The Power of Predictive Analytics
to Drive the Path to Graduation

Michael Moore
Sr. Advisory Consultant
D2L
Data, data, data
Data Progression

Data → Information → Knowledge → Wisdom

(Robert Logan, *What is Information?*, 2010)
“The greatest challenge, rather opportunity, is people look at what’s happened over the last 20 years—dramatic increase in tuition and fees, misalignment with job needs—we have to be transformational on how we engage students, how we treat students and how we enable student success without lowering our standards.”

CIO, USG
Academic future
Economic future
Student Demographic
Create the Conditions for Success
Cultivate environment where *students* can thrive
Create the Conditions for Success
Cultivate environment where *instructors* can thrive
Cultivate environment where *institutions* can thrive
The Integrated Learning Platform: A next-generation experience

- **Face-to-face**
  - Pervasive
  - Learning for the way we live

- **Reactive**
  - Perceptive
  - Predict and adapt

- **One-size-fits-all**
  - Personal
  - One-size-fits-me

A rigid learning experience that doesn't scale and limits individual outcomes
Integrated Learning Platform

- Pervasive
  - Social
  - Accessible
  - On-demand

- Perceptive
  - Informing
  - Experiential

- Personal
  - Adapting
  - Predicting
  - Flexible
  - User-centric
  - Engaging
Informative
Descriptive
Predictive
Prescriptive
Cognitive

- LeaP
- Student Success (and Degree Compass – North America)
- D2L Insights
- D2L Analytics Essentials
Learning Analytics Maturity Model

D2L Analytics Portfolio Roadmap

Informative / Descriptive
What has happened?
What is happening?

Predictive
What will happen?

Predictive Modeling
Insights™ & Student Success
Risk Forecasting
Data Access
Reporting
Analytics Essentials

Predictive
What do I want to happen?

Optimization
Strategic

Advanced Predictive
Degree Compass (North America)

Advanced Adaptive
LeaP

Prescriptive
What do you want to happen for you??
D2L Degree Compass™

Use predictive analytics to deliver a real-time, personalized program and course selection tool.

Early guidance that assists students before they even select or begin taking their courses.

Assistive tool that frees up Advisors to focus on at-risk student demographics.
Program major suggestions are used as part of a redirect advising initiative. Students received a face-to-face meeting in which they moved to a recommended major in which they were forecast to be more successful.

Dr. Loretta Griffy, Ed.D., PhD MATH
Director, Center for Teaching and Learning
Austin Peay State University
“Our primary motivation for deploying Degree Compass was to respond to the unique success and retention needs of our complex student population.”

Dr. Tristan Denley, PhD MATH
Vice Chancellor, Tennessee Board of Regents
Former Provost Austin Peay State University
Intrusive Triaging Study

Random review of small program cohort in Fall 2013 using predictive algorithm identified 80 students in wrong major.

Administrative governance around online registration and declaration of major identified as initial barriers.

Need predictive algorithm embedded at attrition points.

“Degree Compass is not just helping us ensure our students are successful, it's also exposing the need to rethink, and even restructure, the administrative and institutional processes that are posing barriers to that success.”

Dr. Loretta Griffy, Ed.D., PhD MATH
Director, Center for Teaching and Learning
Austin Peay State University
In the moment of learning
Class and Student Progress Dashboard

Evaluation of Learning
Class Progress Dashboard

Class Progress Features

- Hover to view details
- Click to drill down
- Navigate learners
- Facilitate success!

<table>
<thead>
<tr>
<th>Name</th>
<th>Content</th>
<th>Dropbox Folders</th>
<th>Objectives</th>
<th>Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alexander, Nelson</td>
<td>50%</td>
<td>Visited: 1 / 2</td>
<td>85%</td>
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<td>Allen, Ross</td>
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<td>Anderson, Thompson</td>
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<td>Brown, Carrie</td>
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<td>Cook, Sandra</td>
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<td>Visited: 0 / 2</td>
<td>72%</td>
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</table>

View Cook, Sandra’s Grades progress.
User Progress Dashboard

BIO1090.50 Introduction to Molecular and Cellular Biology SP2013

Grades Progress

Current Grade | Maximum Grade | Minimum Grade
--- | --- | ---
C+ | C+ | C+

Final Grade

Calculated Final Grade

70% class's highest grade is 88%, lowest grade is 0%, median is 73%. The top 75% of the class got above 63% and the top 25% of the class got above 70%.

Graded Items

- Heredity - genetic crosses
  
  - Feedback
  
  Sandra, please review chapter 3 sections 7, 8 and 9 in the textbook to brush up on this topic. Some of the basic premises of your arguments are incorrect, in particular the topic of Mendelian genetics.
  
  I am also available for office hours on Tuesdays 1-3 if you'd like additional help.

- Lab Analysis - eukaryotic cells
  
  - Feedback
  
  Excellent analysis, Sandra. Your investigation into the diversity within cells, paying particular attention to the functions of the organelles and their interactions, is clear, concise and thorough.
  
  The only section you might want to brush up on is cell division in eukaryotes.

