

experiment planning

pov + hmw #1

pov

We met Yos, a freshman at MIT, attending classes virtually. We were amazed to realize how much more he would rather do work on his own than schedule a time with friends. It would be game-changing to make studying less of a solitary activity.

hmw

How might we encourage students to prefer studying with friends over studying in solitude?

solution

partner matching. Like Marriage Pact, but changes every week so you connect with new students for homework.

assumption to test

students will want to work with other students they don't know (from the same class) when paired up for "compatibility" reasons.

experiment overview

step 1:

create a [form](#) that gets basic students studying preferences

- When they start assignments -> early vs late
- Working hours -> day vs night
- Timezone
- How do you learn best?
 - When listening to music, starting at the computer, drawing diagrams, reading and highlighting
- Miscellaneous: free-time activities, music, hobbies, favorite subjects

[stanford studying pact] study buddy matching!



Paulina Anzaldo
Mon 10/5/2020 7:18 AM



To: wics_announce@lists.stanford.edu
Cc: Paulina Anzaldo

Hey, WiCS fam! 🙌

Do you ever feel like you don't know enough people in a class? looking to meet someone new in class?

stanford's new *studying pact* is here! fill out [this](#) form, and we will find your most optimal match for studying in your classes!



again, the form is right [here](#)! looking forward to helping you meet new buddies at zoom university! We will be announcing matches by the end of week 4 🎉

cheers,
paulina anzaldo
Stanford University | Class of 2021
B.S. Candidate | Computer Science

step 2:

email pairs. example:

dear student,

your optimal stanford studying pact match is:

- student 2
- student2@stanford.edu

a few things to highlight:

your match is in the 90.01% percentile of all other matches.
(This is considered a good match.)

let the studying begin!

cheers,
some name here

🔥your study pact match🔥

 Paulina Anzaldo
Tue 10/6/2020 7:19 AM
To: Linda Kaihua Tong

Hey there, Linda!

We're excited to announce that your optimal Stanford studying pact match is:

Cynthia Chen
cchen24@stanford.edu

We wanted to highlight that your match is in the 92.08% percentile of all other matches. (This is considered a great match.) Just to mention, a couple of your similarities include time zone, classes, and your studying habits!

Let the studying begin and kick it off from here! 🎉

Cheers,
Stanford Studying Pact

Reply | Forward

step 3

Reach out to those who matched and ask them if they reached out to their pair or not

Hey there, Nicole!

✨~Just a reminder to reach out to your study buddy~✨

If you have already, we would love to hear how that process has been!

<https://forms.gle/qi5BKhPVVvk52DFS17>

Elena from
Stanford Studying Pact 📖

detailed experiment design

1. participants (target participants, how many, recruiting strategy, compensation)
 - Stanford students who identify themselves as part of Stanford's Women in CS community (WiCS)
 - We will be sending an email with the studying matching form to the wics_announce mailing list, with details on how to participate
 - No compensation will be provided

2. preparing for study & prototype creation (including any required software, supplies, additional people, etc.)
 - The only required supply is [this](#) google form

3. running study (length, plan for mgmt during study if needed)
 - 2 / 3 days
 - 1-2 team members to check the google form responses

4. analysis plan
 - Number of students who fill out the form
 - This metric will be tracked by # of responses
 - Number of pairs who reached out after match
 - This will be tracked by reaching out to participants 1 day after they fill out the form. We want to know whether they actually followed up with their match.
 - (If applicable)
 - What is the pairs' (studying plan)
 - Do they go straight to studying together? What studying strategies do they pursue together as a pair?

open issues

1. We are limiting the scope of participants to a very particular population, so it might influence students' willingness to fill out a form to find study buddies
2. Students might not have enough time to fill out the form → reach out by the timeline we were looking for
3. Students might not reach out to their buddy, even if we provide them with statistics on how compatible they are

results

- Within a span of 24 hours, we got 19 responses in the survey we sent out. We were shocked to see how many students had filled out the survey, given that there was very little information in the body of the email, and the *stanford studying pact* did not have any reputation prior to the email
- It was fairly easy to pair up students given that they all belonged to the "CS community" so every participant had at least one thing in common academically speaking

