Unizin Initiatives: Canvas, Engage, Snapshot, Unizin Data Warehouse, Learning Analytics

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Dean of Libraries, Vice President for IT

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Research & Analytics

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The Institute for Learning & Teaching
Presentation Summary

✓ Short Introduction to Unizin
✓ CSU’s Approach to Learning Analytics
✓ Unizin’s Engage E-Reader
✓ LoudCloud Pilot
✓ Snapshot Beta: Custom Canvas Dashboard
✓ Unizin Data Warehouse
✓ Faculty Needs Assessment Survey
✓ Learning More about Unizin
✓ Q&A/Discussion
Founded in response to the ever-growing, ever-complex world of educational technology. Institutions needed ways apply leverage to the Ed-Tech industry.

- Began with Four Founding Institutions (CSU is one!)
- Now Comprised of 11 institutions (22 universities) who represent 700,000 students

Challenges: spelling “Unizin” correctly.
August 2015 – Official Charge by Provost Miranda to create a Institutional Framework for Learning Analytics

Formation of the Learning Analytics Steering Committee

- Alan Lamborn (chair), Pat Burns, Mike Palmquist, Kelly Long, Bob Engmark, Paul Thayer, Laura Jensen, Gwen Gorzelsky, Jim Folkestad, Dave Johnson, Mary Stromberger

Formation of the Learning Analytics Working Group (LAWG)

- Members: Laura Jensen, Gwen Gorzelsky, Jim Folkestad, and Dave Johnson

Spring 2016 – C-ALT Becomes Official “Center” at CSU

- Director: Jim Folkestad
Unizin Pilots
Engage
LoudCloud
Canvas Data
SQS/Unizin Live Events
Snapshot Beta

Collaborations
TILT, C-ALT, & R&A
McGraw Hill Learning Sciences
Unizin and Unizin Partners

Professional Development
Data Science & Data Science Administration
Advanced Statistics
Coding, Scripting, & Syntax (SPSS, R, RPython, SQL, NoSQL)

Teaching & Learning Initiatives
Adaptive Learning Tools
Learning Collaboratory

Tools Development
Harvest
Tableau, Birst, Qlick Sense
R & RShiny
CSU’s Approach to Learning Analytics

- Data Access, Warehousing, Security, Analytics, Reporting
- Compliance, Institutional Policy, Governance
- Enterprise-Level Solutions, Focused Research
- Stakeholder Engagement, Communication, Ethics
- Strategic Partnerships (*includes* Unizin)
The Engage Reading System

- SP16 Pilot & *Current* SP17 Pilot
- Delivers page-based course materials and media
- Captures navigation and “page read” behaviors
PART 2  Understanding Financial Statements and Cash Flow

Disney has a good investor site at www.disney.com.

long term from a variety of sources. We will tend to use the terms bonds and bondholders generically to refer to long-term debt and long-term creditors, respectively.

Finally, by definition, the difference between the total value of the assets (current and fixed) and the total value of the liabilities (current and long-term) is the shareholders' equity, also called common equity or owners' equity. This feature of the balance sheet is intended to reflect the fact that if the firm were to sell all of its assets and use the equity to pay off its liabilities, the value of the assets would be equal to the value of the liabilities. As a result, the shareholders' equity would be equal to the residual value of the firm.

These are the funds invested by the owners (stockholders) of the business, including the earnings that have been reinvested (Retained Earnings), rather than being paid out to the owners. Also known as Net Worth (net of liabilities). See also http://en.wikipedia.org/wiki/Common_equity

Net 1

As shown in Figure 2.1, the difference between a firm's current assets and its current liabilities is called net working capital. Net working capital is positive when current assets exceed current liabilities. Based on the definitions of current assets and current liabilities, this means that the cash that will become available over the next 12 months exceeds the cash that must be paid out over that same period. For this reason, net working capital is usually positive in a healthy firm.

Table 2.1 shows a simplified balance sheet for the fictitious U.S. Corporation. There are three particularly important things to keep in mind when examining a balance sheet: liquidity, debt versus equity, and market value versus book value.

