

Open Edx Annotation tools:

breaking the unidirectionality
of online course content

Philip Desenne and Leah Reis-Dennis

HarvardX

August 12, 2014

Why are
annotations
important
for online education?

Breaking the unidirectionality of online course content



They are the foundation for a New Paradigm of Online Education

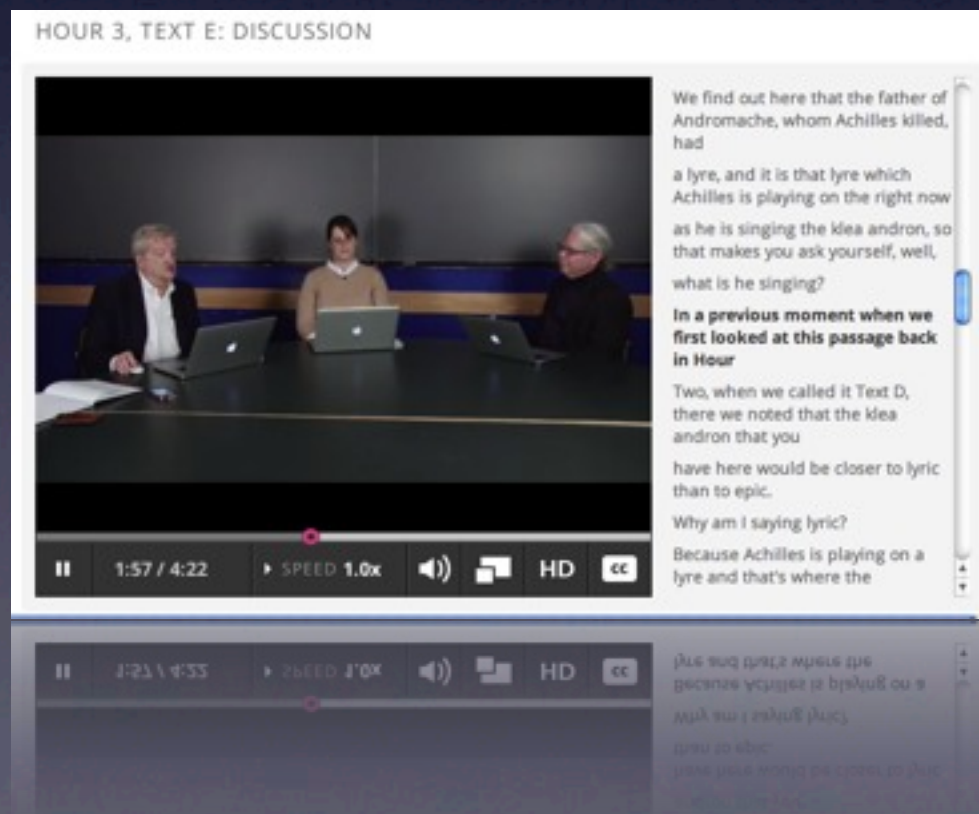


StudentX / ProfessorX

What are the current
issues with
online education?

Disassociated engagement with related content

MOOC Media-rich Content and the monolithic Discussion Forums



StudentX / ProfessorX

L5V5: INTRODUCTION TO RAILS

Which statement is **NOT** true regarding Rails RESTful routes and the resources to which they refer:

- ☐ A resource may be existing content or a request to modify something.
- ☐ Every route must eventually trigger a controller action.
- ☐ One common set of RESTful actions is the **CRUD** actions on models.
- ☐ The route always contains one or more parameters, such as `:id`, to identify the resource.

In fact, one of the pitfalls people have is when they hear the word resource, they often think of a "thing." And you're just going to ask for the "thing." In fact, the request to create something is also a resource.

Basically if it's an action you can describe and name it's probably a resource.

So we're good on that one.

Every route must eventually trigger a controller action.

Yep.

Some things really are as simple as

Download video [here](#).

disassociated modules: **video** and **forum**
contextually connected content
only because on same page

I'm sure this is answered elsewhere, but I'm curious if someone could enlighten me. . .

[ecnalyr](#) 22 days ago

At about 8:40 in the video, the instructor states that any variables you have in the controller are available in the view.

Coming from the ASP.NET MVC world, variables are not available in the view unless you pass them to the view and declare the model's type within the view itself (@using MyApp.MyModels.MyModel, for example). If a specific entity/model does not have variables that you would need to appropriately display information in your view, you would create a ViewModel, as a new entity entirely, that contains all the necessary data and pass that in place of the original model (@using MyApp.MyModels.MyViewModel).

My question is: Do we not have a need for ViewModels in Ruby-on-Rails apps / Is there not a necessity for a 'Rails equivalent to the ViewModel frequently used in ASP.NET MVC apps?

I'm sure this is answered **elsewhere...** but where?

I'm sure this is answered elsewhere, but I'm curious if someone could enlighten me. . .

[ecnalyr](#) 22 days ago

At about 8:40 in the video, the instructor states that any variables you have in the controller are available in the view.



What about commentary metadata persistence ?

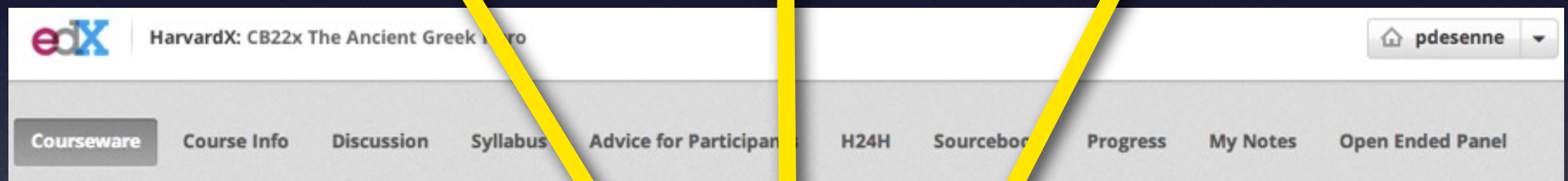
need multiple forms of
contextualized engagement
by students and instructors



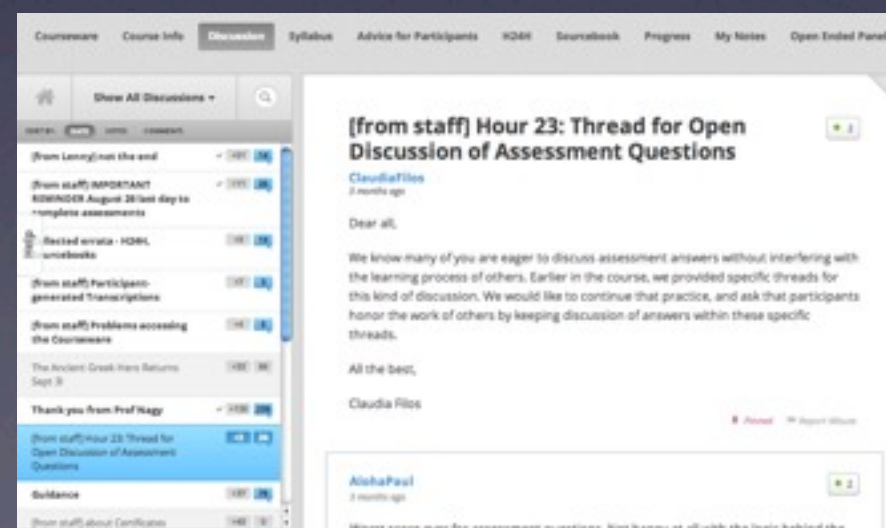
Courseware
Discussion

Tutorial
Discussion

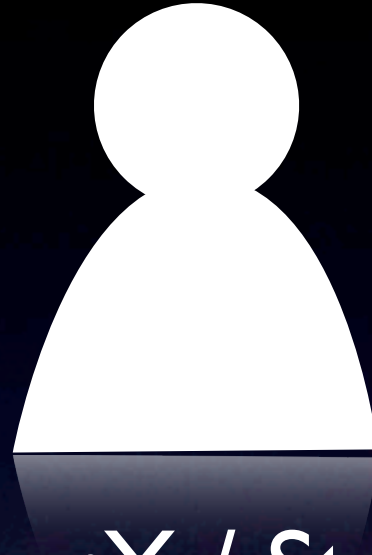
Progress
Discussion



General
Discussion



Multiple forms of engagement



ProfessorX / Student X

Keep track of **Blended Content**,
Support **Personal Learning Environments**

create study guides, review topics, flipped classroom, etc.

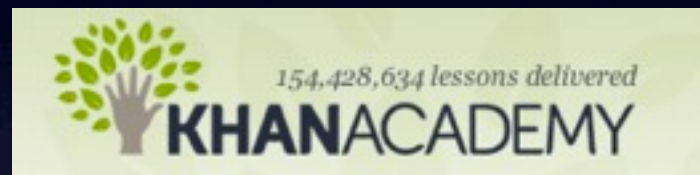
Personal Learning Environment

Blended Content



HarvardX

MOOC



Federated Content



Open Content

StudentX / ProfessorX



HARVARD
Faculty of Arts and Sciences

Face-to-face classroom



Harvard
Extension School
Online distant
education

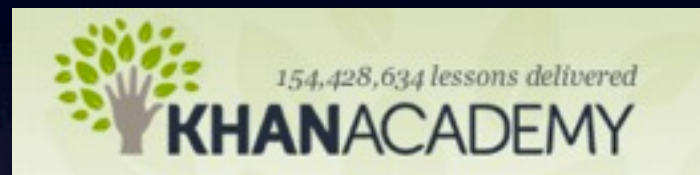
Personal Learning Environment

Blended Content



HarvardX

MOOC



Open Content

Annotations are the **glue** for Blended Learning and Personal Learning Environments



Federated Content



HARVARD
Faculty of Arts and Sciences


Face-to-face classroom



Harvard
Extension School
Online distant
education

Multiple means of representation and expression

for students and instructors

The large and small steamers in motion, the pilots in their pilot-houses,
The white wake left in the passage, the quick tremulous whirl of the wheels,
The flags of all nations, the frolicsome crests
The scallop-edged and glistening,
The stretch afar green storehouses by the
On the river the stately barges, the hilly
On the neighboring banks blank'd on each side by
glaringly into the
Casting their flickering
tops of houses, and
Share: 

4
These and all else were to me the same as they are to you,
I loved well those cities, loved well the stately and rapid river,

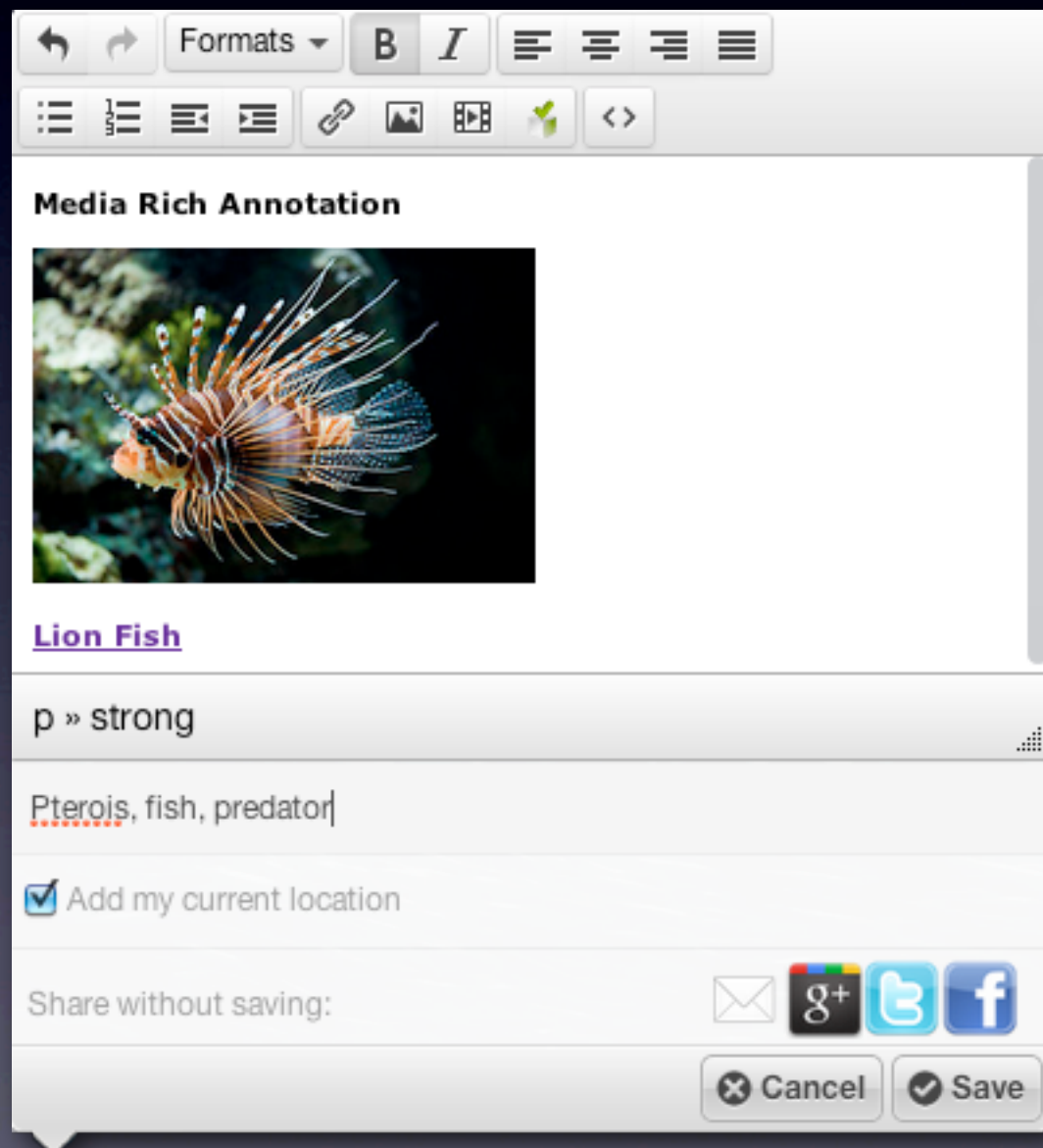
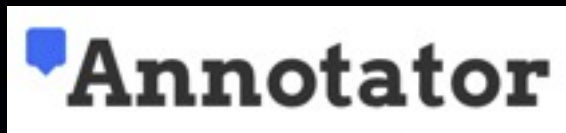


provide learners alternatives for demonstrating what they know

edX Annotation tools

Annotate 

Common Annotation Tool Interface with **media-rich annotations**



Extended Annotator plugins library (10)

- Rich text (WYSIWYG from TinyMCE)
- Rich-media (images, video, audio)
- Plain HTML
- Assessment tools (& other widgets)
- Geolocation (Google map API)
- Sharing (email and social media)
- Groups
- Pre-populated tags and colored highlight
- Pre-populated tags and custom marks (diacritics)
- Flagging annotations for offensive content

Text Annotations

ANNOTATION: OF BEING NUMEROUS, 40

Instructions

[Collapse Instructions ↑](#)

As you annotate Oppen's poem, remember what sorts of patterns and devices you've been noticing in Whitman's poetry. How does this prose quotation from Whitman differ from his poetry? Where are there similarities? Highlight similarities. (Hint: think about Whitman's use of "I" and the first person.)

OF BEING NUMEROUS, 40

George Oppen

Whitman: 'April 19, 1864

The capitol grows upon one in time, especially as they have got the great figure on top of it now, and you can see it very well. It is a great bronze figure, the Genius of Liberty I suppose. It looks wonderful toward sundown. I love to go and look at it. The sun when it is nearly down shines on the headpiece and it dazzles and glistens like a big star: it looks quite curious...'

