school were like this class.” Another commented, “I would love to see online casebooks in more courses at the law school.”

Future Directions

The long-term goal for H2O is to evolve and transform the textbook market by allowing for professors from diverse disciplines to create, modify, and adapt their own content, and submit it for use, refinement, and development by other teachers, scholars, and students. There are numerous steps needed to realize that goal, and several crucial ones draw uniquely from library resources and talent.

New features

Over the next year, we plan to expand H2O, both by adding features to the underlying platform and by incorporating new materials and textbooks. By spring 2013, we are aiming to have at least three additional full-scale textbooks added to the H2O platform.

From a technical and development perspective, priorities include improving the user interface for increased ease of use and accessibility and supporting non-text files. We also hope to add a number of features requested by professors and students in the initial pilots. These include: syllabus genealogies, which allow professors to see how far their work and syllabi have traveled; “case heat-mapping,” which uses Kindle-style highlighting to find common ground between text edits; “class splitting” to allow professors to spread their assigned readings over a variety of weeks and class meetings; and adding a commenting system to enhance student/instructor interactions in the text.

Assessing Outcomes

The success of H2O in the short term can be measured by user satisfaction, integration of content addition, and wide adoption across diverse courses and disciplines. In order to maximize the impact of our new textbook rollouts, we plan to conduct surveys designed to capture both quantitative and qualitative feedback regarding preferences and suggestions, from the perspective of both the professors and students, and with a particular focus on usability, accessibility, and useful technical fixes and developments.

The Berkman Center is currently committed to creating textbook and modules in collaboration with interested professors in order to further develop the model. We have at least four who have committed to using H2O in courses during the 2011-2012 academic year, with many others signaling interest; we will also continue outreach, create opportunities for professors to use the H2O platform, and prime the pump for the microevolution of syllabi. In terms of adoption, we plan to expand beyond our initial pilot to additional torts classes both here at Harvard and other schools, in addition to developing pilots in the courses outlined above.

Budget Outline

The funds we are requesting from the Library Lab will support development of new features and enhancements to the existing H2O platform functionality. These efforts will be coordinated by a Project Manager who will liaise with faculty, developers, librarians and students to ensure progress toward a richer and more broadly adopted H2O.

The two highest priorities for development are updates to the H2O user interface, which will increase ease-of-use and accessibility, and mechanisms to support non-text file formats, including PDFs and images. Following those two priorities we have plans for additional enhancements. Syllabus genealogies would be a key step forward for H2O. If H2O users and professors can track usage of cases, case collages, and the microevolution of syllabi, it will encourage individual contributions and edits. One barrier to adoption of new textbook models is “class splitting”; that is, updating a syllabus for a new class format can be daunting for professors. If we are able to develop features that make it easier for professors to easily move or divide readings by automatically splitting materials into daily reading assignments, it will make adoption easier. Case heat mapping would allow users of the system to view heat maps of cases with multiple edits, seeing what materials professors left in and what got edited out. With the genealogies, we can build more complete pictures of how H2O is being used. Finally, a commenting system will allow for students and professors to converse inside the textbook tool, or for users to ask questions about a specific case or set of editing choices. In the budget below we have itemized these features and our best estimates of their cost.

Project Coordinator (40%, incl. fringe)	\$30,000
Web Development	
User Interface updates	\$25,000
Support for non-text files	\$25,000
Syllabus genealogies	\$15,000
Class splitting	\$10,000
Case/item heat mapping	\$15,000
Commenting system	\$10,000
Total:	\$130,000