
Teaching Should Be Easier

Assignment 2, Team 2:
Brainstorming and Experience Prototyping

Grading
takes time

Lesson planning
takes time

Meeting with
students takes time

Designing around
ChatGPT takes time

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In teaching,
everything takes time



Lingering Questions

→ **Busywork**

Which tasks eat up valuable time for little benefit?

→ **Necessary/Valuable Work**

Which tasks are long because they matter?

→ **Technology's Role**

Under what conditions can tech help more than it hurts?



Meet C.

She's a pioneer of integrating tech into the classroom. She teaches social sciences at the Harker School.

C frequently needs to grade 108 papers in just two weeks.

How does she make it work?

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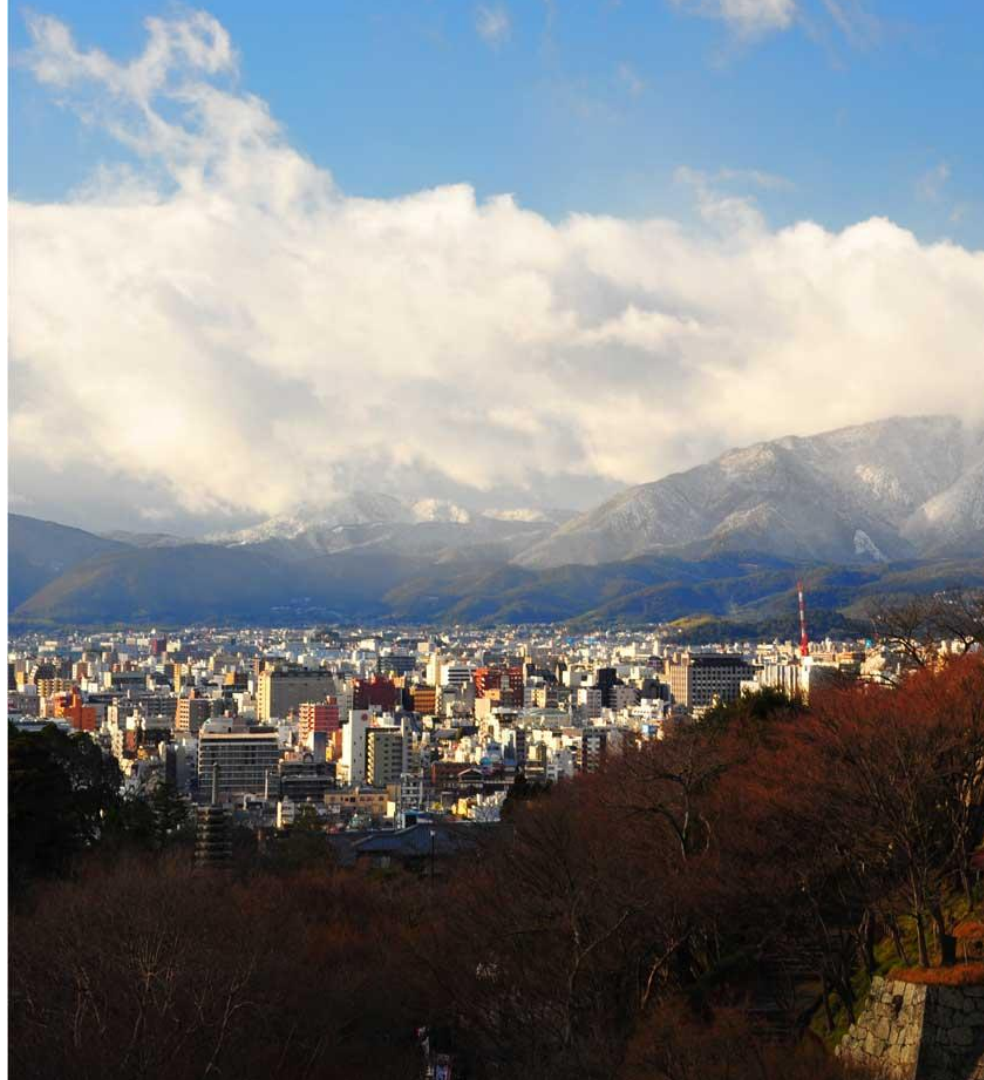
Teachers are forced to give
surface-level
feedback on homework

Meet J.

J is a Stanford alum who teaches English to Japanese middle schoolers.

J spends 1-2 weeks each year solely focused on curricular design.

How does she feel about that?



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Lesson planning is
time well spent.