Share:



Video Annotations

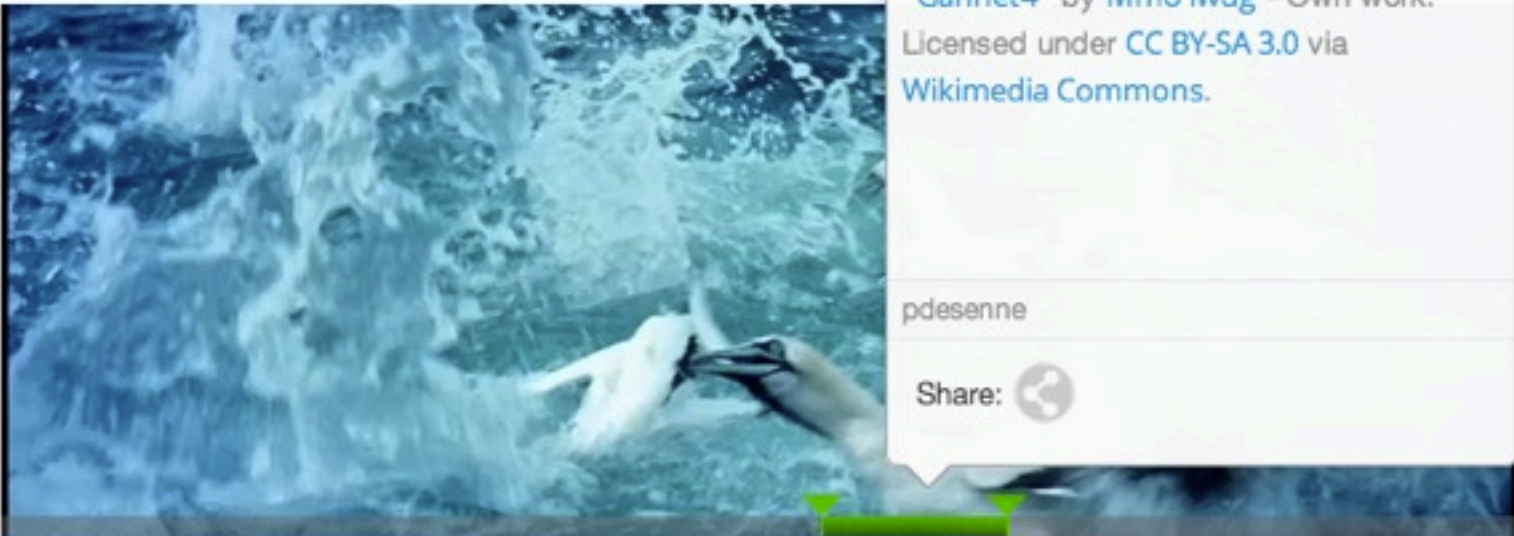


VIDEO ANNOTATION

Instructions


Add the instructions to the assignment here.

[Collapse Instructions ↑](#)



"Gannet4" by Mmo iwdg - Own work.
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Wikimedia Commons.

pdesenne

Share: 

0:30 0:46 Start: 0 : 0 : 25 End: 0 : 0 : 30

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[My Notes](#) [Public](#) [Clear](#)

0:30 0:46 Start: 0 : 0 : 25 End: 0 : 0 : 30

Open Technologies & Interoperable Systems

 **Annotator**

<http://annotatorjs.org/>



<http://www.tinymce.com/>



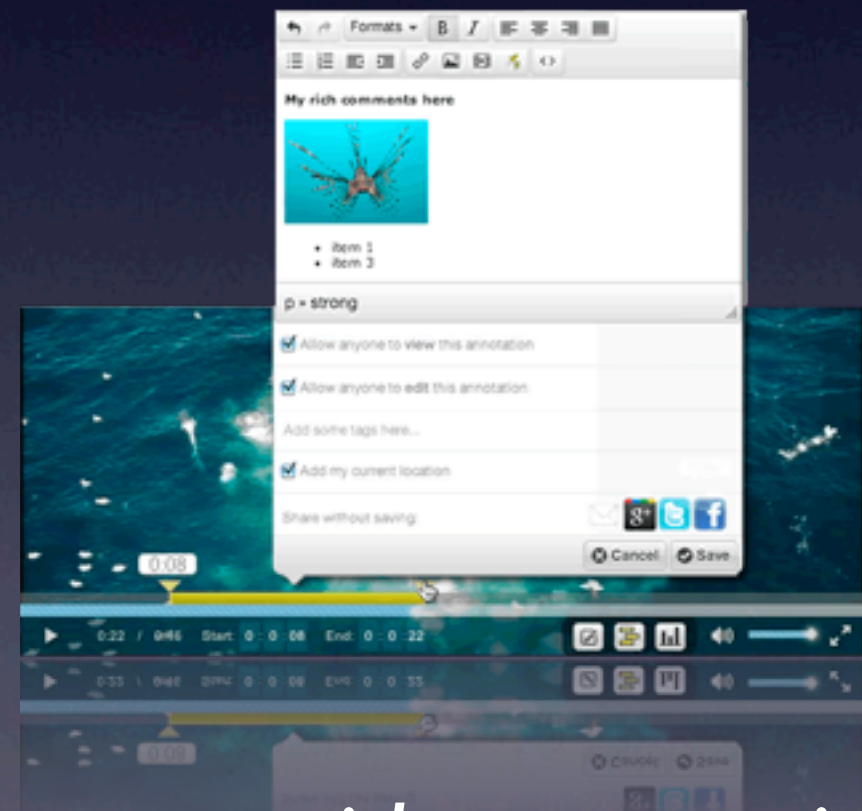
<http://www.videojs.com/>

CATCH / Annotopia

<https://osc.hul.harvard.edu/liblab/proj/catch>



Open Video Annotation Project



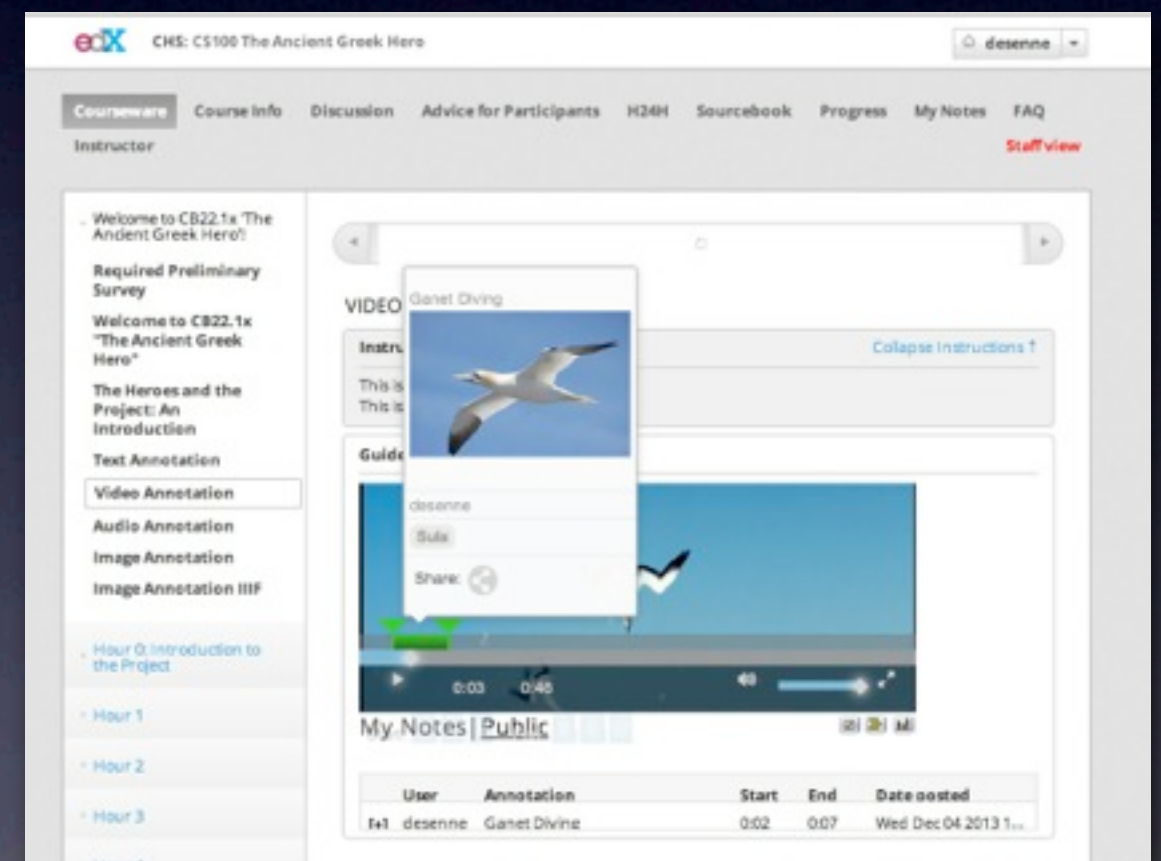
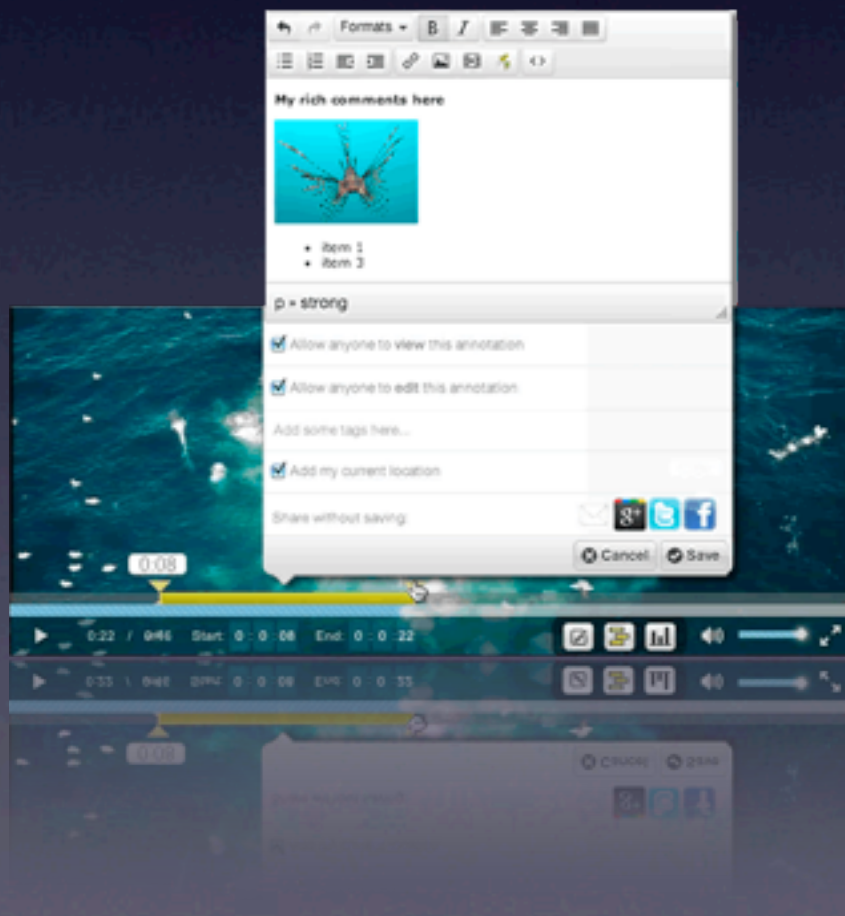
www.openvideoannotation.org