- We followed up with participants a day after the matches were announced, and we are waiting to see whether each participant followed up with their pair

pov + hmw #2

pov

We met Alexis, a college student who falls behind in asynchronous classes. We were surprised to realize that she does not always pay attention while watching lectures and distracts herself easily with other tabs/windows. It would be game changing to balance efficiency with presence in the virtual classroom.

hmw

How might we bring engagement and accountability to asynchronous classes?

solution

Communal Watching (with video chat) of Recorded Lectures

assumption to test

students will feel more engaged with content when watching/interacting with lectures together.

experiment overview

elena will record

of times paused

of minutes taken to watch lecture in total

Time takes to finish quiz

Quiz Score

***# of times wanted to ask a question but wasn't able to

jake will record

of times paused

of minutes taken to watch lecture in total

Time takes to finish quiz

Quiz Score

detailed experiment design

1. participants (target participants, how many, recruiting strategy, compensation)

Jake and his friend in E40M

Elena

The participants are all students in E40M, a flipped classroom style class where students must watch lectures in their own time and submit short Canvas quizzes based on those lectures. Elena will watch the lectures on her own and Jake will watch with a friend from the class, both parties will pause when they feel that it is necessary, watching recorded lectures as they normally would.

2. preparing for study & prototype creation (including any required software, supplies, additional people, etc.)

Jake will reach out to friend via facetime to watch E40M lectures together, and pause the video if any questions come up. This will be done via Zoom sharing screen. They will be allowed to discuss.

3. running study (length, plan for mgmt during study if needed)

Watch lecture time, around 1 hr + time for quizzes

4. analysis plan

We will consider the time it takes to watch the lectures as well as how many times we paused and how quickly we were able to finish the quiz. When the pair paused, they were able to discuss any questions they had with each other.

open issues

4. This was obviously an extremely small sample size and there are a number of variables that could come into play. Elena spent a lot of the time paused to take down notes and copy things from the slides, rather than just for a question. Jake + friend did not take notes. Also, Elena guessed on the last question of the last quiz, making it seem as though she understood the material better than the pair since it only took two tries, however, this may not be the case. Furthermore, this is extremely short-term, and there may be long-term effects of better understanding of the material when talking it out with a friend.
5. We still need to figure out the need for watching lectures together. Many students choose to watch lectures async because they prefer it due to it being more flexible. Students can ask questions in their own time, pause, slow things down, speed up the video. Even when there is a live lecture, many students decide to watch the recorded lecture instead, so watching an async lecture with friends may defeat the purpose of that.
6. "More in the end talking about it than just watching"
7. "Egomaniacs-ish at Stanford, didn't want to speak up at first, but was easier to pause after a bit"

Results

Quiz 1, Quiz 2

	Lecture Time	# times paused	Quiz Time	Quiz Tries

Jake + Friend	12m 30s	5	45s	1
Jake + Friend	17m 13s	6	13m 45s	6
Elena	20m	11	20s	1
Elena	30m	18	2m	2

For video 1 it took us 12 minutes 30 seconds and then we did the quiz in 45 seconds.

For video 1 we paused and reviewed 5 times.

For video 2 it took us 17 minutes 13 seconds and then we did the quiz in 13 minutes 45 seconds.

For video 2 we paused and reviewed 6 times.

Also to note, it took us 1 try on the first video to complete the quiz whereas for the second quiz we had to try around 6 times

pov + hmw #3

pov

We met with a technically capable yet frustrated high school chemistry teacher named Mr. Williams. We were amazed to hear that he spent around 16 hours to record an individual hour-long lab. He has to spend an enormous amount of time on recording the lab with multiple cameras, doing multiple takes, editing the videos, and then eventually uploading. It would be game-changing if we could provide support for lab creation and lesson-planning.

hmw

How might we consolidate resources in order to streamline lab and lesson creation?

solution

Our solution will be to construct a community for teachers. This will give teachers a place to voice their opinions, ideas, share lesson plans, request advice, etc. We also hope that this platform will act as a database for common lab experiments or lesson plans for teachers, simplifying their lesson making process, giving them time back weekly, and giving them the tools they need to provide students with the best education possible.

