LEVERAGING CANVAS LEARNING DATA TO INFORM MOOC DESIGN
AGENDA

- Share FAQs By Faculty Teaching Courses On Canvas Network
- Demonstrate Tools for Gathering Course Data
- Discuss How to Use Data to Improve Student Engagement
About Jane

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About Jing

Learning Analytic and LMS Specialist

Created a course on Canvas Network

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CANVAS NETWORK

Est. Jan 2013
MISSION

To promote openness, innovation, and experimentation in education.

ENROLLMENTS

990,000

FACULTY

300+
MISSION

To promote openness, innovation, and experimentation in education.

210 + INSTITUTIONS

880 + COURSES
New discipline-specific effectiveness inquiries

New approaches to teaching and learning
New courses
New technologies
New business models
New content approaches
New curriculum approaches

INNOVATION & EXPERIMENTATION
New marketing channels
New lead opportunities
ANALYTICS IN COURSE DESIGN: LEVERAGING CANVAS DATA

(HE) Analytics in Course Design: Leveraging Canvas Data

Leverage Canvas Data and visualization techniques to make informed decisions about Canvas course design.

Self-paced
FREE
Gather the questions that are related to course design and student learning

Identify the type of student-generated data that may help answer the questions

Analyze and visualize the learning data

Apply the results in course design to enhance student learning
Focus on Two Examples

1. Google Analytics
   How do students navigate through course content?
   Where do students exit?

2. Discussion Forum Data
   How are students interacting in online discussions?
COURSE DESIGN

How should the course home page be designed to make sure learners come back?

Do different course structures show a difference in learner navigation patterns?

How should my course design differ when a course is instructor-led versus self-paced?
Google Analytics

Behavior Flow
Google Analytics

Funnel Visualization

ModulesCourseNavigationMenu (Goal 3 Conversion Rate)

Feb 1, 2017 - Feb 28, 2017
- ModulesCourseNavigationMenu (Goal 3 Conversion Rate) 31.08%

This Goal was completed in 843 sessions | 59.20% funnel conversion rate

843 entries

Home 843

262 (31.08%) proceeded to ModulesCourseNavigationMenu

581 entries

843 entries

581 entries

(entry)

(exit)

808

177

/ 29

courses/175 63

//Login.success=1 13

courses/1176/pages/1-dot-1-course-overview 52

/accounts/187 1

courses/1176/pages/1-dot-3-3-pivot-tables/module_item_length.html 35

/login/canvas?pseudonym_session[unique_id]=fazzarit@un... 1

courses/1176/pages/1-dot-3-1-userscripts-and-script-man... 26
Poll

How should the course home page be designed to make sure learners come back?

Do different course structures show a difference in learner navigation patterns?

How should my course design differ when a course is instructor-led versus self-paced?
COURSE DESIGN: Do Simple Better

Simplify the course navigation menu

Make the home page visually engaging

Give new learners a place to start

Help returning learners pick up where they left off

Mars: The Next Frontier

NASA is preparing for a manned mission to Mars in 2030. Will you be prepared to join the crew? In this course, participants will learn basic facts about Mars and the essentials humans need for survival on the planet.

New to the course? Start Here!

Returning student? Jump into the course here!

Module 1: Get Acquainted with Mars

Module 2: Mars & Water: Can They Co-Exist?

Module 3: Breathable Air on Mars
COURSE DESIGN: Try a Different Course Structure

**History of Boston**

**Chronological Structure**

- Get Started
- Lesson 1: Indians and the Pre-Puritans
- Lesson 2: Founding Boston
- Lesson 2 B: Boston in the Age of Cotton Mather
- Lesson 3: Boston: From Resistance to Revolution
- Lesson 3 B: Revolutionary Boston
- Lesson 4: The New Nation
- Lesson 4 B: Boston and the Industrial Revolution

**History of Boston**

**Topic Structure**

- Landscape of the City
- Character of the City
- Government
- People
- Economy
- Cultural Life
COURSE DESIGN: Which format is best?