Building the xModule

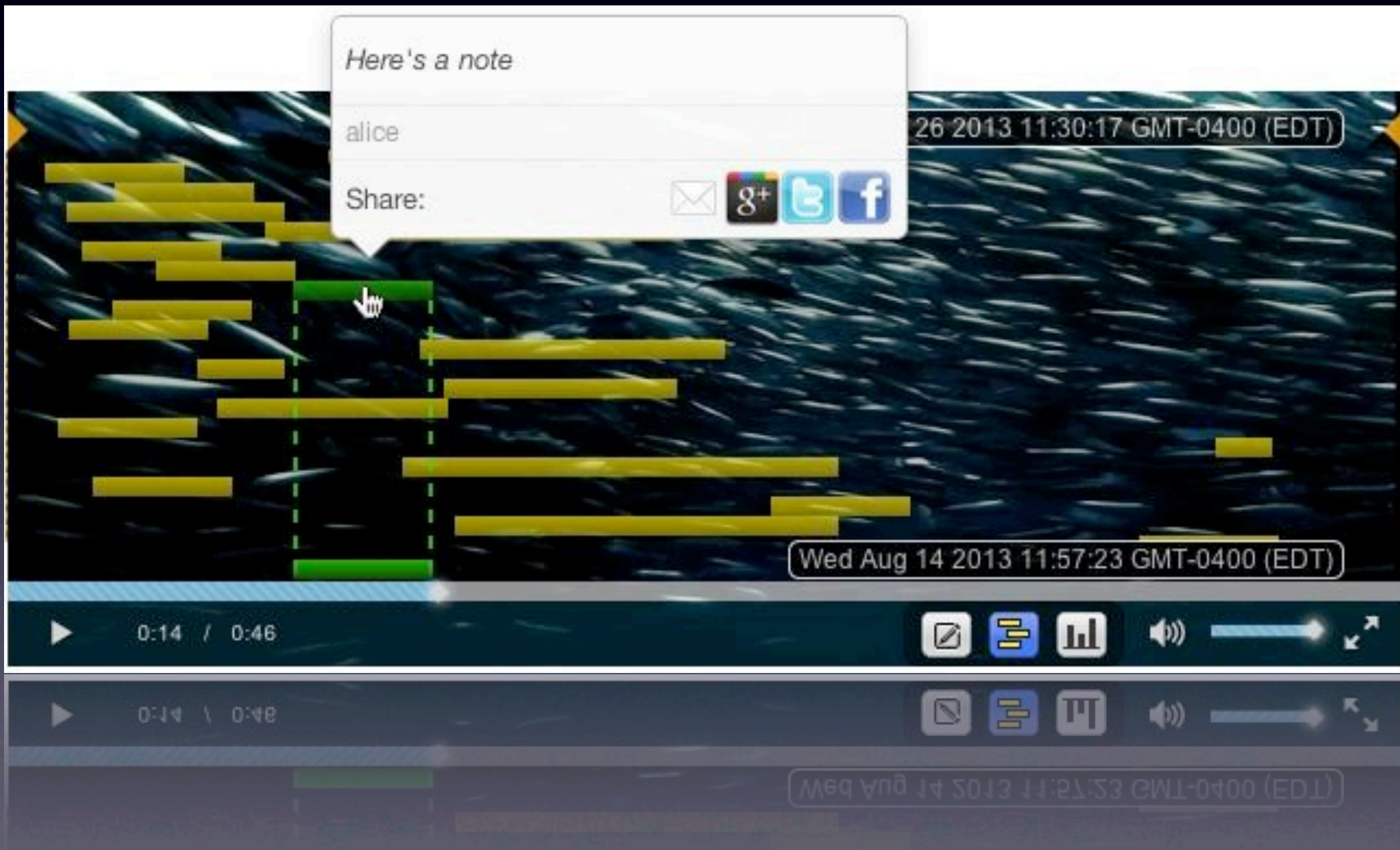


Open Video Annotation Project

HarvardX /



Video annotations: display

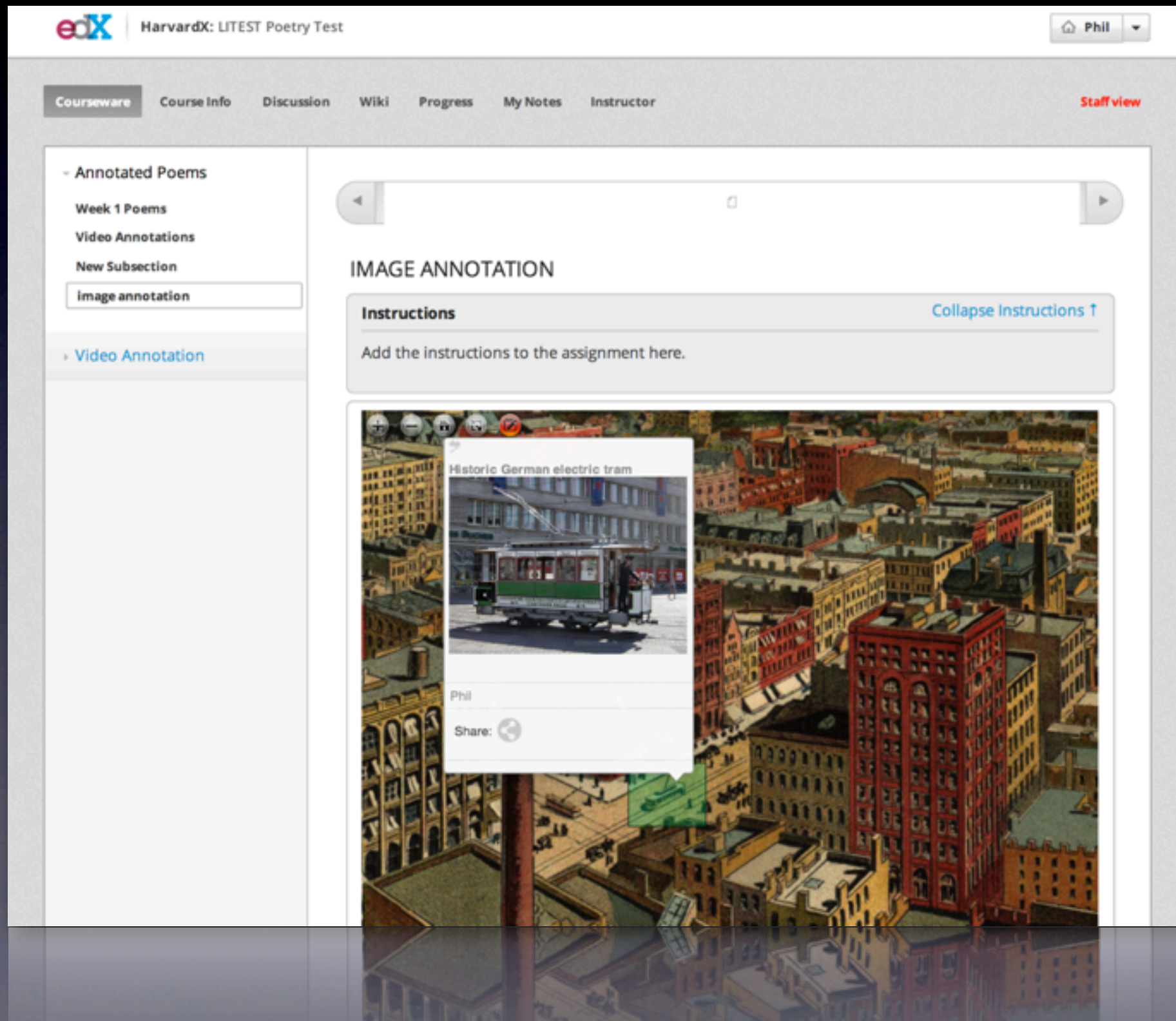


Basic Analytics



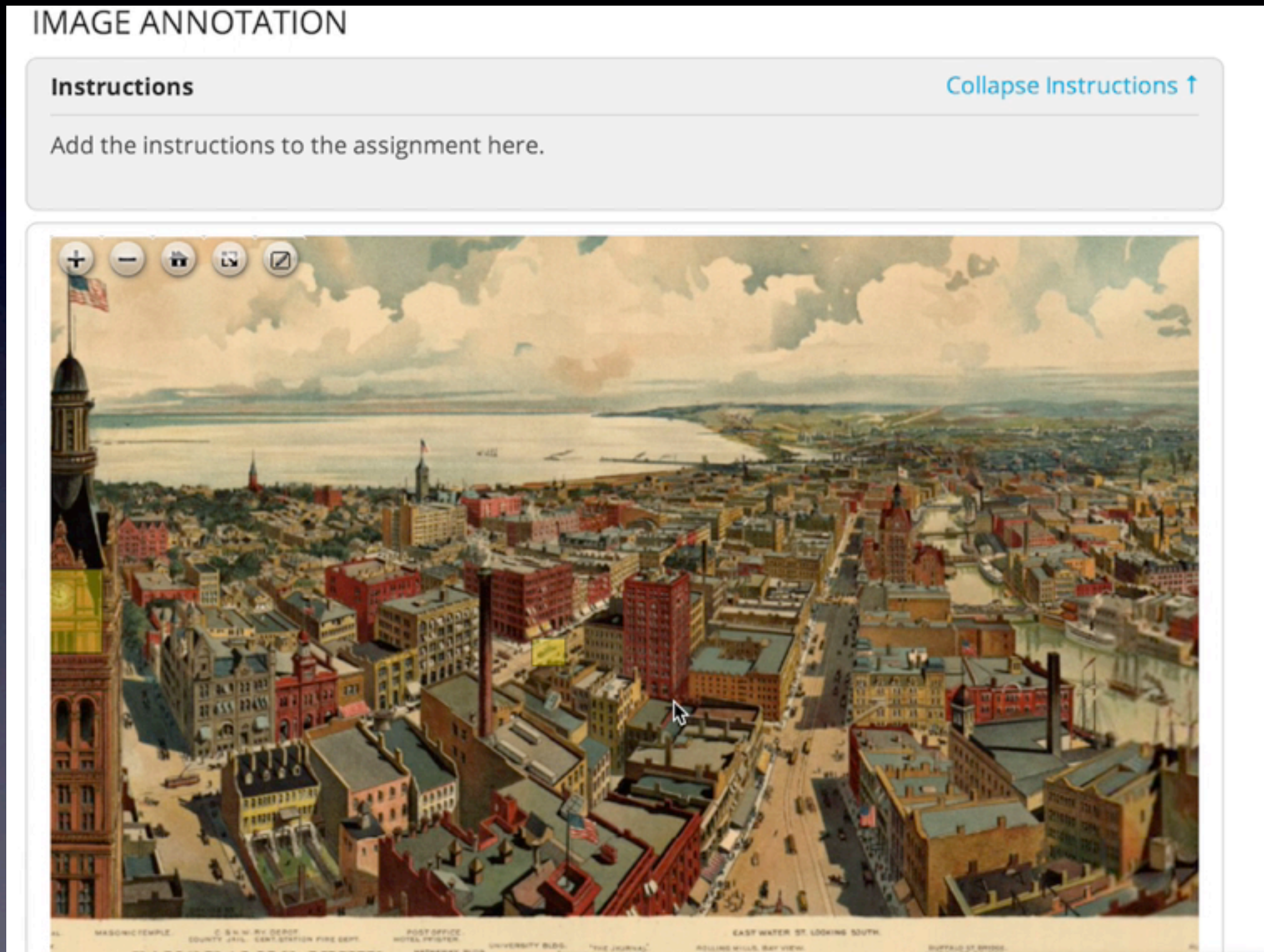
Deep Zoom Image Annotations

OpenSeaDragon - Annotator Implementation



Deep Zoom Image Annotations

OpenSeaDragon - Annotator Implementation



Common Aggregated Grid and Filtering

the annotation dashboard



edXedge | HarvardX: a.t.101 Introduction to Annotation Tools | pdesenne

Courseware Course Info Discussion Wiki Progress **My Notes** Instructor

My Notes

My Notes Public Search Users Clear

Text Video Image

| | User | Annotation | #Replies | Date posted |
|---|------|--|----------|---|
| [+] | | "USS Constitution 1997" Licensed under Public domain ... | 0 | Thu Aug 07 2014 22:26:49 GMT-0400 (EDT) |
| [+] | | Is this guy asleep? | 0 | Sun Aug 03 2014 06:16:57 GMT-0400 (EDT) |
| [-] On Sun Aug 03 2014 06:15:57 GMT-0400 (EDT) sandman99 | | | | |
|  | | | | |
| testing | | | | |
| Reply | | | | |
|  | | | | |
| [+] | | What does this say? | 0 | Fri Aug 01 2014 07:54:55 GMT-0400 (EDT) |
| [+] | | button | 0 | Fri Aug 01 2014 07:55:24 GMT-0400 (EDT) |
| [+] | | A whole head... didn't think to drag an area first two notes | 0 | Fri Aug 01 2014 07:07:50 GMT-0400 (EDT) |
| [+] | | Different type of hat. | 0 | Fri Aug 01 2014 07:06:11 GMT-0400 (EDT) |
| [+] | | Different type of hat. | 0 | Fri Aug 01 2014 07:06:11 GMT-0400 (EDT) |
| [+] | | A whole head... didn't think to drag an area first two notes | 0 | Fri Aug 01 2014 07:03:20 GMT-0400 (EDT) |
| [+] | | button | 0 | Fri Aug 01 2014 07:02:34 GMT-0400 (EDT) |

Aggregated notes and public display of notes

ANNOTATION: OF BEING NUMEROUS, 40

Instructions

As you annotate Oppen's poem, remember what sorts of patterns and devices you've been noticing in Whitman's poetry. How do they differ from his poetry? Where are there similarities? Highlight similarities. (Hint: think about Whitman's use of "I" and the first person.)

OF BEING NUMEROUS, 40

George Oppen

Whitman: "April 19, 1894"

The capitol grows upon one in time, eyes on top of it now, and you can see it with the great dome, the Genius of Liberty I suppose. It looks wonderful toward sundown. I love to go and look at it. The sun when it is nearly down shines on the headpiece and it dazzles and glistens like a big star: it looks queerous...

VIDEO ANNOTATION

Instructions

Add the instructions to the assignment here.

Share

My Notes Public

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IMAGE ANNOTATION

Instructions

Add the instructions to the assignment here.

Share

My Notes Public

Search Users

edXedge HarvardX: a.x.101 Introduction to Annotation Tools

Courseware Course Info Discussion Wiki Progress My Notes Instructor

My Notes

My Notes Public

Text Video Image

| User | Annotation | #Replies | Date posted |
|--------------|---|----------|---|
| [+] pdesenne | "USS Constitution 1997" Licensed under Public domain... | 0 | Thu Aug 07 2014 22:26:40 GMT-0400 (E... |
| [+] pdesenne | "USS Constitution 1997" by Journalist, Class Todd... | 0 | Thu Aug 07 2014 22:26:40 GMT-0400 (E... |
| [+] pdesenne | Character 4: Zoom test | 0 | Fri Aug 01 2014 14:00:29 GMT-0400 (E... |

[+] On Thu Aug 07 2014 22:54:39 GMT-0400 (EDT) p...

Share

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Search Users

Link back to source

Common back-end database and API



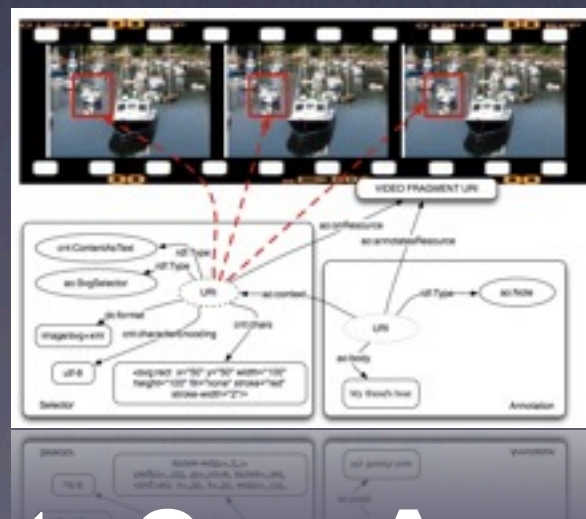
CATCH/Annotopia

Interoperable Annotation HUB

Library Lab
CATCH Project

Common Database

Public API for analytics



Normalized to Open Annotation Model




Annotations in edX Courses

Disrupting traditional online teaching and learning

Spring 2013

CB22X: The Ancient Greek Hero



HarvardX

Course Started - March 13, 2013

CB22x The Ancient Greek Hero

[View Course](#)

[Unregister](#)

 **Annotator**

First 3rd Party Tool in edX

SOURCEBOOK OF ANCIENT GREEK TEXTS IN ENGLISH TRANSLATION

CB22x 'The Ancient Greek Hero'

General Editor: Gregory Nagy
Managing Editor: Soo-Young Kim
Digital Editor: Jeffrey P. Emanuel

Test Comment

Add some tags here...

HOMER

YOU who see through us as if
We never walked the world,
Speculating as if we were
Simply imitating your words,
How absolute you are.

So now we wander here and there
Lives pausing in their moments,
The sights that you offered we
Repeat when the sun is strong
For action to be obvious.

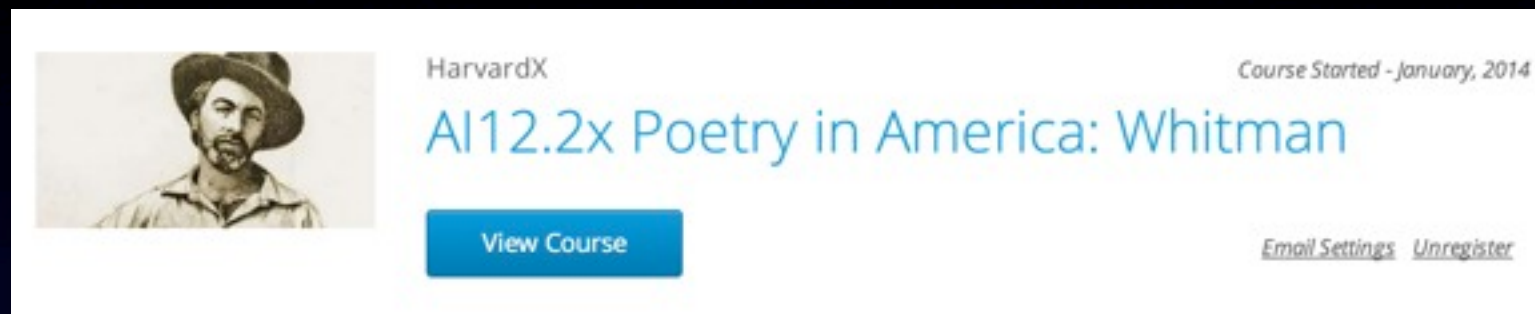
How absolute you are
Simply imitating your words

For action to be obvious
Repeat when the sun is strong

Early 2014

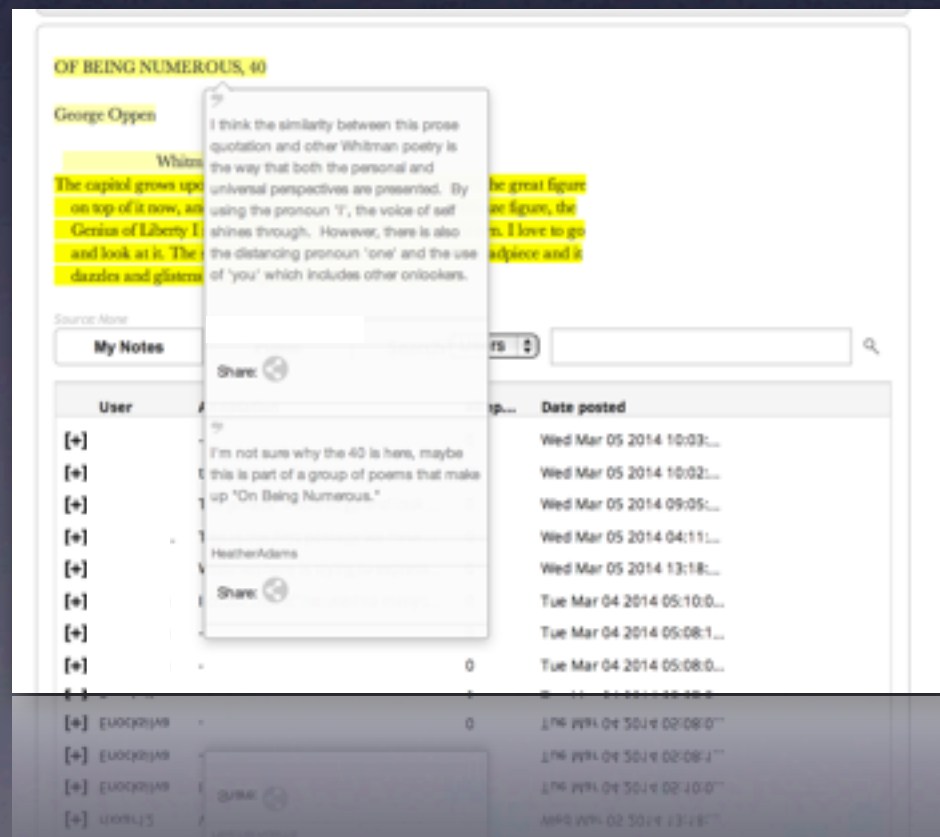
AI 12.2x: Poetry in America: Whitman

First pilot course to test new tools

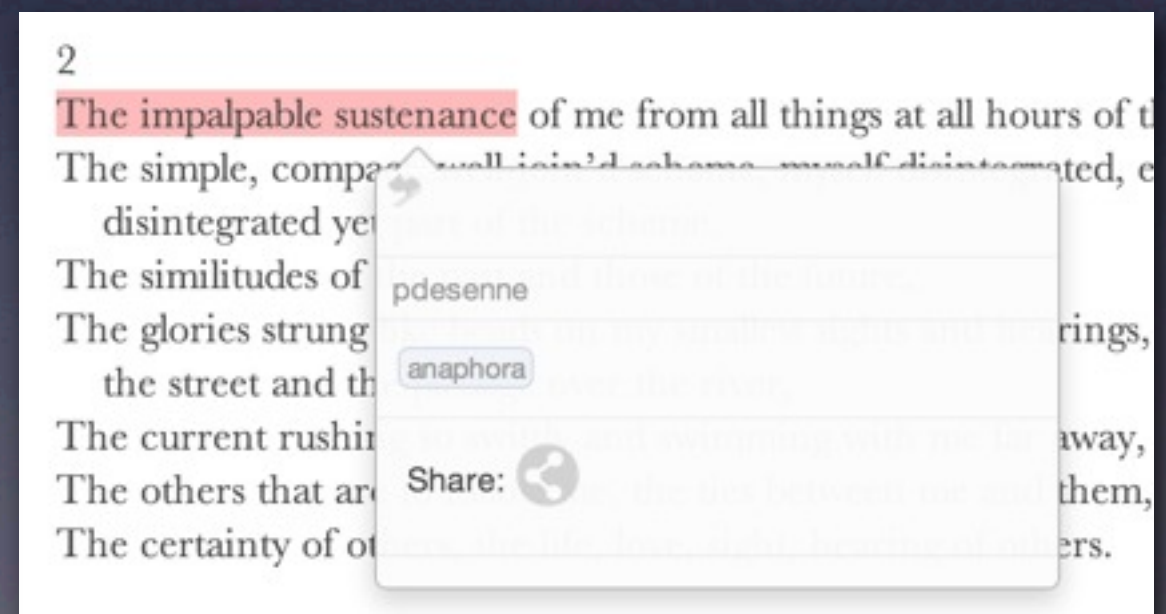


The capstone of student engagement in this module was digital annotation

Text annotations



Concept tagging and color highlights
(incipient semantic tagging)



In a **traditional classroom** environment, students are asked to **read poems actively**.

