

Analysis of video use in edX courses

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MOOCshop - July, 9th



Motivation for video analytics

Content
Development

Many on the MITx team.

Tool
Development

Cody Coleman: video annotation tool.

Analytics

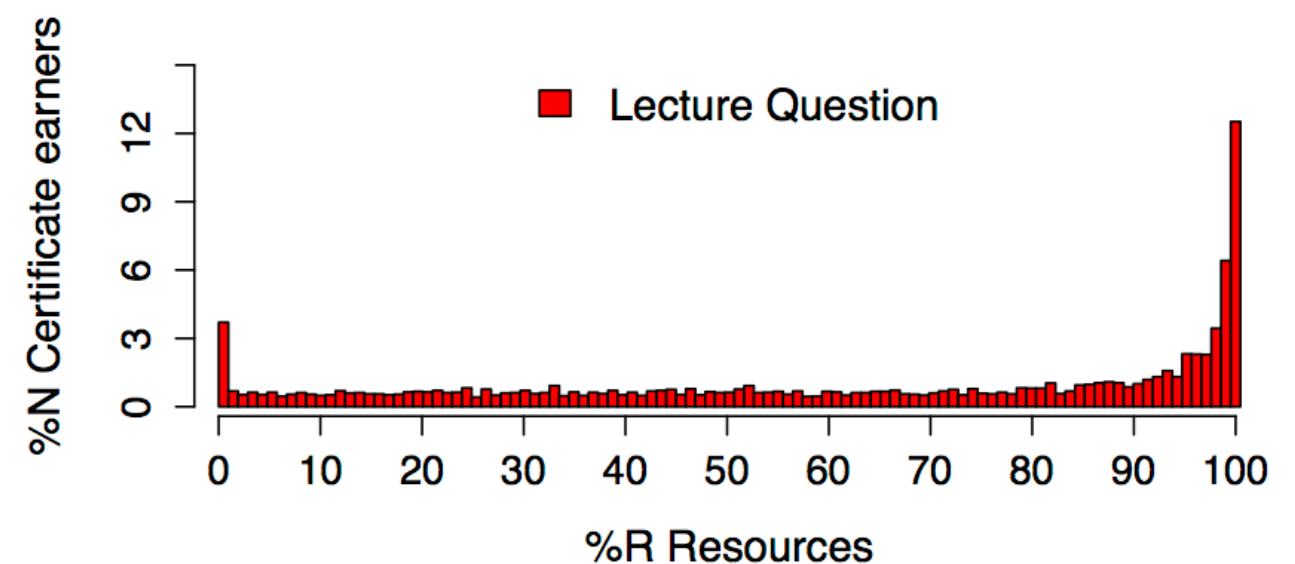
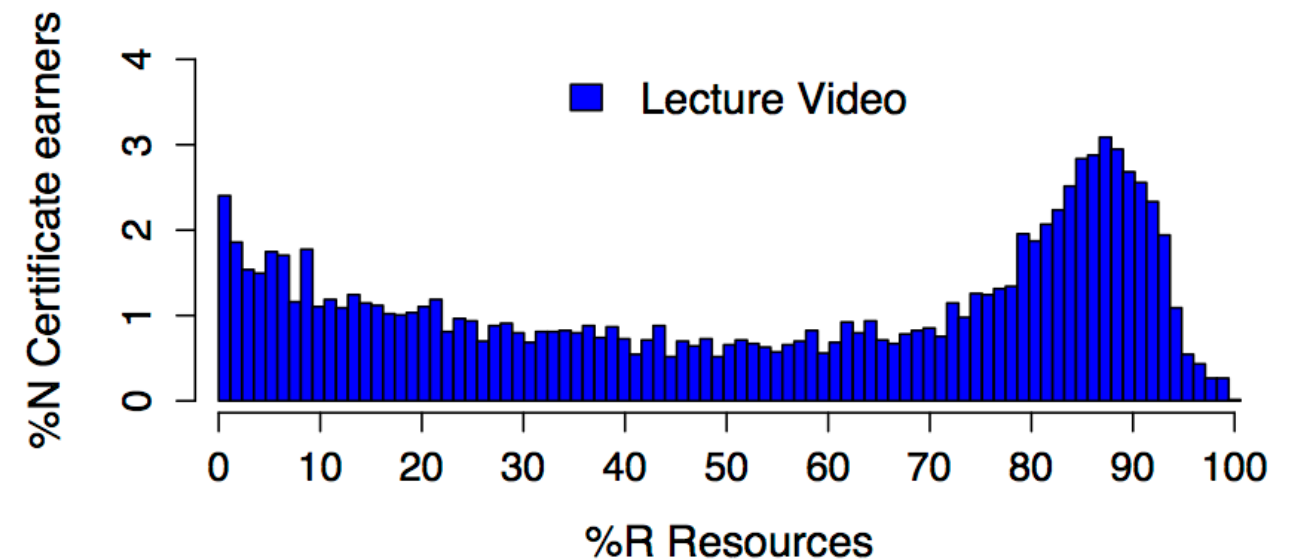
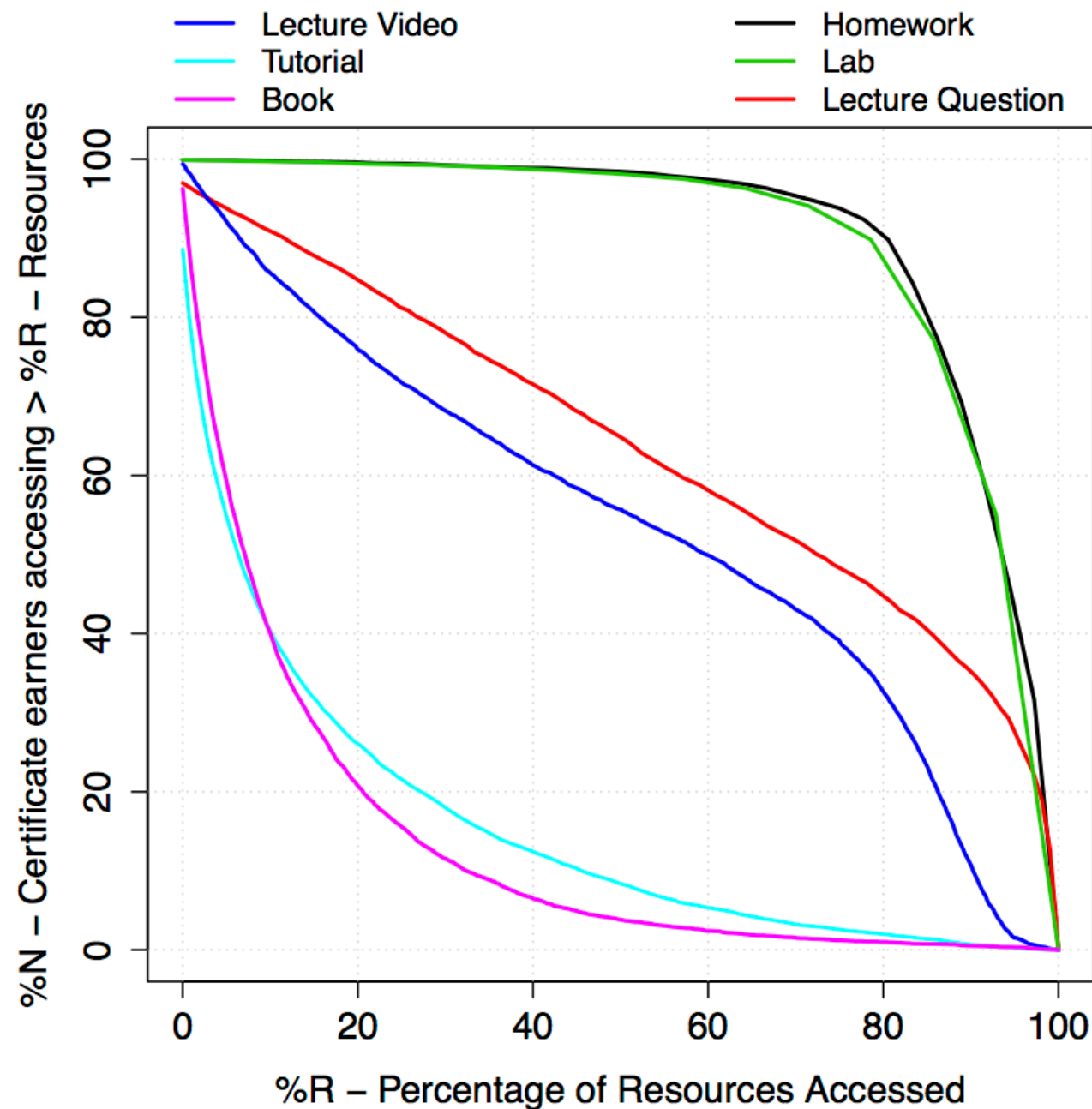
Albert Rodenius: click-level analysis.