Self-paced

- self-directed
- detailed instructions
- non-linear format
- all content open and available
- no instructor interaction
- multiple opportunities for self-check / reflection
- includes module requirements
- incentives for completion - badges / certificates

Instructor-led

- time-based
- hard deadlines
- learners move thru course together
- discussions remain current and relevant
- regular instructor interaction/feedback
- useful format for research
- multiple feedback avenues
- incentives for completion - badges / certificates
Focus on Two Examples

1. Google Analytics
   How do students navigate through course content?
   Where do students exit?

2. Discussion Forum Data
   How are students interacting in online discussions?
DISCUSSIONS

Does the frequency or quality of discussion posts vary across topic or module?

Which discussions forums generate the most posts and why?

How can I generate more activity in the discussion forums?
# Discussion Interaction Data

<table>
<thead>
<tr>
<th>from</th>
<th>to</th>
<th>weight</th>
<th>group</th>
<th>entry_message</th>
<th>initial_thread_word_count</th>
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<tbody>
<tr>
<td>S11</td>
<td>S41</td>
<td>511</td>
<td>Topic2</td>
<td>1. Multiple answers how to</td>
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<td>S34</td>
<td>398</td>
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<td>I agree with the article on p</td>
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<td>S22</td>
<td>484</td>
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<tr>
<td>S32</td>
<td>S29</td>
<td>66</td>
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<td>S7</td>
<td>691</td>
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<td>S7</td>
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<td>S22</td>
<td>S7</td>
<td>494</td>
<td>Topic2</td>
<td>okey thnk for help</td>
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</tr>
</tbody>
</table>

[https://www.dartmouth.edu/~breid/userscripts](https://www.dartmouth.edu/~breid/userscripts)
Analyzing Discussion Data

Social Network Analysis (SNA) and Network Graphs

node (vertex) on a graph = student

edge (link) on a graph = reply to or from a student

arrow on an edge = direction of the reply

Size of a node a total interactions
Analyzing Discussion Data

Shiny Application Powered with R

https://nercompshiny.shinyapps.io/networkgraph/
Analyzing Discussion Data
Community detection

Detects groups of densely connected nodes with fewer connections across groups

Bridge subsets/clusters
Poll

Which discussion forums generate the most posts and why? Which discussion boards generate the most traffic – have more students views? (This is different from the number of discussion board postings, as many students may view [and read] the posts but not contribute.)

How can I generate more activity in the discussion forums?
<table>
<thead>
<tr>
<th>DISCUSSIONS: Improving Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>reflection &amp; self-check activities</td>
</tr>
<tr>
<td>open-ended discussion prompts</td>
</tr>
<tr>
<td>instructor involvement</td>
</tr>
<tr>
<td>incentives badges certificates</td>
</tr>
<tr>
<td>peer review networking feedback activities</td>
</tr>
</tbody>
</table>
RESOURCES – COLLECTING DATA

Google Analytics:
https://support.google.com/analytics/answer/2785577
https://support.google.com/analytics#topic=3544906

Canvas API:

Userscripts and Userscript Manager:

Canvas-Specific Userscripts
https://www.dartmouth.edu/~breid/userscripts

Discussion Data - Social Network Analysis - Shiny App:
https://jing-zen-garden.shinyapps.io/networkgraph/
Sample Data: http://www.dartmouth.edu/~breid/userscripts/learn_canvas_1176.csv
MOOC RESOURCES

ENROLL in Jing’s Canvas Network MOOC: Analytics in Course Design
https://www.canvas.net/browse/dartmouth/courses/analytics-in-course-design

DOWNLOAD Jing’s Canvas Network MOOC: Analytics in Course Design
https://lor.instructure.com/resources/8ea1a1a205474db4810b300ac5722947
(use Canvas Network login credentials)

View and Enroll in Canvas Network Courses
https://www.canvas.net/

Offer a Course on Canvas Network
https://info.canvas.net/offer-a-course
FUN FACT

this
Mission: InstructureCon 0017
July 25-27, 2017 | Keystone, Colorado