The first time, students simply read a poem. Then, they read it again, **marking passages, words, or moments** that strike them as **unusual or interesting**.

Perhaps, then, they read the poem a second time out loud, and use a pen to **mark instances** that have a **distinct sound, meter, or cadence**.

This **multi-step annotation** lies at the heart of "**cracking open**" a poem.

In this pilot case, the annotation tool allowed:
students to **identify poetic imagery** with images from
the internet;

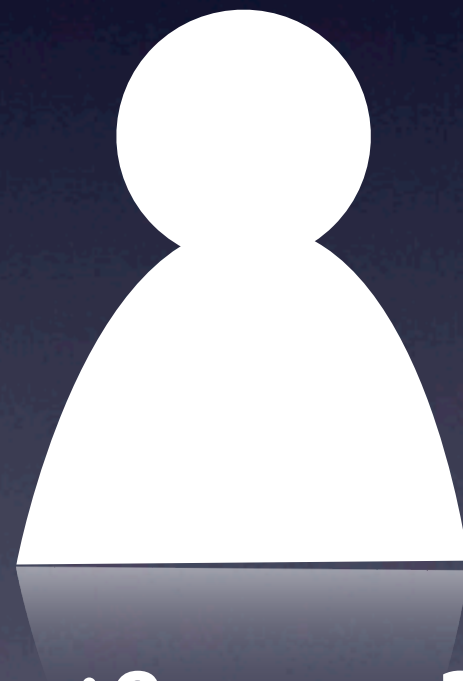
students to **riff on the meaning of a single word**, in
conversation with their peers;

for **text-based responses** to questions of **poetic
devices**.

Preliminary data from course



Enrollment 13,755

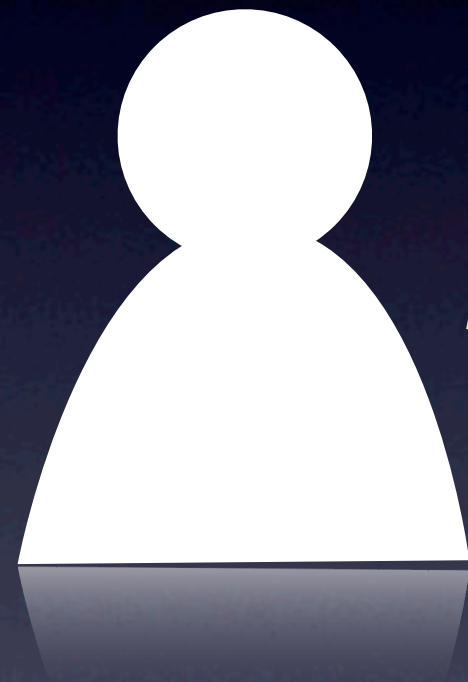


certificate: 386

2.8% completion

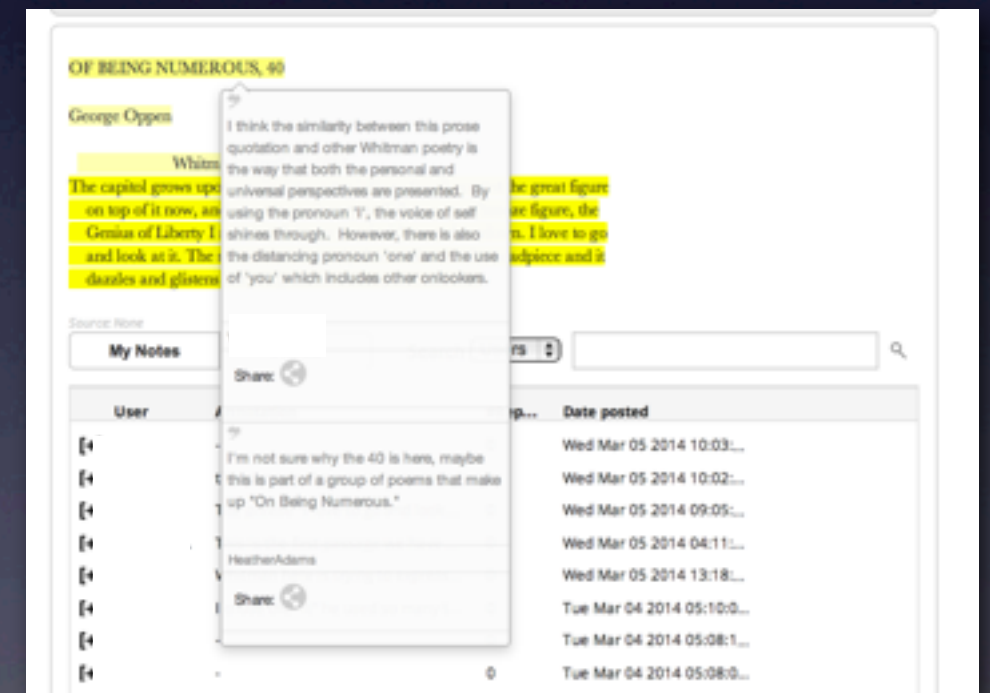


1147 Students ~ 60.000 Annotations
(12 % of enrollees)



16 passages from 14 poems

8.3% engaged

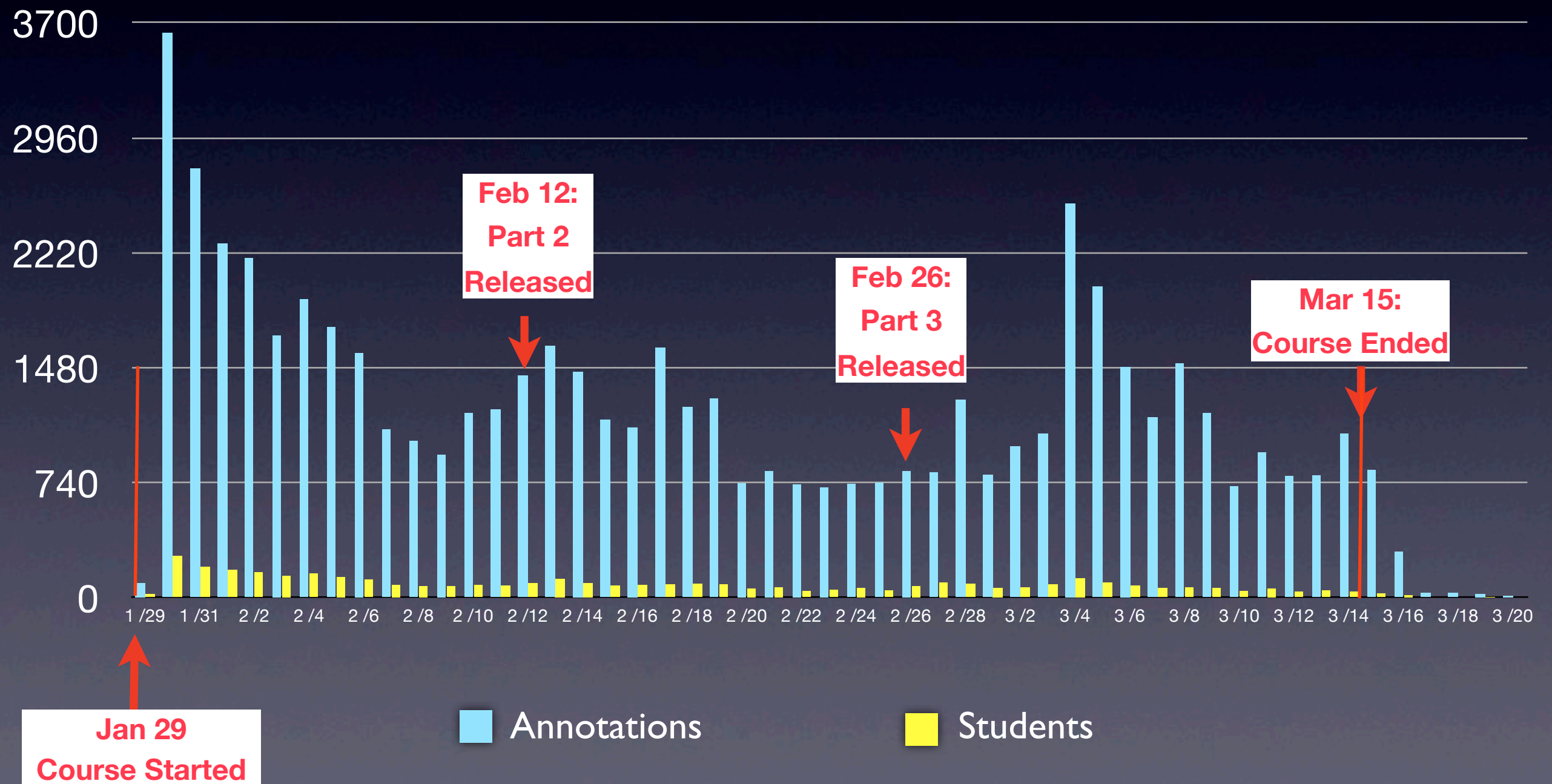


Average Annotations per poem passage: 3700
Average per individual: 52.08

PoetryX: Annotations per day

Jan - Feb 2014 (~ 7 weeks)

AVG daily ~ 1,250 / Users daily ~ 90



PoetryX

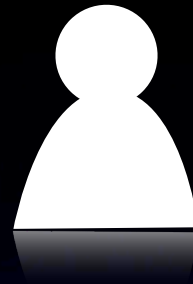
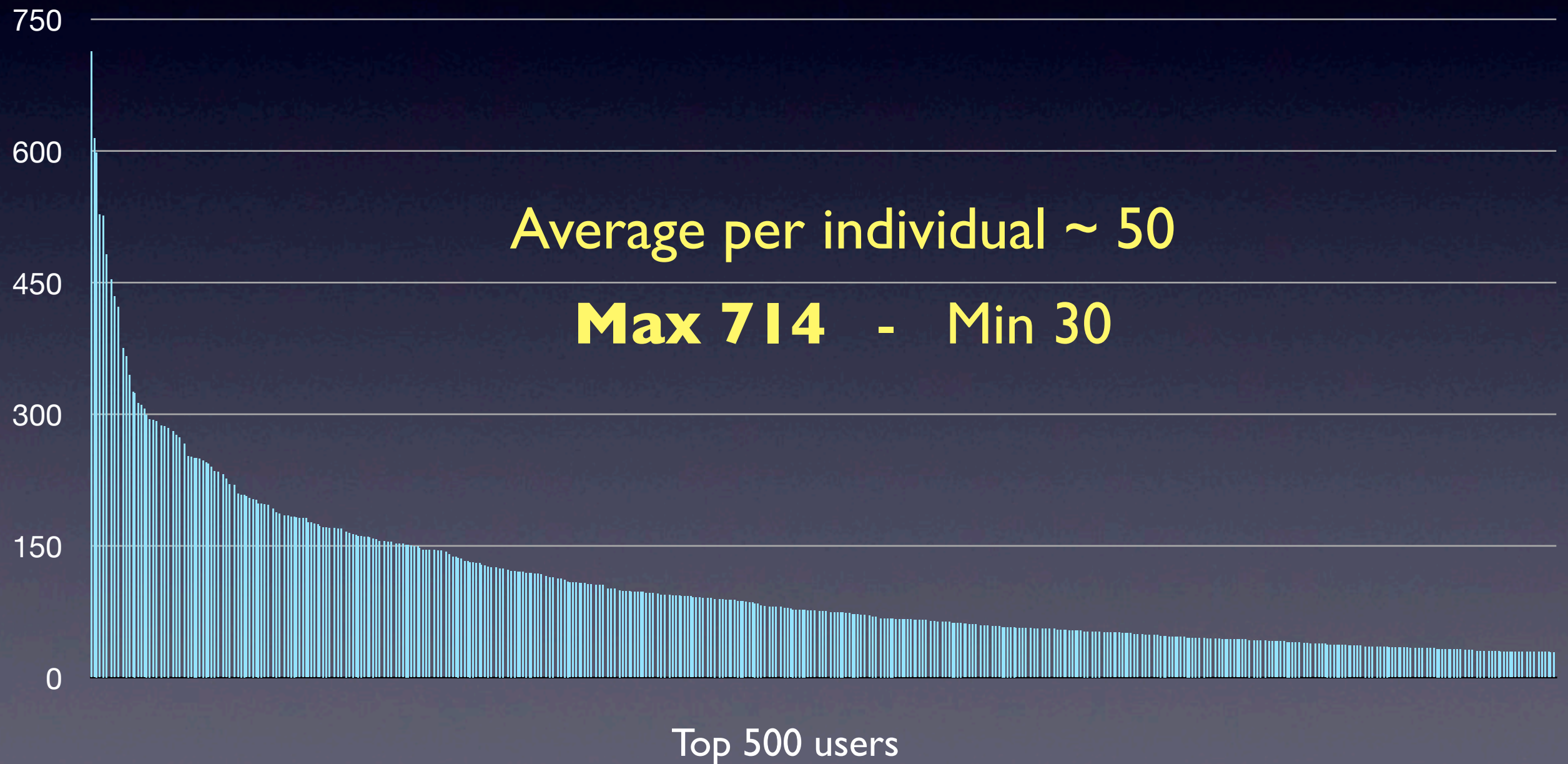
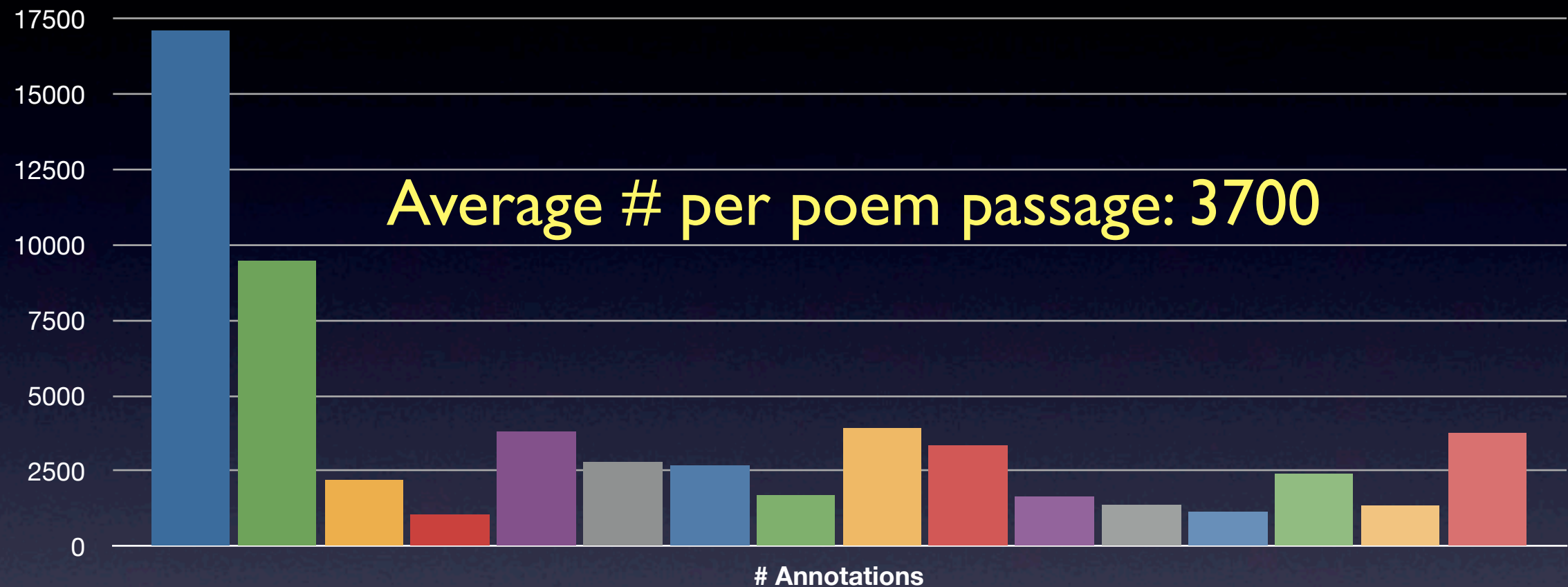


