Collaborating with Faculty on Designing a Course with Adaptive Courseware: An Instructional Design Perspective

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Every Learner Everywhere: What we do

1. OUR MISSION

Every Learner Everywhere brings together 12 partner organizations to provide a comprehensive, coordinated approach to helping colleges and universities use new technology to innovate teaching and learning. Our focus is on improving student outcomes of first-generation college students, low-income students, and students of color.

2. OUR INITIAL FOCUS

Our network will focus our initial work on helping colleges and universities as they implement adaptive courseware in first-year, foundational courses, which have been identified by institutions as vital for student retention and success.

3. WHY THIS FOCUS?

Foundational courses (first-year, introductory, credit-bearing) continue to have low completion rates and present serious barriers to student success.

“Adaptive systems have the radical potential to shift education in the service of students by providing a student-centric design based on individual student skill and outcome attainment.”

– Lou Pugliese, EdPlus, Arizona State University
Intended Outcomes

At the end of the workshop participants will be able to:

1. Guide educators in evaluating how technology can optimize their instructional approaches.

2. Ensure course content is in alignment with adaptive learning experiences.

3. Understand how to analyze learning analytics data points that inform teaching.

4. Identify student onboarding strategies.

5. Engage with new consultative strategies for collaborating with faculty.
Outline

Intro Adaptive and Backwards Design: 20 minutes

Breakout Session Discussion: 10 minutes

Shareout: 10 minutes

Break: 15 minutes

Leveraging Learning Analytics and Onboarding Students: 5 minutes

Breakout Session 2: Case Study and Action Plan
Introductions

Poll
What is Adaptive Learning Courseware?
What is adaptive courseware?

**Definition**

- Adaptive learning systems are online educational systems that modify the presentation of content in response to student performance.
- Adaptive systems capture fine-grained data and use feedback loops to create personalized learning pathways.

**How does it work?**

- Students answers to initial questions and assessments generate additional questions and activities to further their mastery of material.
- Students can track their own learning and engage in their progress through customized learning dashboards.
Active learning is a form of learning in which teaching strives to involve students in the learning process more directly than other methods.

~ The term active learning was introduced by the English scholar R.W. Revans (1907-2003)
Why is Active Learning Important?

The skills/qualities employers want in new college graduate hires (2017):

1. Ability to Work in a Team (78%)
2. Problem-Solving Skills (77%)
3. Written Communication Skills (75%)
4. Strong Work Ethic (72%)
5. Verbal Communication Skills (70%)
6. Leadership (68%)
7. Initiative (66%)
8. Analytical/Quantitative Skills (65%)

• National Association of Colleges and Employers (2017)
Active Learning Approaches

• Use class time for one-on-one tutoring (Emporium Style)
• Lecture with strategic knowledge checks – many find that Students are better prepared for content dense lectures.
• Run a lab or simulation
• Create games/competitions
• Case studies
• Peer Review
• Brainstorming
• Jigsaw
• Role Play &/or Fishbowl
• Check out Seattle University's Blended Flow Planner (Activity Bank)
  https://cdlihosting.com/blendedflow/planner/
Optimize high tech (adaptive) and high touch (active) Learning

Active Learning within the course

Adaptive Learning Experience

Create
Evaluate
Analyze
Apply
Understand
Remember
Steps of Learning

1. ACQUIRE INFO
   Read textbook, watch video, do simulation, etc.

2. ANALYZE
   Do practice problems, take quiz before class

3. APPLY
   Discuss an applied problem with classmates.

4. ASSIMILATE
   Write essay, solve problems, take quiz, etc.
Preliminary data across various institutions show promising results that greater success is seen when content and activities that are completed in the adaptive courseware match the content and activities occurring in the classroom. This means there is immediate application and exploration of concepts practiced in the adaptive courseware in the classroom in any given week of the course.
Adaptive Experience as Formative Assessment

The benefit of formative assessment is that it allows educators to:

• Catch and address misconceptions.
• Challenge students’ early analyses.
• Provide opportunities for them to revise and redo or resubmit.
Key Decisions to Make in Designing a Course

1. How will we align student's adaptive learning experience with course content?

2. How will we use the learning analytics data to inform our teaching?

3. How can we effectively onboard students to direct their own learning?
Any Questions?
Backwards Design

1. Identify Desired Results

2. Determine Acceptable Evidence

3. Design Learning Experiences
Poll
Step 1: Identify Desired Results

Guiding Questions

What should learners hear, read, view, explore or otherwise encounter?

