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Assignment 2: POVs and Experience Prototypes

Within our studio theme of "Creation," our team was very passionate about education. As such, we started our design process by brainstorming "moments of creation" within the learning process, finding that these moments fall into three broad categories: lesson creation, creation as a form of studying, and creation as a form of highlighting learning.

Our first set of interviews were more general and based on the teaching and learning processes. We wanted to see both what was working and what could use improvement in the educational field. Based on those discussions, we designed an initial set of POVs:

1. **Student Perspective: Creating to Study**
   We met George...
   We were amazed to realize that students need more visual forms of learning.
   It would be game-changing to help guide George toward a more productive form of 'practice'.

   This POV came out of the desire for 'visual learning and review' that we saw from George (Stanford student) and Jo Boaler (Professor of Math Education). George talked about how he uses visuals to learn chemistry. Jo's passion project (youcubed.org) focuses on helping teachers 'open' problems, and make them more visual and intuitive for students. This POV raised the question: if everyone 'knows' that they learn better using visuals, why don't they use them more?

2. **Teacher Perspective: Creating from Shared Material**
   We met Petra...
   We were amazed to realize that creation of new lesson content fundamentally comes down to tweaking existing material.
   It would be game-changing to help teachers combine and re-use quality components and connect around creating new educational content.

   Insights from Petra and Jo about how teachers actually plan lessons helped us create this POV. As students, we had envisioned teachers sitting down and creating new content to teach -- in reality, teachers re-use and modify many lesson plans they've written before or borrowed. However, as Jo brought up in her interview the lack of filter makes it difficult to gauge the quality of a lesson or activity. This gave us another opportunity to explore: how do teachers measure 'quality' in content they use?

Our initial POVs indicated that teachers and students felt frustrated with the limitations surrounding accessing or creating quality learning material. Our first week gave us a lot of description about the limitations people *felt*, so we focused our second week of interviews on

observations: watching how teachers' and students' current interactions with technology facilitate these feelings.
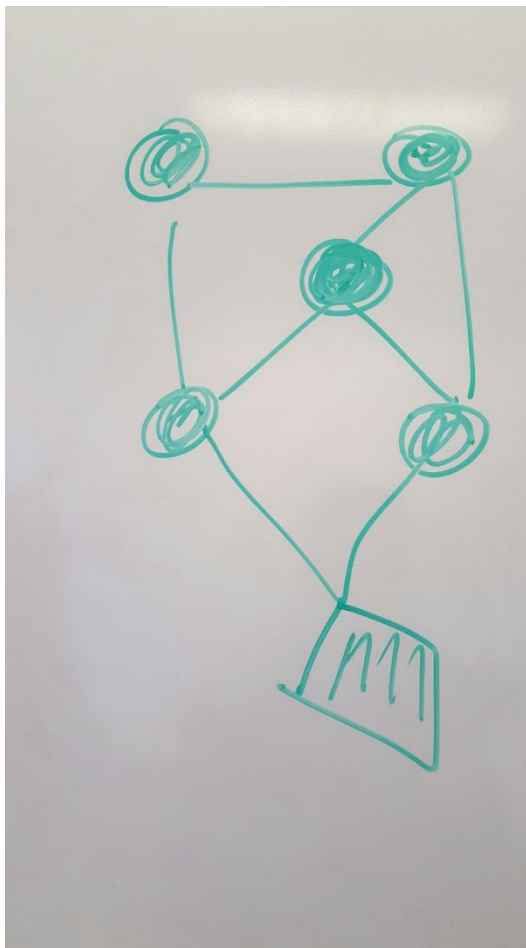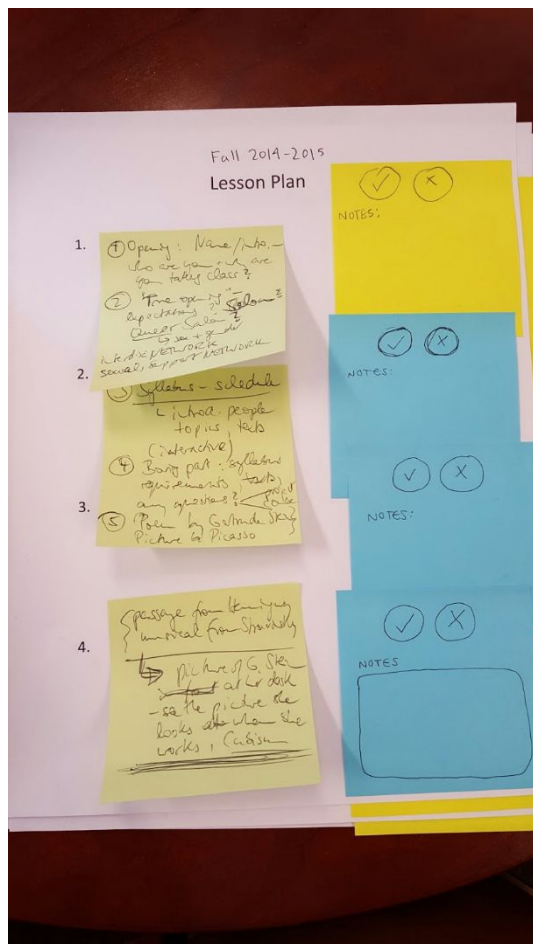
We visited Bellarmine College Preparatory this week and interviewed two teachers, Mr. Downs and Ms. Giraudo, about their experiences using technology in the classroom. All students at this high school are provided with an iPad, so it was an interesting case study. The teachers found the iPads useful for simple activities, such as answering surveys or working on Google Docs, but found fault with the lack of flexibility: current apps can make visual collages, but only using pictures from inside the app, while others are limited to just text.