Chart 5



Annotations per poem passage

16 passages from 14 poems

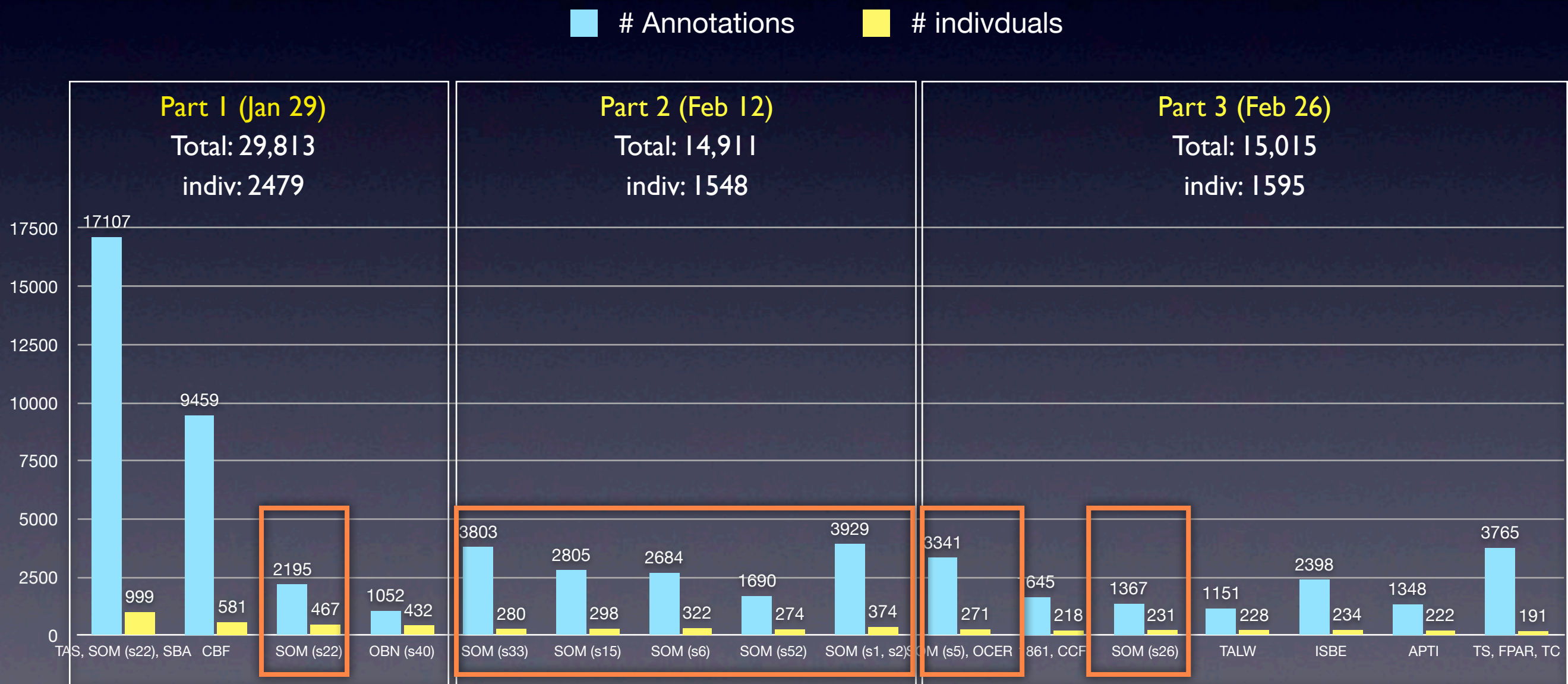


- To A Stranger; Song of Myself (v22); Song of the Broad Axe
- Crossing Brooklyn Ferry
- Song of Myself (s22)
- Of Being Numerous (s40)
- Song of Myself (s33)
- Song of Myself (s15)
- Song of Myself (s6)
- Song of Myself (s52)
- Song of Myself (s1, s2)
- Song of Myself (s5), Out of the Cradle Endlessly Rocking
- 1861, Cavalry Crossing a Ford
- Song of Myself (26)
- To A Locomotive in Winter
- I Sing the Body Electric
- A Passage to India (2,3)
- The Sleepers, From Pentup Aching Rivers, This Compost,

PoetryX: Annotations and Users per Poem Passage

New Module every 2 weeks over 7 weeks

Song of Myself ~ 22,000 Annotations



User Experience (UX) Issues

- **Scale:** how to display 1000s of annotations?
- **Engagement:** how to stimulate community participation ?
- **Discovery:** how to find meaningful peer annotations?

TO A STRANGER

Walt Whitman

PASSING stranger! you do not know how longingly I look upon you,
You must be he I was seeking, or she I was seeking, it comes to me, as of a
dream,
I have somewhere surely lived a life of joy with you,
All is recall'd as we flit by each other, fluid, affectionate, chaste, matured,
You grew up with me, were a boy with me, or a girl with me, I
ate with you, and slept with you—your body has become not yours only, nor left
my body mine only,
You give me the pleasure of your eyes, face, flesh, as we pass—you take of my
beard, breast, hands, in return
I am not to speak to you—I am to think of you when I sit alone, or wake at night
alone,
I am to wait—I do not doubt I am to meet you again,
I am to see to it that I do not lose you.

Source: None

My Notes Public Search Users

| User | Annotation | #Rep... | Date posted |
|--------------|----------------|---------|-------------------------------|
| [+] | weqwe | 0 | Thu Feb 27 2014 00:28:42 G... |
| [+] AJLC | The axe leaps! | 0 | Wed Feb 26 2014 22:22:21 G... |
| [+] VIRC | The axe leaps! | 0 | Wed Feb 26 2014 22:22:21 G... |
| [+] bq226uug | weqwe | 0 | Thu Feb 27 2014 00:28:42 G... |

Pedagogical Questions

Why do we annotate? How do we annotate?

The teaching team **can't take for granted** an understanding of annotation.

Giving explicit **instructions and prompts** that allow students to engage on multiple levels (tagging simple devices for beginners, or analyzing complex moments for more advanced students) **will make these annotation exercises more beneficial.**

We found that **many students had never annotated before**, whether virtually or in brick-and-mortar settings.

ChinaX



The screenshot shows the HarvardX course page for SW12.6x ChinaX Part 6: The Manchus and the Qing. The page features a header with the HarvardX logo and the course title. Below the title is a blue button labeled "View Course". To the right of the button is a link labeled "Unregister". The page also includes a "HONOR CODE" button and a "COURSE INFO" button.

HarvardX

Course Started - May 22, 2014

ChinaX

HONOR CODE

SW12.6x ChinaX Part 6: The Manchus and the Qing

View Course

Unregister

COURSE INFO

Spring 2014

<https://courses.edx.org/courses/HarvardX/SW12.6x/2T2014/info>

Scholars Module

18th Century China
Qing Dynasty

*capstone of student engagement for
this section was **annotation***

- 30 texts from “The Scholars”
- One image “Prosperous Suzhou” scroll (40ft - 12 m long)

▼ The Scholars

Historical Overview

**Section 1: Introduction to
an 18th Century Novel: The
Scholars**

**Section 2: The Rise of the
Novel and The Scholars**
Week 26 Assessment



**Section 3: The Rise of the
Meritocracy**
Week 26 Assessment



**Section 4: Ming and Qing
Civil Exam**

**Section 5: The Scholars -
Zhou Jin's Story**
Week 26 Assessment



**Section 5: The Scholars - Fan
Jin's Story**
Week 26 Assessment



**Section 5: The Scholars -
Concubine Zhao's Story**
Week 26 Assessment



**Section 5: The Scholars -
Wang Mian's Story**
Week 26 Assessment



Content Experiment

**Section 6: Prosperous
Suzhou Scroll Annotation
Activity**

Content Experiment

Content Experiment

**Activity
Suzhou Scroll Annotation
Section 6: Prosperous**

Comparing Text and Image

The novel, commonly known as **The Scholars**, might more properly be called “**The Unofficial History of the Confucians**”, or *Rulin Waishi* was written by a **disillusioned literatus** who set the story in the Ming dynasty rather than the Qing dynasty in the city of Nanjing formerly the southern capital of the Ming dynasty along the Yangtze River.

The scroll, the **Prosperous Suzhou** was painted less than a decade later, **commissioned by the emperor** Qianlong to depict the impressive city of Suzhou not too far from Nanjing.

Concept tagging - incipient ontologies

As you go through consider all the different characters and highlight then tag each character as either:

- **longs** (pink): one who longs for power, fame, wealth and rank and therefore flatters others and lower themselves
- **relies** (maroon): one who relies on power, fame, wealth and rank and therefore belittles others and are overbearing
- **pretends** (red-orange): one one who pretends to have no interest in power, fame, wealth and rank and thinks themselves above it all but are eventually seen through and mocked
- **refrains** (orange): one who ultimately refrains from pursuing power, fame, wealth and rank, who is of the highest virtue, and is the pillar upon whom all rely

As you read through the text think about the author's view of his world. Highlight then tag text that you believe illustrates either his:

- **cynicism** (chartreuse)
- **idealism** (purple)

Later, at the end of reading the selections from the novel, we shall invite you to turn to the Scroll and make a comparison between Wu Jingzi's novel and the scroll's depiction in our final discussion forum.

make a comparison between Wu Jingzi's novel and the scroll's depiction in our final discussion forum.
later, at the end of reading the selections from the novel, we shall invite you to turn to the scroll and

Guiding contextual questions and embedded surveys

"Two bow shots from my gate is the lake," he said, pointing outside. "And by the lake is a belt of green where all the buffaloes of the village browse. There are a few dozen big willows there too, so that it is quiet, shady and cool; and if the buffalo is thirsty it can drink at the water's edge. You can play there, son; but don't wander off. I shall see that you get rice and vegetables twice a day; and each morning I shall give you a few coppers to buy a snack to eat while you're out. Only you must work well. I hope you'll find this satisfactory."

Source: Wu, Jingzi, 1701-1754. *The Scholars*. [Translated by Yang Hsien-yi and Gladys Yang. Author's port. and illus. by Cheng Shih-fa] Peking, Foreign Languages Press, 1957. p. 33-34

My Notes

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Clear

User

Annotation

#Repl...

Date posted

[...] On Thu Jun 12 2014 23:14:03 GMT-0400 (EDT) ChinaX_Staff

"Two bow shots from my gate is the lake," he said, pointing outside. "And by the lake is a belt of green where all the buffaloes of the village browse. Th

What do you think Wang Mian is going to do after he hears the rumors?

- ☐ A. run away to live the life of a hermit
- ☐ B. be excited he can work for a good ruler
- ☐ C. ignore the rumors and continue living his life in the village
- ☐ D. decide he wants to work for the ruler to reform the civil service examination system

Submit

Powered By: Qualtrics

Powered By: Qualtrics

Submit

- ☐ D. decide he wants to work for the ruler to reform the civil service examination system
- ☐ C. ignore the rumors and continue living his life in the village
- ☐ B. be excited he can work for a good ruler
- ☐ A. run away to live the life of a hermit

Image Annotation: Guiding Instructions

IMAGE ANNOTATION

Instructions

[Collapse Instructions ↑](#)

Now that you've taken a look at *The Scholar* turn to this scroll titled *Prosperous Suzhou*, a long handscroll by Xu Yang, a native of Wu county, Suzhou.

In 1751, when the Qianlong emperor visited Suzhou during his southern tour, Xu Yang and his friend presented their paintings to the emperor, and in 1753, Xu Yang received a provincial (juren 舉人) degree from the emperor in recognition of his contribution. In 1757, Xu Yang finished this scroll painting, *Prosperous Suzhou*, and presented it to the emperor. You will find detailed representations of life in Suzhou during this period, including illustrations of more than 4,600 figures and 400 boats within the painting.

As you look at this scroll remember to start on the right side of the scroll and end at the left. While looking through the scroll think about why this scroll was created, what was it trying to represent? As you peruse this scroll see if you see any parts of the scroll that portray a particularly cynical view of society or particularly idealistic view of society.

There are many scenes within this scroll showing the busy commercial life of the city. As you look at the streets scenes portrayed here, see if you can tell what goods are being sold. [feel free to tag **wares** the different wares being sold and include a comment on the type of ware]

different wares being sold and include a comment on the type of ware]

Student Image Crowdsourcing

As you look through the scroll find and tag:

- farmer (tag four): How can you tell they are farmers? What is each farmer doing?
- woman (tag four): What do you think each woman is doing?
- school (tag two): There are two schools within this scroll. One is a free school that provides free education for the poor, the other is a village school. How can you tell it's a school? What type of school do you think it is?
- official (tag four): Why do you think they are officials? How can you tell? What do you think each official is doing?
- performance (tag four): There are four different types of performances taking place in this scroll. Find, tag and comment on each performance. Who is the audience? What is the venue? Who is performing? What are they performing?
- yamen (tag one): Why are people gathered there? What do you think they are doing?
- buddhist temple (tag one): Why is the temple placed where it is in the scroll? Think back to the Buddhism module in Part 2: The Creation and End of a Centralized Empire and professor Owen's segment on the poem Stopping by the Temple of Incense Massed in the Poetry module in Part 3: Cosmopolitan Tang: Aristocratic Culture.

Cosmopolitan Tang: Aristocratic Culture.

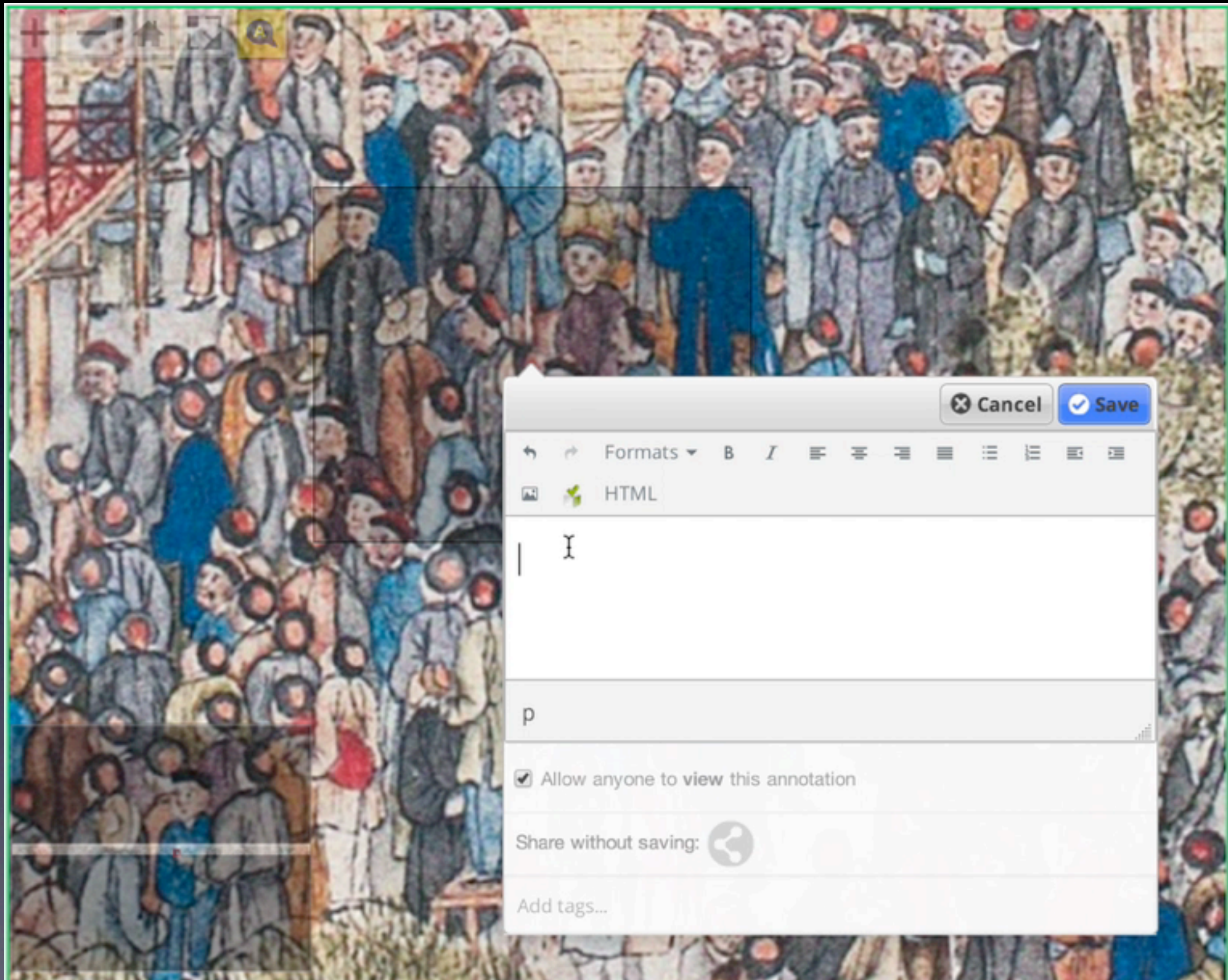
segment on the poem Stopping by the Temple of Incense Massed in the Poetry module in Part 3:

Buddhism module in Part 2: The Creation and End of a Centralized Empire and professor Owen's

segment on the poem Stopping by the Temple of Incense Massed in the Poetry module in Part 3:

Image Annotation: *Prosperous Suzhou*

a 12m (40ft) handscroll by Xu Yang, a native of Wu county, Suzhou





A-B testing

- Does the act of annotating images impact students' learning outcomes in ChinaX?
- Does image annotation impact students' engagement with the learning material?