Middle
of the road
video use...

RELATE Group: bimodal video
use by certificate earners

Video use in 6.002x Spring 2012

- Shown to be bimodal in inaugural MITx course; *does this persist?*



Who Does What in a Massive Open Online Course?

Seaton, Bergner, Mitros, Chuang, Pritchard (*In Press* - Communications of the ACM)

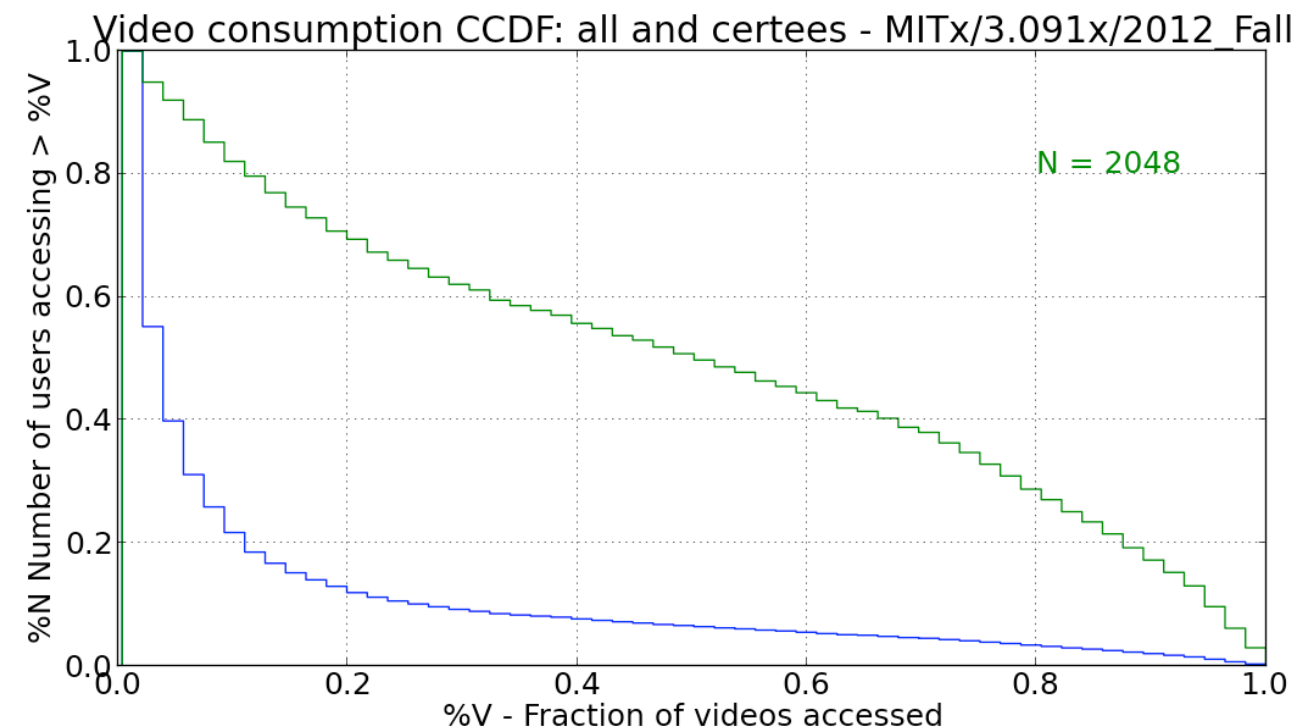
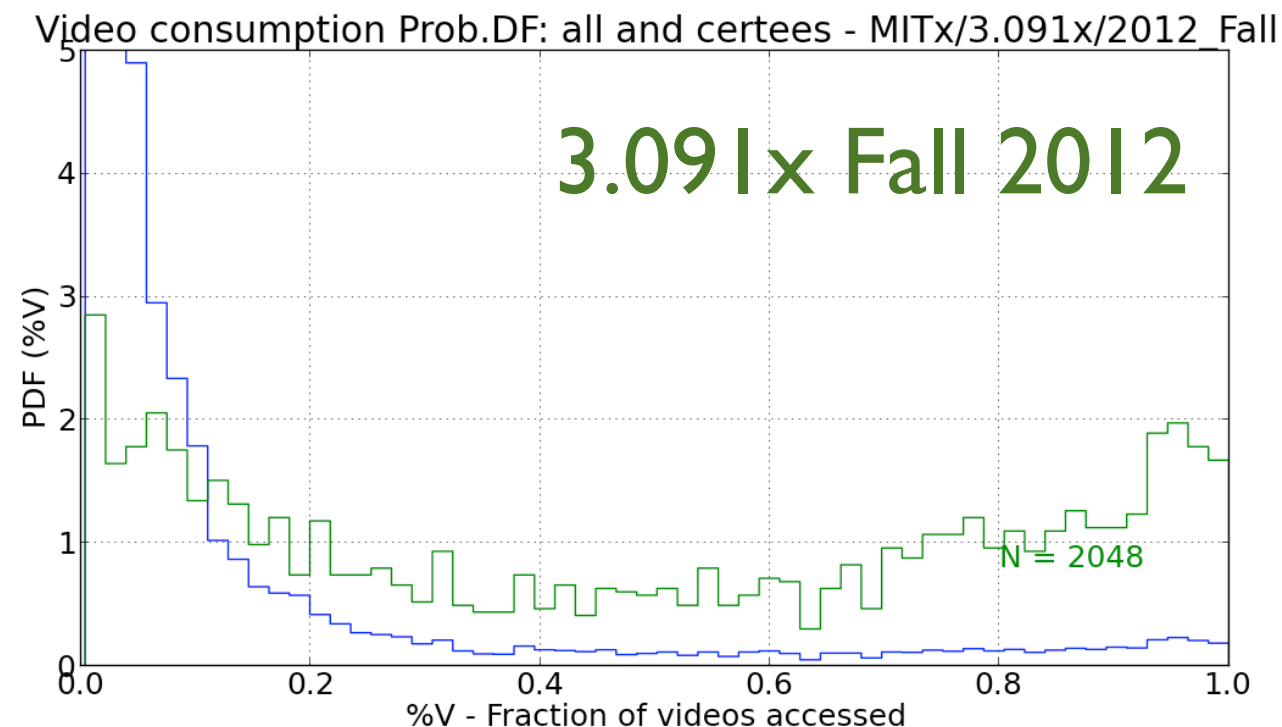
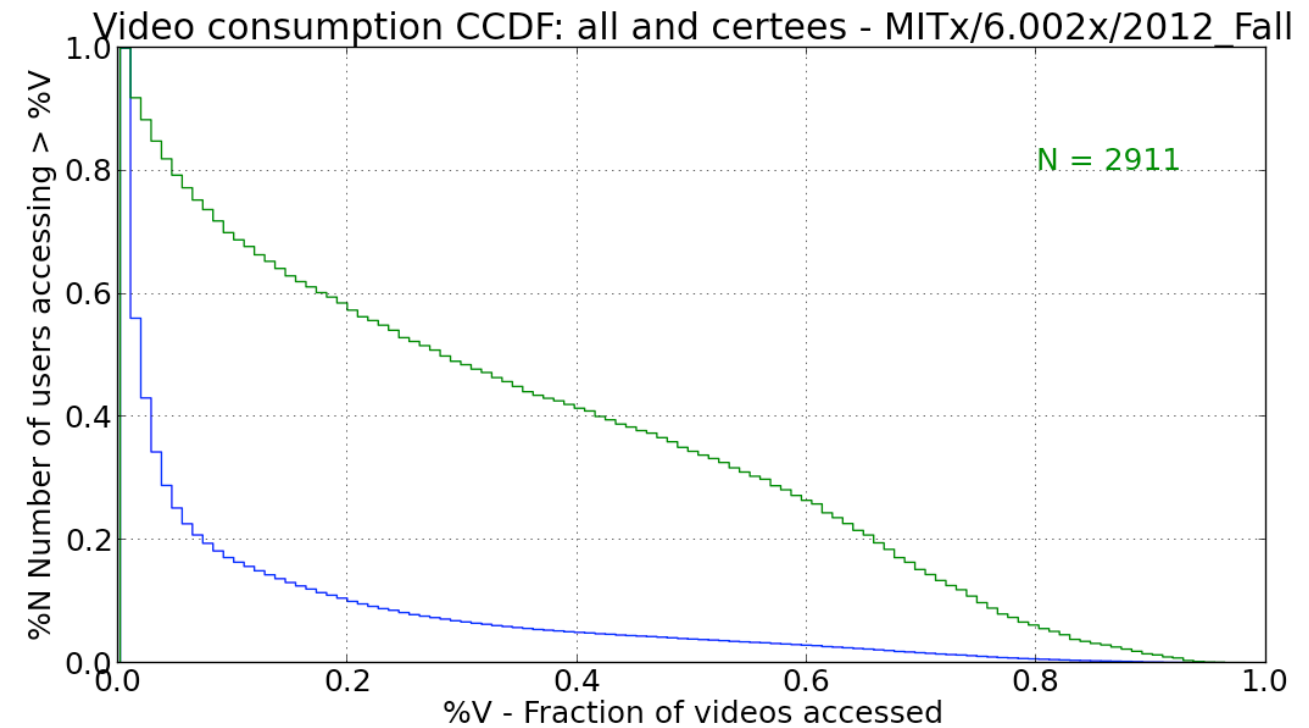
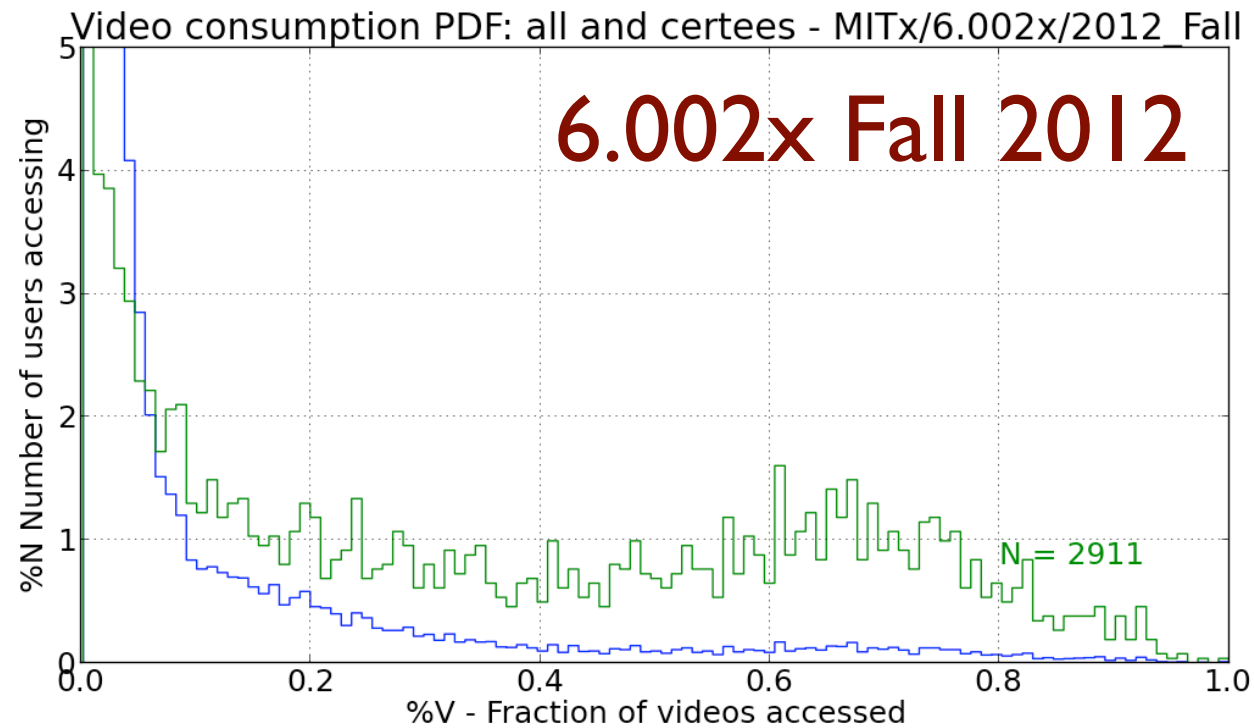
Methods