Teachers make good use of
existing resources.

POV #1

We met C, a social sciences teacher who loves incorporating technology into the classroom and who works at a well-funded private school in the bay area.

We were surprised to hear she has to grade 108 papers in two weeks

We wonder if this means she is worried that the feedback she is providing is surface level and unable to nurture her students' growth.

It would be game changing if students could get in-depth feedback on their work without it interfering with her other responsibilities as a teacher like designing lesson plans and meeting one-on-one with students.

POV #2

We met T, a high school teacher at a parent partnership homeschooling program who needs to assign lots of asynchronous work to her students since she only sees them one day per week.

We were surprised to hear it is impossible to prove when students are using ChatGPT.

We wonder if this means that teachers are forced to change the kinds of assignments they give in order to prevent students from using AI.

It would be game-changing for teachers to not have to worry about students using AI to cheat.

POV #3

We met M, a science teacher at a well-funded private school in the bay area.

We were surprised to hear students waited in his room for an hour after school to meet with him.

We wonder if this means students don't know when their teacher will be available to meet with them and are afraid they'll miss their opportunity.

It would be game-changing for students to not worry about missing their opportunity while making use of the time they spend waiting for their turn.

HMWs

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HMW make the wait for office hours just as much an opportunity for learning as the time spent with the teacher themselves?

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HMW allow students to document their writing process and progress throughout an assignment?

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HMW direct the teachers' attention to the assignments that need the most help?



HMW make the wait for office hours just as much an opportunity for learning as the time spent with the teacher themselves?

Group students with the same question together, and **notify** them when they reach the front of the queue

Underlying assumption:

Many students with the **same question** show up at **different times** and spend a long time unproductively waiting for an answer.

Our test: **Interviews**

66%

had been waiting for longer than 30 minutes.

100%

identified a single question lots of people needed help on.

100%

had worked with others there to solve their problem.



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**The assumption was
partially valid.**

Wait times were **long** and many had the **same question**, but most were able to get help from peers **on their own**.

HMW allow students to document their writing process and progress throughout an assignment?

Build a system that supports an iterative writing process where all changes are tracked. Students are required to outline, revise, and reflect on their writing.

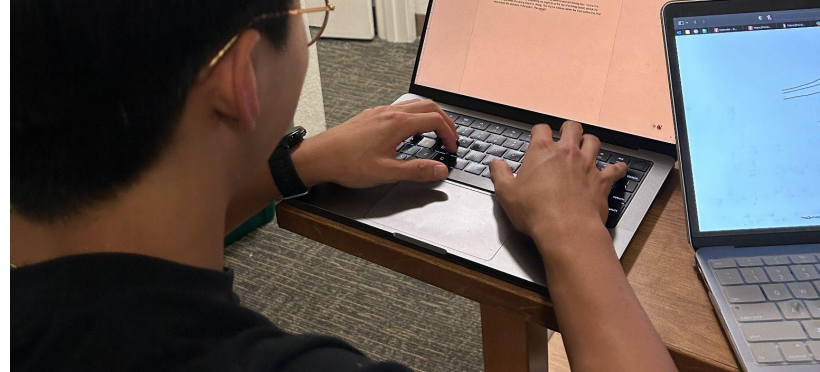
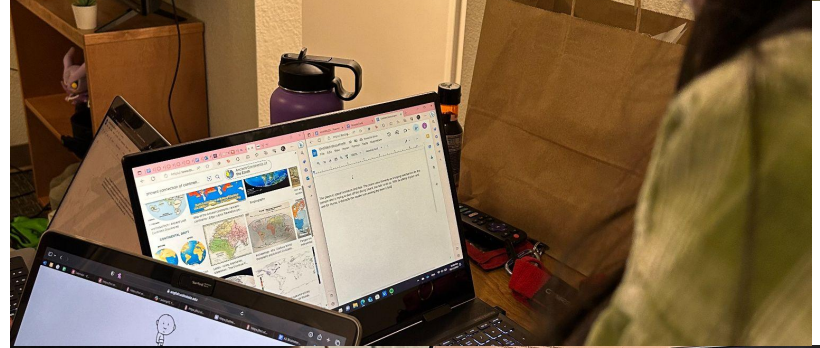
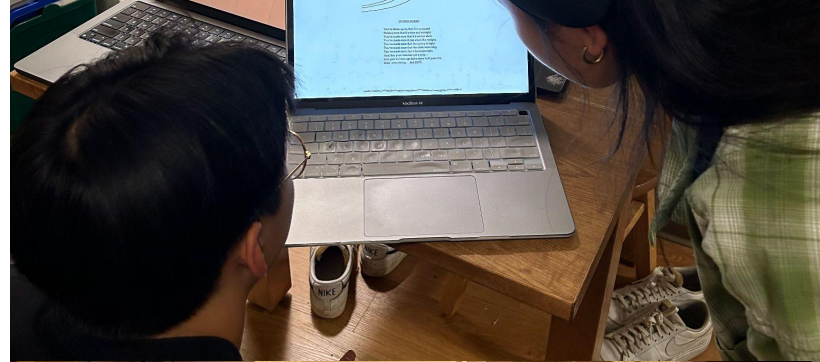
Underlying assumption:

It is more **helpful** than **burdensome** to force students to use a **formal writing process**.

Our test: **Workshop**

L: “[the second process] feels like more formatted and easier to think versus your ideas in the first one are kinda like everywhere.”

S: “...I don't understand my own thoughts [during free writes]...”



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The assumption was valid.

While being forced to use a formal process created **upfront stress**, participants **preferred it in hindsight**.

HMW direct the teachers' attention to the assignments that need the most help?

Make peer grading easier and allow students to flag assignments that need help.

Identify which students' opinions to trust most over time.

Underlying assumption:

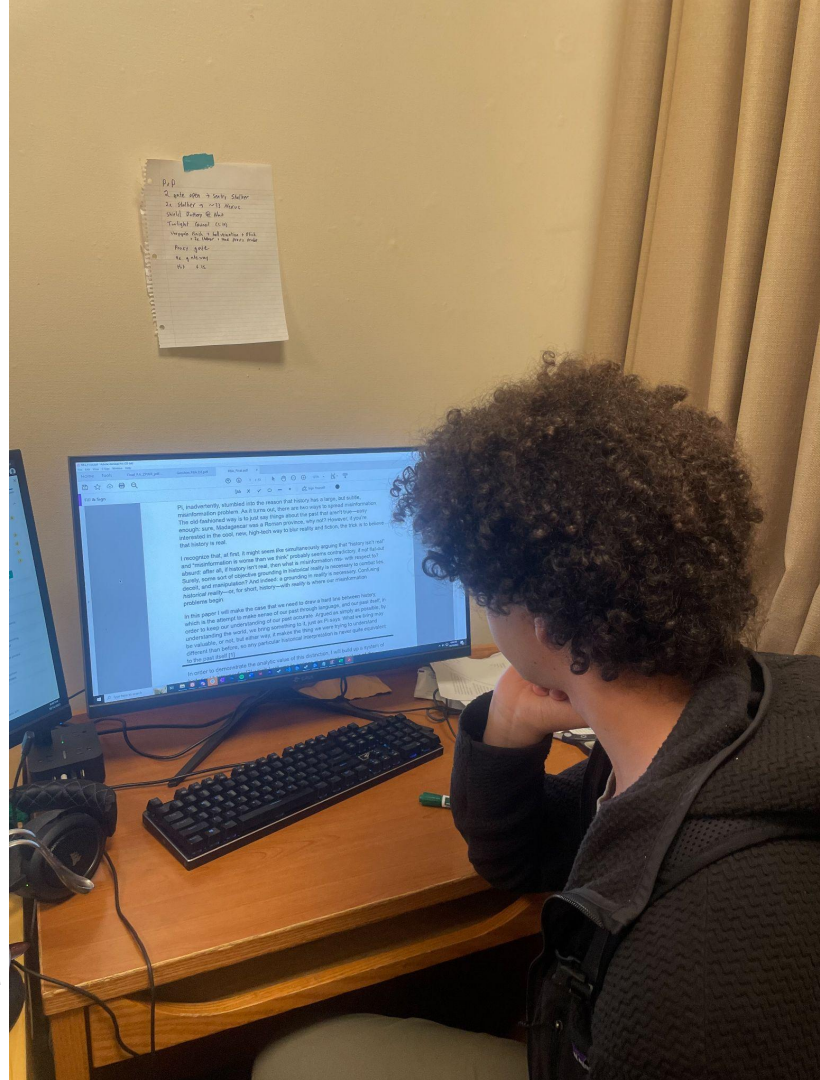
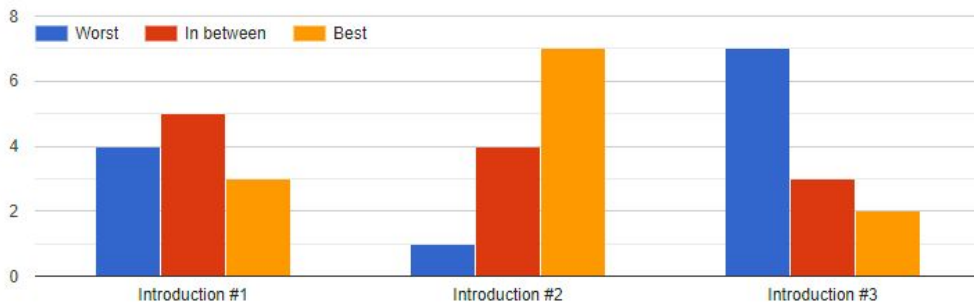
Peers can **reliably identify** which assignments need **the most help** from a teacher.

