Adaptive Teaching, Self-Regulating and Goal Setting: Low-Cost Strategies to Make Economics Courses More Inclusive

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Motivation-Institutional Setting

- Small liberal arts college with max class size of 30 students
- Demographic background of students in introductory economics:
  1) 40-45% female, 55-60% male
  2) 60-65% White, 25-30% Hispanic, 10-15% Black and other races
  3) 35-40% first generation students
  4) 10% of the students have accommodations
  5) Commuter school and nearly all students work 20+ hours a week
- Distribution of students’ majors in introductory economics: mainly education and business school majors
Adaptive and Inclusive Teaching

- In an inclusive learning environment, all students are supported, and they have a sense of belonging in the classroom regardless of their background, identity and learning needs.

- Previous research characterizes effective teachers as having an adaptive and flexible teaching approach (Corno 2008, Darling-Hammond and Bransford 2005, Fairbanks et al. 2010, Hattie 2009).
Inclusive Teaching

AWARENESS ➔ REFLECTION ➔ ACTION
Outline

- Backward Course Design
- Universal Design for Learning (UDL)
- How I used UDL guidelines to modify my classes
- Self Regulation and Goal Setting: A Modified 3-2-1 Exercise
Small changes improve learning

Backward Course Design

- Backward course design by Wiggins and McTighe (2005) provides a framework to develop courses that focus on student learning and understanding.

- Research shows that using backward course design approach results in positive outcomes for both students and instructors.
  - Instructors that implement backward design approach provide more frequent feedback on student comprehension, improve their ability to manage time and prioritize content delivery to students, and instructors’ experience of lecture preparation (Reynolds and Kearns 2017).
The Backward Design Process

1. Identify desired results
   What I want the students to understand and know and be able to do?

2. Determine assessment evidence
   How do I check they have learned?

3. Plan learning experiences and instruction
   Which learning activities will lead students to the desired results?
Universal Design for Learning (UDL)

- UDL is an integrated framework that combines understandings from neuroscience, architecture and technology to craft inclusive and flexible learning environments for diverse learners. (website: https://udlguidelines.cast.org/)

- UDL has three key principles: students should be provided options for
  1) Engagement (The **why** of learning)
  2) Representation (The **what** of learning)
  3) Action and expression (The **how** of learning)

- Learners vary in the strength of each of these learning networks, they will also vary in the way that they learn (Rose and Strangman 2007).
Provide multiple means of Engagement

- Affective Networks
  - The "WHAT" of Learning

Provide options for Recruiting Interest
- Optimize individual choice and autonomy (R1)
- Optimize relevance, value, and authenticity (R2)
- Minimize threats and distractions (R3)

Provide multiple means of Representation

- Recognition Networks
  - The "WHAT" of Learning

Provide options for Perception
- Offer ways of customizing the display of information (P1)
- Offer alternatives for auditory information (P2)
- Offer alternatives for visual information (P3)

Provide multiple means of Action & Expression

- Strategic Networks
  - The "HOW" of Learning

Provide options for Physical Action
- Vary the methods for response and navigation (A1)
- Optimize access to tools and assistive technologies (A2)

Provide options for Sustaining Effort & Persistence
- Heighten balance of goals and objectives (S1)
- Vary demands and resources to optimize challenge (S2)
- Foster collaboration and community (S3)
- Increase mastery-oriented feedback (S4)

Provide options for Language & Symbols
- Clarify vocabulary and symbols (L1)
- Clarify syntax and structure (L2)
- Support decoding of text, mathematical notation, and symbols (L3)
- Promote understanding across languages (L4)
- Illustrate through multiple media (L5)

Provide options for Expression & Communication
- Use multiple media for communication (C1)
- Use multiple tools for construction and composition (C2)
- Build fluencies with graduated levels of support for practice and performance (C3)

Provide options for Self Regulation
- Promote expectations and beliefs that optimize motivation (S1)
- Facilitate personal coping skills and strategies (S2)
- Develop self-assessment and reflection (S3)

Provide options for Comprehension
- Activate or supply background knowledge (C1)
- Highlight patterns, critical features, big ideas, and relationships (C2)
- Guide information processing and visualization (C3)
- Maximize transfer and generalization (C4)

Provide options for Executive Functions
- Guide appropriate goal-setting (E1)
- Support planning and strategy development (E2)
- Facilitate managing information and resources (E3)
- Enhance capacity for monitoring progress (E4)

Expert learners who are...

