

**Team name: Banana Cat Judo**

Members: Dana M., Tuan T., Jacob Y.

**1-Problem domain:**

Our problem domain pertains to **barriers in the exchange of information between a learner and a teacher**. Teachers and learners often come into this exchange of information with different expectations, hampering the learning process. We looked into interviewing people who were learning something, had something to teach, or both.

**2-Initial POVs:**

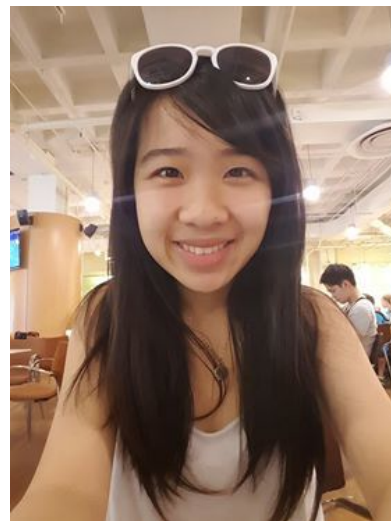
<b>We met</b>	Mary-Esther, a former professor in philosophy	Bonnie, a toxicologist at Chevron	Kate, an administrative assistant
<b>We were amazed to find that</b>	she didn't identify as a learner – to her, being a teacher and a learner was somewhat mutually exclusive	she believes structure in a class is undesirable due to the stress it produces	she believes pressure makes you do better despite being undesirable
<b>It would be game-changing to</b>	instill the belief that you can be a learner and a teacher	create a way to implement stress-free structure in learning/teaching	add desirable pressure to learning.

**3-Additional Needfinding:**

We interviewed 2 more people: Mashbayar Tu and Grace Ching. Mashbayar is a Stanford senior studying and tutoring chemistry. She believes empathy was an extremely important trait for teachers to have. Grace is a community college student preparing for graduate school. She described how she had no learning motivation when she found the topic uninteresting or inapplicable. After interviewing, we revised Mary-Esther's POV and created new POVs for Mashbayar and Grace.



Mashbayar



Grace

#### 4-Revised POVs:

<b>We met</b>	Mary-Esther, a former professor in philosophy	Mashbayar, a student and chemistry tutor	Grace, a community college student preparing for grad school.
<b>We were amazed to find that</b>	she didn't identify as a learner – to her, being a teacher and a learner was somewhat mutually exclusive	she emphasized empathy over raw knowledge in being a good teacher.	her approach to learning was severely hindered when she thought that the subject wasn't applicable/interesting
<b>It would be game-changing to</b>	close the gap between learner and teacher	help teachers develop that sense of empathy	create that sense of both applicability and interest to any given topic

#### HMW Examples:

*How might we: (bolded are best HMWs)*

POV1:

- **reverse the roles of students & teachers?**
- help teachers and students become friends?

- destroy the concept of teacher/student entirely?

POV2:

- **incorporate empathy in training teachers?**
- **open channels of communication between students and teachers?**
- convince empathetic students to become teachers?

POV3:

- get students to discover how the class might apply to their personal lives?
- only teach topics that are applicable/interesting?

## **6-Solutions:**

We used the HMWs above to generate multiple solutions. After voting, we chose:

Solution#1: Accessible platform of online communication between learners and teachers. Teachers could host office hours outside regular day time via video or audio chat. This solution came from our third bolded HMW.

Solution#2: An application that enables remote students to engage with video lectures by being able to add questions and annotations to specific timestamps with the option of being anonymous. Teachers would look at the questions afterwards and answer them accordingly. This solution also came from our third bolded HMW.

Solution#3: An application that enables everyone to be learners and a teachers by teaching each other different skills. People on the app with particular skills and interests can search for others who can teach them what they want while teaching something in return. This solution came from our first bolded HMW.