Our test: Experiment

12 participants ranked the quality of the introduction to 3 PWR RBAs.

Rank the essay introductions from worst to best.

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The assumption was **valid.**

While **different writing styles** made comparison tricky, there was a **clear consensus** on the best and worst introductions.



Going Forward

- **Participant Bias**
Is everything easier with Stanford students?
- **Who's left behind?**
Many students lack access to reliable internet.
- **Choosing a Solution**
They all look potentially viable—we'd love to hear your thoughts!

Appendix A: Solutions

HMW make the wait for office hours just as much an opportunity for learning as the time spent with the teacher themselves?

Solutions:

1. Create groups during the wait time of OH/tutoring to spend time working on similar problems with classmates + 🗨️
2. Notify students who are waiting for a specific problem that the teacher is also working on with another student to listen in + 🗨️
3. Notify students when their turn is next + 🕒
4. Group students with different questions together for peer teaching + 🗨️
5. Group students with the same question to ask the teacher together + 🗨️
6. Prompt students with the same problem to discuss with one another
7. Pinpoint the exact misunderstanding by giving them work while they wait
8. Connect students with peer advisors and volunteer tutors who give information to teachers on what caused the student confusion.
9. Let teachers quantify what students need help with
10. Integrate office hours into normal lesson time
11. Record office hours so students with the same question can watch the explanation + 🗨️
12. Divide up office hours time on the basis of topic area so students can come even if they don't have a specific question just general confusion.
13. Have students complete a short write-up about their office hours content so other students can use it after + 🗨️
14. Let students chat/make group chats with other students at office hours +
15. "Make sure you know it's your turn so you get to focus on other things (and other learning) before/after" + 🗨️
16. Know who else is struggling with same problem, get them together (digital, or physical) 🗨️
17. Know who has already solved
18. Group students with the same question to ask the teacher together and notify them when they reach the front of the queue + 🗨️

HMW allow students to document their writing process and progress throughout an assignment?

Solutions:

1. System for iterative writing process where all changes are tracked— prompts along the way, short questions for comprehension/sanity checks, etc. + 🗨️
2. System where all work is documented and visible but only the final work is submitted 🗨️
3. Submit Individual parts of the writing process for evaluation to teacher, and then at the end stitch each part together to create the final paper + 🗨️
4. Allow teachers to watch students write live
5. Force students to submit process
6. Prompt students to revise their work
7. Track all editing and detect copying
8. Help teachers share writing prompts ChatGPT can't replicate
9. Voice-Recorded Logs: Introduce a feature that allows students to record voice memos where they discuss their ideas, challenges, and breakthroughs while working on the assignment. These recordings could be submitted alongside their final work. + 🗨️
10. Organize writing competitions/challenges throughout an assignment
11. Have an AI ask students questions about their essay after they have submitted it

HMW direct the teachers' attention to the assignments that need the most help?

Solutions:

1. Outsource grading to experts in the specific area to free teacher's time + 🗨️
2. Incentivize grading
3. Peer grading + 🗨️
4. System for students to flag their work if need feedback + 🗨️
5. Sort Papers/Assignments to be graded based on student's overall grade (First look is more important than last look) 🗨️
6. Randomly assign and rotate through students + 🗨️
7. Enable students and teacher to review assignments
8. Detect the general quality of work using AI
9. Enable external experts or older peers to grade
10. Focus students on skill and portfolio building rather than perfect scores
11. Tool that makes peer grading more easy and ranks quality of peer grades so teachers over time can rely on certain graders more! + 🗨️
12. Is it possible for AI to do the surface-level feedback?

Appendix B: HMWs



Used a physical sticky note wall and heat-map voting.

Some POVs were much easier to generate lots of solutions for than others.

