Collaboration, Learning Design, and Student Engagement in Hybrid and Online Courses

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Learning Outcomes

By the end of the webinar, audience members will be able

- to describe concepts and approaches that create effective learning
- to collaborate with faculty and other instructional support staff
- to adapt instruction and instructional support to the changing environment of online learning and the hybrid classroom.
Our Program:

1. Where are we now?
2. How we learn: the myths and the damage
3. Learning Science (LS): key concepts
4. Learning Design (LD) Methods and LS together: Design Cases
5. Explore Learning Ecosystem: Challenges and Opportunities
6. Partnering with Key Stakeholders
State of Things

- Ithaka S+R US Library Survey 2019
  - Perceived or real value of library services declining
  - Contribute to student learning and success
  - Prioritize Services over Collections
  - Growing interest in [contributing to] learning analytics tools

State of Things

University Teaching-Learning Ecosystem

Library
- Student Study Groups, Tutoring, Mentoring, Writing Center, etc.
- Graduate Professional School (fully online)
- Instructor Early Adopters & Innovators
- Learning Design & Instructional Technology
- Arts and Sciences COP
- Center for Teaching and Learning
- IR & Data Analysts
- Committee for T, L, and Assessment
- Academic Tech Advisory Committee

Provost
- Pedagogy-Friendly Leaders

Students

[Diagram details]
Learning Myths and their Damage

The Debunker Club

A Community of People

Working to Eradicate Learning Myths and Share Proven Evidence-Based Insights
Learning Myths: Examples

- **Transfer of Learning** is easy
- **Neuromyths**: Neuroscience guides design of learning or teaching
- **Learning Styles**: People learn best when instruction is adjusted to their learning style
Learning Myths: Examples

- **Transfer of Learning:** Knowledge and skills most efficiently and effectively constructed when practiced close to the context in which they will be used.

- **Neuromyths:** Neuroscience doesn’t directly guide teaching and learning.

- **Learning Styles:** This construct isn’t true and if it were would be difficult to apply.
Pause

Question?

Comments?

Your experience?
Learning Science

(Cognitive Psychology, Educational Psychology, Behavioral Economics, etc.)
Some Keys of Learning Science

**Schemas:** Moving from Novice to Expert

**Learning Transfer:** What helps learners use knowledge and skills?

**Metacognition:** Part of Self-Regulatory skills

**Retrieval Practice:** Most critical learning strategy (related to memory)
LEARNING is the ACQUISITION of SCHEMA

<table>
<thead>
<tr>
<th>Stage of learning</th>
<th>NOVICE</th>
<th>DEVELOPING</th>
<th>EXPERT</th>
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<tbody>
<tr>
<td></td>
<td>![Diagram of novice stage]</td>
<td>![Diagram of developing stage]</td>
<td>![Diagram of expert stage]</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>When presented with new information</th>
<th>The student struggles to connect the content with existing knowledge: they can’t refer it to anything.</th>
<th>There are more connections and some reliance on existing knowledge can be made</th>
<th>Multiple connections. Student fluently refers to and recalls existing knowledge</th>
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</thead>
</table>
What is Transfer?

1. **Transfer of Learning** = The ability to extend what one has learned in one context to another.
   - Much is known about learning experiences that promote transfer.
   - New learning involves transfer based on previous learning.
   - *Overly* contextualized learning reduces transfer (but teaching out of context isn’t conducive to transfer).
Teaching for Transfer

**Mastery of subject** - Students need certain knowledge base

**Learning with understanding** (not with memorization)

**Time to Learn** - Enough practice on fluent pattern recognition

**Motivation** - Performance (grades) vs. learning orientation of student (motivations)
Pause

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Your experience?
Metacognition: A Self-Regulatory Skill

Self-Regulated Learning:
Ability to assess our own knowledge, skills, learning

Metacognitive Approach to Learning

“A metacognitive approach to information literacy allows us to move beyond rudimentary skills development and prepares students to dig deeper and assess their own learning”

- Metaliteracy: Reinventing Information Literacy to Empower Learners, Mackey and Jacobson (2014)

Few instructors teach strategies for monitoring learning

Deliberate Practice- Seeking and using feedback about progress. Feedback on where, when and how to USE knowledge.

Adaptive Expertise: - Become more aware of themselves as learners who actively monitor their learning strategies and resources and assess their readiness.
The Learning Designer’s Toolset

Learning Science
(Cognitive Psychology, Educational Psychology, Behavioral Economics, etc.)

+ 

Design Methods/Models
(From: ID, LD, LX) + (COI, Blended, etc.)