- In early stages of analyzing video usage in MITx courses.
- *Analysis of pause/play events (clicks) in tracking logs*
- *Play event occurs at each loading of a video*
- *Unique accesses and video-player time of click*

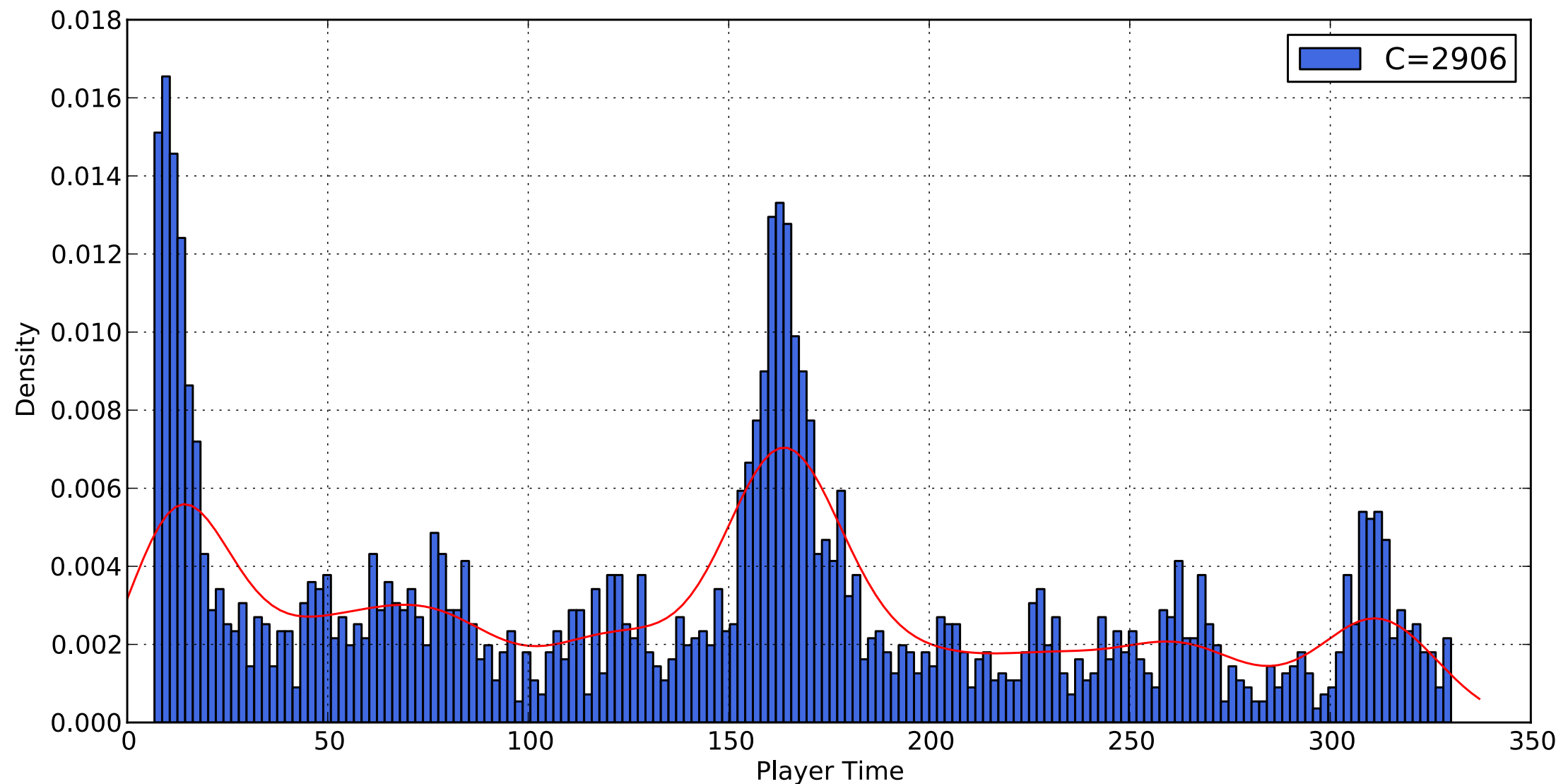
Research questions

- *Video use has been shown to be bimodal; does this persist?*
- *Do meaningful signals exist in pause/play activity?*
- *How can such knowledge be integrated into future tools and courses?*

Does bimodality persist?

