



Redefining Education

Introduction



“We hope to improve the **educational landscape** for instructors and students alike”

Initial Point of View

We met

Terry, who is an instructor in a prison and a California college.

We were amazed to realize

that he felt it was impossible to effectively teach all of his students since he could not connect with each of them and appeal to their ways of learning

It would be game changing if we could

help Terry tailor his content to the majority of his students and to restore his faith in education

Additional Need finding

New Interviews

Elementary School (2)



Neighborhood Walk (1)



East Palo Alto

Coffee + Boba (2)



Downtown Palo Alto

New Interviews

Annia



- 5 years old
- Kindergarten
- East Palo Alto



Learning



“5..4..3..2..1..”

Feels Neglected

“I always raise my hand but the teacher does not call on me”

Boredom Strikes

“I hate writing cursive. It takes so long and I’m a fast writer. I’m already good at it”



- 6 years old -
- First grade -
- Bowman -



Liam

New Interviews

Albert



- Junior @ Sequoia HS
- Lives in East Palo Alto
- Basketball Player
- Physics lover



- Started in 4th grade
- YouTube Guidance
- Joined team in Middle School

“Learning from YouTube was as effective as having a coach... It was a smooth transition joining a team”

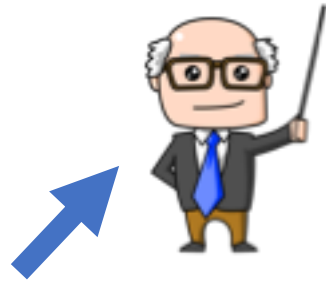


- 9th grade
- Tutor 1 month in
- 40% of class speaks Spanish

“The teachers assume we know the basics... they test us on stuff not taught... 11/30 students have a tutor.

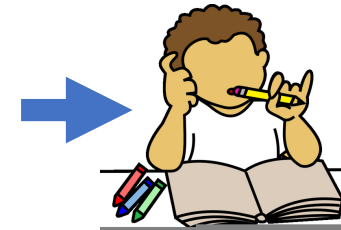
New Interviews

Adrian



Values:

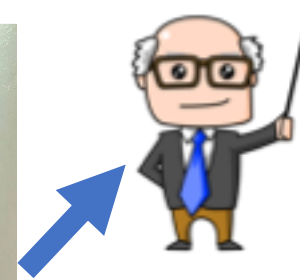
- Credentials + Experience
- Wants relevant examples to understand importance



- Quick
- Test results
- Formula derivations + sources

- American, recent Italian B-School grad
- “Strong learner”

Allen



Professor:

- Create new knowledge

Other

- “Repeater”
- Still important

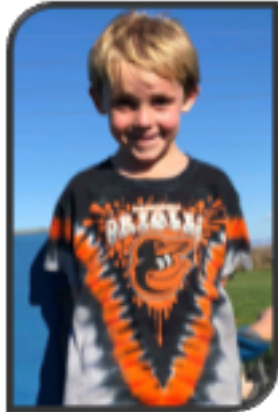


Good Learners:

- Curiosity → true learning
- True learning → create “new things”

- Law Professor, Paris
- “Strong learner”

New Interview Takeaways



Differing baseline of understanding is detrimental for those ahead and behind in the content

1.

New Interview Takeaways



Technology can be an effective learning tool (no human interaction needed)

2.

New Interview Takeaways



CONTRADICTION:

Leverages technology to learn hobby

VS

Doesn't try same for Spanish. Relies on human interaction

3.

New Interview Takeaways



Lack of personal attention can reduce desire to learn over time ... impossible to call on everyone every time (similar to Terry)

4.

New Interview Takeaways



“Good Teacher, Good Student” is so variable based upon person + values (grades, credentials, teaching style)

5.

New Points of View (3)

+

How Might We

We met

Adrian, a recent Italian Business School grad

We were amazed to realize

that he dozes off in lecture when he does not feel connected to the material / can't see its significance

It would be game changing if we could

help instructors ensure understanding of material by appealing to students needs and wants

How Might We (Top 3)

Experience Prototypes

We met

Annia, a kindergartener in Palo Alto

We were amazed to realize

in her first year of instruction, she already feels neglected by the school system

It would be game changing if we could

help Annia get more consistent feedback on her work and feel more connected to her education

How Might We

allow instructors to continuously provide personal and effective feedback to each student based on their performance and understanding of the material?

