In the midst of the digital age, and while interest in online education is growing, the traditional classroom remains resistant to use new tools. In this project we analyzed student interest and involvement in online and technological resources that were provided for them.

**OBJECTIVES**

In the midst of the digital age, and while interest in online education is growing, the traditional classroom remains resistant to use new tools. In this project we analyzed student interest and involvement in online and technological resources that were provided for them.

**TOOLS**

The tools used were:

1. Pre-class quizzes
2. In-class visualization applets
3. Typed up course notes
4. YouTube videos
5. In-class game

**APPLETS**

I used two applets during this class. The first was one to help visualize Riemann sums.

![Figure 1: Riemann Sums Applet](image1)

The second helped visualize solids of revolution.

![Figure 2: Wolfram CDF Player](image2)

**YouTube Videos**

The videos were popular and 10 out of 29 people commented on their helpfulness in their student evaluations.

![Figure 3: Screenshot of YouTube Video](image3)

- Each video had, on average, 50 views; the class had 47 students.
- “The youtube videos are also very helpful, and it makes the student feel as though they are genuinely cared for, which is a great incentive to work hard in class.”

**Pre-Class Quiz**

Most days before class the students were given a short pre-class quiz to complete. Typically there were two questions – one to review last lesson, one to prepare them for the next one.

“**I liked how the quizzes were short, regular, and friendly. They really help me stay on top of the material.**”

![Figure 4: Quizzes assigned through TED](image4)

**Course Notes**

About two days after each class I typed up notes on my lecture. The notes were rarely exactly the lecture given, giving the students a little more material to check their understanding. The notes ended up around 130 pages.

![Figure 5: Start of Course Notes](image5)

“I also really appreciate his lecture notes, as it allows me to review the material covered in class with clear explanations even outside of class.”

**Jeopardy!**

To build from past knowledge we played Jeopardy! to learn antiderivatives.

![Figure 6: Jeopardy! Game Board](image6)

“**He also incorporate various techniques (extra worksheets, games) so we can practice the material and understand it better. I honestly think he spent every second of his day trying to figure out how to make the class better and the material easier to understand.**”

**Conclusions**

- Participation was high in the out-of-class resources. The students were visibly engaged and excited for the in-class activities.
- Each video had, on average, 50 views; the class had 47 students.
- “The youtube videos are also very helpful, and it makes the student feel as though they are genuinely cared for, which is a great incentive to work hard in class.”

YouTube videos and the course notes. Overall the feedback was very positive.

- Compared to the same course taught in the previous summer session (also taught by a graduate student), my students were more likely to “strongly agree” that they learned a great deal from the course (59% to 34%).

**Thanks**

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![Figure 7: Peter Newbury](image7)

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