This interview gave us a fresh perspective on what mobile devices can do for a classroom. Ms. Giraudo showed us an example - every year she does a "Wiki-Project," where students work together to make fake Wikipedia pages based on what they've been reading. She found that this project was very effective in helping her students digest the content they just covered.
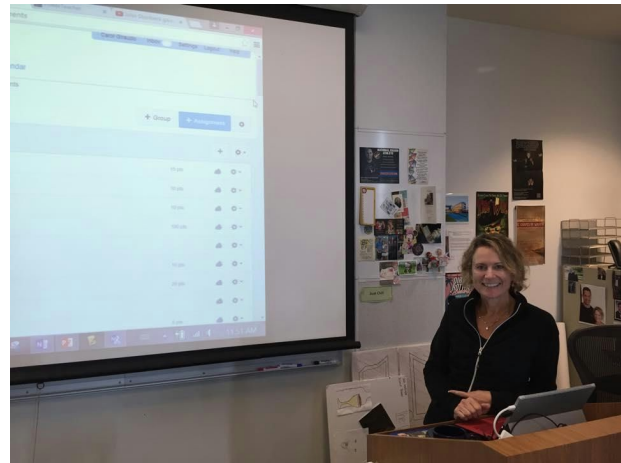
We also revisited Professor Petra Dierkes-Thrun, whom we had previously interviewed in our first week. We watched her plan the opening lesson for her new course next quarter: Queer Arts Salon. Notably, she 'chunked' content into specific sections she wanted to discuss, and then numbered them. Typically she writes this all out in a word document, and then prints for reference during her lesson. She wishes that this format was more 'flexible' -- she wants to be able to jump from topic to topic more easily, and to make connections by searching by a word or idea.

Our interview with Petra enlightened us to the depth to which many teachers plan out their lesson plans as well as the role technology currently plays in the creation of said plans. In transitioning from an overflowing lesson plan to a 'clunky' Word document, there was a clear loss of information which could only be attributed to the inadequate technology available to teachers.

Revised POVs

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We met George, Tim, and Luke. We were amazed to realize that teachers utilize methods of teaching that are ineffective and unenjoyable for many students. It would be game changing to help guide them towards more productive assignments, both in school and out.	We met Ms. Giraudo. We were amazed to realize how important allowing students to collaborate on assignments such as Google Docs and Pic Collage were to her classroom style. It would be game changing to give teachers more resources to let their students work together creatively.	We met Petra. We were amazed to realize that creation of new content fundamentally comes down to tweaking existing material, specifically by chunking content in static, inflexible forms, like Word documents. It would be game-changing to help teachers combine and re-use quality components in more flexible forms.

