BUILDING A SCALABLE APPROACH TO IMPROVING GATEWAY COURSES LEVERAGING ADAPTIVE COURSEWARE

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PATRICIA O’SULLIVAN, PLATO PROGRAM MANAGER, UM
Why Focus on Digital Learning in Gateway Courses?

- Conventional Face-to-Face Classroom: Minimal / Superficial Technology Integration
- Fully Online: Deep and Extensive Technology Integration

Non-academic Student Success + Improved Foundation Courses = Higher Retention

Sweet spot for improving access and completion at scale using digital learning
What is Adaptive Learning?

“As an approach to creating a personalized learning experience for students, adaptive learning takes a sophisticated, data-driven, and in some cases, non-linear approach to instruction and remediation, adjusting to a learner’s interactions and demonstrated performance level and subsequently anticipating what types of content and resources learners’ need at a specific point in time to make progress.”

Well designed adaptive learning experiences (and products) have common attributes and approaches.

- What students should know and be able to do at the end of the learning experience (lesson, unit, course)
- Exposition and multimedia activities that foster active student engagement and lay foundations for future study
- Scaffolded practice that promotes learning-by-doing and assesses simultaneously (followed by summative assessment)
We are focused on the thoughtful integration of instructional technology in face-to-face and blended academic course or program environments. This is where we believe there is the greatest potential for impact on student outcomes at public universities.
APLU Accelerating the Adoption of Adaptive Courseware Grant

CROSS-INSTITUTION COLLABORATION

- Targeting similar programs and courses
- Adopting from a list of approved adaptive courseware suppliers and products
- Sharing information within the cohort by campus-based program managers
- Common reporting requirements

FACULTY ENGAGEMENT METHODS

- Incentives (money, time, teaching support)
- Training and instructional design support
- Department-level adoption decisions
- Peer learning communities
- Senior leadership investment and recognition
Results:

Calendar year 2017, eight universities produced 47,606 enrollments.
Results:
Multiple Disciplines adopting courseware (51% STEM and 49% Humanities & Social Sciences)
Courseware Usage Across APLU Grantees (12/31/17)

- Psychology: 1 Cerego, 1 Lumen Waymaker, 1 Realizeit
- Physics: 1 Cerego, 1 Lumen Waymaker, 1 Realizeit
- Modern Languages: 1 Cerego, 1 Lumen Waymaker, 1 Realizeit
- Mathematics: 2 Cerego, 1 Lumen Waymaker, 1 Realizeit
- History: 1 Cerego, 1 Lumen Waymaker, 1 Realizeit
- Health Sciences: 1 Cerego, 1 Lumen Waymaker, 1 Realizeit
- Gov't/ Political Science: 1 Cerego, 1 Lumen Waymaker, 1 Realizeit
- Engineering: 1 Cerego, 1 Lumen Waymaker, 1 Realizeit
- Economics: 1 Cerego, 2 Lumen Waymaker, 1 Realizeit
- Chemistry: 2 Cerego, 1 Lumen Waymaker, 1 Realizeit
- Business: 2 Cerego, 1 Lumen Waymaker, 1 Realizeit
- Biology/ Life Sciences: 3 Cerego, 1 Lumen Waymaker, 1 Realizeit

- Cerego
- Lumen Waymaker
- CogBooks
- McGraw-Hill Education ALEKS
- Macmillan Learning Curves (LaunchPad)
- Pearson MyLab & Mastering (with Knewton)
- WileyPlus with ORION (Snapwiz)
- Difference Engine by Learning Objects (Cengage)
- McGraw-Hill Education LearnSmart
- Realizeit
Types of Adaptive Learning

ADAPTIVE COURSEWARE
- Includes most popular courses
- Limited flexibility to customize
- Not all dashboards are the same
- Faculty Roles

ADAPTIVE PLATFORMS
- Content Customization
- Authoring
  - Content
  - Assessment
- Redesign Process
- Can Be More Time Intensive
## What about the Data?

<table>
<thead>
<tr>
<th>Qualitative</th>
<th>Quantitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activities</td>
<td>Enrollments</td>
</tr>
<tr>
<td>How program managers spend time</td>
<td>Course Types (Discipline, level)</td>
</tr>
<tr>
<td>Vendor selection process</td>
<td>Course Outcomes (Pass Rates, DFW Rates)</td>
</tr>
<tr>
<td>Awareness Building</td>
<td>Segmented Course Outcomes (Pell, Minority, Gender, First-time)</td>
</tr>
<tr>
<td>Faculty Development Process</td>
<td>Progression</td>
</tr>
<tr>
<td>Classroom Redesign (active learning)</td>
<td>Retention</td>
</tr>
<tr>
<td>Challenges</td>
<td>Vendor Selection &amp; Satisfaction</td>
</tr>
</tbody>
</table>
University Self-Reporting

OSU out of the gate reports improvement in student success in math and psychology

ASU through shows great improvement through continual process improvement and refinement

NAU reporting some courses improve but not every student group does as well

CSU, GSU and UL are doing controlled trials and early data is promising but implementation iteration is needed
## Success Strategies: Build from Early Improvements

<table>
<thead>
<tr>
<th>Strategic (3)</th>
<th>Opportunistic (3)</th>
<th>Early (2)</th>
</tr>
</thead>
</table>
| - Decade of Student Success Initiatives as part of culture  
  - Shift into academic course/program improvement | - Some success at multiple initiatives  
  - Faculty interest high | - New culture of evidenced based interventions  
  - Faculty reluctance (& union concerns)  
  - Has strong champions |
Coming Soon: Digital Learning Solutions Network