Building the Balance Sheet

A firm has current assets of $100, net fixed assets of $500, short-term debt of $70, and long-term debt of $300. What does the balance sheet look like? What is shareholders' equity? What is net working capital?

In this case, total assets are $100 + 500 = $600 and total liabilities are $70 + 200 = $270, so shareholders' equity is the difference: $600 - $270 = $330. The balance sheet would thus look like:

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities and Shareholders' Equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current assets</td>
<td>Current liabilities</td>
</tr>
<tr>
<td>$100</td>
<td>$70</td>
</tr>
<tr>
<td>Net fixed assets</td>
<td>Long-term debt</td>
</tr>
<tr>
<td>$500</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>Shareholders' equity</td>
</tr>
<tr>
<td></td>
<td>$330</td>
</tr>
<tr>
<td>Total assets</td>
<td>Total liabilities and shareholders' equity</td>
</tr>
<tr>
<td>$600</td>
<td>$600</td>
</tr>
</tbody>
</table>
When do students do the majority of their reading?
OTHER READING ASSIGNMENTS FROM 3/08 - 4/08

CH 8: The Theory of Plate Tectonics

Due 29 days ago 3/10 at 01:00PM 19 pages

12% are in good shape

- Joshua
- Ariel
- David
- Christine
- Jonna
- Erik

19 pages assigned

22% of students are likely prepared for class

10% are not there yet

- Sera
- Key
- Waldo
- Nick
- Til

10% have a long way to go

- Allison
- Salfron
- Tavon
- Charlie
Christine
Historical Geology #001 (Spring 2016)

PERFORMANCE THIS WEEK
79 pages read
+204% difference from last week.
That puts you in the 91st percentile.

PERFORMANCE THIS TERM
717 pages read
Good news, you’re tracking well.
You’re in the 98th reading percentile for the term.

READING HISTORY

<table>
<thead>
<tr>
<th>DATE READ</th>
<th># PAGES</th>
<th>CHAPTER</th>
<th>COURSE MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>04/19/2016</td>
<td>7</td>
<td>CH 14. The Middle Paleozoic World</td>
<td>Earth System History</td>
</tr>
<tr>
<td>04/19/2016</td>
<td>2</td>
<td>CH 15. The Late Paleozoic World</td>
<td>Earth System History</td>
</tr>
<tr>
<td>04/18/2016</td>
<td>4</td>
<td>Cover</td>
<td>Earth System History</td>
</tr>
</tbody>
</table>
1

Earth System History
Slug: 9781429255264 / Average Cost: $174.75

AVERAGE SPR OVER 1 SECTION

$113.97 Potential Savings (65%) ORDER CUSTOM COPY

$174.75 avg cost $7.60 per chapter 23 chapters 15 unused
Section 2273  

1 MATERIAL USED IN 2273

Public Speaking for College & Career
Slug: 9780078036828 / Cost: $99.78

![Graph showing page reads and page counts for each chapter.](image)
PERCENT CHANGE SINCE 1978 FOR TEXTBOOKS COMPARED TO MEDICAL SERVICES, NEW HOME PRICES AND CONSUMER INDEX

- Educational books *(College textbooks)*
- Medical services
- New home prices
- Consumer Price Index

- 812%
- 575%
- 325%
- 250%
First-Day Access to Texts For All Students
Ohio State Builds Better Books with Book Launch

IU eTexts
Transforming education, one textbook at a time
IU eTexts are more than digital copies of traditional textbooks. They are tools that help reduce the cost of education, while enhancing student learning both in and outside the classroom.

Adopt IU eTexts today
Engage Can Provide Data on Learning-Related Behaviors:

- Students’ page views
- Students’ questions posed to instructors in the text
- Students note-taking in the text
What would you like to learn by using Engage?