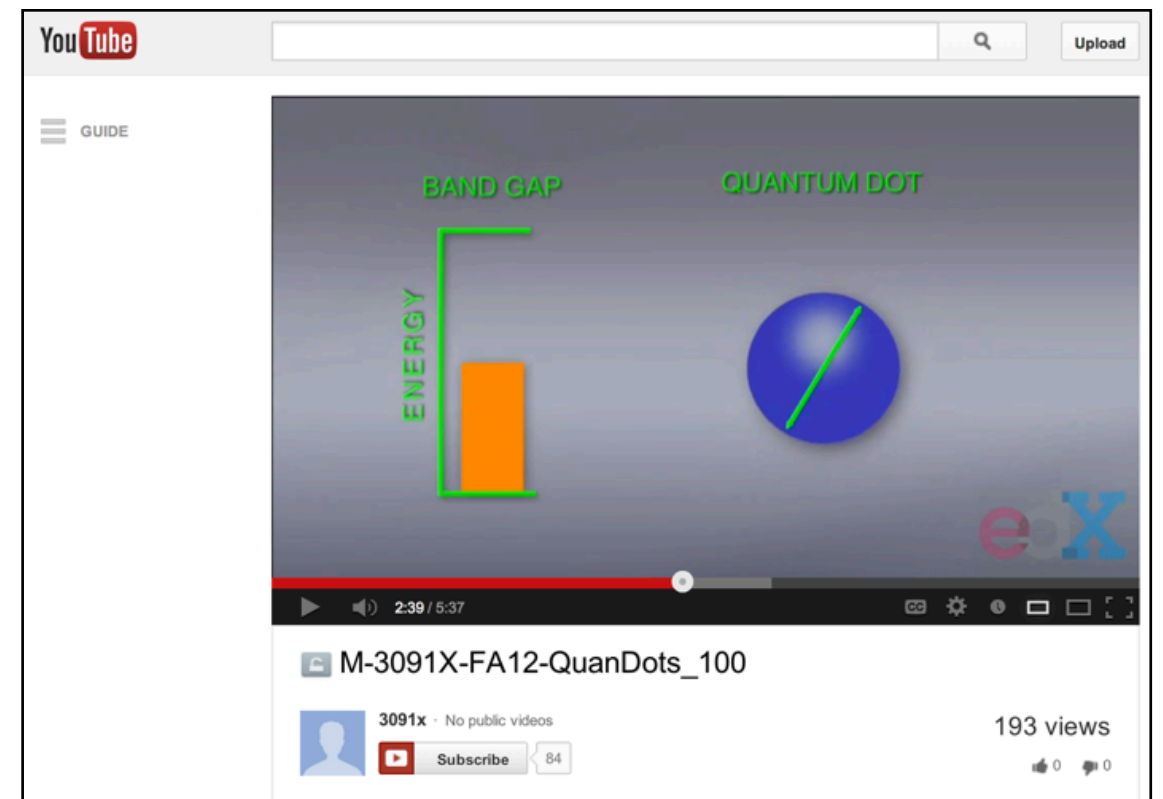
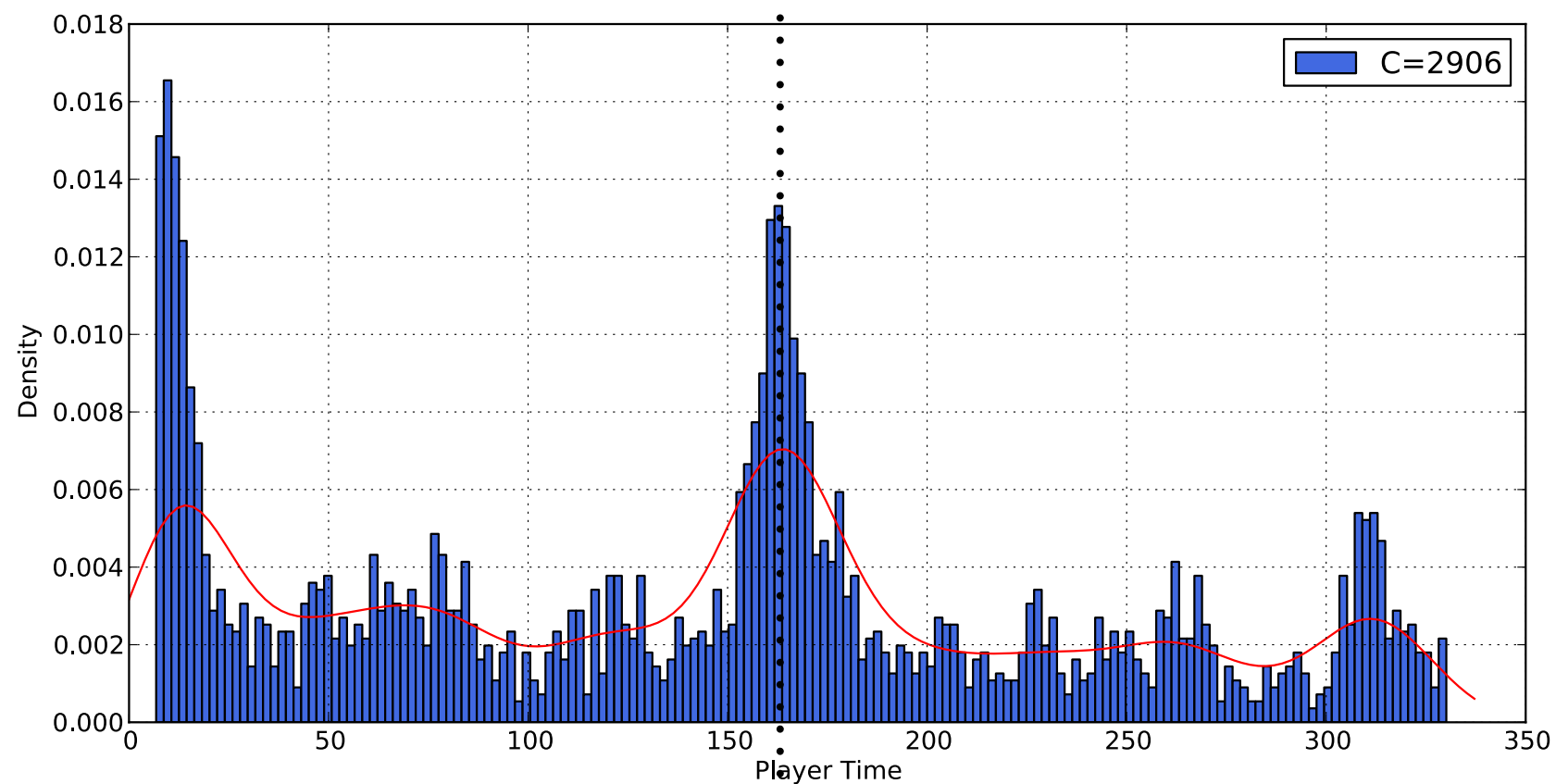