- Heredity - heritability and GWAS
  
  - Feedback
  
  Last Modified: Sep 18, 2013 1:57 AM

See more information at brightspace.com
Quiz Tool Analytics – Instructor View
Quiz Tool Analytics – Student View

Quiz Submissions - Course Quiz

Aaron Velga (username: MCG_AVelga)

Individual Attempts

Attempt 1
Score: 8/10 - 80%

Overall Grade (highest attempt): 8/10 - 80%

Class Statistics

Class Average: 82.1/10 - 82.11%
Your Score: 8/10 - 80%

Score Distribution

ENGR103-3: Course Outcome 3
Assessment Method: Score on selected questions

<table>
<thead>
<tr>
<th>Achieved</th>
<th>Threshold</th>
<th>Evaluation</th>
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ENGR103-4: Course Outcome 4
Assessment Method: Score on selected questions

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<tbody>
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<td>70 %</td>
<td>60 %</td>
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## Dropbox Details

### Rubric Name: Writing Rubric

**Associated Learning Objectives**

- **Beginning Creativity**
  - Assessment Method: Overall Rubric Score
  - Required Performance: Acceptable
  - Level Achieved: Accomplished

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<tr>
<th>Criteria</th>
<th>Exemplary 5 points</th>
<th>Accomplished 4 points</th>
<th>Acceptable 3 points</th>
<th>Improving 2 points</th>
<th>Beginning 1 point</th>
<th>Score and Feedback</th>
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<tbody>
<tr>
<td>Thesis</td>
<td>Easily identifiable, plausible, novel, sophisticated, insightful, crystal clear.</td>
<td>Promising, but may be slightly unclear, or lacking in insight or originality.</td>
<td>May be unclear (contain many vague terms), appear unoriginal, or offer relatively little that is new; provides little around which to structure the paper.</td>
<td>Difficult to identify at all, may be bland restatement of obvious point.</td>
<td>Has no identifiable thesis, or utterly incompetent thesis.</td>
<td>Promising, but may be slightly unclear, or lacking in insight or originality.</td>
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<tr>
<td>Structure</td>
<td>Evident, understandable, appropriate for thesis. Excellent transitions from point to point. Paragraphs support solid topic sentences.</td>
<td>Generally clear and appropriate, though may wander occasionally. May have a few unclear transitions, or a few paragraphs without strong topic sentences.</td>
<td>Generally unclear, often wanders or jumps around. Few or weak transitions, many paragraphs without topic sentences.</td>
<td>Unclear, often because thesis is weak or nonexistent. Transitions confusing and unclear. Few topic sentences.</td>
<td>Shows obviously minimal lack of effort or comprehension of the assignment. Very difficult to understand owing to major problems with structure.</td>
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</tr>
</tbody>
</table>
Insights™ Student Success System
Predictive Analytics
In-flight Within Course
“The most important ingredient is that we believed in the Student Success System – both in its approach to individualize the model for each course and, then, what it could for our student’s success. We dedicated ourselves to this effort because of the incredible collaboration with the development team.”

Lorna Wong,
Director, Learning Technology Development
Office of Learning & Information Technology
University of Wisconsin-Madison
“As a Christian liberal arts college, we are committed to transforming lives, so we want to do whatever we can to help our students be successful in their courses, stay in their program, and complete their degree. The Insights Student Success System is part of that commitment.”

Rhonda Gregory,
Director, Instruction Technology & Adjunct Professor
Greenville College
“The unique visualizations in the Insights Student Success System give us an incredibly different viewpoint on how our students are trending – much more than we can do in our own minds.”

Rick Tanski,
Principal
Academy Online High School
Academy School District 20
D2L LeaP™

Powering Content.
Empowering Learners.
Immediate Adjustment & Personalization

Data related to a student’s experiences can allow for immediate adjustment and personalization of the learning experience for students.
What is LeaP?

- Content
- Questions
- Objectives

Learning Path

Personalized Learning
Personalize the learning experience

Adaptive technology tool that personalizes learning – by personalizing your learning content

Allows educators to place the learner at the center of their own learning experience
Check Learner Knowledge

Continually adapting learning paths allow learners to challenge their knowledge development at any point along the learning journey.
Additional Resources
Monitor Learner Progress and Achievement

- **Articles**: 16 mins, 19 views
- **Videos**: 1 min, 5 views
- **Recommended Reading**: 1 min, 4 views
Monitor Learner Progression and Achievement

Understand efficacy of pre-, post- and practice test instruments across learning objectives – drill down to assess individual learner details
Monitor Outcome Progression and Achievement

Dive deep into your content for a richer understanding of impact on progression and achievement of learning objectives.

<table>
<thead>
<tr>
<th>Learning Objective</th>
<th>Total</th>
<th>Video</th>
<th>Simulation</th>
<th>Article</th>
<th>Practice</th>
<th>Discussions</th>
<th>Likes</th>
<th>Dislikes</th>
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<td>11</td>
<td>4</td>
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<td>B1.4 food chains, webs and pyramids</td>
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<td>0</td>
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<td>51</td>
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<td>0</td>
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</table>
Result? Continuous Improvement

Continuous Organizational Improvement

Make Informed Improvements

Define Outcome Standards

Plan

Check

Advise

Discover

Design Curricula & Align Assessments

Analyze Results & Report on Evidence

Continuous Learner Improvement
Built for a brighter future

One platform to enable every learning experience
Thank You

Questions?

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Michael.Moore@D2L.com

Let the dataset change your mindset
Let’s transform teaching and learning, together.