+ 

Tools
(Instructional Technologies, Learning Analytics)
Design Models & Frameworks
Prototype/Test the Intervention Design

Identify Improvements

Redesign Intervention

Design Learning Intervention

Implement

Learning Design Model
Learning Challenge: Expository Writing Classes

Poor design ⇒ Student + Librarian

Politics
“This is an introductory writing course that will culminate in a literature review. They will have just gotten the literature review assignment and will be at the beginning of their research process. Any and all knowledge about library resources and research strategies would be perfect...Since they are first year first semester students, they will need the basics!”
“Students should be able to access a wide range of sources from books to academic articles to magazine essays. They should have a basic understanding of Bentley's library search engines, the various resources at their disposal, and search refinement techniques. The students will generate their own topics based upon general issues related to politics, food production, or technology use. Previous classes normally have a wide range of skill levels, but I will have a better idea of their skill level once we meet.”
Prototype/Test the Intervention Design

Redesign Intervention

Identify Improvements

Design Learning Intervention

Implement

Identify methods and tools to apply to solution

Identify possible solutions

Define the challenge or problem

GOAL

START HERE

Identify learning-instructional challenge

Learning Design Model
Expos Writing Example: Problems

Problem: beginning of the research process, i.e. nothing specific to search
Problem: no guidance/steps to choosing a topic
  ● Prior knowledge
  ● Engage in dialogue and debate (public opinion, scholarly research)
Problem: research and information resources vary by discipline
  ● Techniques also vary by discipline
Problem: no expert schemas, metacognition, and transfer
Expos Writing Example: Solutions

Solution: techniques to specify research topic (author supplied keywords, indexes, subject headings, etc…)

Solution: prior research and continuously expanding knowledge in various fields

Solution: Consult with experts in various fields to understand how they think

Solution: Grasp metacognition in various fields and how it enables transfer
Expos Writing Example

Methods and Tools:

- Concept maps by discipline
- Word families and relationships
- Task analysis for searching on specific topics
- Instructions based on task analysis (Instructional Design)
- Use expertise to revise and change search strategies
- Give examples of how to use same or similar strategy in another discipline or research task
Expos Writing Example

Word families example:

Environmental sustainability on campus

<table>
<thead>
<tr>
<th>Environment</th>
<th>Sustainability</th>
<th>Campus</th>
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<tbody>
<tr>
<td>Air</td>
<td>practices</td>
<td>University</td>
</tr>
<tr>
<td>Ground</td>
<td>measures</td>
<td>dormitories</td>
</tr>
<tr>
<td>Noise</td>
<td>Long term</td>
<td>Stadiums</td>
</tr>
</tbody>
</table>
Pause

Questions?

Comments?

Your experience?
“Blended Online” = sync and async

- Strengths of Synchronous vs. Asynchronous
- Just-in-Time Teaching
Strengths of synchronous & asynchronous environments

**Synchronous**

- Allows flexibility: Can adjust on-the-fly
- Enhances class cohesion and engagement
- Allows simulation of some in-person classroom interaction patterns
- Supports real-time interactions or discourse (observation, model-practice cycle, etc.)
- Clarify misunderstandings quickly
- Give immediate feedback
Strengths of synchronous & asynchronous environments

**Synchronous**
- Allows flexibility: Can adjust on-the-fly
- Enhances class cohesion and engagement
- Allows simulation of some in-person classroom interaction patterns
- Supports real-time interactions or discourse (observation, model-practice cycle, etc.)
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**Asynchronous**
- Promotes balanced contributions
- Supports reflective learning
- Supports self-paced learning
- Extends group work space-time/allows transparency of interaction
- Allows for personalization
- Sustained engagement possible
1. Before Live Class

Asynchronous Activity

Instructor uses activity **results** to plan live class activities

2. During Live Class

Synchronous
Blending Strategy: “Just-in-Time” Teaching

1. **Before Live Class**
   - Asynchronous Activity
   - Instructor uses activity results to plan live class activities

2. **During Live Class**
   - Synchronous

**Allows assessment for learning**
Instructor Challenge: Online Student Presentations

Your face-to-face course includes student presentations. A colleague has suggested that you have students record presentations, post them to a discussion board, and ask their classmates to post questions for them to answer. You aren’t sure if this is a good plan. You worry about losing the immediacy and energy of live presentations and are considering doing them live in Zoom. On the other hand, that would take a lot of time and may be fatiguing for students.
Instructor Challenge: Online Student Presentations

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Learning Design Model

START HERE

Prototype/Test the Intervention Design

Identify learning-instructional challenge

Define the challenge or problem

Identify possible solutions

Identify methods and tools to apply to solution

Design Learning Intervention

Redesign Intervention

Identify Improvements

GOAL

Implement
Defining the problem

1. Keep learning goals in mind - focus on student and faculty perspective; benefits for instructor

2. Have instructor walk you through the ideal F2F version

3. Ask questions and listen

Note: Translation vs. Transformation & “The Gold Standard”
Defining the Problem:

1. **Learning Goals?** Is giving a live presentation a course goal?
2. **What is being assessed?** How?
3. How much live time am I willing to devote to presentations?
4. What supports would I need to put in place for a solution to be satisfactory to me and to sufficiently supportive of students?
5. **How much change** is instructor comfortable with? (including technology tool use)
6. Can you **walk me through** the face-to-face version? The most ideal version?
Suggested Solution

1. Record presentations
2. Classmates post questions asynchronously
3. Presenters answer posted questions live, followed by Q and A

Benefits: Students reflect more (metacog.), immediacy retained, use of two environments draws on differing strengths of students, new skill.