3.09 Ix: Video engagement and peak detection

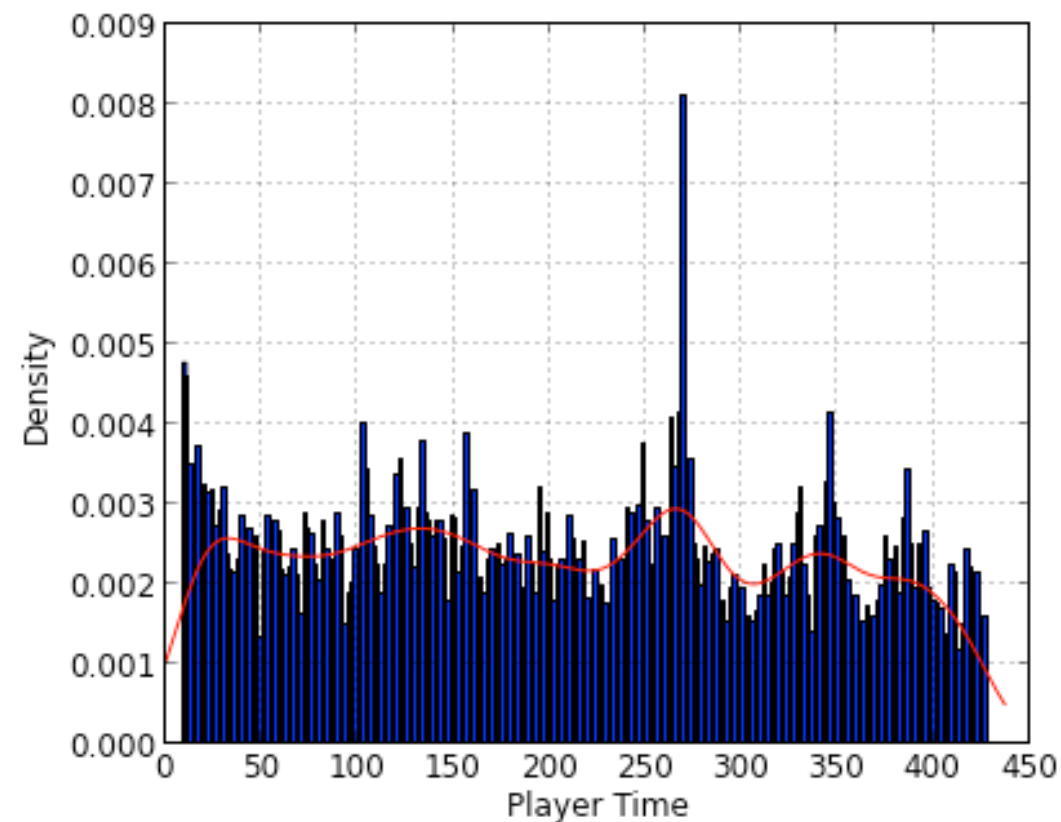
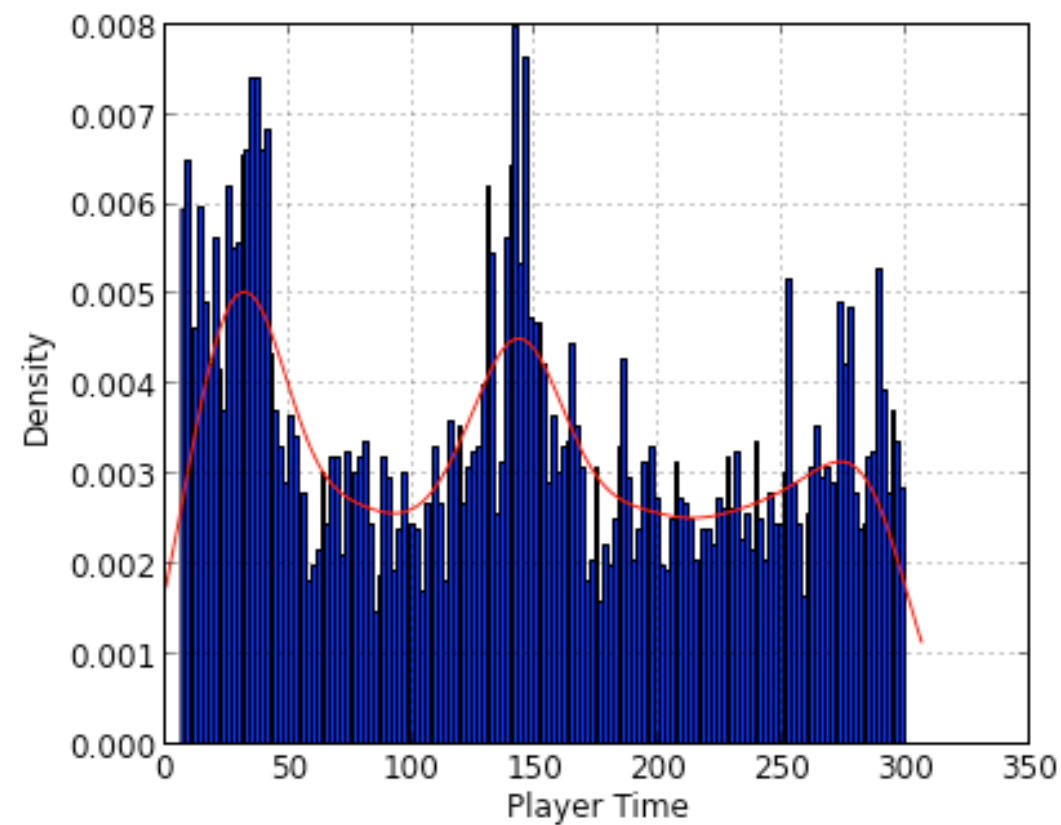


Albert Rodenius is actively working on peak detection.

What might the peaks tell us?



6.002x: What might the peaks tell us?



YouTube

GUIDE

Similarly, R

large signal

small signal

$V_R = R I_R$

$v_n = R i_n$

$v_n = \frac{\partial (R i_n)}{\partial i_n} \bigg|_{i_n = I_R} \cdot i_n$

$v_n = R \cdot i_n$

6002-L7-oei12-9_100b

YouTube

GUIDE

Must also be defined.

V_{AB} defined $\frac{\partial \phi_B}{\partial t}$

V_{AB} defined when $\frac{\partial \phi_B}{\partial t} = 0$

So $V_{AB} = \int_{AB} E \cdot dl$ outside elements

see A & L Appendix A.3

So let's assume this too!

Also, signal speeds of interest should be way lower than speed of light

6002-L1-oei12-9_100b

Video Annotation Tool

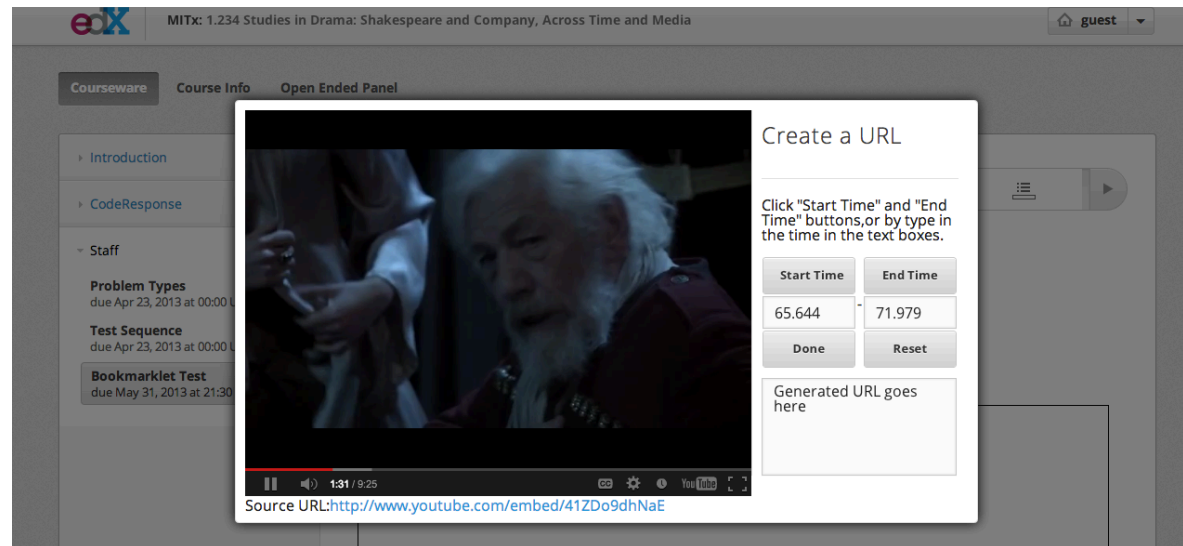
- *How will new tools affect results?*
- Video annotation tool
 - Opportunity to measure how usage changes

