

BEEC Share and Learn Report: November 2024

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**Topic:** ASEE Education Showcase Deep Dive: Pre/Post Lecture Self-Assessment

### **Resources:**

- Website Demo: [prepostclass.com/demo](http://prepostclass.com/demo)
- Website to Create Pre-Post Quizzes and Analysis for Your Own Class: [prepostclass.com](http://prepostclass.com)
  - Enter your email to get access
  - Upload a PDF of a power point or transcript and it will pre/post generate questions for you based on different Bloom's Taxonomy levels!
- Center for Advancing Multidisciplinary Scholarship for Excellence in Education: [camsee.ucsd.edu](http://camsee.ucsd.edu)
- Thoughts on In-Class Quizzes: [www.reddit.com/r/Professors/comments/1bozeu6/inclass\\_quiz\\_d\\_2024/](http://www.reddit.com/r/Professors/comments/1bozeu6/inclass_quiz_d_2024/)
- Email: [rkhojah@ucsd.edu](mailto:rkhojah@ucsd.edu)
- PrairieLearn: <https://www.prairielearn.com/>
- Dept. Education Grant: <https://www.ed.gov/grants-and-programs/grants-special-populations/economically-disadvantaged-students/education-innovation-and-research>
  - <https://www.ed.gov/grants-and-programs/apply-grant/available-grants>

### **Discussion and Lecture Notes:**

Lecture Notes:

- Issue: students spend 25% of their academic life in lectures
- Motivation: unable to obtain an accurate and measurable sense of the student's engagement and understanding during their lectures
  - Difficulty to gauge if the instructor and students are on the same page and the dynamics of understanding and engagement changes with each class
  - Asking students is not scalable with large classes and students may not be able to show their understanding under pressure
  - Need a way of measuring performance and perceived readiness at each lecture
  - BME is an interdisciplinary learning process across lots of different disciplines
- Solution: real time student feedback at 5 minute pre-lecture test and 5 minute post-lecture test (so before and immediately after "intervention", i.e. lecture)
- Test: conducted pilot study in large freshman BME course
  - For buy in – did low stakes + anonymous + participation points only to achieve high participation
  - To avoid survey fatigue: poll everywhere with minimal questions and an option for "I don't know but I will learn it in the lecture" or "I don't know, but will find out after class"
- Results: students did not shy from the "I don't know" option which showed buy in and readiness for knowledge. Also reviewed questions and why correct answers after the class to help improve study after class
  - Allowed instructor which concepts to re-review for those topics that were not well understood/answered
  - Compared pre and post assessment results with midterms and final. Pre and post self-assessment showed a higher correlation between low-performing students compared to homework grades
- Discussion:
- Advantages
  - Strong student buy-in and found it was accessible, engaging, and good use of class time
  - Students found that this highlighted core concepts, assessed understanding, and instructor was able to improve class dynamically

- Instructor Perspective: main concern is effective classroom management, time required (10 minutes), and sharing test results were easy to post and review
- Pre-tests gave real time feedback of the concepts required to emphasize, which helped instructor understanding of what the diverse background of students come from, and help address student questions and provide clarification on the spot
- Can provide early intervention for those who were challenged by the class
- Students evaluations showed students like it as it helped them know how they were doing with the subject, if they need to put more effort in or was in line with the topic
- Disadvantages:
  - Lots of extra hours to grade, statistic results
  - Needed a lot of hours required to de-identify data and perform statistical analysis
  - PrePostClass.com – website demo
- Data Analysis and Student Feedback
  - Center for Advancing Multidisciplinary Scholarship for Excellence in Education: [camsee.ucsd.edu](http://camsee.ucsd.edu)
  - [www.reddit.com/r/Professors/comments/1bozeu6/inclass\\_quiz\\_d\\_2024/](https://www.reddit.com/r/Professors/comments/1bozeu6/inclass_quiz_d_2024/)
- Conclusion:
  - Pre post was well received, enhanced student learning and provide early feedback to students and instructors.
  - Future: paper for Graduate level course and BioSci program level implementation!

#### Discussion:

- Will get a recording and way of creating a demo for other classes afterwards
- Uses OpenAI to create the questions, other ones don't generate the right prompts, and each answer needs to be on a different level (correct/relatable, not correct but related, not correct and not related).
- Pre-post levels shows the different levels – so not just 1 vs 0, but instead *how close* you got to the right answer pre and post based on the level of the answer chosen
- Website will be available starting winter quarter!
- PrairieLearn integration for it
- Potential grant: <https://www.ed.gov/grants-and-programs/grants-special-populations/economically-disadvantaged-students/education-innovation-and-research>