Establish Conditions for Success → Planning → Product/Partner Selection → Implementation → Evaluation & Iteration

Prepare → Discover → Define/Design → Pilot & Iterate → Scale
The University of Mississippi

Adaptive Learning Program
## Targets

### Year 1

<table>
<thead>
<tr>
<th>Department</th>
<th>Course</th>
<th>Fall, Spring, Summer Enrollment in 2014-2015</th>
<th>% Pell Recipients in 2014-2015</th>
<th>DF Rate in Fall 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>Math 115 (Statistics)</td>
<td>1,247 Students</td>
<td>30.7%</td>
<td>21%</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Chemistry 101</td>
<td>606 Students</td>
<td>38%</td>
<td>27%</td>
</tr>
<tr>
<td>Writing and Rhetoric</td>
<td>Writing 101</td>
<td>1,981 Students</td>
<td>25.5%</td>
<td>8%</td>
</tr>
</tbody>
</table>

### Year 2

<table>
<thead>
<tr>
<th>Department</th>
<th>Course</th>
<th>Fall, Spring, Summer Enrollment in 2014-2015</th>
<th>% Pell Recipients in 2014-2015</th>
<th>DF Rate in Fall 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>Math 121 (Algebra)</td>
<td>1,175 Students</td>
<td>29%</td>
<td>27%</td>
</tr>
<tr>
<td>Psychology</td>
<td>Psychology 201 (Intro)</td>
<td>2,108 Students</td>
<td>27.3%</td>
<td>17%</td>
</tr>
<tr>
<td>Writing and Rhetoric</td>
<td>Writing 102</td>
<td>2,085 Students</td>
<td>24%</td>
<td>19%</td>
</tr>
</tbody>
</table>

### Year 3

<table>
<thead>
<tr>
<th>Department</th>
<th>Course</th>
<th>Fall, Spring, Summer Enrollment in 2014-2015</th>
<th>% Pell Recipients in 2014-2015</th>
<th>DF Rate in Fall 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>Biology 102</td>
<td>1,860 Students</td>
<td>21.4%</td>
<td>22%</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Chemistry 105</td>
<td>1,068 Students</td>
<td>25.5%</td>
<td>18%</td>
</tr>
<tr>
<td>Economics</td>
<td>Econ 202 (Micro)</td>
<td>1,669 Students</td>
<td>16.2%</td>
<td>12%</td>
</tr>
</tbody>
</table>
## Incentives

### Faculty Stipends

<table>
<thead>
<tr>
<th>Category</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1: Off-the-shelf course product</td>
<td>$2,000.00</td>
<td>$2,000.00</td>
<td>$1,000.00</td>
</tr>
<tr>
<td>Category 2: Modified course product</td>
<td>$3,000.00</td>
<td>$2,000.00</td>
<td>$1,000.00</td>
</tr>
<tr>
<td>Category 3: Full build of course</td>
<td>$4,000.00</td>
<td>$3,000.00</td>
<td>$1,000.00</td>
</tr>
</tbody>
</table>

### Year 1 faculty participants in APLU adaptive courseware grant
- Staff with teaching responsibilities, 1
- Tenure-track, 1
- Instructors & adjuncts, 6
- Teaching-track, 5

### Year 2 faculty participants in APLU adaptive courseware grant
- Staff with teaching responsibilities, 7
- Tenure-track, 8
- Instructors & adjuncts, 32
- Teaching-track, 7

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#### Note:
- Teaching-track, 1
- Instructors & adjuncts, 7
- Staff with teaching responsibilities, 32
Each student experiences a personalized learning path based on a pre-assessment, their choices in the system, and their demonstration of mastery of each learning objective.
Why use adaptive courseware in higher ed?

- Flipped classroom
- Maximizing instructor contact
- Managing high enrollment classes
- Student self-remediation
The supplier landscape

E-TEXTBOOK SUPPLEMENT
- McGraw Hill LearnSmart with Connect
- WileyPlus with Orion
- Macmillon LaunchPad with Learning Curve
- Pearson MyLabs and Mastering
- Cengage MindTap

OER COURSES
- OLI Carnegie Mellon
- OLI Stanford
- Lumen Waymaker
- Realizeit Learning
- Cengage Open Now

NEW BUILD COURSE
- Realizeit Learning
- Smart Sparrow
- Acrobatiq

CUSTOMIZABLE BASE COURSE
- Lumen Waymaker
- Realizeit Learning
- Cogbooks
- Acrobatiq
- Smart Sparrow
Our approach to adaptive learning

1. Identify and showcase innovative faculty
2. Seek out and support faculty who want to redesign courses
3. Shift the focus from adaptive learning to engaged learning
4. Provide faculty development
5. Execute a research agenda
Identify and showcase innovative faculty

Who on your campus is already using adaptive courseware?
Seek out and support faculty who want to redesign courses

Course redesign

- Add active learning
- Reduce DF rates
- Align learning objectives with content
- Update content
- Increase student engagement
- Move to OER content
Shift the focus from adaptive learning to engaged learning

House adaptive learning in an existing teaching and learning center or academic innovation center, or create a new program to support it.

Collaborate with existing teaching and learning centers to provide faculty development programming emphasizing active learning and flipped classroom strategies.
Execute a research agenda

Qualitative research on student perception of learning with adaptive courseware.

Quantitative research comparing student grades in classes utilizing adaptive tools and those not utilizing adaptive tools.
Questions?

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