Learning Analytics Presentation Series
Nov 13, 2018

Course-Level Dashboard & Analytics Beta

DoIT Academic Technology: Kari Jordahl | James McKay | Garrett Smith

WI School of Business: Xizhou “Canoe” Xie
Today’s plan

Project overview - why a dashboard?
Instructor needs assessment
Dashboard design prototype
Feedback - Rapid Review Sessions
Next steps
Canvas Analytics Beta - sneak peek
Q&A
Project Overview

UW Madison campus leadership recommended the development of a course-level data dashboard

Canvas adoption

Transition provided an opportunity to engage with instructors:

What do they need to know about their courses & students?

D2L & Moodle retirement
Student Digital Ecosystem

- **STUDENT INFO SYSTEM**
  - BI TOOLS, TABLEAU

- **CURRICULUM MANAGEMENT SYSTEM**
  - Academic policy
  - Curricular structure
  - Academic approvals
  - Course scheduling
  - Program/Course LO approvals

- **T&L TOOLS – UNIZIN PLUS**
  - LMS (Canvas)
  - Integrated course-level learning analytics
  - Engage eTexts
  - Other tools

- **LEARNING ASSESSMENT – AEFIS**
  - Program & Course-level Learning outcomes (LO)
  - Surveys & direct assessments
  - Plans & reports
  - Syllabi

- **FERPA**
  - Academic Integrity

- **PUBLIC**

- **PRIVATE**

- **ADVISING GATEWAY**

- **CAREER SERVICES**
Dashboard Project Goals:

Engage deeply with instructors about what they would find useful

Continue to build local expertise in learning analytics and expand local definitions of learning analytics

Design a prototype for development

Note: This phase of the dashboard project is for instructors only – with the goal to engage with students later
Dashboard Prototype Timeline

Teacher-as-Designer

1. Planning
2. Ideation - Interviews
3. Design Prototype
4. Iteration - Refinement
5. Recommendations

Vestibulum congue tempus

Recommendations

Iteration - Refinement

Design Prototype

Ideation - Interviews

Planning
Instructor Interviews

Faculty & instructors only

1-Hour Interviews

Purposeful recruitment of instructors from across campus

21 in-depth interviews completed
Pre-interview survey

• How long have you taught?
• What mode (online, blended, F2F)?
• Canvas experience? Do you use data…..?

Big picture questions/thinking

• What do you wish you knew about your students?
• What data would motivate you to make a change in your course?

Usability – explore Canvas Analytics

• Are visualizations useful? Are there missing data elements?
• Would this motivate you to take action?

Design thinking

• Draw on paper, whiteboard, brainstorm verbally
• What would an ideal dashboard look like?
High-Level Findings: Interviews

Canvas data is not enough (100%)

Most want a consolidated data source (71%)
   Integrated with other ed-tech tools

Want holistic views of who their students are (66%)

Historic data was a low priority (33%)
Data Elements

71% specifically mentioned, unprompted, that a consolidated data source was necessary; an integrated view of EdTech tools

Pre survey—44 distinct “digital education” tools named (average of 3.43)
  Canvas 95%
  Kaltura 71% – support blended learning
  Survey 33%
  LO 33%
  Top Hat 33%
Only 33% explicitly mentioned historic access to course data
What information do you need to support your teaching?

Learner engagement with material (90%)

Time spent - in aggregate (76%) & by activity (90%)

Student characteristics
  Current enrollment
  Previous courses and grades
  Declared major
  Student motivations

Learning outcomes

Feedback FROM students
What functionality do you need?

Actionable
One location to access all
Comparative/relative views

Interactive
Drill down & filtering
Persistent custom views
Simplicity is key in accessing the visualizations. Keep it simple and don’t bog me down in complex technologies.

I don't have TIME to care about something if it isn't actionable.

I care. I really do. But I get busy. I get really busy. This needs to be easy and automatic.