Forum Feedback

Please, stop experimenting. We don't have enough time for these experiments. Many of us work most of the week or have other obligations, we do this in our free time, which for many of us is not a lot. Do you have an idea how long it is taking to go through this session? Have you tried doing it yourself?

A counter point to the complaint. I have taken any number of courses on EdX and Couseira. I enjoy learning with new tools even when they don't work exactly perfectly. As example a recent chemistry course which used a formula drawing program with issues. I missed every question, but enjoyed learning a new computer skill. Another course had us twittering pictures. So I was good with the annotate tool, in spite of minor problems. And encourage the experimentation and continued development.

Preliminary Results from ChinaX

22,000 annotations, 9000 tags
on the text passages and the scroll

generated by over 800 individuals, over
a span of five weeks.

very active, creating over 2,000
annotations a day during the first week of
the module release tapering to about
500/day towards the end of the period

What's next for

HarvardX

?

Improve User Experience

Instructions

[Collapse Instructions ↑](#)

Be on the lookout for Whitman's usual bag of tricks here—you should be getting used to them by now, but don't stop looking for subtle variations in the ways they're used.

Also, be on the lookout for *metaphors*—they're not so common in Whitman, so they pack a big punch when they do appear. (A *metaphor* is the comparison of two different things by stating that they are, in fact, the same. For example: "The football star was a sharp bullet running down the field.")

SONG OF MYSELF

Walt Whitman

6

A child said **What is the grass?** fetching it to me with **full hands**;
How could I answer the child? I do not know what it is any more than he.

6

I guess it must be the flag of my disposition, out of hopeful green stuff woven.

Or I guess it is the handkerchief of the Lord,
A scented gift and remembrancer designedly dropt,

3

Bearing the owner's name someway in the corners, that we may see and remark,
and say Whose?

4

Or I guess the grass is itself a child, the produced babe of the vegetation.

8

Or I guess the grass is itself a child, the produced babe of the vegetation.

8

and say Whose?

Bearing the owner's name someway in the corners, that we may see and remark,

4

[Turn Off Grouping](#)

Accessibility

making sure all tools are accessible to all learners



*Past experimentation phase
changing for graphic visual media*

Increase Interaction with Annotations

New Annotation Dashboard

The screenshot displays the Hypothes.is interface. On the left, a news article titled "First Milestone Is Claimed on Long Road Tracking Science's Economic Value" by Paul Basken is visible. Below it, another article snippet titled "Hinduism Experts Fear Lasting Effects of Controversy Over School Book" by Karin Fischer is shown. On the right, a sidebar titled "desenne" contains a "Test 2" section with two tags: "tagOne" and "tagTwo". Below this, a bar chart titled "Tags used in selection Africa Study Group for: The City of Enigma, then my safe homecoming (book)" is displayed. The chart shows three bars for each of the three categories: "None", "Exclusion", and "Close". The "Close" category has the highest values across all three bars. The Hypothes.is logo is in the bottom left corner.

hypothes.is

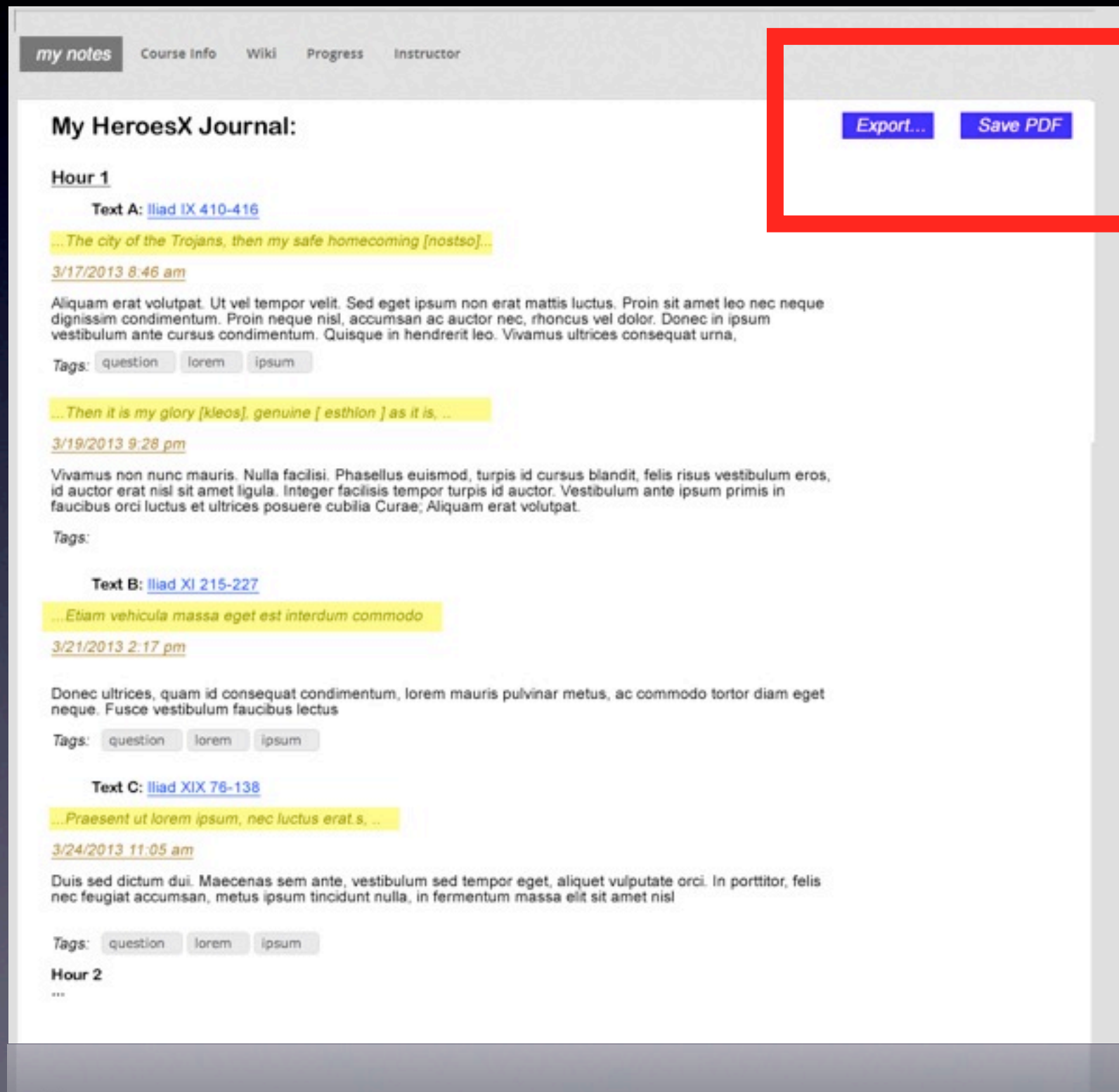
- Live updates
- Email notification
- Multilevel replies
- Relevant visualizations

New tools: Comparative Analysis

The screenshot displays the edX course interface for "CHS: CS100 The Ancient Greek Hero". The top navigation bar includes "Courseware", "Course Info", "Discussion", "Advice for Participants", "H24H", "Sourcebook", "Progress", "My Notes", and "FAQ". A "desenne" logo is in the top right corner. Below the navigation bar, a sidebar on the left lists course components: "Welcome to CB22.1x 'The Ancient Greek Hero'", "Required Preliminary Survey", "Welcome to CB22.1x 'The Ancient Greek Hero'", "The Heroes and the Project: An Introduction", "Text Annotation", "Video Annotation", "Audio Annotation", "Image Annotation", and "Image Annotation IIIF". The main content area is titled "Comparative Analysis Tool" and contains sections for "Instructions" and "Guided Discussion". The "Guided Discussion" section shows two panels, "My Notes | Section A Notes", each with a "Graph view" link. The left panel displays "Hour 2. Achilles as epic recall in song" and includes a text annotation tool with a red line pointing to a specific line of text. The right panel shows a large image of a classical Greek vase with a figure, and a smaller inset image of a classical Greek vase with a figure. The interface is designed for comparative analysis of ancient Greek texts and art.

Exportable data (common formats)

Aggregated notes, student journal



The screenshot shows a web application titled "my notes" with a navigation bar containing "Course Info", "Wiki", "Progress", and "Instructor". The main content area is titled "My HeroesX Journal:". Under the heading "Hour 1", there are three text entries labeled "Text A", "Text B", and "Text C". Each entry includes a date, a snippet of text, and a "Tags" section with buttons for "question", "lorem", and "ipsum". A red rectangle highlights the "Export..." and "Save PDF" buttons in the top right corner of the journal view. A red arrow points from this rectangle to a yellow box on the right side of the slide.

- PDF
- TXT
- HTML
- XML
- RDF

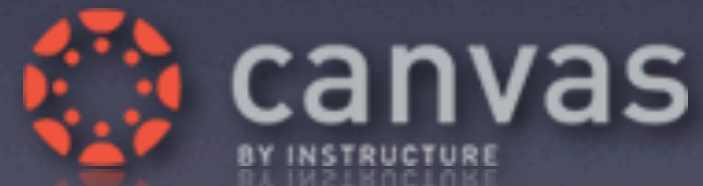
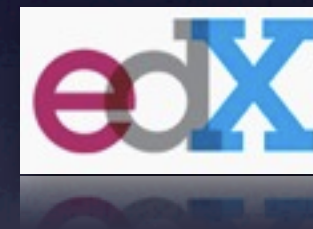
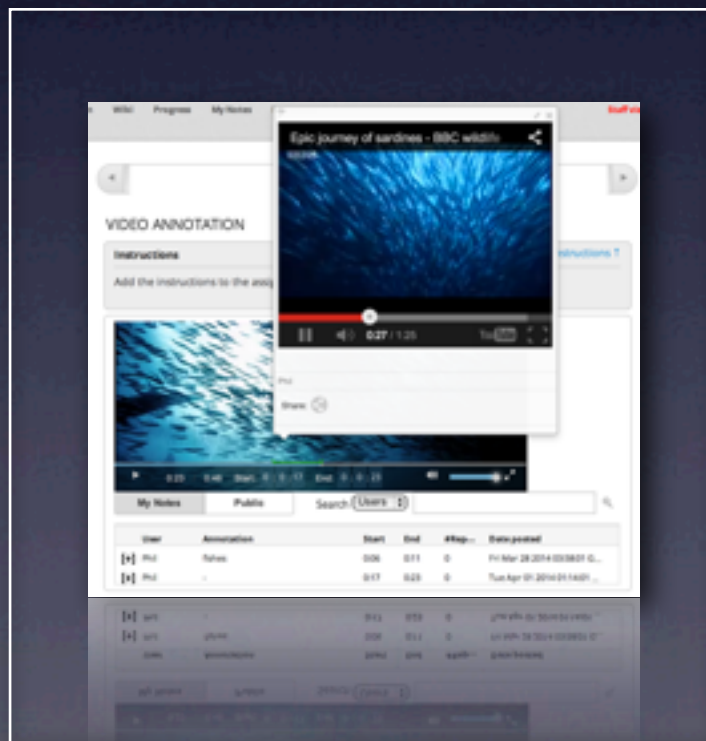
Learning Tool Interoperability (LTI)



<http://www.imsglobal.org/lti/>

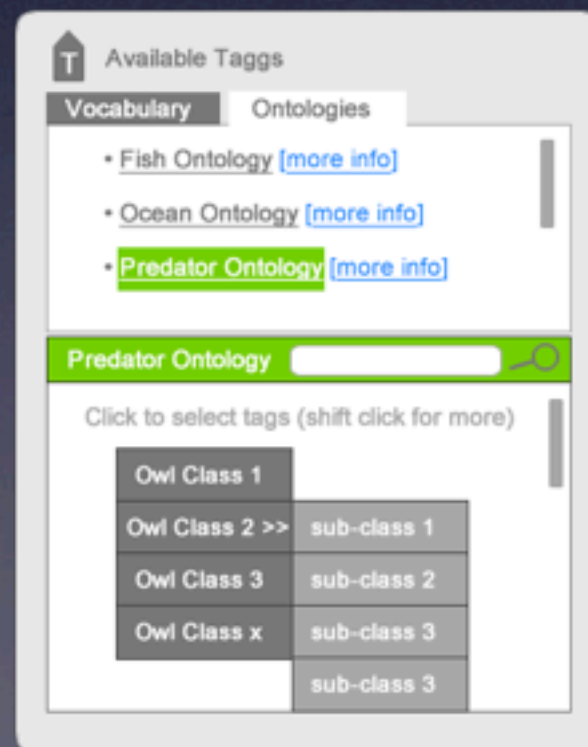
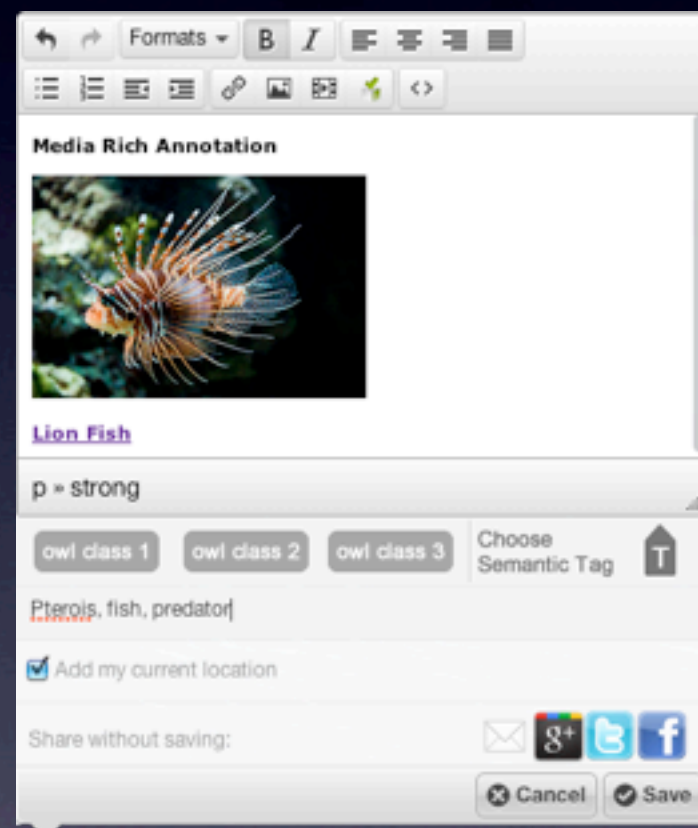
Modularity of Future LMS

LTI Module



Semantic Tagging for Teaching, Learning and Research

- Ontologies for Digital Humanities
- Poetry Ontology
- Chinese Poetry Ontology
- Classics Ontology
- etc.