“Elpha or Strava” community for teachers. Database of common lab experiments.

www.elpha.com

assumption to test

Teachers are willing to reach out and interact with fellow teachers to give advice, resources, and assistance when asked.

experiment overview

In order to test if teachers are willing to go out of their way to provide resources to fellow teachers, team mission impossible will be posting on several Reddit threads, specifically aimed at teachers, asking for advice on teaching materials for various science labs. We will then monitor responses, upvotes, direct messages, and other metrics to see the general interest among a free-formed community of teachers.

detailed experiment design

1. participants (target participants, how many, recruiting strategy, compensation)

- The target participants for this study will be teachers on specific threads of Reddit (right now we are looking at r/Teachers, r/ScienceTeachers, and r/TeachingResources with 188k, 24.3k, and 22.8k members respectively)

- While the number of members within each subreddit is rather large, the number of members online at any one time is rather low in proportion, and similarly, the number of comments and upvotes is miniscule in proportion to their member counts. This means we are hoping to have several respondents and direct messages about the specific question we are asking.
- There will be no need for recruiting because this experiment is more about metric-based monitoring on responses and interactions with the post. We would rather have this be a natural process and see how invested teachers are in the communities they are already involved in.
- No compensation needed, as this is an opt-in interaction on Reddit.

2. preparing for study & prototype creation (including any required software, supplies, additional people, etc.)

- Subreddit appropriate questions to ask of the teachers
- Reddit account

3. running study (length, plan for mgmt during study if needed)

- 2-3 days
- 1-2 team members to regularly check the 3 subreddit posts and track engagement alongside direct messages that the account receives.

4. analysis plan

- Number of interactions
 - This analysis will be straightforward in simply taking a tally of the number of upvotes, downvotes, comments, and related direct messages.
- Depth of engagement
 - This will take more categorical reasoning on our part, in that we will have to group the types of responses from comments and direct messages to see how productive or fruitful they were in answering the questions posed.
- Quality of results/resources
 - In the end, one of our initial assumptions was that a teacher community would provide better lesson planning resources and capabilities. So we must make a judgement to see if these questions we posed on Reddit provided valuable resources and information to make a teacher's lesson planning easier.

open issues

1. Tracking Reddit interactions may not be as appropriate of a metric because the platform isn't specifically designed for teachers. The assumption is that with a platform dedicated

to teachers, one would receive more personalized interaction and/or commentary versus Reddit.

2. By using Reddit as a basis for metrics, we are assuming that these teachers are more technically skilled because they are reddit users, which is generally more of a technical and niche platform.

results

1. The target participants for this study were teachers on specific threads of Reddit (we looked at r/Teachers, r/ScienceTeachers, and r/TeachingResources with 188k, 24.3k, and 22.8k members respectively). We started a thread with the title, "Chemistry Labs in the Online Learning Environment" and the comment "How is it that everybody has been transitioning to online learning in lab based classes? Does anybody have resources for chemistry labs, more specifically tied to chemical bonds and solutions?"
2. Between the three threads we had 18 upvotes and 1 downvote. We had 14 comments and 1 direct message. We received 8 different references to possible solutions to the problem, and we had one teacher offer to share lesson plans specifically from their previous online experiences. It was great to see that teachers were willing to reach out and offer advice and we were shocked that a teacher offered to share all of their lesson plans. In total, we would have liked to see more engagement in the number of interactions but relative to other posts on the thread, this got a reasonable amount of engagement considering the number of upvotes.
3. Our assumption was correct that teachers are willing to reach out and interact with fellow teachers to give advice, resources, and assistance when asked. A possible new assumption that has risen is that only a small subset of teachers within a community may be willing to interact proactively

Chemistry Labs in the Online Learning Environment

Curriculum

How is it that everybody has been transitioning to online learning in lab based classes? Does anybody have resources for chemistry labs, more specifically tied to **chemical bonds** and **solutions**?

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