- Purposeful & Motivated
- Resourceful & Knowledgeable
- Strategic & Goal-Directed
Provide multiple means of Engagement

Access
- Provide options for Recruiting Interest (7)
  - Optimize individual choice and autonomy (7.1)
  - Optimize relevance, value, and authenticity (7.2)
  - Minimize threats and distractions (7.3)

Build
- Provide options for Sustaining Effort & Persistence (8)
  - Heighten salience of goals and objectives (8.1)
  - Vary demands and resources to optimize challenge (8.2)
  - Foster collaboration and community (8.3)
  - Increase mastery-oriented feedback (8.4)

Internalize
- Provide options for Self Regulation (9)
  - Promote expectations and beliefs that optimize motivation (9.1)
  - Facilitate personal coping skills and strategies (9.2)
  - Develop self-assessment and reflection (9.3)

Purposeful & Motivated
Provide multiple means of Representation

Recognition Networks
The "WHAT" of Learning

Resourceful & Knowledgeable

Provide options for Perception
1. Offer ways of customizing the display of information (1.1)
2. Offer alternatives for auditory information (1.2)
3. Offer alternatives for visual information (1.3)

Provide options for Language & Symbols
1. Clarify vocabulary and symbols (2.1)
2. Clarify syntax and structure (2.2)
3. Support decoding of text, mathematical notation, and symbols (2.3)
4. Promote understanding across languages (2.4)
5. Illustrate through multiple media (2.5)

Provide options for Comprehension
1. Activate or supply background knowledge (3.1)
2. Highlight patterns, critical features, big ideas, and relationships (3.2)
3. Guide information processing and visualization (3.3)
4. Maximize transfer and generalization (3.4)
Provide multiple means of Action & Expression

Strategic Networks
The "HOW" of Learning

Strategic & Goal-Directed

Provide options for Physical Action (4)
- Vary the methods for response and navigation (4.1)
- Optimize access to tools and assistive technologies (4.2)

Provide options for Expression & Communication (5)
- Use multiple media for communication (5.1)
- Use multiple tools for construction and composition (5.2)
- Build fluencies with graduated levels of support for practice and performance (5.3)

Provide options for Executive Functions (6)
- Guide appropriate goal-setting (6.1)
- Support planning and strategy development (6.2)
- Facilitate managing information and resources (6.3)
- Enhance capacity for monitoring progress (6.4)
Learning Outcomes

Challenges:

- Learning objectives for the course vs. for the lectures:
  Too much focus on foundational knowledge

- Weren’t student-oriented:
  Academic preparedness
  Relevance and belonging
Top 3 most valued skills identified by faculty

1. Problem-solving/critical thinking
2. Data interpretation
3. Constructing an argument from data

% of Faculty who say that they do NOT spend sufficient time on these teaching skills

Coil et al., 2010
Learning Outcomes

**UDL:**
- **Recruiting Interest:** Optimize individual choice and autonomy
- **Recruiting Interest:** Optimize relevance, value, and authenticity
- **Sustaining Effort & Persistence:** Heighten salience of goals and objectives
- **Self Regulation:** Facilitate personal coping skills and strategies
Learning Outcomes

Action:

☐ Effectively communicate what learning looks like in economics and clarify the learning expectations

☐ Integrate “Learning How to Learn” into the learning objectives
  • Punctuated lectures, facilitating study groups, note-taking, retrieval practice, reflection homeworks

☐ Incorporate student interests into content objectives by offering choices
Summative Assessments

Challenge:
Managing motivation and exam stress

UDL:
- **Self Regulation**: Promote expectations and beliefs that optimize motivation

**Action**: Align learning goals, assessment and learning experience
Summative Assessments

Challenge:

UDL:

- **Expression & Communication:** Use multiple media for expression and communication