What skills will learners master?

What are big ideas and important understandings participants should retain?
Step 1: Identify Desired Results

What are your course goals?
In the first stage, educators must consider the learning goals of the lesson, unit, or course. Wiggins and McTighe provide a useful process for establishing curricular priorities. They suggest that the instructor ask themselves the following guiding questions as they progressively focus in on the most valuable content:

Step 1: Guiding Questions
What should learners hear, read, view, explore or otherwise encounter?
This knowledge is considered knowledge worth being familiar with. Information that fits within this question is the lowest priority content information that will be mentioned in the lesson, unit, or course.
Step 2: Determining Acceptable Evidence

Guiding Questions

• How will I know if students have achieved the desired results within the adaptive courseware?

• What will I accept as evidence of understanding and proficiency in the adaptive experience?

• How will I know if students have achieved the desired results for the entire lesson/course?

• What will I accept as evidence of understanding and proficiency in the non-adaptive portion of the course?
Step 2: Determine Acceptable Evidence

Consider what assessments and performance tasks are needed to provide evidence that students understand the material.

Step 2: Guiding Questions

- How will I know if students have achieved the desired results for the entire lesson/course?
- How will I know if students have achieved the desired results within the adaptive courseware?
- What will I accept as evidence of understanding and proficiency in the adaptive experience?

What assessments are needed to provide evidence that students understand the material, including assessments in the adaptive courseware.

List the assessments here (Indicate which are adaptive)
Step 3: Design Learning Experiences

Plan the learning experiences and decide on learning strategies. Consider:

What

**KNOWLEDGE** (facts, concepts, principles), and

**SKILLS** (procedures, processes, strategies)
do students need?

What activities will provide knowledge and skills? (including adaptive)
Step 3: Design Learning Experiences

Plan the learning experiences and decide on learning strategies.

- facts
- procedures
- What knowledge concepts and skills processes do students need?
- principles
- strategies

### Step 3: Guiding Questions

What activities will provide knowledge and skills? (Including adaptive)

What activities will introduce content, which ones will reinforce content, which ones will assess, and which will give feedback?

| Introduced | Reinforced | Assessed | Feedback |
|------------|------------|----------|----------|----------|
|            |            |          |          |          |
Step 3: Design Learning Experiences

How might you design the relationship of course activities and the adaptive experience?
# Exploring Course Mapping

<table>
<thead>
<tr>
<th>Module</th>
<th>Course Level Objectives</th>
<th>Module Objectives</th>
<th>Readings Videos</th>
<th>Activities</th>
<th>Assessments</th>
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<tr>
<td>Module 1: Title</td>
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<td>Module 7</td>
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Exploring Course Structure

When thinking about course structure: You can ask the faculty what activities will introduce content, which ones will reinforce content, which ones will assess, and which will give feedback?

<table>
<thead>
<tr>
<th>Introduce</th>
<th>Reinforce</th>
<th>Assess</th>
<th>Feedback</th>
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</table>
Exploring Course Mapping

What Activities will be done before class, during class and after class?

<table>
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<tr>
<th>Before Class</th>
<th>During Class</th>
<th>After After Class</th>
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<tbody>
<tr>
<td>Or a Pre-Assessment?</td>
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</table>
In your small group discussion the following questions and identity a scribe to capture highlights in the shared document provided.

In the case of introducing new technology such as adaptive courseware, what questions might arise from your faculty when asked to consider using it in their course? How might you address those questions?
In the case of introducing new technology such as adaptive courseware, what questions might arise from your faculty when asked to consider using it in their course? How might you address those questions?
After the break

- Leveraging Learning Analytics
- Onboarding Students
- Case Scenario and Action Plan Activity
- Access to the Workbook
How might you guide your faculty to use learning analytics to inform their teaching?
Leveraging Learning Analytics to Inform Teaching
How will you leverage the learning analytics to inform your teaching?

Typical data points include: Topic Completion & Mastery, topics struggled with (individual & class), time on task, student confidence of answer, knowledge state.