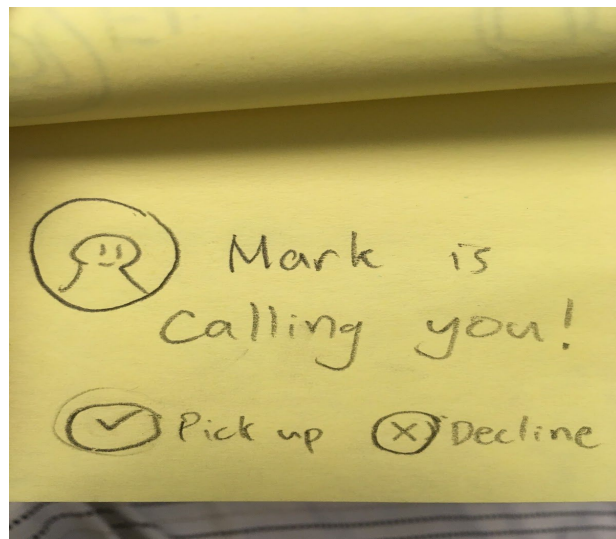
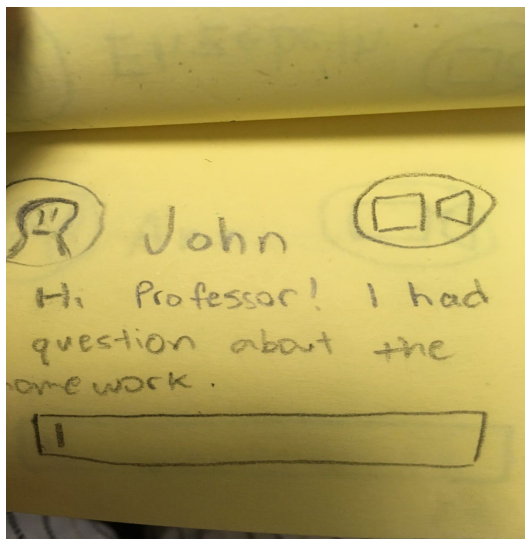
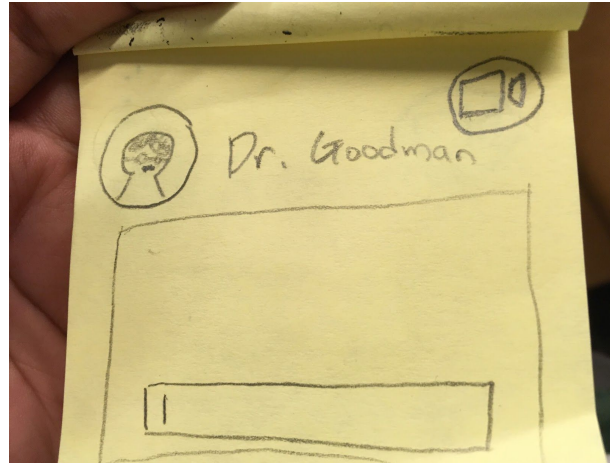
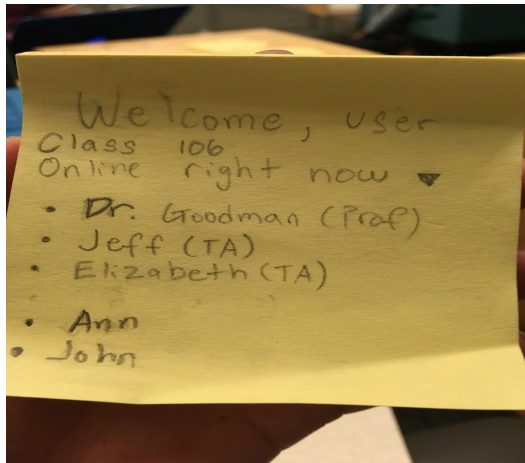
## **7-Prototypes:**

