

EdTech - Needfinding

Week 1



Our Team



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Domain

How instructors use technology in classrooms and learning environments

Methodology

Finding Interviewees:

Students

Professors

Extreme Users: 5 year old student, Preschool teacher, technology director

Interview Order + Strategy:

Background & Interests → Tech Experiences → Pain points & wishes/needs

Location and Compensation



Image Source: https://commons.wikimedia.org/wiki/File:Stanford_University_Arches_of_the_Quad_2.jpg

Questions

What is your schedule like?

Do you have a personal computer ? A mobile phone?

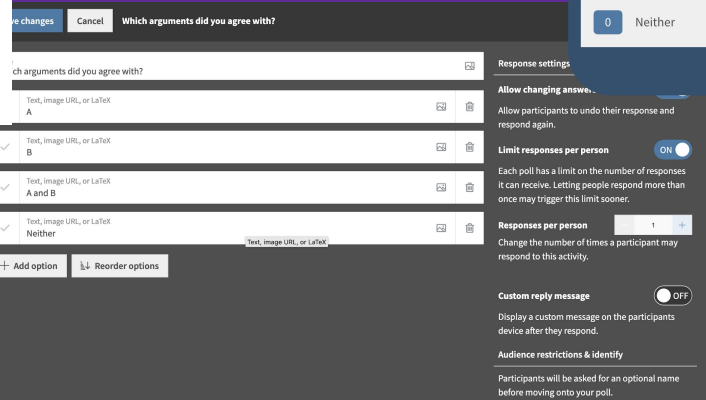
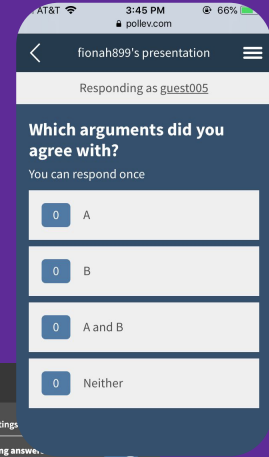
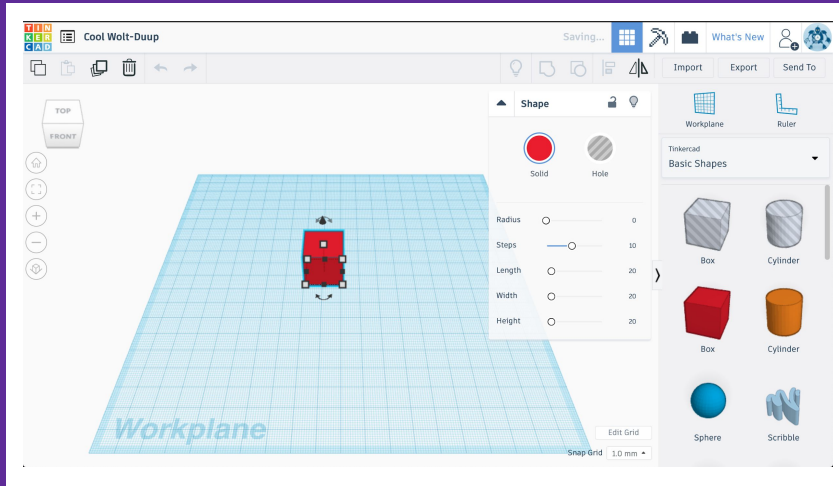
What are your hobbies?

What sort of tech do you use in the classroom?

What are some successes you have had with tech in the classroom?

What is technology you find frustrating to use?

And of course . . . **Pulling threads and following up emotions and stories!**



plazza



Bob

Semi-retired programmer studying quantum mechanics and VR programming online

(Middle age, white male)

“The gold standard is something that makes me smarter.”

Say

“The gold standard is something that makes me smarter.”

VR GUI tutorials are “dry as dust.” Teaching people to use GUIs could be hugely improved by more interesting delivery and more standardized UI configurations.

Using Unity’s paid tutorials to develop a VR application.

Learned about quantum mechanics from Stanford online

Works at home on his laptop

Do

Think

Found original quantum mechanics course from college more confusing, enjoyed being able to return to subject matter online.

Lonely; wishes he had more interaction with other students and TAs

Intellectually fulfilled by physics course

Grateful for free, high-quality content

Feel

John & Mark

5 year old, white, male, student
& 10 year old, white, male student

**“It’s really really
interesting to find
out what you can
make.”**

Say

“I don’t have computers, I don’t do work”



Associates having a computer with having job/homework

Think

“It’s really really interesting to find out what you can make. ‘Cause every time I use it I find out something else that you can do with it.”

It’s more impressive to do work in your head / without reviewing

Uses Tinkercad to do 3D modeling online

Likes exploring and discovering new features

Spelled out his name after telling it to me



Proud of learning, wants to share it

Do

Feel

Gabriel

Middle age, white, male, humanities professor



“I’m ... dependent on my students’ facial expressions, their gestures, their body language. And if they’re all staring into the screen, I lose all of it.”

Say

Tech must decrease time cost or increase effectiveness of collaboration

“I’m ... dependent on my students’ facial expressions, their gestures, their body language. And if they’re all staring into the screen, I lose all of it.”

