Next Generation Digital Courseware: Personalized Learning Meets OER

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Lumen Learning
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Lumen Learning: Improving student success using OER

What We Do

1. Guide institutions in effective use of OER
   • Program design

2. Make adoption easy and powerful for faculty
   • Curation
   • Simple, clean tools
   • Integration with LMS

3. Measure and improve efficacy

4. Sustain and support use
   • Content updates
   • Technology updates
   • Sharing across the community

Facts

• formed in 2012
• based in Portland, OR
• 60+ institutional clients
• $2.5 million in textbook savings in fall 2015
About the Project

Next Generation Courseware Challenge

**Grant Project:** Funded by Gates Foundation in 2014

**Goal:** Develop high quality course materials targeting disadvantaged learners with personalized learning experiences

**Impact:**
- Curricular innovation
- Widely-adopted, affordable, effective courseware
Design Approach: Agile Learning Design

How We Work

**Create Hypothesis**
- Learning research
- Subject matter experts
- User focus groups

**Design and Build**
- Design, content, tools
- User testing

**Implement and Evaluate**
- Learning data
- User feedback
- Against hypothesis

**Learning Goal**
- Context
Learning Goal: Success for Every Learner

Waymaker Personalized Courseware

Hypothesis:
Bloom’s 2 sigma research

**FIGURE 1.** Achievement distribution for students under conventional, mastery learning, and tutorial instruction.

Mastery vs. time-based learning
Learning Goal: Success for Every Learner

Waymaker Personalized Courseware

Hypothesis: Bloom’s 2 sigma research

FIGURE 1. Achievement distribution for students under conventional, mastery learning, and tutorial instruction.
We know students are capable of far more.

We don’t know how to help them achieve it.
Initial Research Questions

Testing Hypotheses

- Mastery Learning
- Personal Faculty Connection
- Personalized Feedback and Metacognition
- Peer Engagement

Will faculty accept mastery learning?
Will students accept mastery learning?
Will students complete formative assessments?
What is the right balance in machine and faculty graded assessment?
What are high-impact practices?
What student engagement changes behavior?
Expanded Plan: Waymaker Design Elements

1. Open Educational Resources
   Affordability and day 1 access

2. Mastery Learning
   Assessment as a learning activity

3. Personalization
   Metacognition: Learning about the learning process

4. Faculty-student Connection
   Nurturing the learning process; individualized outreach & intervention

Courses include:
- Introduction to Business
- Microeconomics
- Macroeconomics
- Principles of Marketing
Course Layout: Personalized Status Tracking
Why It Matters: Global Environment

WHY SUMMARIZE THE CHARACTERISTICS, OPPORTUNITIES, AND CHALLENGES OF THE GLOBAL ECONOMIC ENVIRONMENT IN WHICH BUSINESSES OPERATE?

Before trying to understand the global environment within which business operates, we might ask: What does the world really looks like?—not the picture we see from outer space, but all the people and the environments of daily life? It’s difficult to comprehend something as vast as the world beyond what we know and experience in our own lives, so what if we could shrink the world into a village of just a hundred people and have that village represent the entire global environment? We can all picture a hundred people—in a classroom, at a wedding, or attending a soccer game, so why not picture the world as just one hundred people? That’s exactly what the following video does: It presents a miniature world that might give you a better understanding of the people that make up this place we call Earth.

The Miniature Earth

6 PEOPLE own 59% of the entire wealth of the community
SIMULATION: ETHICS

TRY IT

Play the simulation below multiple times to see how different choices influence the outcome. All simulations allow unlimited attempts so that you can gain experience applying the concepts.

Do the right thing. Or not.

continue
Mastery Learning

Check Your Understanding: Short Run and Long Run Equilibrium

Choose **ALL** that apply.

In monopolistic competition, the end result of entry and exit is that firms end up with a price that lies

- ☐ on the upward-sloping portion of the average cost curve.
- ☐ on the downward-sloping portion of the average cost curve.
- ☐ at the very bottom of the AC curve.
- ☐ at the very top of the AC curve.

**Frequent Feedback:** Formative Assessments

How sure are you of your answer? Click below to move forward.

