

Helm

design collective

CS 147 - Education Studio

Assignment 2:

POVs | HMWs | Experience Prototyping

The Team:



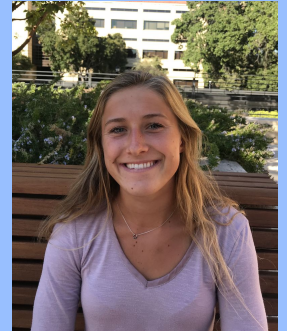
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Problem Domain:

Our team is passionate about **bridging divides** between currently disparate aspects of education. So many times, each facet of our education is treated as though it is not a part of a greater holistic learning experience. We believe education would be improved if teachers helped each other, students and teachers had closer connections, and subjects were more interdisciplinary.

Initial POV:

We met **Keegan**, a substitute teacher for Sequoia Union High School District. We were amazed to realize that he thinks technology still isn't made for the classroom and that there is a contrast between intention and effect. It would be game-changing to build specialized technology based on classroom conditions.

Additional Needfinding:

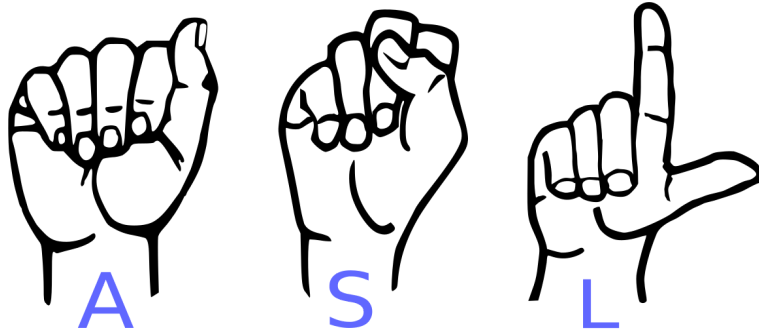
After our first round of interviews, we decided to interview three more people to gain more insight into their experiences and stories regarding the role of technology in establishing a holistic educational experience. We sought out university professors, highschool teachers, and students. Here are our interviewees:



Mrs. Otsuka

We talked to Mrs. Otsuka, an AP Lit and Psych teacher at the local public school, M-A. She felt that technology was mostly a disruption in the classroom. Her goal was to teach students by

limiting technology and thus reinforcing a more diverse and encouraging environment for learning. However, she felt judged by other teachers that criticised her for her lack of technology use in the classroom.



Cathy Haas

We then talked to Cathy Haas, a deaf American Sign Language Professor at Stanford. Cathy told us about how she felt children, specifically children born deaf, should have a greater say regarding their educational path (i.e. getting a cochlear implant and attending a hearing school or attending to a deaf school). We also learned that while Cathy believes technology has great potential to benefit education, and specifically has made huge improvements for the deaf community, this progress is still hindered by consistent technical difficulties. This is why she tends to focus more on interacting with her students through games or in office hours where she can help give students a more personalized learning experience.



Brenda

We also met Brenda, a business student at the University of San Francisco (USF), who worked at the Soul Cycle in Palo Alto. Brenda explained in every single class (yes, every single class) she's taken at USF, the professor has had at least one technical difficulty and how this can hinder the learning experience. Furthermore, she mentioned many of these professors did not approve of students using electronic devices in their classroom. Brenda disagreed with the

notion of not being able to use her laptop or iPad in class because she claimed it was her preferred way of taking notes and believes it allows her to benefit the most from a lecture.

Revised POVs and HMWs:

POV #1

We met **Joel**, a former marine intelligence officer and current Stanford student. We were amazed to realize that he associates positively with the language despite learning it in extremely tiring and rigorous conditions. It would be game-changing to redesign the language learning process to make it more positive and interactive.

HMW (How Might We...):

- How might we integrate the learning of language with other subjects (make it more interdisciplinary)?
- How might we motivate people to appreciate the culture and community associated with the language?
- How might we cater language learning to specific vocations (ie. military)?

POV #2

We met **Mrs. Otsuka**, an AP Lit and Psych teacher at a local public school (M-A). We were amazed to realize she feels judged by other teachers for using less technology in her lessons (as though she is somehow less advanced). It would be game changing to validate her style of teaching and reinforce creative lesson planning.

HMW (How Might We...):

- How might we allow her to connect with other creative lesson planners?
- How might we get teachers more data about what works and what doesn't in the classroom?
- How might we create communication between teachers and students about planning successful lessons?

