Challenges and Successes of Emergency Online Teaching

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Emergency Online Teaching

How does the typical online classroom differ from the emergency online classroom?

The typical online classroom:

- Implicit assumption that everyone chose to take an online class.
- Significant time spent moving the class online.
  - Course technology is set up and tested in advance.
  - Faculty training and support.

Emergency Online Teaching

This leads us to three primary questions:

- How do we manage an online class where students don't want to be online or lack the resources to be online?
- How do we create and run a good emergency online class without completely sacrificing our time?
- What unique challenges do we face in the statistics classroom?

Technology

Presenting Material

- Difficult to present mathematical equations online.
- Not necessarily a clear approach to presenting.
  - Visual Markdown/LaTeX is difficult and slow.
  - A lot of possible options: tablet, slides, latex, document camera, etc.
- Creating presentation materials is time-consuming.

Challenge: Access

- Student technology access.
- Reliability of technology - wifi, computers, LMS, etc.
- Space to attend class / take exams.
- Student technology proficiency / computer literacy.
- Accessible pdfs (LaTeX) and mathematical equations.
- Video captioning for recorded materials and live Zoom sessions.

Challenge: Teaching Programming Remotely

- Meaningful Assignment
- Displaying R Code; large font is necessary
- Lecturing code synchronously vs asynchronously
- Labs
- Debugging Help

Challenge: Assessment

- How to write online homeworks/exams?
- Student assignment submission.
- Academic integrity - Chegg, PhotoMath, Bartleby, etc.
- Online grading.

Success:

- Universities found ways to get technology to students.
- Use of RMarkdown to create accessible documents (compile to html).
- Materials delivered through html are easy to copy and paste code from.

Where do we go from here?

- Utilize websites (bookdown/Rmarkdown) to deliver content to students
- Preference of using whiteboard software is dependent on Professor's teaching style
- Utilize R Packages to deliver R material
- Debugging is better in person - how do we transfer this to online learning?

Classroom Community and Feedback

Challenge: Lack of Community

- Zoom fatigue - students not interested in socializing on Zoom.
- Difficult for students to collaborate.
- Math anxiety may play a role in students' hesitation to work together even in in-person classes.
- May not be as many opportunities for deeper discussion - math & stats classrooms may be more isolating than other disciplines.
- Encouraging increase in student questions during class, but they were often asked anonymously and were difficult to monitor.
- Difficult to ask math questions in the chat (equations, notation).

Challenge: Lack of Feedback

- Lack of student-teacher interaction.
- Lack of nonverbal feedback.
- Students unable to ask questions while engaging with asynchronous content.
- Teaching to blank screens is exhausting - workload issue.
- Less face-to-face time may make it more difficult for students to feel comfortable reaching out to faculty.
  - Hard to get students to office hours.
- Compassion fatigue (feedback was sometimes difficult to process).
- Difficult to give feedback while grading online.

Success: Collaborative Discussion Boards

Provide students with a challenging problem to work on.

Students...

- are told they aren't expected to get the "correct" answer right away.
- submit a first draft of their work before they can see other students' work.
- each other advice or discuss how others' work helped them understand the problem.

Success: Just-For-Fun Discussion Boards

Provide students with a fun discussion board prompt.

- Classroom conduct statements to set expectations.
- Designed to be low pressure - mostly participation-based.
- Prompts might include:
  - their major and why they selected it,
  - extracurricular interests,
  - academic strategies regarding time management or studying techniques,
  - "just for fun" prompts like "If you could have any magical powers, what would you choose and how would you use them?"

Success: Weekly Check-ins

Weekly check-ins get addressed anonymously with material provided to the entire class.

1. Write down one thing you learned that you have not thought about before.
2. What questions / confusions do you have about this week's content?
3. (Optional) Additional thoughts or comments about the material or the course.

Success: Mid-Term Check-ins

Items get addressed anonymously to the class or with the student directly, depending on the concern.

1. What do you like about this class? What are some things that are working for you?
2. What is something that you enjoy from one of your other courses that we are not doing in this class?
3. What would your ideal course look like right now (given that we are online and at home)? Assume the instructor of your ideal course has unlimited time and resources.

Mixed Success: Mid-Term Check-ins

4. How are you doing (both in this class and in general)? Are you holding up okay? Is there anything else you'd like to share with me? If you choose to write something, please let me know if it's okay for me to follow up with you about it.

I have since rewritten this question as "Is there anything else you'd like to share?"

What's Next?

- Ways for students to ask questions anonymously - weekly check-ins on LMS, Piazza, poll everywhere, etc.
- Discussion boards to connect with students and make sure they are checking the LMS.
- Continue giving mid-term check-ins.
- Remote office hours - flexibility, students not as burned out on Zoom.

Student Engagement with Course Material

Challenge: Low Student Engagement

- Student concerns outside of school.
- Difficult to pay attention to long Zoom lectures.
- Creating asynchronous content is time consuming.
- Low engagement with asynchronous content, including micro lectures.
- Challenging to make statistics classes exciting online.

Mixed Success: Semi-Flipped Model

- Students watch short lectures outside of class time.
- Live class time was dedicated to running practice problems and answering questions.
  - Students not always engaged; breakout rooms not successful.
  - Attendance issues.
- Live Zoom sessions were also recorded.
- Model provides a lot of flexibility for students.

Mixed Success: Asynchronous Micro Lectures

- Short (3-5 min) videos easier to attend to.
- Videos can be...
  - rewatched.
  - watched at different speeds.
  - paused.
  - watched with captions.

Nice to have, but incredibly time-consuming to make.

Mixed Success: Other Supplemental Materials

- Websites.
- R packages.
- Written summaries.
- Worked examples, etc.

While students mostly engaged with *required* asynchronous content, supplemental content was not well-utilized.

What's Next?

- Take advantage of time spent on asynchronous content.
  - Supplemental materials.
  - Flipped class model.
- Rein in some of the flexibility - may need to set new expectations in terms of missing class.
- Continue asking for explicit feedback.
- Online office hours and automatic appointment scheduling.

Student Workload and Deadlines

Challenge: School - Life Balance

How do we balance student struggles outside of the classroom with effective teaching and learning?

- Students took on a lot of additional work during the pandemic:
  - working to help their families financially,
  - caring for family members,
  - increased household responsibilities, etc.
- Students struggled to stay on top of deadlines.

Challenge: Academic Dishonesty

- Some of the student workload ended up on sites like Chegg.
  - Reasons for academic dishonesty may have been exacerbated during pandemic.
  - Academic dishonesty increases faculty workload.

Success: Rethinking Course Workload

- Remove unnecessary assessments.
  - Students don't feel like they're doing busywork.
  - Reduces grading for faculty.
  - More time for consistent, meaningful feedback.

Success: Flexibility in Assignments

- Quiz corrections
- Multiple attempts on assignments, especially with online grading platforms
- Dropping a lowest quiz
- Assigning project rough drafts

Success: Deadline Management

- Ask students when they prefer to turn things in and keep it consistent.
- More effective use of LMS for keeping track of events and deadlines.

Success: Flexibility in Deadlines

- Late work and deadline extensions
  - Automatic settings in LMS.
  - Work turned in through LMS makes it easier to keep late work organized.
  - Built in flexibility can mean less work for faculty.

Moving Forward

- Prioritize open source resources.
- How do we get students back on track with prerequisite knowledge?
- What level of flexibility will work moving forward?

Conclusion

Is online here to stay?

...maybe!

- Faculty are in a great position to evaluate which courses are good candidates for online.
- Benefit commuters, caregivers, disabled students.
- Remote work more common.

Collaborators

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