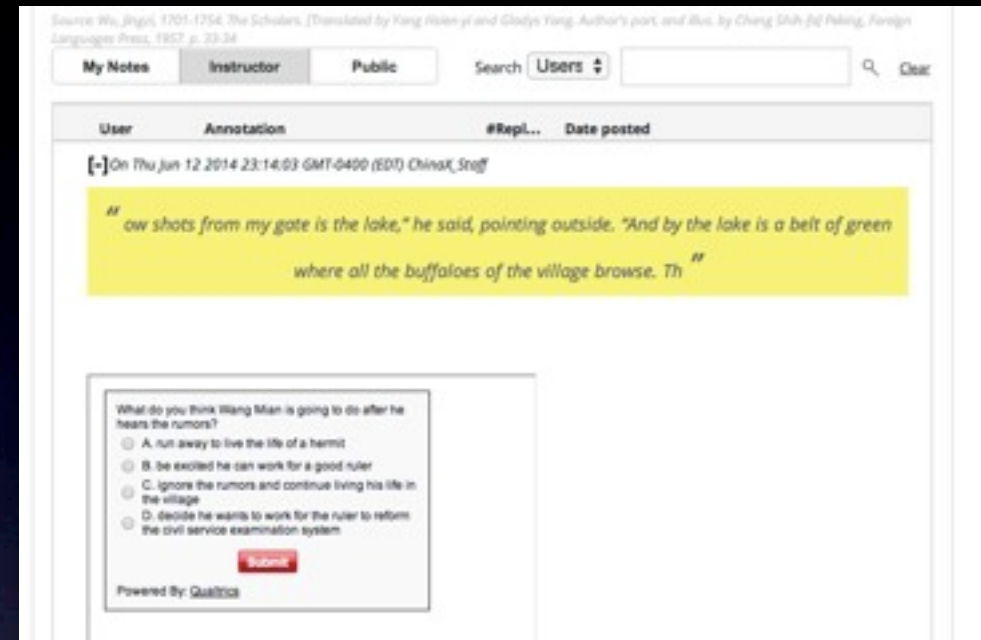


Assessment Rubrics Inside Annotations

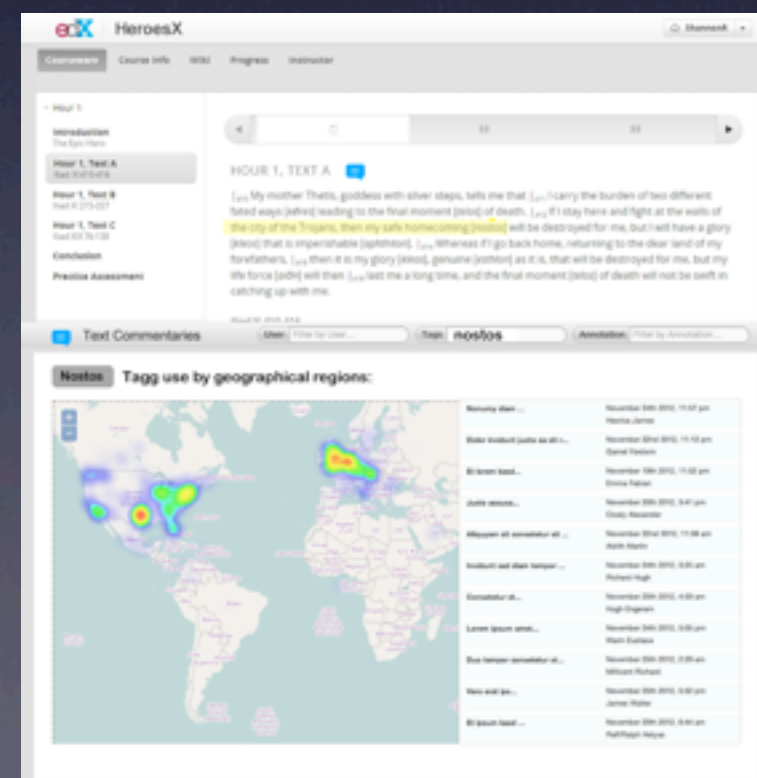
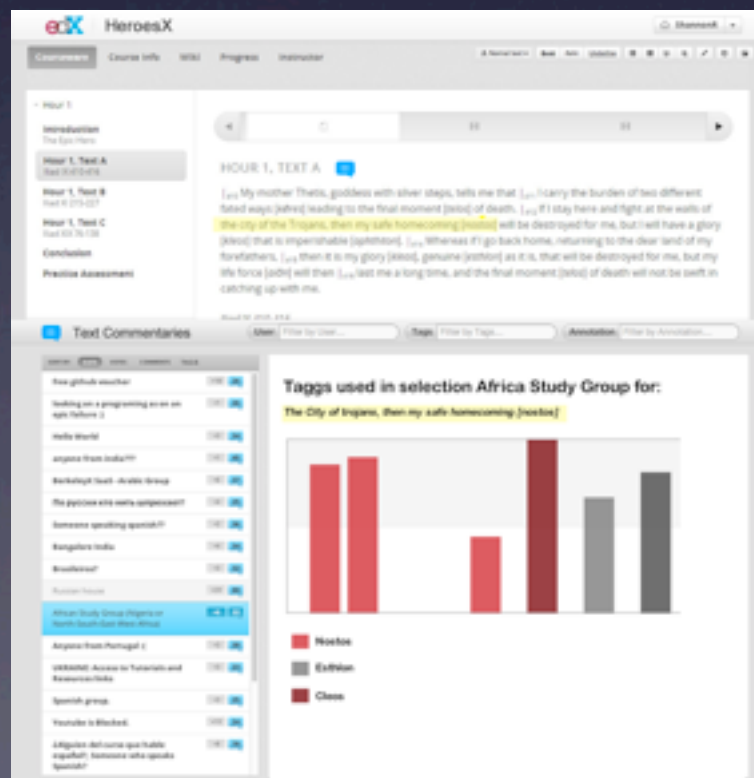
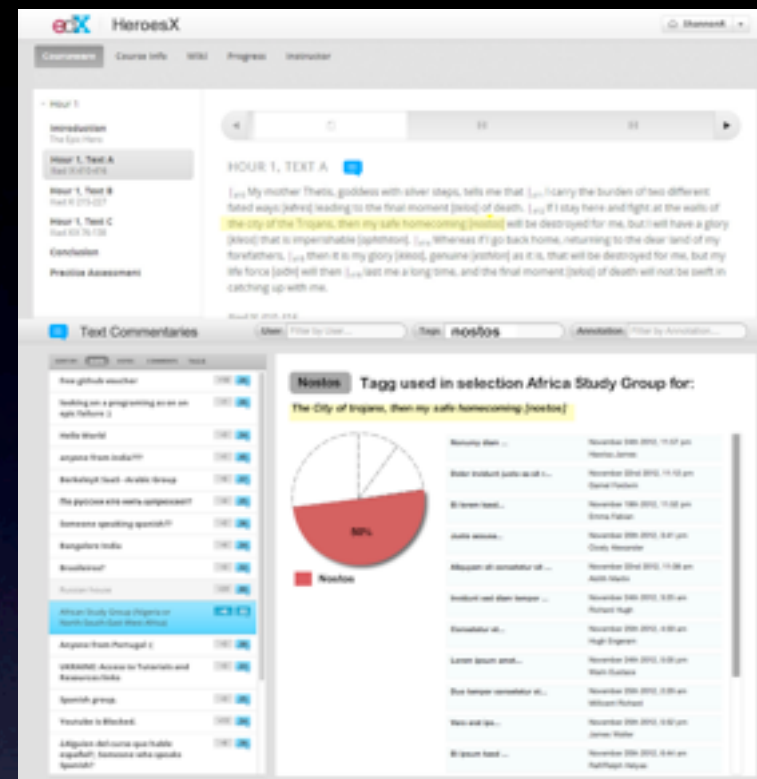
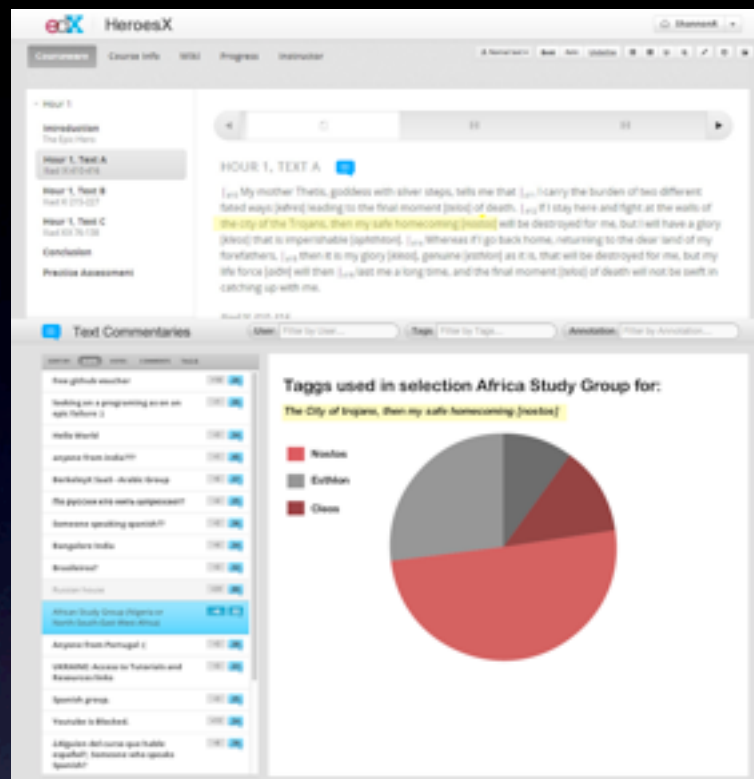
| | |
|---|----------------|
|  | < Comp 1 > |
|  | < / Rubr 1.1 > |
|  | < / Rubr 1.2 > |
|  | < Comp 2 > |
|  | < / Rubr 2.1 > |
|  | < / Rubr 2.2 > |
|  | < Comp 3 > |
|  | < / Rubr 3.1 > |
|  | < / Rubr 3.2 > |



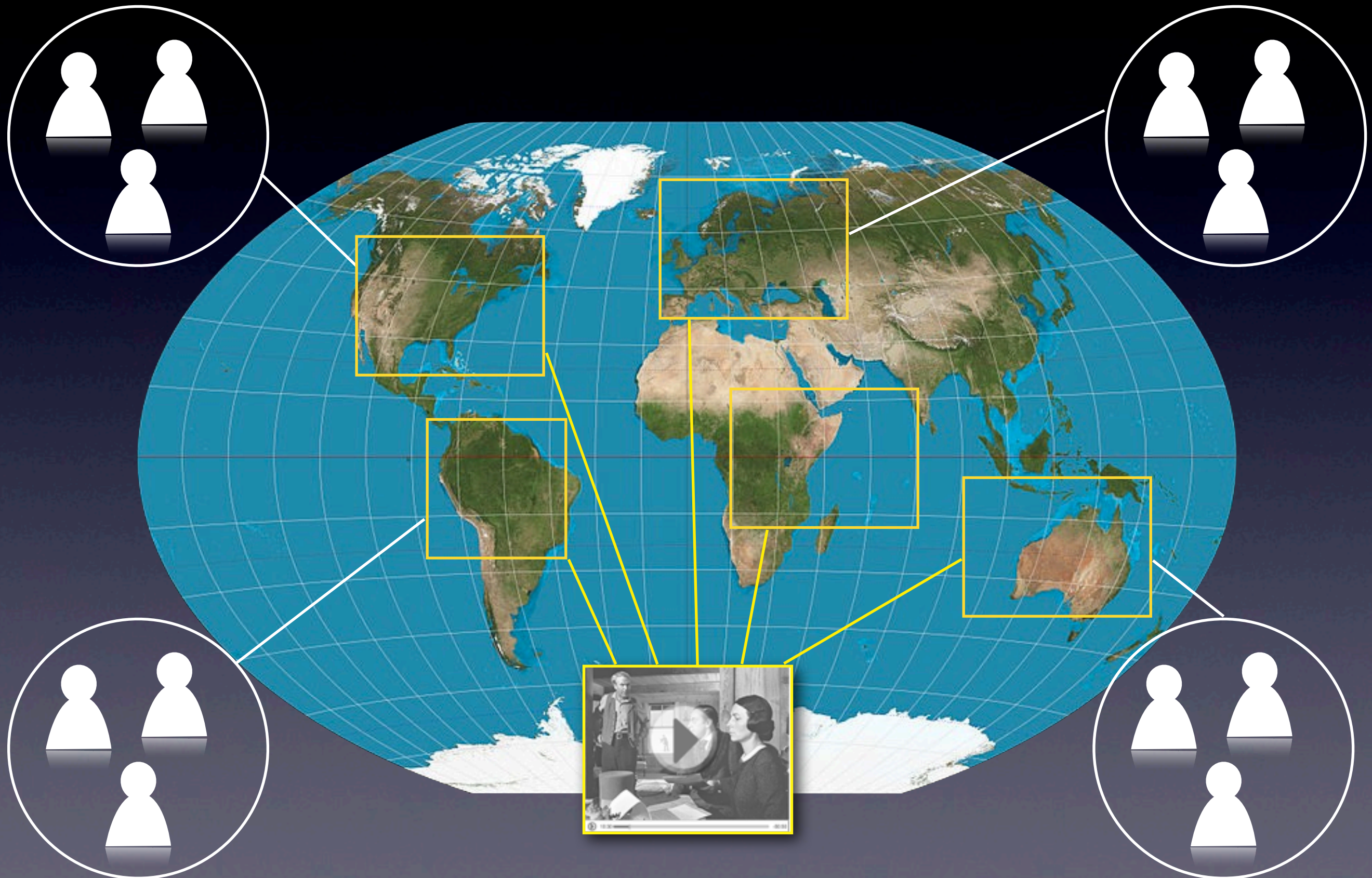
embedding Qualtrics surveys



Analysis and Visualizations



Regional perspectives



Leveraging Collaborations for New Tool Development

Intra-institutional / x-institutions / industry
National and International

- Center for Hellenic Studies
- Mind Informatics (MassGeneral Hospital)
- Berkman Center
- Hypothes.is: tools and ui improvements
 - Grants for annotation development: 5-15K
- Stanford-HX Data Analysis (dev with Justin)
- MITX
- Center for Research and Interdisciplinarity (Paris)
- University of Malaga
- EAFIT (Colombia)
- Critiquel^it: enterprise development
- UC Berkley

Annotation Tools for Teaching and Learning ... and research

Crowd sourcing and massive data
unique research opportunities!



Research

The diagram features a large, thin white circle centered on a dark blue background. Inside the circle, on the left side, is a yellow rectangular box containing the word 'Research'. On the right side is a similar yellow box containing the word 'Teaching'. A white double-headed arrow points from the 'Research' box to the 'Teaching' box. The word 'drives' is written in a dark blue font across the center of this arrow.

drives

Teaching

Future Data Analysis

Can we compare student engagement?

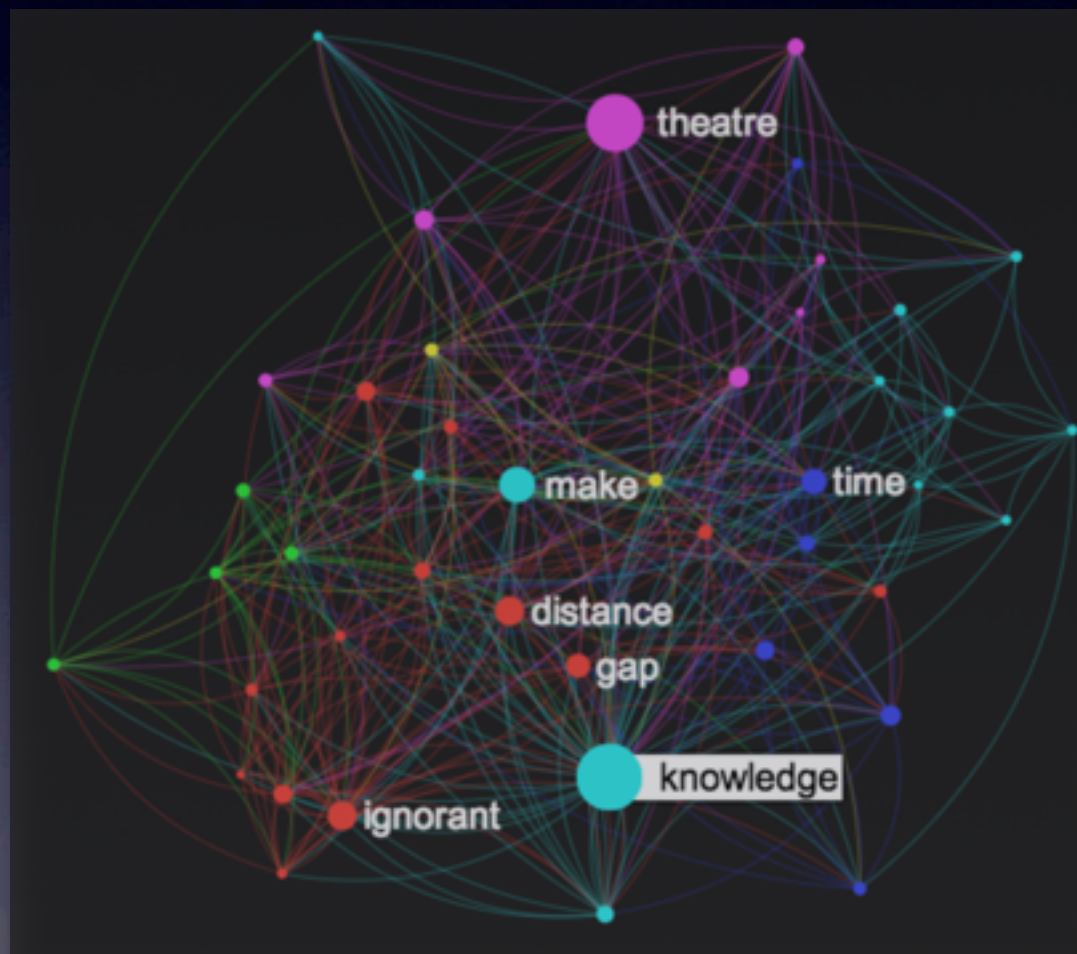
- Completion rates compared to annotation engagement
- How does completion rates compare to annotation engagement.
- Are the more engaged students also the ones that complete the course?
- Do annotations exercises increase the completion rate?
- Hypotheses that can be tested in future iterations
- A/B testing