POV #3

We met **Cathy**, an American Sign Language professor at Stanford. We were amazed to realize that she thinks children should be given more freedom in their ability to choose how they learn, specifically in the case of a child deciding whether he or she wants to attend a deaf or hearing school. It would be game-changing to provide a guideline that can empower children and young adults to choose how they want to learn.

HMW (How Might We...):

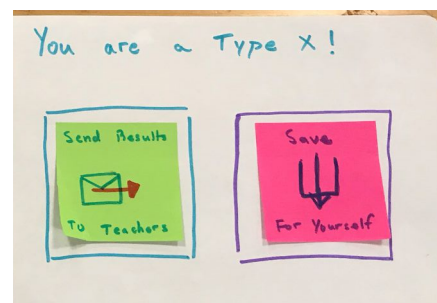
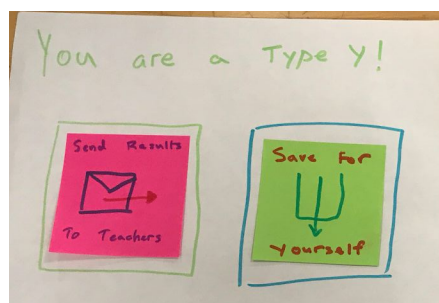
- How might we help children determine which learning style is best for them?

- How might we track student progress over the course of their academic journey (including moves or school transitions)?
- How can we assist children with learning differences or special accommodations who would like to attend regular schools?

Prototypes:

Bike Stand Challenge

We wanted to test how people would respond to finding out what type of learner they are and what they would want to do with that information. Going into this experience prototype, we assumed that students would have wanted to know this type of information (or found some value in it for their future) as well as there being some objective method to collect the data and classify the student as a specified type of learner. We also assumed that teachers would want to use this information if provided with and that they would be able to utilize this data to implement changes in the classroom. For designing our prototype, we built a paper interface that would interact with a user and allow them to see their results, as well as determine what they want to do with their results.



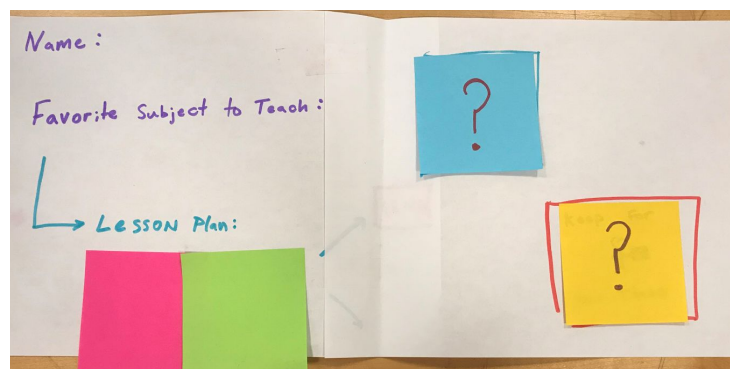
For testing the prototype, we decided to go to the quad at Stanford and ask some random strangers, who were non-stanford students, to participate in our study. We wanted to get someone who was a student, or recently a student, that could give us some insight into how we might better understand what our product actually does as well as their reaction towards it (i.e. do they like, do they see themselves using something like it, etc.). We found a recently graduated university student from Germany (who wished to remain anonymous), visiting Stanford. She agreed to participate in our prototypes experience testing. We tasked her with figuring out how she would go about standing up a bike without a kickstand - we then used her answer to classify her (arbitrarily) as a “type Y” or “type X” learner.