Solution: Magic Homework

1

Intelligent homework that provides personalized feedback + instruction

- get question wrong → refers to part of lecture where material taught
- categorize student strengths + struggles
- Provide resources for help

Assumption: people are too lazy to look up resources but will use them if they are convenient

Magic HW Experience Prototype

1

Methodology:

Instructor (us) shows student (subject) how to fold a butterfly
(5 Step Fold)

Trial 1: Tell student to do whatever it takes to re-create fold

Trial 2: Provide student with a video showing process. Do whatever it takes to re-create fold

Magic HW Prototype Results

1

Trial 1: No resources



- **Newton**
- Low 20s
- Stanford Bookstore

- Confused after step 1
- Does random fold
- Gave up (2-minute total)

Trial 2: Video provided



- **Don**
- Journalism, Canada

- First 2 steps alone
- Fast-forward video, replay
- Completes task (6-minutes)

Experience Prototype Findings

1

Assumption: people are too lazy to look up resources but will use them if they are convenient



- Mistakes → dig deeper hole, give up
- Given right resources → use immediately when struggling

We met

Albert, a high school junior living in East Palo Alto

We were amazed to realize

in his Spanish class, the teacher would skip over essential material because 40% of students spoke Spanish

It would be game changing if we could

help instructors accommodate students of all backgrounds in their curriculum

How Might We

assist instructors in ensuring a baseline understanding of material necessary for each lesson and course

Solution: Student Pairing

2

Pair “expert” students in a class with beginners

- Test for expertise in a subject
- Reduce course load for “experts” in exchange for tutoring beginners
- Intelligent pairing

Assumptions:

1. Struggling students would be willing to accept help from their peers
2. Knowledgeable students would be willing to help out those struggling given some incentive

Student Pairing Experience Prototype

2

Methodology:

On a language sheet, give expert student the ability to do less work by helping beginner student. Beginner student has a choice as well

Trial 1: The subject is the “expert”, we are beginner

Trial 2: We are the expert, subject is the beginner

Student Pairing Prototype Results

2

Trial 1: Subject is expert



- **Eva**
- Barista, Coupa
- HS, fluent Spanish

- Chooses to help
- Gave answers, couldn't explain how she got to them

Trial 2: Subject is beginner



- **Sami, Sabine**
- STEM, grads @ Stanford
- Weak in French

- Would want tutoring
- Want to evaluate competency of student

Experience Prototype Findings

2

Assumptions:

1. Struggling students would be willing to accept help from their peers
2. Knowledgeable students would be willing to help out those struggling given some incentive



BUT..... assumed “experts”
can teach (not the case)

We met

Adrian, a recent Italian Business School grad

We were amazed to realize

that he dozes off in lecture when he does not feel connected to the material / can't see its significance

It would be game changing if we could

help instructors ensure understanding of material by appealing to students needs and wants

How Might We

increase student understanding of lecture material
and content in real-time

Solution: Lecture Kit

3

Lecture Kit Includes:

- Continuous student feedback on understanding (displayed visually)
- Keep track of reactions, run analytics, provide suggestions for professor

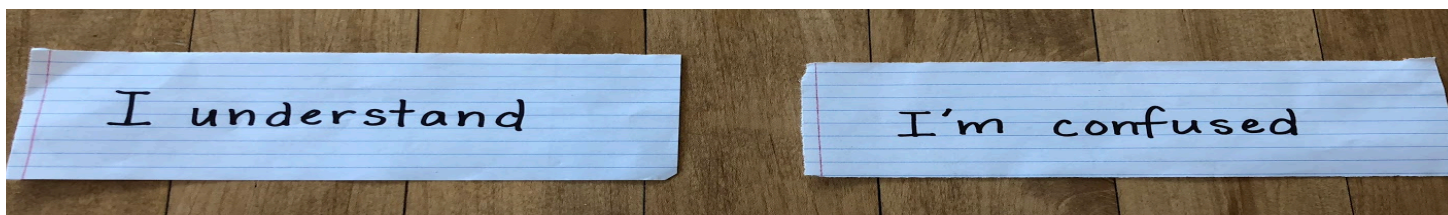
Biggest Assumption:

Giving lecturers information in real time will aid lecture teaching

Lecture Kit Experience Prototype

Methodology:

- Have a subject give a 5-10 minute “lecture” to us (students) on anything they wanted
 - Can draw from work or school experiences
 - Given preparation time
- Students provide live feedback



Lecture Kit Prototype Results

3

John



- Philz coffee
- Battery company
- Battery lesson

- When lifted “I’m Confused” he would stop and ask what students were confused on
- Wouldn’t move on until this was pinpointed

Lecture Kit Prototype Results

3

Nick



- Philz Coffee
- ML @ Credit Karma
- Battery lesson

- Felt we took material in well. “could tell by looking at us [eye contact] (already looking for feedback)
- Got distracted by signs

Experience Prototype Findings

3

Assumption:

Giving lecturers information in real time will aid lecture teaching



Our way of giving information was **distracting** + wouldn't fully work for lectures.

Summary + Next Steps

- Learned a lot this week!
- Got to test out assumptions + brainstorm solutions
- Moving forward with Magic HW (assumption strongly reinforced)