**Action:** Assess learning in various ways
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<td>Discussion/Reflection Assignments</td>
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Learning Experience, Activities & Formative Assessment

**Challenge:** How to display of information?
- Accessibility: Barriers-Explicit and Implicit?

**UDL:**

**Language & Symbols:**
- Clarify vocabulary and symbols
- Support decoding of text, mathematical notation, and symbols
- Illustrate through multiple media

**Recruiting Interest:** Minimize threats and distractions

**Comprehension:** Activate or supply background knowledge
Learning Experience, Activities & Formative Assessment

Action:
- Redesign lecture materials to appeal to auditory and visual learners
- Provide alternatives to auditory and visual information
- Close-reading activities-- text and graphs
- Simplify notation
- Standard notation across classes: collaboration with colleagues
Challenge: How to switch from lecture to active learning environment?
Designing meaningful learning experience
College Science Learning Cycle

Learning Experience, Activities & Formative Assessment

**UDL:**
- **Recruiting Interest:** Optimize relevance, value, and authenticity
- **Comprehension:** Activate or supply background knowledge
- **Sustaining Effort & Persistence:** Foster collaboration and community

**Action:**
- **Engage:** Brainstorming on the main problem to be covered as an “hook” exercise
- **Construct:**
- **Evaluate:** Clicker/polling questions and a discussion of the possible rationale behind the wrong answers
Two of the questions that we will answer in this course are “How well are we doing compared to our grand-grand-parents?” and “How well are we doing compared to other countries?”. However, in order to answer these questions, we need to have a comparison criteria.

As a group, come up with 3 factors/aspects of our life that you think should be included in the selection criteria.

As we know from chapter 2, we use data to answer the questions we have. So, for this round, your task is to think about data sets that you can use to analyze the factors you came up with in the first round. Please find a total of 3 variables, one for each factor, that would measure these factors.
Learning Experience, Activities & Formative Assessment

Challenge: How to make students take ownership of their learning?

UDL:
Self-regulation:
- Facilitate personal coping skills and strategies
- Develop self-assessment and reflection
Learning Experience, Activities & Formative Assessment

**Action: A Modified 3-2-1 Reflection Assignment**

Please provide your reflections on this chapter by providing all of the following:

- Three things I learned in this chapter and why I found them interesting
- Two questions I still have and want to learn more, or two things that I did not understand and need more clarification
- One aspect of the lecture, homework assignments or the textbook that I enjoyed and/or found useful in terms of my learning experience
Reflections:

- Student buy-in and switching the responsibility to the students: Linking it with the learning objective

- Opened a new channel of communication

- Unintended consequences:
  1) Motivation
  2) Valuable information for goal-setting and planning
Challenge: Exam anxiety: “I don’t know where to start, how to study”

UDL:
Executive Functions:
- Guide appropriate goal-setting
- Support planning and strategy development

Action: Goal Setting Activity
Goal Setting Activity

1. Without referring to your notes and other course materials, write down everything you remember for each chapter included in the exam.

2. Refer to the last question of the weekly homework assignments for each chapter. This question asked you to reflect on your learning for each chapter. Look at the first item that asks you to report three things you learned in this chapter. Do you still retain this information? Compare your responses to part 1 of this exercise with the first item of the reflection question for each chapter.

3. Refer to the second part of the reflection question in which you reported two questions you still have and want to learn more, or two things that you did not understand and need more clarification. Did you get answers to your questions or clarifications of the concepts you had difficulty in understanding? If so, how? If not, what will you do to get an answer or clarification before the exam to be well-prepared?
4. Refer to the lecture slides for the learning outcomes of each chapter included in the exam. By comparing the learning objectives of each chapter to your responses to part 1 of this exercise, identify all topics, concepts and competencies that you need to improve to prepare well for the exam. Please be as detailed and specific as you can.

5. Explain your action plan or studying strategies on how you will get prepared well for the exam. Be as detailed and specific as possible: explain what you will do, in which order you will complete these tasks, when and where you will complete them, and how much time you will allocate to each task. Make sure to prioritize tasks to use your time effectively if things do not go as planned.
Thank you!

Thank you for your attention!

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