Sample of HMW (Top 3 are bolded)		
How might we help George, Tim, and Luke... - use their own knowledge and conceptual understandings to teach others? - give feedback to their teachers on what concepts they understand or have trouble with? **- find new, easy, and exciting ways of interacting with their notes again to solidify their understanding of concepts?**	How might we help Ms. Giraudo… **-** quickly and easily be able to create (and iterate on) new, interesting high-quality educational materials? - facilitate group work in more creative and visual manners? **- encourage free creation and creativity through her assignments?**	How might we help Petra... **-** recognize what her students are interested in, and guide/improve the curriculum toward engaging them? - help students create these connections and roadmaps on their own time? **- organize her overflowing amount of content in ways that will allow her to make more connections?**

Prototype 1: Git for Teachers

During our follow-up interview with Petra, she showed us how she pulls together content as she's planning, and uses multiple different drafts of documents. We made this prototype to test the idea of 'version control' -- since teachers create content by modifying and experimenting with many different versions, would it be useful to keep track of different versions and use them in the re-creation process? Our prototype was a series of three lesson plans with an assortment of 'activities' that could be plugged in. Next to each activity, there was an opportunity for the teacher to note overall 'positive' or 'negative' feedback, and make a comment.
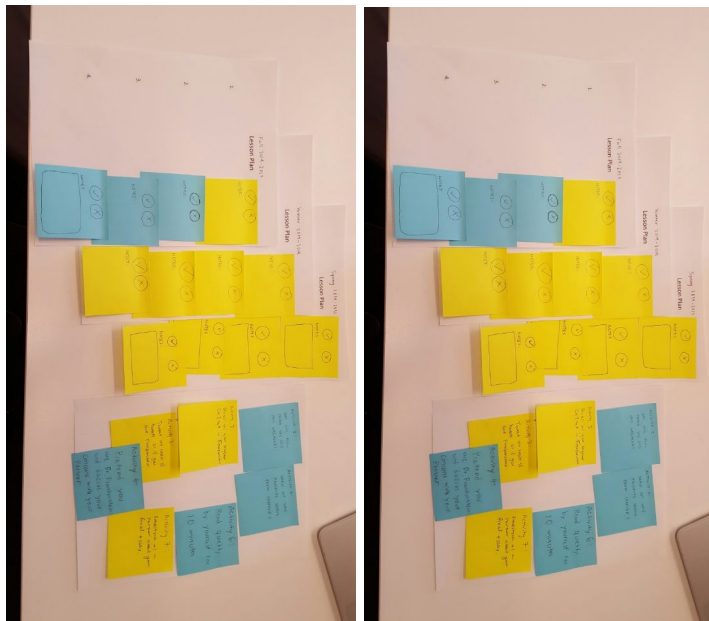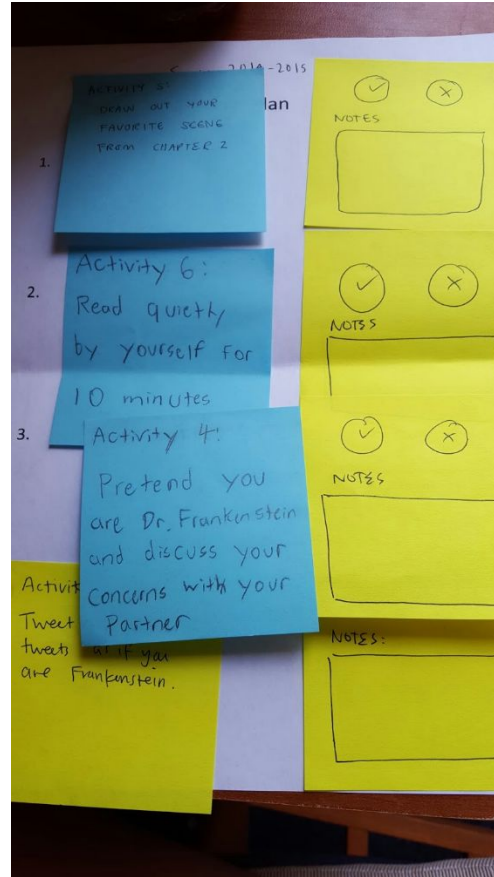
We set the scene with Petra as the teacher, and two of our group members as students. Petra walked us through some activities, and as we responded, we watched to see how she annotated or created feedback. In our debrief, we were surprised: Petra never annotates her notes as she teaches, because she doesn't have time. She doesn't feel the need to note highlights, because she has emotionally charged memories about what went well or badly. She is interested in collecting feedback about 'meh' activities, and about storing her previous documents more efficiently, but the 'creation' moment of feedback and annotation didn't fit into her workflow.