- Just A Guess
- Pretty Sure
- Very Sure
Mastery Learning

Show What You Know: Show What You Know: Role of Business

Your Score
91%
Time Spent: 2 mins 33 secs

What You Already Know
You answered questions that covered these concepts correctly.
- What Is Business?
- For-Profit vs. Non-Profit
- Factors of Production
- Functional Areas
- External Forces

What You Need to Learn
Focus enough study time on these concepts to learn them well.
Stakeholders

Which of the following is/are an example(s) of a service?

- a couch or sofa
- a computer
- a flight from Los Angeles to Dallas

Your confidence level
- Just A Guess
- Pretty Sure
- Very Sure

Covers this concept:
What Is Business?
Define the concept of business
# Personalization

## Module: Role of Business

**GET STARTED**

**DIVE IN**

1. **What is Business?**
   - Reading: Getting Down to Business
   - Video: 

2. **For-Profit vs. Non-Profit**
   - Reading: 

3. **Factors of Production**
   - Self-Check: What is Business?

<table>
<thead>
<tr>
<th>SHOW WHAT YOU KNOW</th>
<th>SELF-CHECK</th>
<th>QUIZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 / 5</td>
<td>2 / 2</td>
<td>14 / 15</td>
</tr>
</tbody>
</table>

Mark as Done
Faculty-student Connection

Waymaker

What is Waymaker?
Waymaker enables a personal connection with your students by matching powerful communication tools with critical information. You will be able to use your time more effectively to guide and encourage your students.

Recommendations
You will receive recommendations about when to reach out to students who need your help based on student activity and performance data. This way you and your students can have just the right conversation at just the right time.

Automated Messages
Waymaker also provides you with several customizable messages that can be sent to students automatically to nudge them back on track when their engagement or performance levels drop below preset thresholds.

It’s Quick and Easy To Get Started

Step 1: Set Communication Preferences
Step 2: Define Course Settings
Step 3: Select Default Message Personality
Step 4: Customize Automated Messages
Step 5: Customize Recommended Messages

Configure Waymaker
Faculty-student Connection

Step 3 of 5

Select Default Message Personality

Overview

Waymaker helps you build a personal connection with students through two types of messages:

- **Automated messages** are sent to students automatically. You can customize the message templates at any time.
- **Recommended messages** are sent when you decide to reach out to specific students based on Waymaker’s recommendations. You can customize the message templates at any time and personalize them when sending.

Select Default Message Personality

- **Coach**
  “Learning! You can do it!”
  View Sample Messages

- **Advisor**
  “Just the facts”
  View Sample Messages

Next: Customize Automated Messages
## Customize Automated Messages

Select the automated messages you'd like Waymaker to send.

<table>
<thead>
<tr>
<th>Message</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Don't wait</strong>&lt;br&gt;This message is sent to students who have not attempted the quiz for a certain module when 70% of the class has already attempted.</td>
<td><a href="#">VIEW AND EDIT MESSAGE</a></td>
</tr>
<tr>
<td><strong>Let's get going!</strong>&lt;br&gt;This message is sent to students who have not attempted a quiz in 7 days.</td>
<td><a href="#">VIEW AND EDIT MESSAGE</a></td>
</tr>
<tr>
<td><strong>Study tips</strong>&lt;br&gt;This message is sent to students who do not achieve the mastery threshold on their first quiz attempt and did not use formative quizzes. It is sent no more than once every two weeks to any student.</td>
<td><a href="#">VIEW AND EDIT MESSAGE</a></td>
</tr>
<tr>
<td><strong>Nice work!</strong>&lt;br&gt;This message is sent to students who reach the mastery threshold on a quiz. One of four different versions is sent no more than once every two weeks to any student.</td>
<td><a href="#">VIEW AND EDIT MESSAGES</a></td>
</tr>
</tbody>
</table>

Next: Customize Recommended Messages

**Automated Messages:**

**Personalized Tone**
Nice work!

This message is sent to students who demonstrated mastery on a quiz; this message is sent no more than once every 2 weeks to any individual student.

Subject: Well done

Message: [FIRST NAME], well done on the [PRIMARY OUTCOME NAME] Quiz. Keep up the good work.

Fields like [FIRST NAME] will be personalized automatically. Take care not to modify these.

Subject Preview: Well done

Message Preview: Agamemnon, well done on the History of Ancient Greece Quiz. Keep up the good work.

Dr. Curtis

Proofread your message here, noting how it looks with sample student info and your signature.

