

Supplementing Residential Courses with Open Online Content: Practices and Opportunities at Harvard

Daniel Seaton, Adam Nahari

Abstract: Since the meteoric rise of Massive Open Online Courses in 2012, hundreds of thousands of videos, problems, and html pages have been created for release as courses.¹ Opportunities exist to unbundle this content to allow easy discovery and reuse in blended instruction. DART: Digital Assets for Reuse in Teaching -- a new project at Harvard exploring discovery and reuse of digital-learning content -- aims to provide key features to instructors blending their courses. For the HybridEd Workshop, we will share current use cases by instructors at Harvard, along with metrics describing the amount and types of content indexed by DART. We will also discuss features that we think can support both instructor and student use cases in blended learning.

Introduction:

Harvard utilizes the edX platform for open online offerings through edX, while the Canvas LMS serves as the primary platform for residential instruction. The two platform scenario has historically caused challenges for those who want to blend their residential courses with edX content (or vice versa). Interoperability and discovery tools have been incorporated into a new project called [DART -- Digital Assets for Reuse in Teaching](#). DART makes content across Harvard easily discoverable through search and recommendation, all while providing two-click reuse that embeds digital-learning content directly in residential courses. DART has been fully operational since Fall 2017, but has not been heavily marketed to instructors at Harvard. To date, we have had about ~ 200 unique users on our site and about 10 users that have actively added content to their blended courses.

Blended Use Cases:

Below we outline several blended-learning use cases currently taking place at Harvard.

- Instructors utilizing single assets outside their school / department to supplement existing materials:
 - Faculty in Government Department (Faculty of Arts and Science) uses YouTube videos from the Harvard Kennedy School of Government to embed clips into his/her existing residential course materials and encourages students to similarly explore related content.
- Instructors who have created edX content in the Open edX Platform (but not through HarvardX):
 - *Repurposed introductory statistics content created on a private edX instance for his/her Canvas courses.* Involves embedding sequences from edX and formally assigning to students.
- HarvardX instructors utilize video sequences residentially:
 - Numerous faculty that have created HarvardX courses now utilize those materials within their residential Canvas courses. Primary focus has been video reuse.

Along with these use cases, we also see several benefits to students. The first is simply exposure to more resources across Harvard. When instructors bring in new supplementary materials, students then have a chance to explore these resources on their own. Second, DART now includes features like "In-Video Search", where search queries take users directly to the time in a video where a search term occurred. We are extremely interested in better understanding how faculty/instructor blended use cases will translate into new learning habits for students.

Mapping Content from MOOC organizations and what people want to reuse: Providing search across MOOC assets is a novel feature for the edX community. Course descriptions and other metadata are available

¹ <https://vpal.harvard.edu/blog/five-years-content-creation-edx-consortium>

to users, but users are not able to search content as part of the navigations experience, nor are they provided routines to help summarize all available content. We believe this is a worthwhile use case for blended learning, i.e., tracking how teachers approach search and discovery in relation to educational content.