### **Prototype#1:**

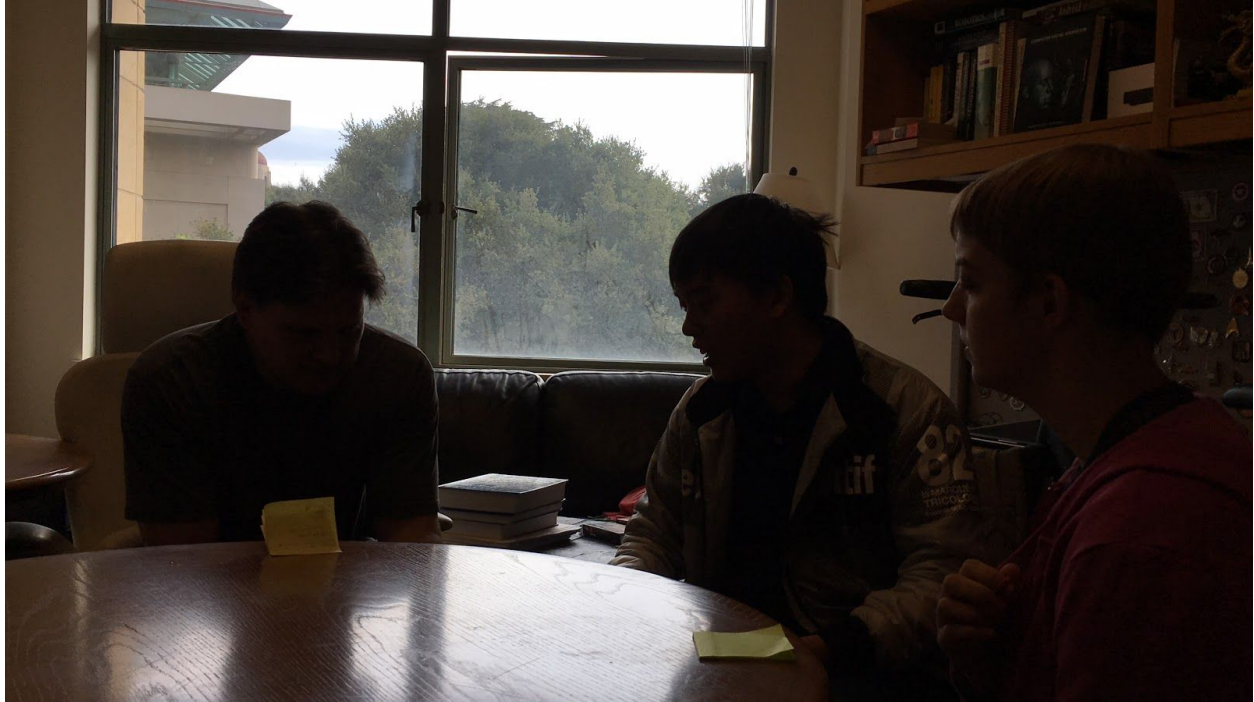
Our first prototype was an instant-messaging service where students and teachers could message each other outside of class. The app's main screen would show the people who are online and available, with the professor and TA's at the top. Users could talk to others using instant-messaging or video call.

We assumed that teachers would be willing and able to help students outside of office hours. We also assumed that learners and teachers would appreciate being able to contact each other remotely in real time.

We created the prototype through a simulation with post-its.. Each screen was denoted by a particular post-it, with the front one being the main screen. Flipping the pages acted as clicking links. Modifications were made to the main page to designate a special account for a teacher.



This prototype was first tested on a Stanford CS professor (Ronald Fedkiw). He, interviewed in his office, was given the scenario that he was in his office and received a chat request. Upon seeing the notification, he clicked on John's link which directed him to another page where he could speak to John. He answered questions until he suddenly receives a call from Mark. He declined because he did not want to interrupt John's conversation.



We tested the prototype on a student at a cafe by a Stanford library. We gave him the scenario of being at home after class and he was using our app for homework help. He decided to approach a TA online to ask her questions. He also preferred to keep the interaction over chat rather than video.



Our users understood the basic interface and felt familiar with the idea. The student seemed open to using the app when it was in front of him and he did not voice any major concerns. However, he did not seem that interested in the app. He saw it as more of a feature for an existing service like Piazza, implying the idea didn't seem intuitively powerful to him.

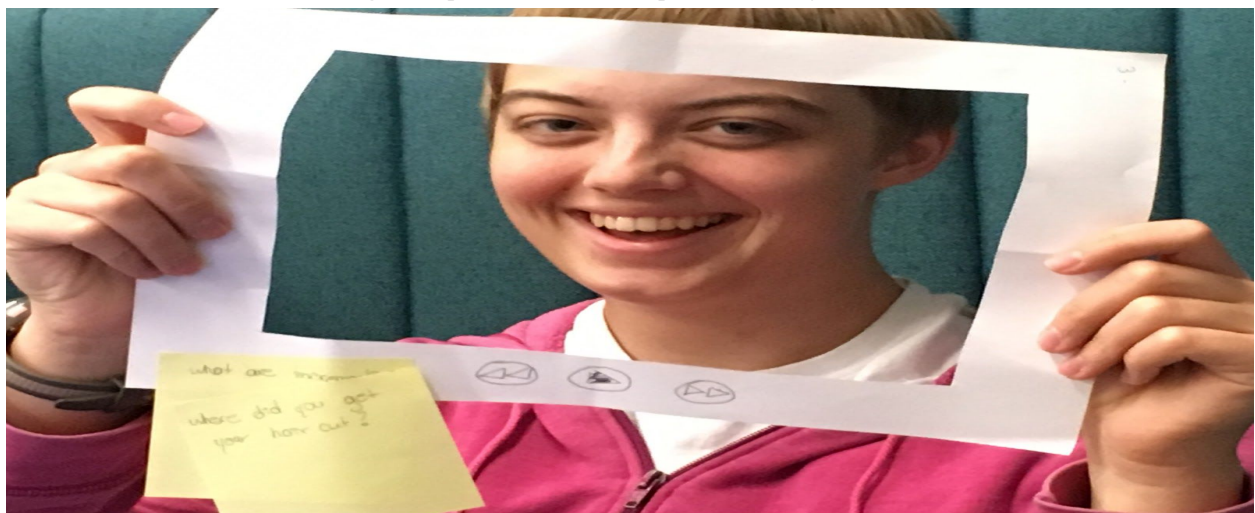
The professor liked the idea of the app and voiced that it would be very useful and a great way to hold office hours. He enjoyed the idea of potentially using the app after dinner when he suspected most students would be working on homework. He thought there should have been an option to do calls without video as well as the option to put calls on hold.

