Google Docs

Can we finally go paperless?

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Some background info

Appropriate technologies in class

Experimentation and surveys
Disclaimer

I’ve not used Avenue’s Dropbox feature, so I cannot do a fair compare and contrast
How I use Google Docs in my classes

Used in 4 courses: one 3rd year course and three 4th year courses

Department of Chemical Engineering

Most assignments, all projects as well as intermediate project proposals
More details about Google Docs Google Drive

Loosely speaking ...

It’s an online equivalent of Microsoft’s Office suite
The student's view
Not everything is easy electronically

Scanned inserts and cellphone camera pics are quite common in submissions.
Instructor and TA grading
Student opinions about using Google Drive

“Would you use Google Docs again?” (or similar question)

- 65 to 70% had positive experiences using it
- Based on the general sentiment of their reply
- Surveyed ~150 unique students over 4 courses
Student opinions about using Google Drive

Those with negative experiences almost always cited “formatting issues” as their reason

• Equations

• Tables and spreadsheet inserts

Those with negative experiences will influence others.
Pros of Google Drive
Pros of Google Drive

- Paperless. Sustainable.
- Students can write document anywhere
- Instructor and TA can grade from anywhere: not carrying papers around
- Students appreciate the collaborative chats & comments – for group assignments and projects
- Cross-platform: any browser, and computer type
Pros of Google Drive

- No need to email documents among group members
- Autosaves the documents as you type
- Unlimited revision history is available:
  - revert back to any point in time
  - can potentially help with academic integrity cases
- Free – no license required
Pros of Google Drive

• Student doesn’t need to come in person for hand-in or pickup.
• Students can retain the material: upload it to a portfolio, etc
• Export to Word, PDF, OpenOffice, HTML or text formats
• Reduces my office hours: Q and A about grading can be done electronically.
Cons of Google Drive

• Slow/no internet is obviously a major concern

• Keyboard shortcuts are different to Word

• Resistance to change (especially at 4th year level)

• Files can be revised after deadline
  ‣ by student
  ‣ by instructor/TA
Cons of Google Drive

- Different page views in different browsers
  - e.g. a 4 page limit becomes fuzzy
- Messy to deal with many assignments in large classes
  - use “stars” and “bold text” to help you though
  - sort by LAST MODIFIED or use hierarchies
Dealing with many submissions: hierarchy
Cons of Google Drive

- Paper grading obviously has more flexibility with **how** you do it
  - constrained to the Google comment boxes
  - though you can highlight the problematic region

- Does not have integration with Avenue (e.g. grade book, Turnitin)

- Biggest issue with the negative sentiment group was formatting
  - tables
  - equations
  - figure captions ... all these are typical in engineering docs

- Importing an existing Word document is not flawless
  - rather start from scratch in Google Drive
Non-native Google Docs are harder to comment on

February 4th, 2013

Chemical Engineering 4C03 - 1

Question 1

1. When looking at the results, one might mistake Catalyst B as better by a larger amount. This might be due to the testing being done in paired tests, with a present of a possible difference in the two. The difference present may be due to batch impurities observed previously. The Catalysts may be influencing the result.

2. The experiments must be run in randomized order.
Final comments

• Provide a video/tutorial to students on how to use Google Drive.

• Clear explanations for TAs on how to grade and markup the student’s work.

• Allow students to also submit a PDF. Do not force the use of a native Google Doc.

• I eventually relented, and allowed paper submissions. Used by about 20% of the class.
Panel discussion