Tool
Development

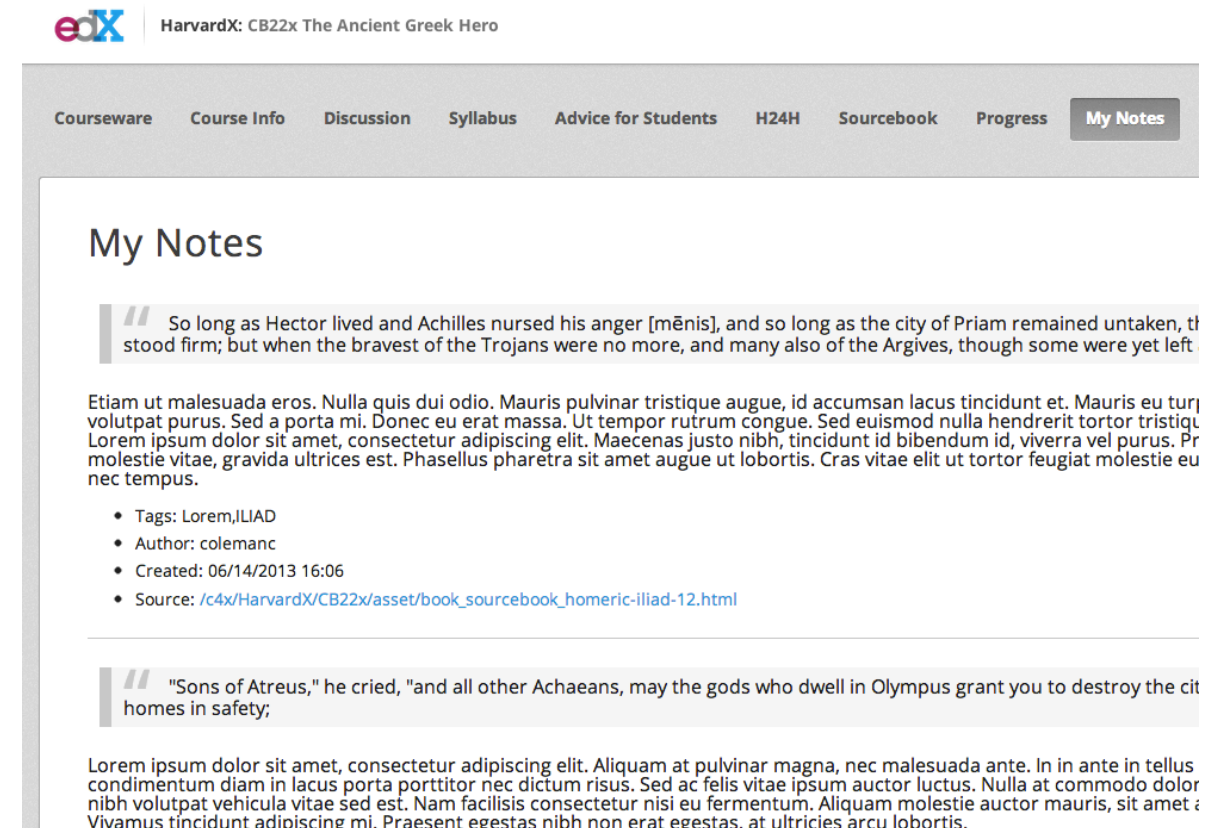
The screenshot displays the MITx interface for the course "MITx: 1.234 Studies in Drama: Shakespeare and Company, Across Time and Media". A video player is embedded, showing a scene with an elderly man. Overlaid on the video is a "Create a Clip" dialog box. This dialog includes instructions: "Click 'Start Time' and 'End Time' buttons, or by type in the time in the text boxes." It features input fields for "Start Time" (65.644) and "End Time" (71.979), along with "Done" and "Reset" buttons. Below these is a text area labeled "Generated URL goes here". The video player's progress bar shows the video is at 1:31 of a 9:25 duration. The source URL is provided as <http://www.youtube.com/embed/41ZDo9dhNaE>. The background interface includes navigation tabs like "Courseware", "Course Info", and "Open Ended Panel", and a sidebar with course content such as "Introduction", "CodeResponse", and "Staff".

Video Annotation Tool + Digital Notebook

Digital Notebook =



+



Cody Coleman is actively working on this project.

Other possible uses?

The Collaborative Lecture Annotation System (CLAS): ...
Risko, Foulsham, Dawson, Kingstone (*IEEE Transaction on Learning Technologies* 2013)

Conclusions

- Results (*very much in progress*)
 - Bimodal use of videos persists (all Fall courses)
 - Meaningful signals exist in pause/play activity (but to what extent?)
 - Current engagement analyses server as a baseline for future tool development.

Acknowledgements

- Thanks to Yoav Bergner, Piotr Mitros and J.M. Van Thong for support.