Don't show me things that aren't meaningful to me. There is an economy of attention that needs to be considered. Let me decide what I see.
From Interviews to Prototype

Interview results shared with campus leadership

Course-level dashboard team prioritized feedback

Created initial visualizations (Tableau)

Paper prototype created for next phase
Course-Level Dashboard Prototype
Data Sources

Unizin Data Platform (UDP)
Student Information System
Canvas Data

Future - we’ll be able to add other data sources; eg. Engage eText, Kaltura, Top Hat
Course-Level Dashboard Prototype

Paper prototype of Tableau dashboard

Tableau is a business intelligence data visualization tool

Prototype created using data from Canvas as well as generated data
Heat Map
Number of Sessions by Day and Hour

Date
1/24/2018 12 5/12/2018 12

Activity Type
- (All)
- Announcement
- Assignment
- Collaboration
- Discussion
- Quiz

Student Name
- (All)
- Student 1
- Student 2
- Student 3
- Student 4
- Student 5
- Student 6
- Student 7
- Student 8
- Student 9
- Student 10
- Student 11
- Student 12
- Student 13
- Student 14
- Student 15
- Student 16
- Student 17
- Student 18
- Student 19
- Student 20

Hover over – shows time, day, sessions
Filter by date, activity type, student
Grade & Page Views
Filter by date, activity type
Activity: Sessions & Duration
Filter by sum/average, date, activity type, student.

**Sum of Sessions by Activity**

<table>
<thead>
<tr>
<th>Activity Type</th>
<th>Sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Announcement</td>
<td>[ ]</td>
</tr>
<tr>
<td>Assignment</td>
<td>[ ]</td>
</tr>
<tr>
<td>Collaboration</td>
<td>[ ]</td>
</tr>
<tr>
<td>Discussion</td>
<td>[ ]</td>
</tr>
<tr>
<td>Quiz</td>
<td>[ ]</td>
</tr>
</tbody>
</table>
Filter by sum/average, date, activity type, student.

Hover – shows activity type, average/sum sessions or duration.
Rapid Review Sessions

Cross-section of faculty & instructors, teaching assistants, instructional designers, educational technologists

- 10-15 Minute Sessions

5 events over 4 weeks

50 rapid review sessions completed
Quick “gut-check” response to paper version of prototype (flip charts)

Engage with one visualization at a time

- How useful is this visualization (1-5)?
- Will it help you take some action (1-5)?
- Would you like to see the data in a different configuration?

Look at combined dashboard

- Cross out any visualizations you would not use
- Any missing data elements?

Open ended feedback if time available.
Results from Rapid Review Sessions

Average Rating of Prototype Visualizations

- Activity: 3.72 (Useful) 3.7 (Action)
- Grade x Pageview: 2.93 (Useful) 2.93 (Action)
- HeatMap: 3.21 (Useful) 3.17 (Action)
Major Themes - Reviewers Want...

#1 request – for more drill down on activity visualizations
Individual activity items – eg. Quiz 1, Quiz 2 vs. all Quizzes

Single student data compared to average rating for course

Requested more legends, data labels, tooltips

To see grades associated with activity type

To filter visualizations by Canvas groups or course sections

30% would like to share data with students directly

Customize dashboard – modify colors, hide visualizations they don’t use to reduce cognitive load and streamline
Still very little mention about demographics
  3 reviewers requested
    Age/gender
    Major, age/gender
    Major

Controlled inquiry
  “I’d like to see grades correlated with....”
  “...do students who receive an A/B spend more time in X activity?”

Questions about ethics/bias/data veracity
Refinement & Recommendations

Recommended changes to the prototype

- Individual student compared to average
- Activities – drill down to individual item
- Legends, labels, scales, tool tips
- Grades associated with activity type
- Filter by group/section
- Share data with students
- Configurable colors
- Configurability of dashboard
Pilot - Spring Semester

Start with a very small pilot group

Sign up if you are interested in piloting - add a checkmark on the registration form where you signed in.
Dashboard Questions?
Canvas Analytics Beta

Sneak peek
Example Course - Home

Nam dictas similique no, ne democritum deseruissesententiae mea, pertinax moderatius ad mea. In hinc wisi nec. Cu pro explicari principes. Altera noster nam et, autem liber veritus est in. An ius errem dolorem albucius, cu soluta expetendis neglegentur usu.