Prototype 2: The Atom Model

After noticing how important interacting creatively and spatially with material were for George as well as noticing the inflexibility of Bellarmine's current platforms, we proposed a new way for students to review and share their work through a mobile app. In groups, students could create a map of interconnected ideas, similar to how atoms are surrounded by electrons and connected to one another. We hypothesized that this would give students a collaborative and visual way to review ideas.

We returned to Bellarmine and sat down with Tim and Luke, two sophomores who are in the same English class. We provided them with some pens and sticky notes and told them to make a map of their ideas on a book they read recently, *The Crucible*, on a table. At first, they were unsure and didn't write much, but as time went on, they seemed more comfortable. Instead of just putting down characters, they began to add emotions, like "scared," as well as events, such as "witch hunt." Before they added anything, they discussed where it would fit best and often moved notes around.

Tim told us that that the activity gave him a much better understanding of the bigger picture, while Luke enjoyed communicating with his partner and reasoning about note placement. This confirmed our hypotheses that students enjoy working together on their projects and derive benefit from working in a spatial way. Tim also mentioned that he could definitely see himself returning to these maps for review. Some suggestions were for more customization, such as color coding or special connection lines, and larger groups (3-4 people), which indicated that students would like different options.

Prototype 3: Short Educational Videos

While discussing how schools fail to maximally leverage mobile devices and noting how important it was for both Ms. Giraudo and Petra that their students were creatively engaged with material, we reflected on possible uses of a smartphone's camera. We proposed a platform that would allow students to demonstrate their learning through the creation of short videos backed by the assumption that students would find this to be an engaging way of connecting with educational material.

Our experience prototype for this solution revolved around the process of having students learn material and then plan out a video. We printed out some copies of an interesting article on the origins and popularity of macarons. We then instructed our testers, Nathalia, Cathy, and Monica, to skim through the article and draft a storyboard for a video they would like to make about the article, which they would then have a chance to explain.

Reactions to the experience prototype reaffirmed our assumption that it was a fun way to connect with learning material. Testers also felt that it forced them to think deeply about the main ideas of the article. Some testers complained that putting ideas into video format could be challenging at times and that creating a video could prove to be a time intensive form of interaction. However, it was interesting to note that video ideas were very varied, suggesting that people enjoyed the creative aspect of the prototype and were willing to explore various approaches to the task.
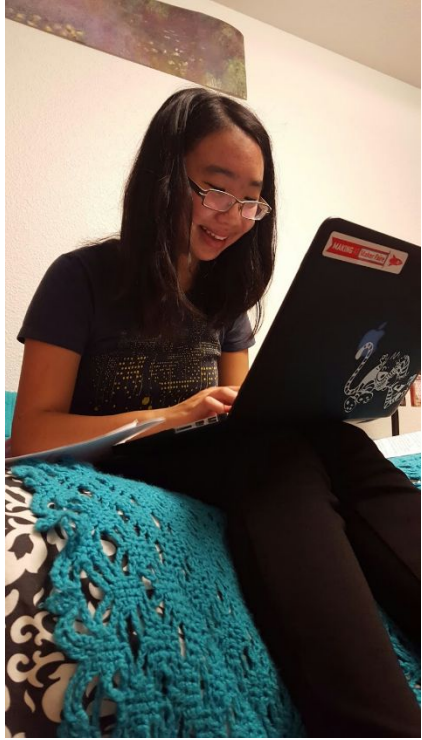
Most Successful Prototype

     In the end, we feel like the Atom Model was the most successful in achieving its goal: to provide a fun and creative way for students to work together and review/learn material. We learned from George that students often find their own ways to review that are more effective than conventional methods, that students work well in groups, and the importance of visual based learning. Petra talked to us about the importance of connecting different concepts learned in classes. And Ms. Giraudo has had great success with having students work together to review their material through text and pictures. This Atom Model prototype tied all of these ideas together into a single product and the positive reactions from Tim and Luke demonstrated its potential. This prototype can allow students to collaborate in more dynamic and detailed ways, combining creation, mapping, and review.