Challenges: More technology, new skill.

Knowledge/Skills: Design model, questioning skills, learning science, pedagogy, instructional technology-integration.
Current Learning Ecosystem: Changes and Opportunities

How does the current library ecosystem support or hinder learning, what opportunities for involvement are we missing?
State of Things

University Teaching-Learning Ecosystem

- Summer School (Online & F2F)
- Provost
- Pedagogy-Friendly Leaders
- Student Study Groups, Tutoring, Mentoring, Writing Center, etc.
- Graduate Professional School (fully online)
- Library
  - Research and Instruction
  - Makerspace
  - Instructors Early Adopters & Innovators
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<thead>
<tr>
<th>Opportunities</th>
<th>Key Concepts</th>
<th>Points of Resistance or Challenge</th>
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<tbody>
<tr>
<td>Course &amp; Assignment Redesign</td>
<td>Learning Design within courses</td>
<td>Collaboration with faculty</td>
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<tr>
<td>Makerspaces: PBL</td>
<td>Authentic learning, <strong>project-based learning</strong>, Design, Content creation,</td>
<td>Staffing, Library culture</td>
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<td>Creativity, Ties to curriculum, Collaboration</td>
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<td>Faculty Support Groups</td>
<td>Collaborative professional development, scaling expertise</td>
<td>Curating, facilitating, maintaining</td>
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<tr>
<td>Student Learning Support/Groups</td>
<td>Collaborative learning</td>
<td>???</td>
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<tr>
<td>Collaborative SoTL (Scholarship of Teaching and Learning)</td>
<td>Study of teaching and learning</td>
<td>Entry points, rewards, collaboration</td>
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<td></td>
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<td>with faculty</td>
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<td>ACRL Framework as grist for ideas</td>
<td>Conceptual ties to T and L</td>
<td>Nature of integration of knowledge and</td>
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<td></td>
<td></td>
<td>skills</td>
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Image Sources

**Schema:** Theories in Education: [https://paulgmoss.com/2020/02/18/schema/](https://paulgmoss.com/2020/02/18/schema/)

**The Learning Designer’s Toolkit:**
- FeedbackFruits website: [https://feedbackfruits.com/](https://feedbackfruits.com/)
- Man’s head with gears: [https://www.123rf.com/](https://www.123rf.com/)
- LX process graphic: [https://edusasha.com/](https://edusasha.com/)

**Design Models:**
- [https://www.pugetsound.edu/](https://www.pugetsound.edu/)
- [https://techandcurriculum.pressbooks.com/chapter/coi-and-online-learning/](https://techandcurriculum.pressbooks.com/chapter/coi-and-online-learning/)
- [https://learningsolutionsmag.com/articles/1262/agile-instructional-design-the-big-questions](https://learningsolutionsmag.com/articles/1262/agile-instructional-design-the-big-questions)

**Self-Regulatory skills:**
Thank you!
Example #1: Let’s do a workshop

Librarians agree with a group of professors that students need information literacy skills. The professors would like the librarians to teach this through a workshop.
Example #1: Transfer is straightforward

**Myth:** Knowledge and skills transfer fairly easily from context to context.

**Learning Science to keep in mind:** Knowledge and skills most efficiently and effectively constructed when learned in as close to the context in which they will be used.
Example #2: Neuromyths

**Myth:** Neuroscience directly impacts teaching practice.

- Brain-based learning
- Right brain-left brain dichotomy (also a pigeon-holing myth)

**Learning Science to keep in mind:**

- It doesn’t inform how to design a learning experience.
- Neuroscientists map brain activity to cognitive structure in isolation (attention, memory)
- Hard to marry neuroscience to learning theories- mapping neuroscientific data to behavioral data needed to guide learning.
Example #3: Learning Styles

**Myth:** People learn best when instruction is adjusted to their learning style.

**Learning Science to keep in mind:**

- Cognitive differences are gradual
- Self-report measures most often used to determine styles: Reliability problem.
- Many learning styles categories (71 by one count). Impossible to guide learning.

A few:
- verbal/linguistic
- mathematical/logical
- visual/spatial
- VARK
Heuristics:

“..an experiential guide to problem solving... According to Aickelen and Clark (2011), heuristics operate whereby on the basis of experience or judgment they may be more reliable in producing a good solution, although there is no guarantee that the solution will be optimum.

- Daniel C. Krawczyk, in *Reasoning*, 2018

“...also known as “mental shortcuts” (Kahneman, 2011). … a well-learned adaptation that allows us to decide quickly and with low effort.”

- Wayne Petherick, in *Applied Crime Analysis*, 2015