Viderer nusquam placerat pri an. His no volumus invenire ullamcorper, sit modo sint cu.Usu ea tota natum, quando ubique nam ne. Id usu inani quaque molestiae. Dico tamquam sed ut.
Message Students Who

**Score Range**

- **Missing**
- **Late**

BCC: All Sections 69 Students

**Subject**: Enter subject of message here...

**Message**

[Send]
Drag and drop items to reorder them in the course navigation.

<table>
<thead>
<tr>
<th>Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>Announcements</td>
</tr>
<tr>
<td>Modules</td>
</tr>
<tr>
<td>Assignments</td>
</tr>
<tr>
<td>Grades</td>
</tr>
<tr>
<td>Syllabus</td>
</tr>
</tbody>
</table>

Drag items here to hide them from students.
Disabling most pages will cause students who visit those pages to be redirected to the course home page.

<table>
<thead>
<tr>
<th>Discussions</th>
</tr>
</thead>
<tbody>
<tr>
<td>This page can't be disabled, only hidden</td>
</tr>
<tr>
<td>BBCollaborate Ultra</td>
</tr>
<tr>
<td>Page disabled, won't appear in navigation</td>
</tr>
<tr>
<td>Pages</td>
</tr>
<tr>
<td>Page disabled, will redirect to course home page</td>
</tr>
<tr>
<td>Files</td>
</tr>
<tr>
<td>Page disabled, will redirect to course home page</td>
</tr>
<tr>
<td>Outcomes</td>
</tr>
<tr>
<td>Page disabled, will redirect to course home page</td>
</tr>
<tr>
<td>Collaborations</td>
</tr>
<tr>
<td>Page disabled, will redirect to course home page</td>
</tr>
<tr>
<td>Chat</td>
</tr>
<tr>
<td>Page disabled, won't appear in navigation</td>
</tr>
<tr>
<td>SCORM</td>
</tr>
<tr>
<td>Page disabled, won't appear in navigation</td>
</tr>
<tr>
<td>Piazza</td>
</tr>
<tr>
<td>Page disabled, won't appear in navigation</td>
</tr>
<tr>
<td>Attendance</td>
</tr>
<tr>
<td>Page disabled, won't appear in navigation</td>
</tr>
<tr>
<td>Service</td>
</tr>
<tr>
<td>-------------------------</td>
</tr>
<tr>
<td>Attendance</td>
</tr>
<tr>
<td>Cengage</td>
</tr>
<tr>
<td>LaunchPad</td>
</tr>
<tr>
<td>McGraw-Hill Connect</td>
</tr>
<tr>
<td>Google Drive</td>
</tr>
<tr>
<td>UW Libraries Research Guides</td>
</tr>
<tr>
<td>Office 365</td>
</tr>
<tr>
<td>BOX</td>
</tr>
<tr>
<td>People</td>
</tr>
<tr>
<td>UW-Madison Faculty Center Grade Prep</td>
</tr>
<tr>
<td>AEFIS</td>
</tr>
<tr>
<td>Engage eText</td>
</tr>
<tr>
<td>UW Libraries Course Reading Lists</td>
</tr>
<tr>
<td>BBCollaborate Original</td>
</tr>
<tr>
<td>MyLab and Mastering</td>
</tr>
<tr>
<td>Kaltura Media</td>
</tr>
<tr>
<td>Kaltura My Media</td>
</tr>
<tr>
<td>Analytics BETA</td>
</tr>
</tbody>
</table>

Edit Course Navigation

This Canvas installation is only for testing and will reset every week.
Thank you!

Any questions?