We learned that some students may be nervous initiating contact with professors because they do not want to "look stupid", and teachers may potentially enjoy the service more than students will. Generally our assumptions held, but students may see the app's functionality better suited as an add-on to existing services. The professor appreciated the real-time aspect of interaction more than the student. We gained the assumption that this app would be more useful to instructors than learners.

### **Prototype#2:**

Our second prototype was an application that allowed students streaming live lectures to participate in class by posting annotations or questions on specific timestamps. Then, during a break in the middle of the class, the professor would look at these questions and answer them during class. Similarly, after lecture, a student could still post a question and the professor may answer these which are organized by the timestamps.

We built this prototype using two sheets of paper with a hole in the middle, so that users could look through the papers and see an actor on the other side. On the borders of the paper we drew some buttons such as rewind, pause/play, and add annotations. Interviewees posted sticky notes on our frame indicating the specific timestamp where they needed clarification.



We met our first interviewee at Stern dining hall. We asked her to imagine herself watching a lecture from her dorm. Then, Dana started teaching her a lesson from the other side of the frame. Since, the topic (for loops) was not very familiar to our user, she had several questions which she posted on the paper frame. One of her feedback disproved one of our original assumptions.



A few of the assumptions we made included teachers having time to look through annotations and replying. Similarly, we expected people to not use this as an incentive to skip classes. In addition, we assumed that people would not abuse the anonymity feature to post nonsensical questions.