“Lecturettes” interspersed with activities

Used variety of media

Collaborative assignments

Do

Think

Cost benefit analysis of tech

Human attention spans are short

His positions are research-backed

Passionate about effective education

Paranoid students are surfing the web

Feel

Alice

17, white, female, high school senior

**“If I can do
something analog,
I try to do it
analog”**

Say

“Either all teachers have to use it or all teachers don’t use it.”

“If I can do something analog, I try to do it analog”

Deleted Facebook account

Organizes schoolwork in a physical journal

Uses a group text to coordinate on group projects

Do

“Because I’m not tech savvy, the more consolidated it is, the more I’m inclined to use it.”

Putting personal info or photos online is dangerous

I don’t need tech for everything

Comforted by lack of phones in class, nobody recording her

Worried about privacy and security online

Think

It’s convenient when everything is in consistent, consolidated, and straightforward

Frustrated by inconsistent tech requirements

Feel



Arthur

Technology director at a private K-12 school

(Middle age, Asian-American male)

“[The] golden fleece is one system that is modular enough to do everything a school wants to do.”

Say

Building the “best of breed” network infrastructure is at “the core of edtech”.

“I’m not that interested in one-off products... [the] golden fleece is one system that is modular enough to do everything a school wants to do.”

Runs the IT infrastructure for large, multi-campus private school

Oversees 1:1 laptop program starting in 5th grade

Manages large group of employees and interns

Do

Think

A key challenge is distraction with the laptops--tension between training students’ self-discipline, and restricting them with rules

Proud of the school’s accomplishments

Optimistic about Canvas & Google Cloud

Frustrated; preferred grading application was destroyed by greedy competitor

Feel

Insights &

Needs

Insight: People prefer consolidated solutions

Need: Technology must be simple and centralized

Insight: Instructors and students are reluctant to use technology

Need: Technology must clearly justify its own use

Insight: Instructors rely on body language and facial expression

Need: Technology must not get in the way of body language, or otherwise provide feedback

We want to see the kids interacting with the toys, not just pushing a button and passively listening.

**- Participant 1
(Paraphrased)**

Insight: Instructors and students prefer physical and tactile learning

Need: Technology must somehow replicate or supplement this tactile element

Summary

How to replicate the tactile and interactive nature of analog?

How to not impede or to replicate body language feedback?

Going forward, have more diverse interviewees

Questions?

Detailed empathy maps

- “Teachers will generally guide discussions, but she tries not to because she wants it to be very organic, which I really enjoy”
- “In humanities ... I enjoy discussion, but in science and math I like to be lectured at”
- “I have one teacher this year who is kind of old fashioned and doesn’t use [schoolology] and it’s kind of frustrating because the only way we get the information of what we’re supposed to do is at the end of class he’ll flippantly mention it”
- “Because I’m not tech savvy, the more consolidated it is, the more I’m inclined to use it.”
- “I don’t trust google as a company”
- “I’ve definitely seen people posting people doing dumb stuff on their stories without people knowing and I’m always like that’s not cool”
- “Having something I can write in is very important and refer back to throughout the week. I find that even apple calendar is very clunky and I’m not super inclined to go and put every assignment I have to do in a digital app cause I don’t think it’s effective”
- “I try to minimize the amount of tech I have, just cause it freaks me out ... cause I don’t know exactly what’s happening”
- “If I can do something analog, I try to do it analog, and if I can avoid making an account, I avoid making the account cause it seems easier to me not to do that”
- “I’ve been raised to not put a ton out there”
- “I expect that I log on and all of my assignments will be there”
- “I feel like it has to be one way or the other, either all teachers have to use it or all teachers don’t use it. The mixing of the two systems is kind of wonky”
- “I don’t even know who our principal is now. I’ve had 3 or 4 in the time I’ve been there.”
- “The school based schedule has literally been different for me every single year since I’ve been in high school, which is kind of just annoying and inconsistent.”

- My account might get hacked
- Photos I put online could leak
- Someone might be recording me in class
- It's convenient when I can find everything in one place
- I wish different teachers would be more consistent about what tech they use
- I just want the system to be simple and intuitive
- I don't need to use tech for everything
- Putting personal info in tech just isn't safe
- I'm willing to try different subjects, even if they frustrate me
- Different subjects need different teaching styles

- Deleted facebook account
- Doesn't put pics on google drive
- Organizes schoolwork in a physical journal
- Required to bring a laptop to school everyday, uses laptop for homework too
- Communicates with teammates via a group text
- Fiddles with her thumbs when thinking, discussing uncomfortable subjects
- Avoids discussing uncomfortable subjects by saying "you've probably heard about it," doesn't get into specifics unless prompted to
- Looks at me when hearing question, looks around the room while answering
- Users hand gestures to illustrate points (actions, tech use, descriptions)
- Trails off with "I don't know" or "yeah" when running out of things to say

- Worried (about privacy)
 - Anxious
 - freaked out
- Frustrated (at low tech teacher)
- Awestruck (by advancing tech)
- Uncertain (about school bureaucracy)
- Involved (in class discussions)
- DIY spirit (using journal for homework)
- Comforted (by no phones in class)
- Satisfied (with current low tech solutions)
- Distrusting (of tech companies)