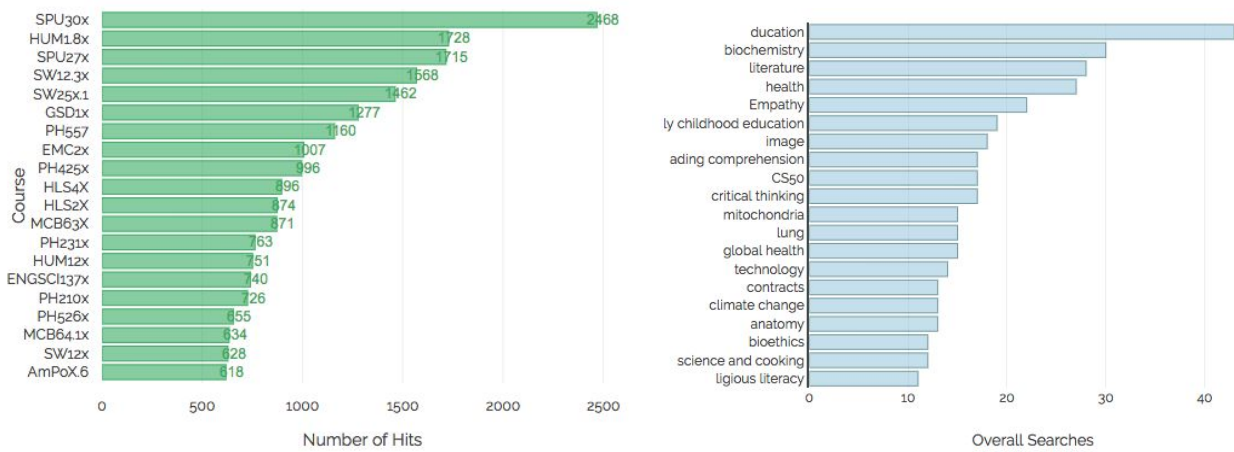


Fig. 1: for HarvardX courses, (left) number of times a course has appeared in users search hits and (right) the frequency of search terms entered by users.

Providing institutions insights into the amount and types of content is an additional goal. For MOOCs, this has been an underutilized area of focus. For HarvardX, we extract text and metadata from individual assets and track their hierarchical organization within the course. The text and metadata can then be used to track metrics such as how much content is being created, the topical areas, and the relationships between content.

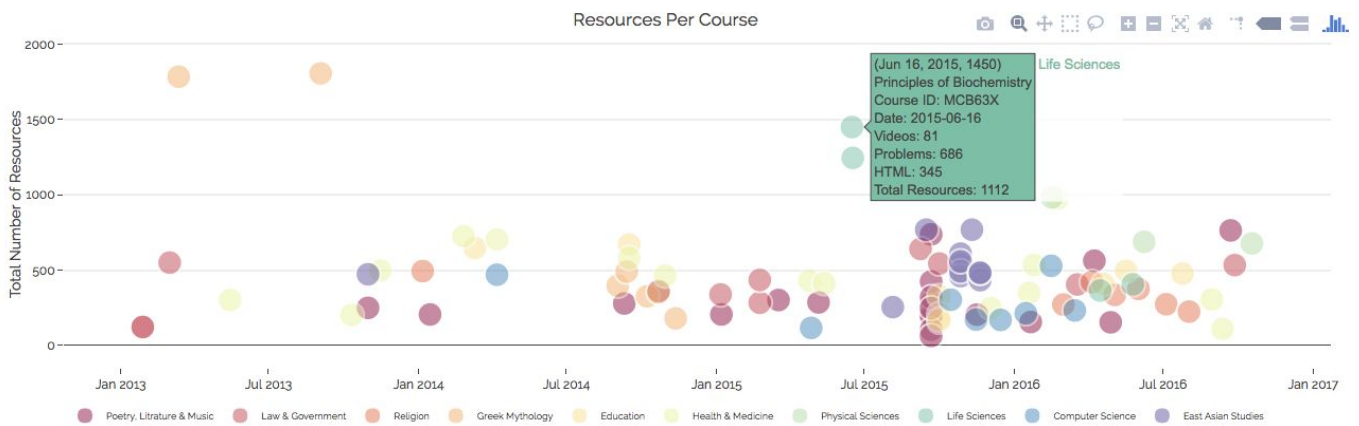


Fig. 2: each bubble represents a single HarvardX. Y-axis indicates number of resources and x-axis the date created. Topics (bubble color) generated using topic modeling. Rollover reveals metadata ([Link to Plotly Interactive Graph](#)).

Future Use Cases and Development Roadmap

We see tremendous opportunities for other institutions to utilize this system, especially those that have created edX content and have struggled to see that content reused on campus. We will discuss that prospect, along with new features that will further support blended learning use cases.