Retroactive data analysis

- Text Analysis
 - Structural - Topic Modeling (words associated with each topic)
 - Syntactic pattern recognition (arrangement of words and phrases)
- Interviews
 - with course participants
 - Instructors

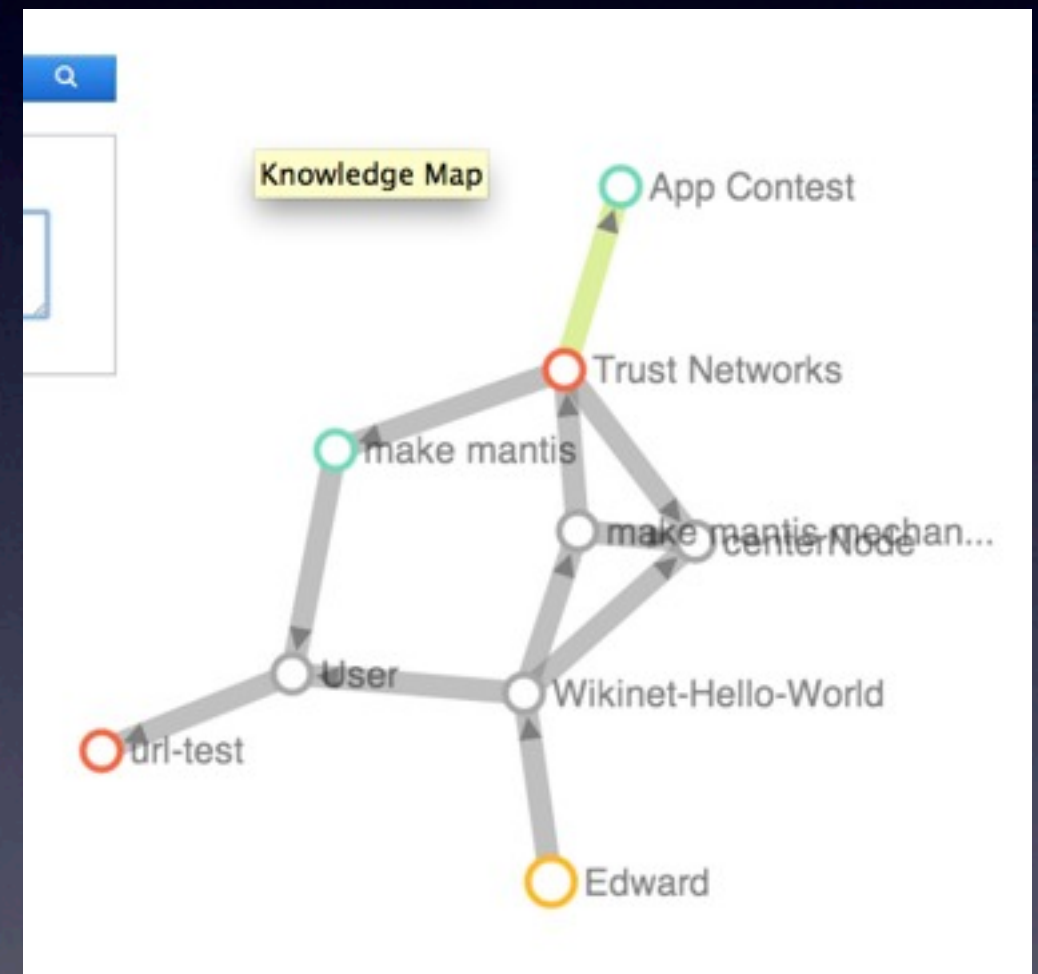
Discover Annotations

text analysis



<http://texttexture.com>

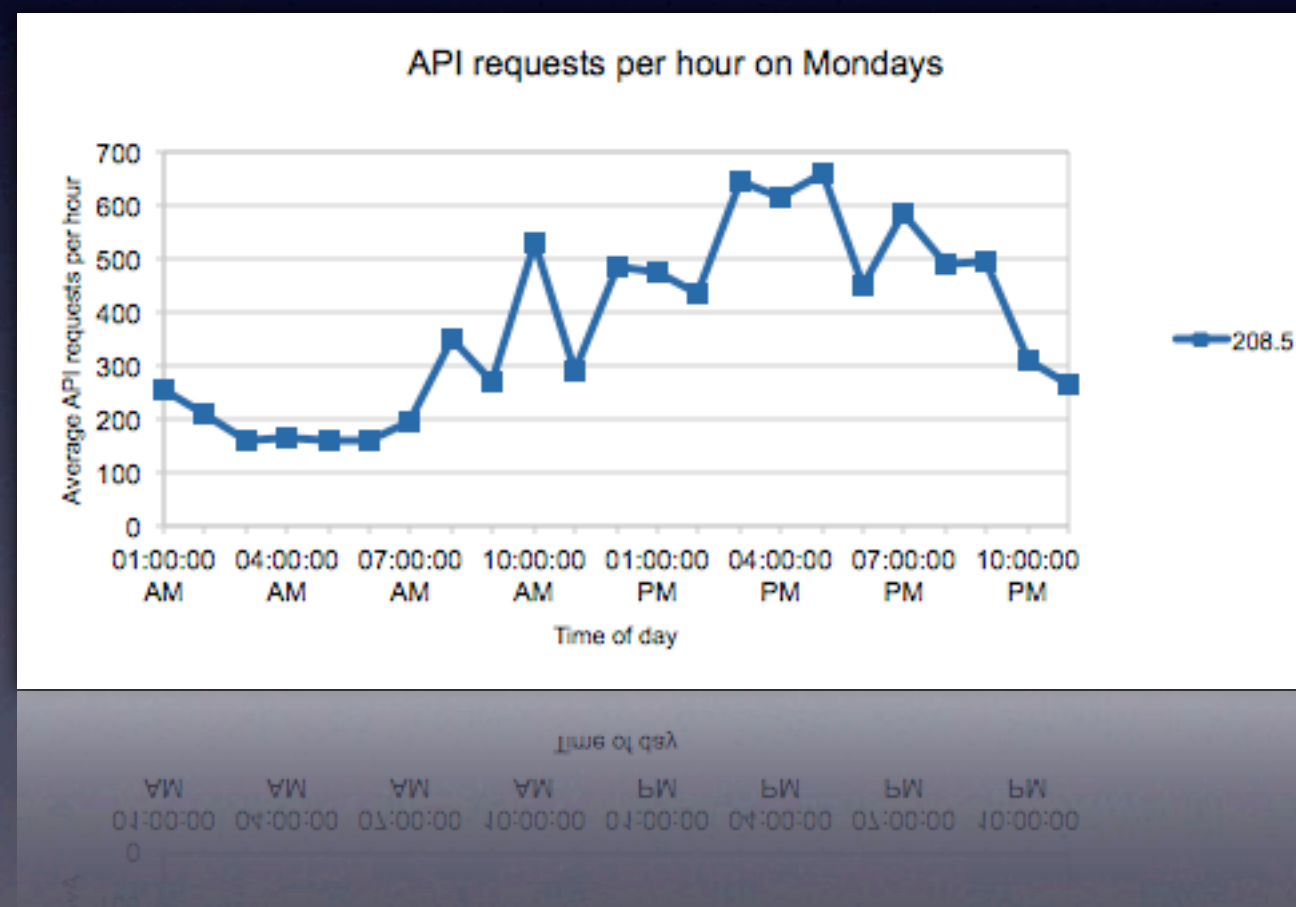
connected content



<http://www.rhizi.org/>

Clickstream Data and API request

when and where each learner clicked to engage with various learning materials



The big picture

Annotate  Platform

Persistent Annotation Meta-layer

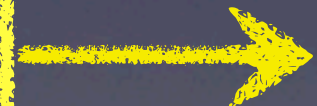
Open API Access



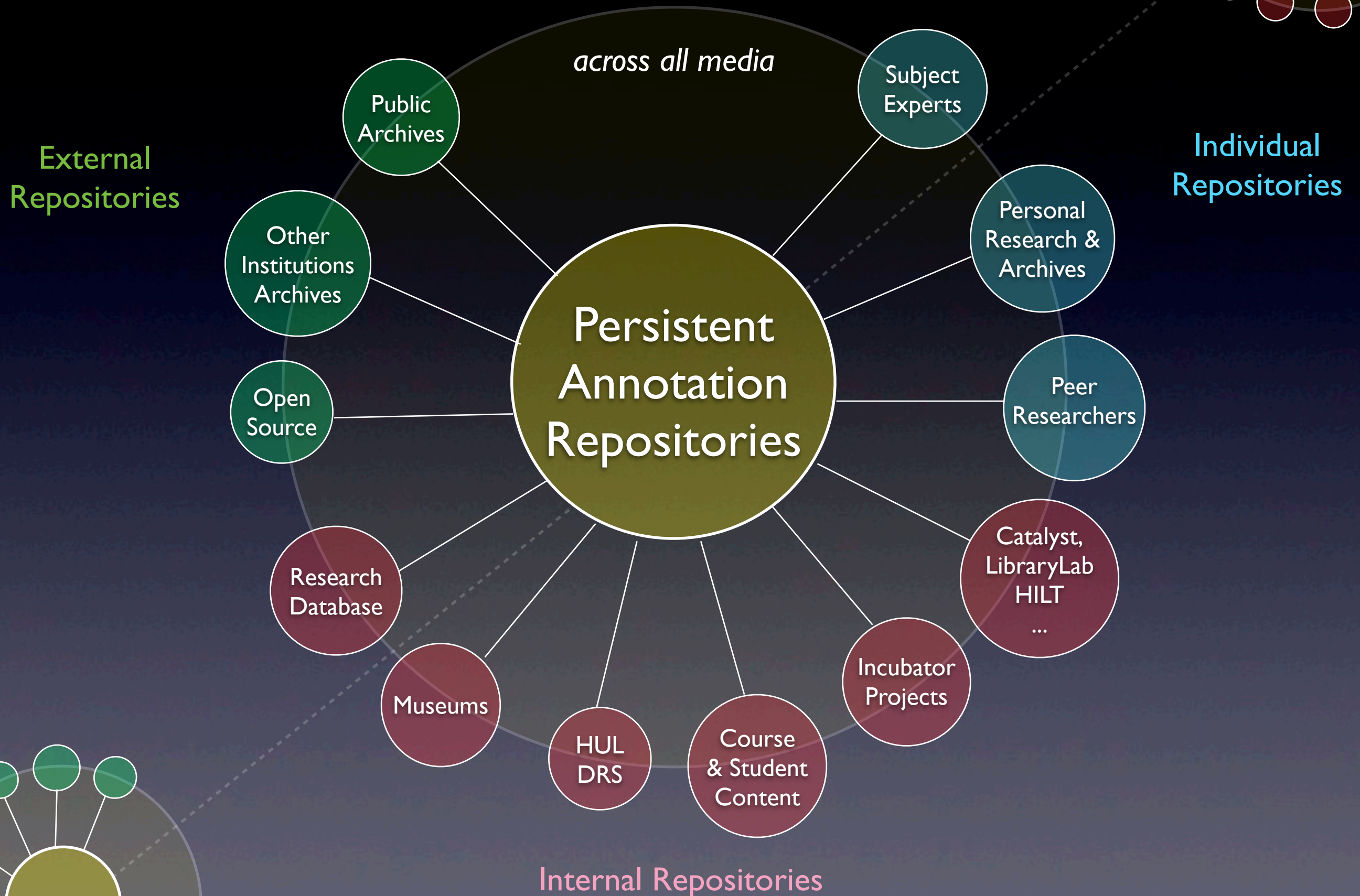
Ephemeral Content / Learning Management Systems

Stable Digital Repositories

URNs resolving to URLs



Open Annotation Federated Systems



Open edX Annotation Tools

<http://tinyurl.com/qb8vpbq>

Open edX Annotation Tools

SetupTextImageVideoMyNotesResearchAbout

Last modified: August 11 2014 20:41:55.

Annotation Tools for Teaching, Learning and Research

These annotation tools offer multiple means of engagement with the edX course material and introduce new models of online, peer-to-peer and student-instructor interactions inside the platform. Digital annotation tools allow contextual commentaries and conceptual tagging of media fragments within MOOCs, thereby transforming the unidirectional delivery of the online course content.

Text Annotation Tool


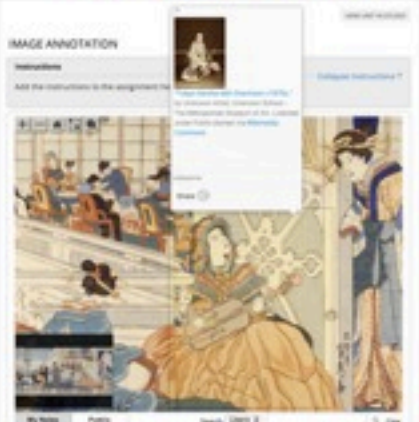


Image Annotation Tool



Video Annotation Tool

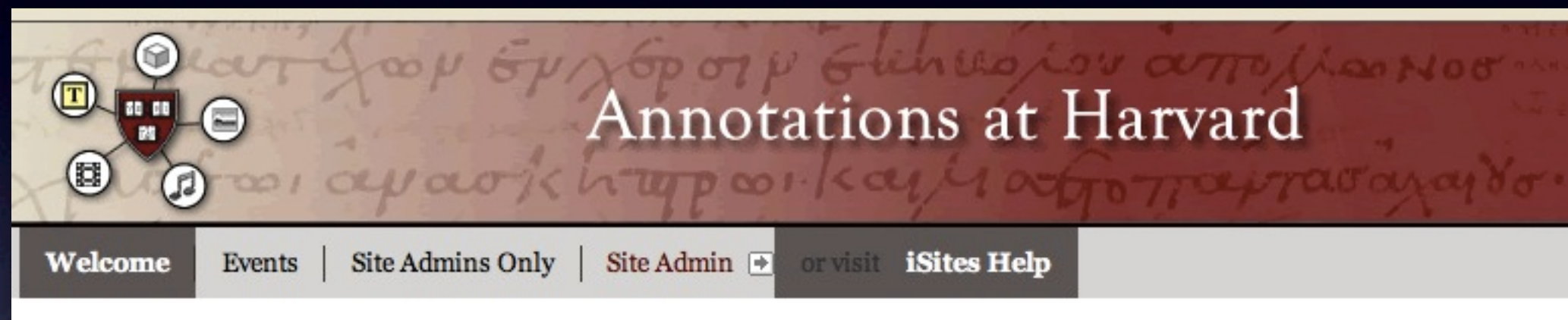


Here are instructions on how to install and operate three annotation/tagging tools to add media-rich commentaries to text passages, video clips, high definition images(with deep-zoom), inside the edX platform. All annotations can be aggregated under one section of the platform, where students can browse and review their own notes, as well as the instructors' and other students' contributions. All notes maintain hyperlinks to their original annotated fragment on the corresponding target page .

notes maintain hyperlinks to their original annotated fragment on the corresponding target page .
the platform where students can browse and review their own notes, as well as the instructors' and other students' contributions. All
video clips, high definition images(with deep-zoom), inside the edX platform. All annotations can be aggregated under one section of

Public Portal

annotations.harvard.edu



documentation, testimonials, resources, code repositories

Annotate HarvardX

Presentation:

<http://tinyurl.com/pwmug58>

Thank You !
Questions?

desenne@fas.harvard.edu

- Multiple means of representation to give learners various ways of acquiring information and knowledge (UDL)
- Multiple means of expression to provide learners alternatives for demonstrating what they know (UDL)
- Multiple means of engagement to tap into learners' interests, challenge them appropriately, and motivate them to learn (UDL)
- Promotes community-building through communication and collaboration
- Incorporates foundations for close analysis of content
- Fosters crowdsourcing to enhance learning through collaborative research
- Empowers mechanisms for formative assessment (just-in-time teaching)
- Helps monitor of quality and level of engagement of the individual, of groups, and of the entire student population
- Lays the groundwork for a much-needed method of assessing the Humanities at scale