Asynchronous instruction: Making your teaching at a distance more effective

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About me…

• 8 Years at Skidmore College… I ‘get’ F2F instruction
• 12 years at SUNY Empire State College… I ‘get’ distance education
• 6 years as Editor of BAMBEEd… I ‘get’ that pedagogy evolves
• 7 years at SUNY System Administration (64 campuses)... I ‘get’ the challenges and the tensions, and the OPPORTUNITIES!
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*Reimagining* Teaching and Learning via Remote Instruction
The $64,000 Question

- STEM skills – at the core are authentic learning, problem solving, quantitative reasoning, team work, etc.
- Lab and Lecture
- How to deliver the learning, i.e., authentic and rigorous learning experiences that address relevant course objectives and learning outcomes?

Mawn, 2020
Learning outcomes

• Which matters more -- what you know, or how you came to know it?
• Are there other ways to achieve those same outcomes?
Bloom’s Taxonomy... as verbs!

**Knowledge:**
- Define
- Identify
- Describe
- Recognize
- Tell
- Explain
- Recite
- Memorize
- Illustrate
- Quote

**Understand:**
- Summarize
- Interpret
- Classify
- Compare
- Contrast
- Infer
- Relate
- Extract
- Paraphrase
- Cite

**Apply:**
- Solve
- Change
- Relate
- Complete
- Use
- Sketch
- Teach
- Articulate
- Discover
- Transfer

**Analyze:**
- Contrast
- Connect
- Relate
- Devise
- Correlate
- Illustrate
- Teach
- Articulate
- Discover
- Take Apart

**Evaluate:**
- Criticize
- Reframe
- Judge
- Defend
- Appraise
- Value
- Prioritize
- Plan
- Grade
- Reframe

**Create:**
- Design
- Modify
- Role-Play
- Develop
- Rewrite
- Pivot
- Modify
- Collaborate
- Invent
- Write

Value in ‘reimagining’?

- Face-to-face or Online – a false dichotomy?
- Moving your F2F course to online?
- Opportunity for translation, not transcription?
- If so, product of the translation will affect original template!
The Central Dogma of Molecular Biology
The Central Dogma of Molecular Biology Pedagogy
“It’s all about the learning outcomes!”

• Is this an opportunity to rethink lecture and laboratory learning, i.e., the goals and the means of teaching and learning?

• There’s no doubt that hands-on learning is an essential part of STEM education. How to preserve that when teaching at a distance?

• There are learning outcomes that have traditionally been delivered via a number of settings:
  • Field work (ecology, geology, engineering), wet labs (biology, chemistry), apparatus (physics, chemistry), circuitry (CS), robotics, etc.
How do you define remote instruction?

- Consider which parts of a learning experience require a F2F instruction, versus other opportunities.

- For example, does it matter if prior to going into the field the instructions are given orally, written, email, LMS?
  
  - Does it affect the learning outcomes?
  
  - The key qualities are that students receive instruction, engage in the authentic learning exercise, and they receive timely help, guidance, formative feedback, and summative assessment.
Might remote instruction have advantages?

- Rather than spending that time on data collection as is often done in a lab period...

In labs taught via remote instruction, students may be given the opportunity to spend more time on experimental design, data analysis and hypothesis generation and revision.
Is remote learning necessary or sufficient?

• In some topics simulations (i.e., non-experiential learning) is **not sufficient**. For example, who wants to be a passenger in a car with someone who has only used a driving simulator?

• But, in others simulations are an **essential** part of learning a complex skill -- e.g., commercial pilots who do a significant part of their training in simulators.
High Quality Online Courses...

• Are not cheap... they require...
  • Time to develop
  • Team to develop
  • Faculty : Student
  • Regular updating
  • Time to teach
  • Ownership

• Are not necessarily an inexpensive way to “scale”

• Afford flexibility
  • Spend time mentoring, rather than teaching
  • Instead of a ‘sage on the stage’, be a ‘guide on the side’!
Course Design by Design

- Good curricular design does not occur by accident
  - Department chair -- Curricular manager
  - Instructor/Faculty -- Subject Matter Expert
  - Instructional Designer
    - Pedagogy Expert
    - Course Management System Expert
Fundamental Elements of Online Courses

• Synchronous vs. Asynchronous
• Video or text
• “Lectures” or “Mini-lectures”
• Instructor ‘presence’ – regular and timely!
• “Hub and Spokes” or “Circle”
• Discussions (with topic)
• Open forum Q&A
• Online ‘office hours’
SUNY Online Course Quality Review Rubric: “OSCQR”

- 50 Standards
- 6 areas
  - Overview and Information
  - Technology and Tools
  - Design and Layout
  - Content and Activities
  - Interaction
  - Assessment and Feedback

- [https://OSCQR.SUNY.edu/](https://OSCQR.SUNY.edu/)
Resources

• Campus/system, e.g., SUNY Remote Learning Resources: https://innovate.suny.edu/covid19/
• Regional accreditors, e.g., Middle States: https://www.msche.org/covid-19/
• Program accreditors, e.g., ASBMB: https://www.asbmb.org/education/accreditation
• OSCQR -- The SUNY Online Course Quality Review Rubric: https://oscqr.suny.edu/
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