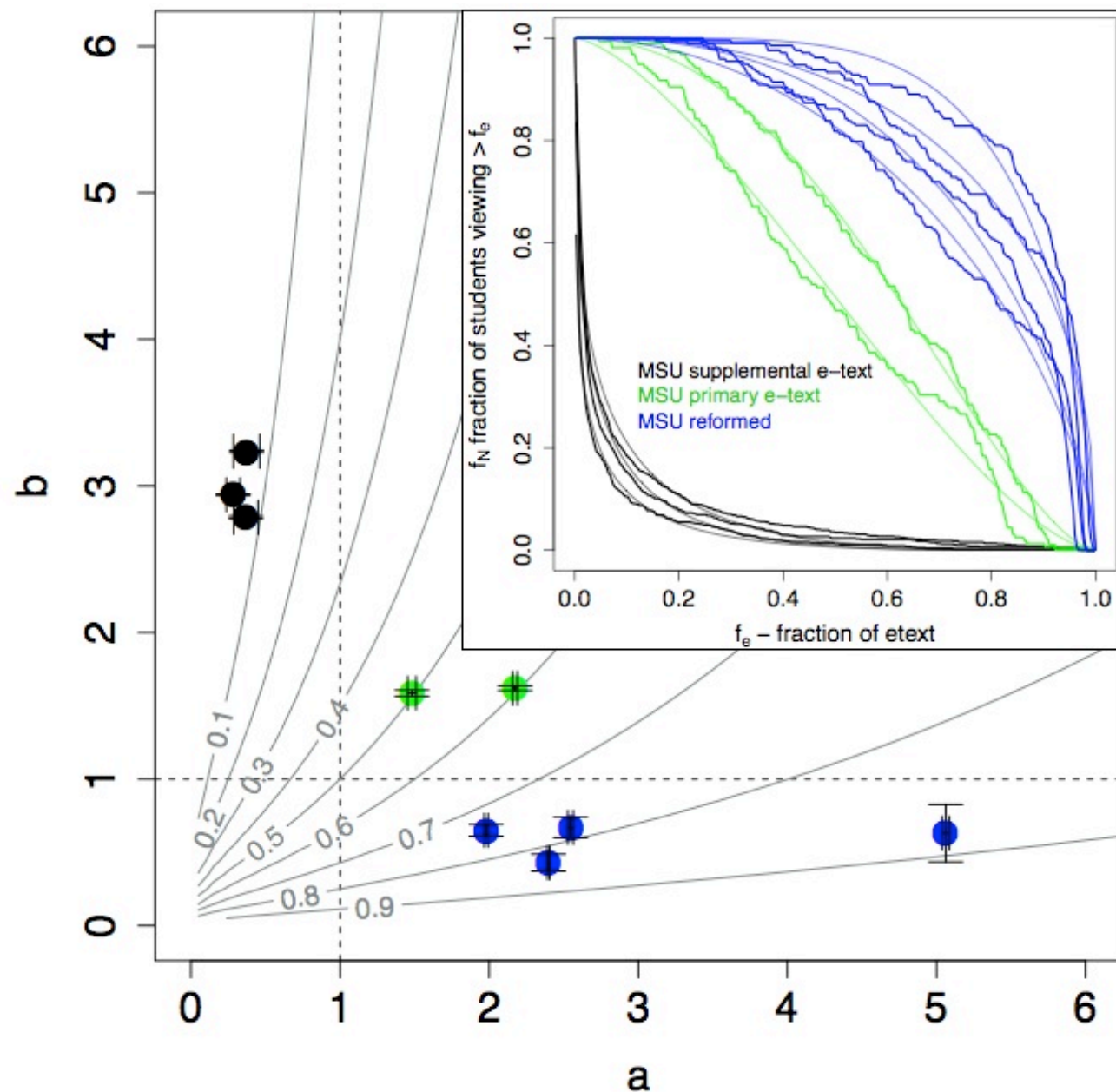


Supplementary slides

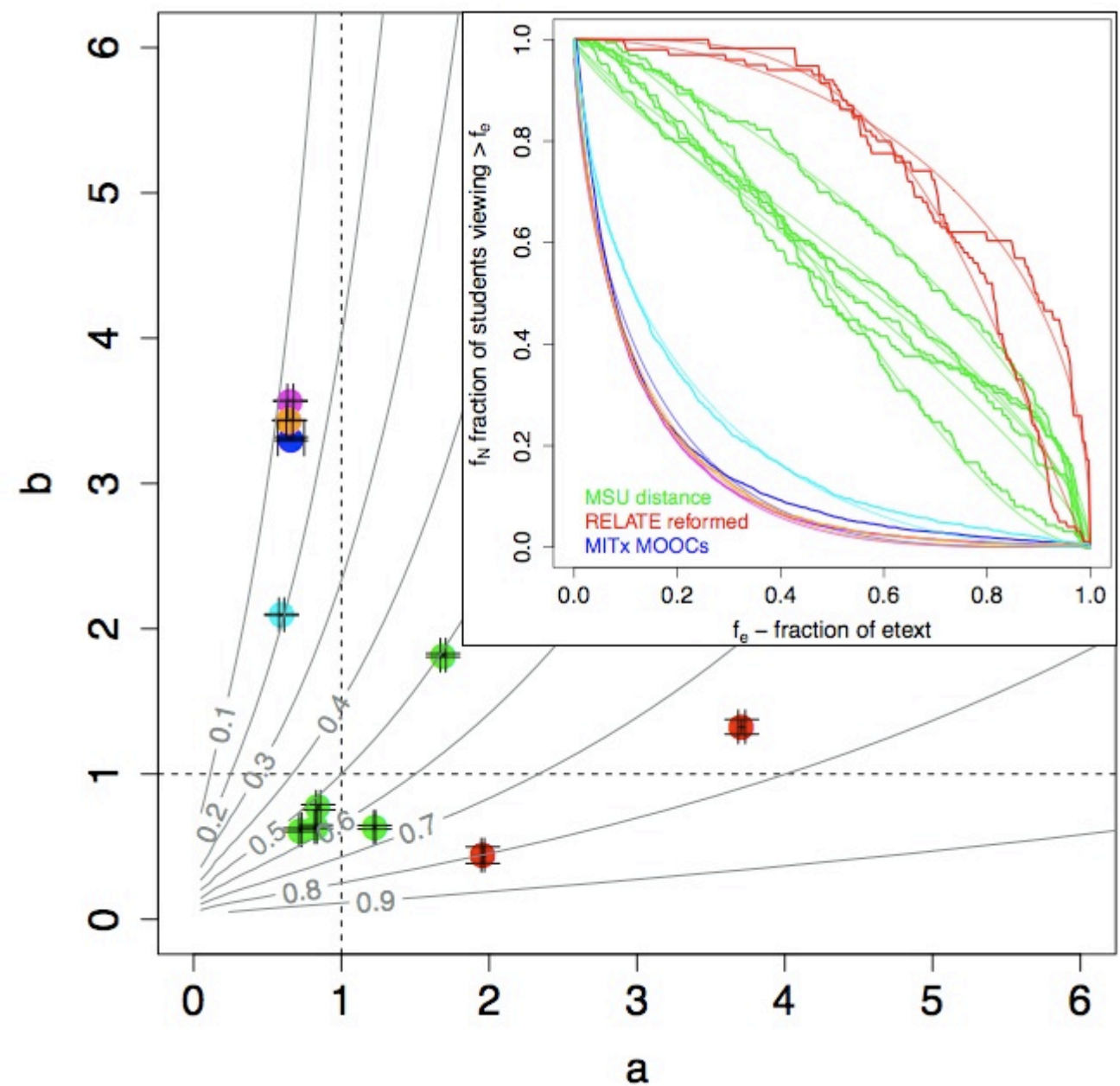


Fiona's comment: *impact on residential ed?*

MSU On-Campus (3 types)
Large-Lecture Intro Physics



Online:
MOOCs, MSU Distance, **SOOCs**



... *Exploring the relationship between course structure and eText usage* ...
Seaton, Bergner, Mitros, Chuang, Pritchard (*In Press* - Communications of the ACM)