Wound up generating four POVs and then picking 3 after creating our HMWs.

Appendix C: Peer Grading Test



https://docs.google.com/forms/d/1Q_8Z3Vx9GX_DykVuHjTUSQVZI6AmvMxxDauOUYv9msdg/edit

Participant information: 12 stanford students, sourced from the debate team and Toyon hall.

What worked: Many participants felt very confident in their answers. The only bottleneck on time was reading speed.

What didn't: Other participants were unclear on what "best" was across different writing styles.

New learnings: Consensus emerged, but it will require multiple reviews of each essay for clear data.

Appendix D: Office Hours Test

Asked People at OH

Question 1: Have you been waiting for help at OH for longer than 30 Minutes

Question 2: Have you noticed there is a specific problem that a lot of people are asking for help on?

Question 3: Have you worked with anyone else at the table to solve a problem?

Participant 1:

Yes

Yes

Yes

Observations

They were upset and annoyed that they were waiting for a long time at office hours

They stopped working and were on their phone waiting for their turn

Key point: There is a lot of valuable time being wasted at OH that could be used for more productive work

They collaborated with another individual at OH

Key point: Students on their own ask for help from others

Participant 2:

No

Yes

Yes

Observations

They had just arrived to OH and had a question ready for the TA, but were upset because they were at the back of the queue for help

They spent most of their time at OH working on the problem that they were struggling with.

They would spend time trying to listen to the TA help other students on the same problem they were also stuck on.

Participant 3:

Yes

Yes

Yes

Observations

They were almost next in line for individual help at OH.

They noticed that another person had the same problem as they did so they listened and got help, not they think they are closer to solving the problem and will finish with the TA's help

Key point: Indirect Group collaboration helped the student achieve more during their wait in the queue.

They did not collaborate with another student because they were listening to advice from the TA when they were helping someone else.

Appendix E: Structured Writing Test

Assumption: It is more helpful than burdensome to force writers to use a formal writing process.

Result: Assumption was VALID

Test: Gather two students. Make them first write in freeform using one prompt. Then, ask them to write using a formal structure with a new prompt. Interview them about their experience.

- Poem 1: Describe the message of the poem and your interpretation.
 - [Divingboards shel.jpg](#)
- Poem 2: Describe the message of the poem and your interpretation.
 - [322e0e97d1baa6789d95b00af2660474.jpg](#)

Participant information:

- S, a Stanford student majoring in EE, doesn't consider himself a strong writer, indifferent about writing, doesn't prefer writing assignments
- L, a pre-med Stanford, considers himself a decently strong writer, enjoys writing, doesn't have a preference for assignment type
- Recruited as friends of group members
- Relevance of participants: Different writing strengths, different attitudes toward writing, different majors that require different levels/amounts of writing

What worked:

- Letting the participants reference poem before and throughout the writing processes
- Picking a simpler poem for poem 2 (equal to reading/comprehension level of poem 1)
- Picking poem images with images – evoked positive emotions from participants
- Switching the prompt
- Participants were excited to read Shel Silverstein poems, said it reminded them of their childhood, said they recognized the author/image styles

What didn't work:

- Time limit put pressure on participants – would it have been better to let them write for as long as they needed?
- Participants didn't know how to respond to initial prompt "Describe the literary devices and how they make the poem effective."
 - Didn't remember what literary devices are
- For writing process 2, participants shared that it was difficult to not be able to go back and revise the thesis while they wrote the rest of the paragraph
 - L shared that they personally write the thesis *after* the details
 - S shared that they personally write the thesis first

New learnings:

- Writing process 2 evoked a lot of upfront stress – does the end result outweigh the initial negative reaction to structured writing?
- S said they were taught to use the second writing process throughout school (attended school outside Atlanta, GA)
- Participants were excited to write after hearing about prompt and poem choices – do the writing topics serve as a greater motivation and result in better work than a structured writing process alone?

Going forward:Q&A:

- Which writing process was easier? Which did you prefer?
 - S: second, same as lindsay
 - L: second, feels like more formatted and easier to think versus your ideas in the first one are kinda like everywhere
- Which writing process do you use?
 - S: Second, my free write is ass, I don't understand my own thoughts, I write my thesis first, I model everything around my thesis
 - L: Second, I do it in the opposite way, I write, see what I write about, then I go back to write the thesis
- Do you think your final work would be better with final process?
 - S: yes, that's what they teach us in school
 - L: breaking down in parts is easier versus writing the whole thing