- About how students use read the textbook?
- About how students respond to your notes in the text?
- About possible relationships between students’ textbook use and exam performance?
LoudSight Analytics – Implementation at Colorado State University
(Term: 01-21 to 05-31, 2016)
### CSU Courses for LoudSight Pilot

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Instructor Name</th>
<th>No: of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL-120-001</td>
<td>Exploring Earth: Physical Geology (GT-SC2)</td>
<td>Sean Bryan</td>
<td>607</td>
</tr>
<tr>
<td>HIST-170-001</td>
<td>World History, Ancient-1500 (GT-HI1)</td>
<td>Robert Jordan</td>
<td>133</td>
</tr>
<tr>
<td>HIST-411-001</td>
<td>Latin America Since Independence</td>
<td>Robert Jordan</td>
<td>40</td>
</tr>
<tr>
<td>HIST-475-001</td>
<td>World History, Ancient-1500 (GT-HI1)</td>
<td>Robert Jordan</td>
<td>31</td>
</tr>
<tr>
<td>MIP-300-003</td>
<td>General Microbiology</td>
<td>Erica Suchman</td>
<td>99</td>
</tr>
<tr>
<td>MIP-303-001</td>
<td>General Microbiology--Honors Recitation</td>
<td>Erica Suchman</td>
<td>7</td>
</tr>
<tr>
<td>MIP-400G-001</td>
<td>Capstones in Microbiology-Service Learning</td>
<td>Erica Suchman</td>
<td>4</td>
</tr>
<tr>
<td>BC-353-801</td>
<td>Pre-Health Genetics</td>
<td>Paul Laybourn</td>
<td>14</td>
</tr>
<tr>
<td>BC-351-001</td>
<td>Principles of Biochemistry</td>
<td>Paul Laybourn</td>
<td>204</td>
</tr>
<tr>
<td>BC-351-801</td>
<td>Principles of Biochemistry</td>
<td>Brian Kalet</td>
<td>73</td>
</tr>
<tr>
<td>BC-404-L01</td>
<td>Comprehensive Biochemistry Laboratory</td>
<td>Brian Kalet</td>
<td>42</td>
</tr>
<tr>
<td><strong>Total/Count</strong></td>
<td><strong>12 courses</strong></td>
<td><strong>6 Instructors</strong></td>
<td><strong>1,420 students</strong></td>
</tr>
</tbody>
</table>
• Out of 74 drop-outs, 54 drop-outs were correctly predicted (73%) by our predictive model (False positive rate of less than 5%)
• User survey revealed that faculty and advisors found the product intuitive and useful
• Created intervention messaging system in Canvas and Email
• POC of automated alert condition and personalized message push to students
• Achieved POC for RAMmobile where notifications from LoudSight were pushed directly to mobile app – Ellucian Go
• Banner, Canvas, and Student academic history used to generate prediction of student (limited data source was most highly predictive)
• Evaluated data from Echo360, iClicker, Student Rec Center, Student Tutoring data
Highlights of the Pilot

Key determinants to predict students at risk include:

<table>
<thead>
<tr>
<th>Pre-Course Variables</th>
<th>In-Course Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past course grade</td>
<td>Login frequency</td>
</tr>
<tr>
<td>Age</td>
<td>Page visits</td>
</tr>
<tr>
<td>High school GPA</td>
<td>Missed submissions</td>
</tr>
<tr>
<td>Minority status</td>
<td>Current course grade</td>
</tr>
<tr>
<td>SAT score</td>
<td>Late submission</td>
</tr>
<tr>
<td>Gender</td>
<td>Submissions completed</td>
</tr>
<tr>
<td>Past drop-out history</td>
<td></td>
</tr>
</tbody>
</table>
## What Drives Student Risk

<table>
<thead>
<tr>
<th>Decreases Risk</th>
<th>Increases Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily engagement with system</td>
<td>Increase in late submission or missing due date</td>
</tr>
<tr>
<td>‘Excellent’ or ‘Good’ past course grades</td>
<td>Withdrawn or dismissed from past courses</td>
</tr>
<tr>
<td>Higher High School GPA</td>
<td>Student being non-traditional and of higher age</td>
</tr>
<tr>
<td>Current score</td>
<td>Student belonging to ‘first generation’ and ‘minority status’ categories</td>
</tr>
<tr>
<td>Gender and higher age</td>
<td></td>
</tr>
</tbody>
</table>
### Student Risk Analysis