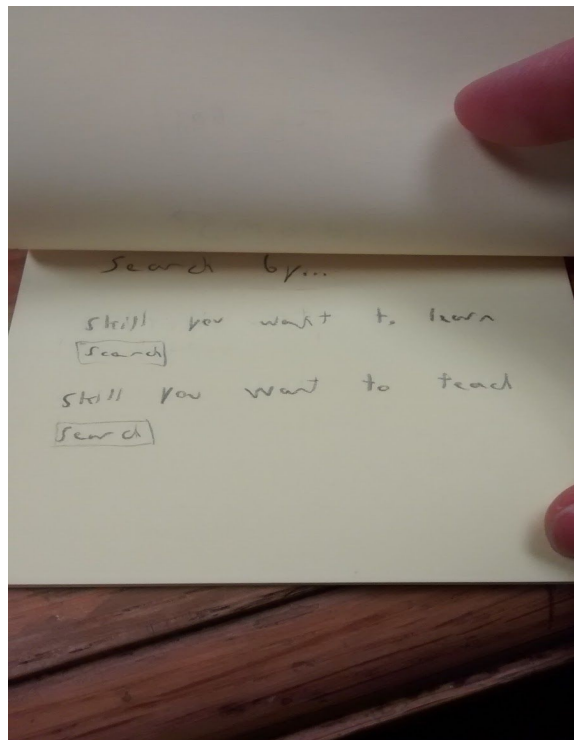
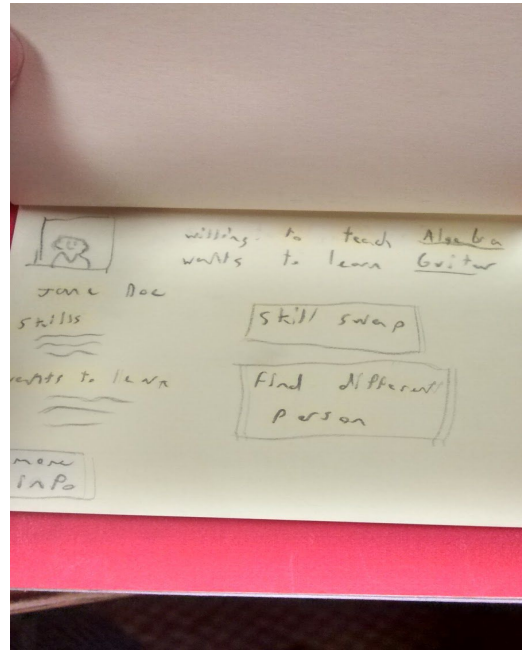
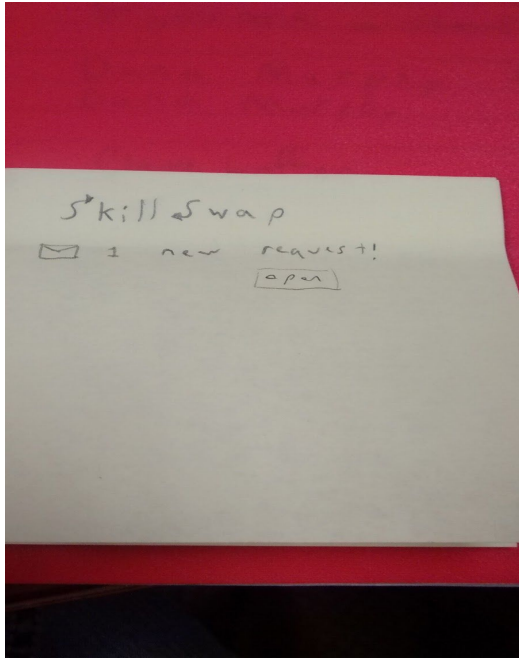
We found the app to be very clear and straightforward to the users. Similarly, interviewees agreed that questions needed to be somehow vetted for effective student/teacher interaction. However, we surprisingly discovered it did not encourage some students to skip because “you don’t get the social interactions and other learning cues you get from being physically present in class” (Maribel) . Thus, this debunked our original assumption.

### **Prototype#3:**

Our third prototype was an app that matched people based on skills they had and skills they wanted to learn.

A few of the assumptions we made were that people would be willing to take on the role of both a learner and a teacher, would be open to teach and learn from strangers, would have skills that they felt comfortable teaching, and that meeting in-person or meeting over video chat would be acceptable mediums.

Our "app" was created from a series of sticky notes. Each sticky note represented a different page on the app, with pictures, brief information, and buttons drawn on the page.



Our testing user was a person sitting on the bench outside of Green Library. She vocalized what course of action she wanted to take as she “tapped” on features on the sticky note. For the scenario, we told the participant that she had a bit of free time after work/class, and had recently downloaded our app. When she logs on, she sees a request from someone. She could look at the person’s profile and either accept their skill swap request or look for someone else to swap skills with. The simulation ended with them sending an IM to the other person.



The user thought navigating the app was intuitive. She enjoyed the idea and said she would use it as a way to meet people. However, she did not think it was realistic to find someone with the exact skills she wanted who was looking for the exact skills she had. Therefore she suggested a larger chain of learners and teachers. She also suggested that she felt safe to meet in person if there is a vetting process for members.

Our assumptions were all valid for this user. However, we did not notice that we also made the assumption that people could find others with the exact skills they were looking for. We can address this through a networking of users.

### Conclusion:

We believe the third prototype was the most effective at getting the user engaged. We plan on pursuing this idea in future assignments.

## **Appendix:**

### **Some Sample Solutions:**

- Have them learn a new skill / topic
- Set aside time for feedback from learners
- Build a platform where teachers can be available outside their office hours
- Have students and teachers live in the same place
- Have whiteboard to write questions and comments
- Have teachers host quarterly one-on-one reviews with their students
- Dismantling lecture format
- Have students share what they liked and didn't like about today's class.
- Have teachers provide online workshops during the weekend.
- Have role-playing sessions for teachers and students
- Have teachers ask specific questions about the class content and be tutored on that particular question.
- Encourage struggling students to become teachers.
- Have counselors give feedback to teachers teaching style.
- Have teachers make an effort for learning their students names.