Strategies to consider:
- Examine the class level mastery of various topics and shift your emphasis in class on areas students are struggling with.
- Examine time on task for data to discover individuals who might be struggling. When possible, consider offering support by sending an email, inviting them to meet for office hours, etc. Examine the confidence level of students on particular topics to gain clarity on the effectiveness of content presented.
Typical Data Points from Adaptive Dashboard

- Topic Mastery Completion
  - By student
  - By class
- Topics Struggled With
  - By student = intervention
  - By class = class time
- Time on task
- Knowledge state
  - Pre-Knowledge check
  - Periodic knowledge checks
  - Post knowledge check
- Confidence level of student
When to use Data Points?

Preparing for In-Class time:
- Class level mastery of various topics
- Topics struggled with
- Post Knowledge checks
- Overall student confidence

Working with Individuals
- Time on task
- Individual Mastery Level completion
- Individual topics struggled with
- Confidence level
The Importance of On-Boarding

Student’s need to understand:

• This technology illuminates what they understand and what concepts still need clarification.
• It puts you, the student, in the driver’s seat of your learning.
• Their personalized dashboard allows them to track their own progress and specifically know their mastery level and areas to work on.
• The intention is to learn faster, study more efficiently and retain knowledge to a greater success

Disclosing Use of Data:
It's helpful for faculty to disclose their use of student data:

• How and why they are using the students learning data.
• What kind of data you are capturing?
• Onboarding is a great time to disclose this information.
Onboarding Approaches

• Syllabus Statement – examples in workbook
• In-class explanation or online video share
• Class-time to complete an activity
• Video orientation: Resources: Vendor created assets or create your own screencast
• Regularly share student data in class as an additional way to help students understand how the experience is leveraged to drive the class and enhance the collective learning.
Onboarding Approaches

Onboarding Students
What onboarding strategies will you design to help students successfully navigate the adaptive experience?

Onboarding Strategy Ideas

- Syllabus Statement - examples
- In-class explanation
- Class-time to complete an activity
- Video orientation: Resources: Vendor created assets or create your own screencast (work with your ID)
- Regularly share student data in class as an additional way to help students understand how the experience is leveraged to drive the class and enhance the collective learning.
Breakout Session 2

In your breakout session each group will be given a scenario. Using the workbook as a guide, consider how you would approach consulting with the faculty in the case.

1. Math department or Psychology Department coming up with a common master course using adaptive courseware

2. Faculty wants to replace their textbook with adaptive courseware and wants to highly customize it.

3. Biochemistry faculty wants to use adaptive courseware to reinforce skills. They decide to set it up as a formative activity weighted at 5% of the overall course grade, essentially a "set it and forget it" approach.
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Welcome To Solve
by Every Learner

Solve is the home of the Every Learner Everywhere Network’s growing library of adaptive implementation resources. Our platform is designed to aid post-secondary institution teams in their adaptive courseware implementations, from learning the basics of adaptive to scaling successful implementations.

Search for a kit, resource or keyword

Ready to dive in?
Browse our resources by topic, role, discipline, and more below

- **Topic**
  - **Adaptive Courseware Basics**
  - **Case-Making**
  - **Course Modification**
  - **Courseware Selection**
  - **Faculty Professional Development**
  - **Inclusive Design**

- **Phase**
  - View

- **Discipline**
  - View

- **Recommended**
  - View

https://www.everylearnersolve.com/
Resources: ID Consultation Strategies

Instructional Design Consultation Strategies
Susan Adams, M.Ed
[www.edtechinsight.com](http://www.edtechinsight.com)

There are many ways to approach an instructional design consultation. My bottom line is meet them where they’re at. Whether your subject matter expert (SME) is an academic, corporate professional or first time educator, I love beginning with these questions: What will your learners look like at the end of the experience? How can you know if a learner has achieved that state? What activities will best help your learners achieve that state? A good consultation leaves educators with pedagogical strategies to help them effectively facilitate an authentic, meaningful and engaging learning experience.

The following action steps and methods of inquiry are not meant to be in sequential order. Think of them as a menu and choose areas that not only meet your educator’s needs, but begins to create a wholistic map of the learning experience they want to build.

- Map and Align Learning Outcomes Using Backwards Design
- Designing and Aligning Assessments
- Design meaningful and relevant activities that solve real world problems
- Inventory Your Content
- Structuring your Content in the LMS
- Communicating your plan and intentions
- Usability and Findability
- Understand your learners
- Accessibility
- Using Media
- Online Presence: Encouraging your SME to be present in their online course
- Design for multiple learning styles and needs
- Considering the importance of Digital Fluency

Questions?
Thank you