Save  Restore Default  Close
Targeted Intervention: Personalized Outreach
Data-driven Recommendations: Where to Take Action

Recommendations

Help students who are trying but struggling
No students currently meet the criteria for this recommendation.

Nudge students who are not engaging
This feature is coming soon. You can view the release plan on the project site.

Student Histories and Automated Message Log
View individual student histories
View automated messages sent
Help students who are trying but struggling

Help 5 students reach the mastery threshold on their second quiz attempt. They fell short of mastery on their first attempt despite having used formative assessments.

<table>
<thead>
<tr>
<th>Student Name and Enabling Learning Outcome</th>
<th>Average Quiz Score to Date</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lisa Mads missed questions on 1 Outcomes</td>
<td>95%</td>
<td>MESSAGE</td>
</tr>
<tr>
<td>Jonny Tidbits missed questions on 5 Outcomes</td>
<td>73%</td>
<td>MESSAGE</td>
</tr>
<tr>
<td>Steven Vikerson missed questions on 4 Outcomes</td>
<td>75%</td>
<td>MESSAGE</td>
</tr>
<tr>
<td>Gregory Moose missed questions on 3 Outcomes</td>
<td>54%</td>
<td>MESSAGE</td>
</tr>
<tr>
<td>Learn Impacto missed questions on 2 Outcomes</td>
<td>90%</td>
<td>MESSAGE</td>
</tr>
</tbody>
</table>

Demonstrate the importance of teamwork and effective communication in a business environment

Differentiate between a group and a team, the characteristics of a team, and why organizations use teams (0 / 2 questions correct)

Identify the stages of team development and the characteristics of each stage (1 / 2 questions correct)

Data-driven Recommendations: Who to contact? Where to help?
Help Jonny Tidbits

Jonny missed questions on 2 Outcomes [+ Expand]

1-on-1 Message

Subject:
Can I help you?

Body:

Jonny,
It appears that you are struggling with some of the topics we’re covering in class. Specifically, it looks like you’re having trouble in the following areas:

- Identify the stages of team development and the characteristics of each stage
- Identify factors that contribute to team success

Would you be able to meet with me tomorrow after class to talk about these?

- Professor Rob

Send Message
# Instructor Insights: Student Performance Data

## View individual student histories

<table>
<thead>
<tr>
<th>Student Name</th>
<th>Quizzes Completed</th>
<th>Average Quiz Score</th>
<th>Automated Messages Sent</th>
<th>Personalized Messages Sent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abbey Stroud</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lisa Matsu</td>
<td>6</td>
<td>80%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Jonny Ticbits</td>
<td>4</td>
<td>89%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Steven Vikerson</td>
<td>5</td>
<td>50%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Gregory Moose</td>
<td>6</td>
<td>76%</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Anla Kim</td>
<td>6</td>
<td>68%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Elisa Calderon</td>
<td>7</td>
<td>82%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Tracy Liu</td>
<td>5</td>
<td>83%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Guillermo Aviles</td>
<td>7</td>
<td>89%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rosie Casals</td>
<td>6</td>
<td>84%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lorin Hagen</td>
<td>6</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>LaMark Johnson</td>
<td>6</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
From: "Steve Greenlaw (sgreenla)" <sgreenla@umw.edu>
Subject: Fantastic!
Date: September 8, 2015 at 2:12 PM EDT
To: "Student" <student@mail.umw.edu>

That was fantastic work on the Supply and Demand Quiz! Keep up the good work!

Steve Greenlaw

From: "Student" <student@mail.umw.edu>
Subject: Re: Fantastic!
Date: September 9, 2015 at 8:47:53 AM EDT
To: "Steve Greenlaw (sgreenla)" <sgreenla@umw.edu>

Thank you professor!! The email meant a lot!
From: “Student”@UMUC
To: Microeconomics Instructor

… I appreciate all the times you went out of your way to email me tips to do better the next week and even compliment me when I showed improvement. No other teacher has done that for me and especially since this is an online course and there is no in person interaction, it just made me feel pretty good to know I had a teacher always looking out for my best interest.

From: Microeconomics Instructor@UMUC
To: Lumen Learning

I wanted to share with you this student's perspective on how cared for he felt in this course. He was contacted almost solely through the Waymaker automatic messaging. I am really impressed.
Learn More

Webinar: Waymaker

Questions?

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