Say John & Mark 2 & 3

- “I don’t have computers, I don’t do work.”
- “Do I have a phone? That doesn’t make any sense! No I don’t have a phone.”
 - Doesn’t know how to use a phone
 - Doesn’t know the passcode
- [Would use a computer for] “Mostly songs.”
- Listening to music while drawing is “kind of annoying.”
- (Do you use your computer when you’re doing homework?) “I kinda think of that as cheating ... Well, it’s not cheating necessarily, but I kinda like doing everything in my head ... **I like to challenge myself.**”
- (What do you do on your computer?) “Just play music and . . . work on projects. We’re going to Japan. We research it and I do some research ... what places to go and what are the best train routes.”
- “**I really like engineering**, like designing stuff and then building it.”
- About **Tinkercad**:
 - “It’s really really interesting to find out what you can make. ‘Cause every time I use it I find out something else that you can do with it.”
 - Just recently figured out how to rotate items

- Associates **having a computer** with **having a job**/having homework
- 5 is too young to have a phone
- It's more impressive to do work in your head / without reviewing
- **Ability to memorize** is important
 - Memorizes the recipes his mom teaches him
 - Likes to try to do his math homework
- It's useful to have a **centralized place to review information**
- Digital can be slow for building as opposed to analog, analog is easier to explore creatively
 - e.g. Tinkercad vs. Lego
- Computers are useful for finding information quickly

- Fidgeted throughout the interview
 - Crossing and uncrossing legs
 - Fiddling with blind rope
 - Playing with pants cuffs
- Spelled out his name after telling it to me
- Draws pictures of animals for his mom
- Plays with building toys
 - Legos
 - Meticulously sorted by set, function, color, etc.
 - Magnetiles (“Like cubes with little magnets in them.”)
- Uses Tinkercad to do 3D modeling (i.e. building) online
 - Learns new features by exploring the tool, not by using tutorials
- Learns recipes from his mom and cooks them from memory
- Helps research for family trips on his computer
 - Destinations
 - Best travel routes

- Generally:
 - Bored
 - Energetic
 - Affectionate towards family
- Proud of learning to spell
- Knowledgeable
- Curious
 - Likes exploring and discovering new features of technologies
- Likes knowing he has access to class information and review materials
- Proud of his memory skills

Say

Tech must decrease time cost or increase effectiveness of collaboration

“I’m ... dependent on my students’ facial expressions, their gestures, their body language. And if they’re all staring into the screen, I lose all of it.”

“Lecturettes” interspersed with activities

Used variety of media

Collaborative assignments

Do

Think

Cost benefit analysis of tech

Human attention spans are short

His positions are research-backed

Passionate about effective education

Paranoid students are surfing the web

Feel

Say Gabriel

- Tech must decrease time cost or increase effectiveness of collaboration
- “I’m ... dependent on my students’ facial expressions, their gestures, their body language. And if they’re all staring into the screen, I lose all of it.”
- Used the phrase “lecturettes”
- Has been teaching for ~25 years, ~2 of them at Stanford
- Long lectures = bad
- He uses ‘interactive lectures’
- Mentioned tech like google docs, trello, skype, dropbox, bibliographic software, footnote databases
- Said comparing his prior teaching (at a liberal arts college) to stanford was like “martians vs. venusians” in regards to student/faculty culture
- “Wonderfully overwhelmed by just the sheer brilliance on this campus”
- “Intimidating but energizing” in regards to campus culture
- Some students go to office hours often, others rarely, there’s a gap there

Gabriel

- Analyzed tech in a cost-benefit analysis
- Human attention spans are short
- His positions are research-backed
- Thinks of having a variety of instruction forms works as an equalizer of sorts
- His handwriting is bad
- Considers pdf readers to be bad for navigation
- Thinks it's odd the school has financial support for books but not printing
- Considers Evernote in high regard

Gabriel

- “Lecturettes” interspersed with activities
 - Max lengths of lectures ~8 minutes
 - “Scroll activity” where student reach under their seats and find a text to analyze
 - Online polls
 - Small table activities
- Assigned collaborative assignments
- Chose high-tech classrooms
- Disallowed laptops and electronics in class
- Teaches a graduate class of pedagogy
- ~2 hour lectures, 7-9 activities in that period
- Uses variety of materials (physical, slides, video, graphics, texts, etc)
- Emphatic hand gestures

Gabriel

- Intimidated by stanford students
- Paranoid students are surfing the internet instead of paying attention
- Passionate about education and effective pedagogy
- Worried that if a student has a learning exception need for technology, that outs them as having some disability
- Sorry that all his printing (because no laptops) kills a lot of trees
- Concerned that requiring printing is a financial cost to students
- Excited whenever tech can save him time
- Also excited for anything that facilitates collaboration
- Was surprised (a while ago) when students working on a collaborative paper used a large monitor to work together (which was novel at the time)
 - Spurred him to be more innovative
- Unsure at how to drive attendance to office hours
- In regards to being at stanford, feels “like he just got out of grad school”