How to efficiently give and receive feedback when teaching online, using quizzes

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Feedback: the problems, the solutions

Used MS Teams to deliver problem classes to ~ 65 math students

Teaching online, little feedback:

- No visual clues from faces of students
- Students rarely dare to ask questions
- No interaction during break or after class

Effective substitutes

1. Online Forum: Piazza is great
2. Quizzes (a.k.a. polls)

On Forums and Quizzes: the good

The good:

1. They work well in large classes
2. Intuitive to setup and start using
3. Efficient ways to collect and spread information
4. Work well with poor internet, with any hardware

On Forums and Quizzes: the bad

The bad, and how to overcome it

1. Piazza: hard to convince students to use it
   - Start immediately
   - Give challenging hw, ideally for credit
   - Provide instructions, but keep it simple
2. Students can get tired of answering quizzes
   - Don't over do it
   - Explain why you use quizzes

Quizzes: use cases

Best choice of software for quizzes depends on your needs!

To receive feedback from students: I loved MS Forms

To create math quizzes, to use for hw or live, starting from a bank of exercises typed in Latex. My requirements:

1. To be able to use my usual Latex syntax
2. To create quizzes *quickly*
3. A future-proof solution, not locked into a software platform

How I created math quizzes

1. I typed question + possible answers, and solutions, in favourite Latex editor, and shared both PDFs with students.
2. To implement MCQs, I used the exam class (by P. S. Hirschhorn).
3. Use a text-expanding app (e.g. 1,2,3,4) to enter commands more quickly, probsoln package to display/hide solutions
4. For students to answer MCQs: in software platform of choice, use generic template (e.g. question 1, Answers A,B,C)

How I delivered math quizzes

To collect answers to quizzes, I used Mentimeter:

- Answers are anonymous, so formative assessments only
- If used synchronously, students overwhelmingly preferred the quiz competition feature
- To have students interact before they answer, one can separate them in breakout rooms with 3-5 students

Downsides of this approach:

- No randomisation of answers or their order possible
- Cannot display answer-dependent feedback

Other possibilities

Can use Peerwise to have the students generate MCQs as a hw

WebQuiz package allows to convert quizzes from Latex to HTML

Blackboard Learn:

- Especially clunky to use, and hard to learn, but very flexible
- Quiz can be also used for summative assessments
- Can be used to implement Confidence Based Marking, setting each MCQ as a jumbled sentence question
- One can upload, from a .tex file, exercises in bulk to generate quizzes, using LatexMCGenerator or BlackboardQuizMaker