<table>
<thead>
<tr>
<th>Student Name</th>
<th>Composite Risk Score</th>
<th>Performance Risk Score</th>
<th>Participation Risk Score</th>
<th>Cohort Risk Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cassandra Jason</td>
<td>100</td>
<td>80</td>
<td>88</td>
<td>47</td>
</tr>
<tr>
<td>Miles Davidy</td>
<td>100</td>
<td>67</td>
<td>87</td>
<td>72</td>
</tr>
<tr>
<td>Summer Segway</td>
<td>100</td>
<td>66</td>
<td>94</td>
<td>78</td>
</tr>
<tr>
<td>Madison McCarthy</td>
<td>100</td>
<td>55</td>
<td>76</td>
<td>68</td>
</tr>
<tr>
<td>Lafayette Sneady</td>
<td>100</td>
<td>86</td>
<td>100</td>
<td>53</td>
</tr>
<tr>
<td>Shawney Ashcroft</td>
<td>86</td>
<td>75</td>
<td>74</td>
<td>22</td>
</tr>
<tr>
<td>Shirley Temples</td>
<td>86</td>
<td>66</td>
<td>74</td>
<td>27</td>
</tr>
<tr>
<td>Amber Ambrosia</td>
<td>86</td>
<td>29</td>
<td>74</td>
<td>5</td>
</tr>
<tr>
<td>Michael Quicksilver</td>
<td>86</td>
<td>29</td>
<td>87</td>
<td>71</td>
</tr>
<tr>
<td>Alexandra Driscotte</td>
<td>86</td>
<td>39</td>
<td>92</td>
<td>47</td>
</tr>
<tr>
<td>Okivia Kendra</td>
<td>71</td>
<td>42</td>
<td>0</td>
<td>70</td>
</tr>
</tbody>
</table>

- 81 to 100% chances of dropping out
- 61 to 80% chances of dropping out
- 41 to 60% chances of dropping out
- 21 to 40% chances of dropping out
- 0 to 20% chances of dropping out

**Missed Due Dates**

<table>
<thead>
<tr>
<th>Students &amp; Dates</th>
<th>All</th>
<th>Last Two</th>
</tr>
</thead>
</table>

**Cumulative Score < 75%**

<table>
<thead>
<tr>
<th>Student</th>
<th>Current Score</th>
</tr>
</thead>
</table>
Unizin Snapshot is a section dashboard tool that delivers insights to instructors and students in the learning management system. It is intended to improve the teaching and learning experience with learner data.

Snapshot presents reporting, metrics, and analytics to instructors and students that are pertinent to their success in the learning environment.

Instructors can follow section-level trends, identify at-risk students, and drill into student profiles to assess how they are performing and whether action is needed.

Students use Snapshot to take stock of their own performance, guide their own learning processes, and judge their position relative to their peers.
Introduction to Psychology
PSY 100 / Section #1010 / 45 students

Flags

⚠️ 8 students are at risk of failing.

Engagement

Assignments

Quizzes

Exams
Canvas/Engage

Internet

Unizin Institutions: SIS, data warehouse (typ.)

Fig. 1 UDW Architecture
UDW & Snapshot

UDW → Snapshot API → Snapshot Client → Cache
UDW

- Establish a Unizin standard data model
- Make institution data available to the institution who owns it (while keeping it secure)
- Aggregate and de-identify institutional UDW data into a single, consortium-wide research database (Unizin Research DB)
- Use risk assessment techniques to determine access to research data considering sensitivity levels of contributing members (opt-in)
- Develop request, catalog, and delivery tools for researchers & data scientists
- Create connectors for pre-packaged analytics and reporting tools
Survey Goals

• Learn about faculty members’ needs, interests, and desires for ed tech

• Learn what factors faculty believe most inhibit students’ academic success

• Use faculty priorities to develop recommendations for future development of Unizin tools, services, and solutions
Request for Feedback

• What topics would you like to see addressed in the Unizin Faculty Needs Assessment Survey?
• How would you like responses to be used?
• Should responses be shared across Unizin institutions? If so, how should they be made available?
Find Out More About Unizin

Visit Unizin’s Website:
http://unizin.org/

Subscribe to Unizin’s Newsletter:
http://unizin.org/subscribe-to-our-newsletter/

Ask Uncle Pat a Question:
Patrick.Burns@Colostate.EDU
Thank you!

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