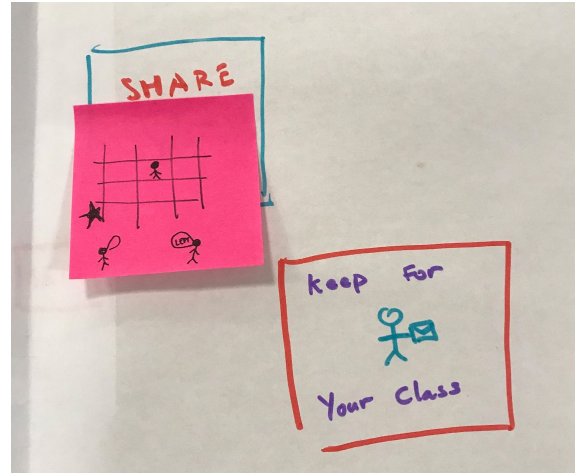
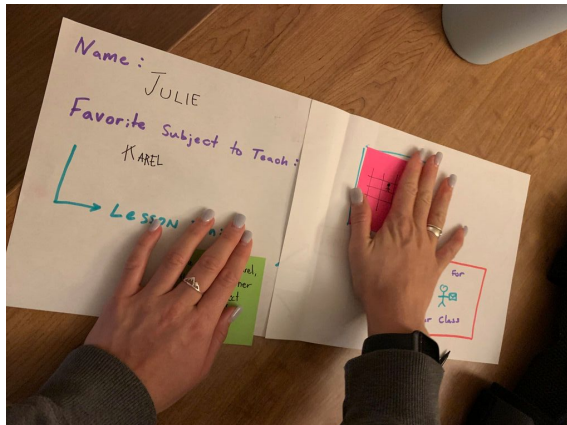
We asked her about her thought process and recorded her actions. She then learned based on her decisions and recorded response that she was a type Y learner. From this, she was presented the option of either sending her results to her teachers, to potentially help them give her more personalized resources, or to save the result for herself which she could then use to help study more effectively. In looking over our notes and observations from the experience prototype testing, we noted that our test participant stated, unprompted, that this type of information could definitely help her teachers. This was a success for us, as it proved our assumption correct, that users would understand the potential benefits of providing their teachers with this data. We were not able to confirm or disprove any of our other assumptions, however, in talking to our study participant she agreed that they seemed very possible and reasonable. In total, this testing gave us useful feedback that supported our initial ideas.

Karel for All

This prototype was designed to allow teachers to save and share lesson plans in an easy and efficient way, such that other teachers could view as well as provide feedback. In our prototype, we made the assumptions that teachers had the time and ability to upload and access these lessons in an efficient way. We also assumed that teachers would be interested in sharing their lesson plans with other teachers and educators. In order to test our prototype, we created a paper interface which gave instructors the option of sharing their lesson plan or archiving it for themselves.



We then proceeded to test the prototype on a CS TA, Julie, who is a student at Stanford. She shared with us that her favorite subject to teach is Karel and that her favorite way to teach it was to have all her students stand up and “live action” a karel problem. Her face lit up and she laughed recalling students awkwardly bumping into chairs at the instruction of their peers. When offered to share her plan, she was hesitant and asked who it would be shared with. Upon reflection, she decided to share, notably she mentioned that this was common amongst the section leading community.



From the results of the study, we saw that while Julie was somewhat indifferent to sharing her plan, she thought the overall idea was useful and agreed that it was a tool she could have used often - especially during stressful times of the year. This was supportive of our assumption that teachers would be willing to share their lesson plans with other teachers; however, it did make us consider the motivation may be different than expected. Instead of pure excitement, some motivation for lesson sharing may also be the expectation of reciprocity. Another key insight from Julie was her concern that it may be cumbersome to constantly upload lesson plans. We took away that teachers will most likely be supportive of this idea but it would have to be easy and robust. Overall, this testing supported our solution but contradicted the motivations behind some of our assumptions.

Language at the Museum

Our last prototyping was testing how people would respond to learning more about a language by connecting it to other interdisciplinary subjects. Our assumptions for this prototype largely consisted around the idea that language can be easier and more effectively taught when it is demonstrated through other topics. In order to make our prototype, we again used paper and sticky notes that allowed the user to interact with a mock interface. We gathered data from the testing of our user experience prototype at the Cantor museum and we were specifically testing the prototype for French language learners. To do so, we stood next to a French piece of art and held up a piece of paper asking if someone was learning French and interested in learning more about the language and the piece of art. We had a security guard step up and test out prototype. She had some knowledge of French and wished to understand a bit more. From the results of her experience with our prototype, she really enjoyed learning more about the French language through a word that helped explain the art and culture of the language. This confirmed our assumption that people are more motivated to learn a language if we can connect it to other subjects in the language, like art in this example. Our user, the security guard, really seemed interested in learning more about the art and the language while experiencing the prototype. This was very useful information to use, however, we were not able to get any information that this supported helping learning the language more effectively compared to a traditional lesson

plan. While it showed promise as the user enjoyed here experience, it does not mean that they will learn more. Overall, it was a success as we gained very valuable insight into the prototype.

