

Locked



*Effortless, personalized study groups tailored to
your schedule, preferences, and learning styles*

Final Report
CS147 Fall 2024
AI in the Classroom

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Project Name & Value Proposition

Project Name

LockedIn

Value Proposition

Effortless, personalized study groups tailored to your schedule, preferences, and learning styles

Team Member Names and Roles



Alexander Yue

Sophomore, Physics

Developer, Product Manager



Evan Hsu

Coterm, Computer Science HCI

Developer, UX/UI Designer



Diego Valdez Duran

Coterm, Computer Science HCI

Developer, UX/UI Designer



Ecem Yilmazhaliloglu

Senior, Computer Science

Developer, Product Designer

Problem & Solution Overview

Problem Statement

After conducting multiple needfinding interviews, our team found that students often face challenges when trying to connect with peers to collaborate. Social anxiety, differing schedules, and varying study habits can make it difficult for students to find and engage with others. In addition, organizing and managing class materials can be overwhelming, as it is common for students to manage multiple subjects, assignments, and deadlines.

Our Solution

Our app addresses these challenges by offering an intuitive platform that facilitates collaboration and classwork management. Students can upload their class materials and have our AI system organize them into clear, actionable tasks. These tasks can be manually customized and efficiently updated to suit user preferences. Additionally, our matching feature promotes effective and supportive study collaborations. By taking a study profile survey, students are matched with peers who have similar schedules and study habits. Our app also enables students to host public study sessions within their classes, promoting group study and collaboration.

Needfinding

The Interviews

Our target domain was college students, and we conducted a total of 6 interviews across two rounds of needfinding. For interviewee sourcing, each team member tapped into their personal networks, including friends of friends. Some interviews required traveling off campus, with one trip to UC Berkeley. We offered compensation as incentive for interviewees who were less familiar with us. Each interview was conducted by two team members- one acting as the interviewer and the other as the notetaker.

Participants

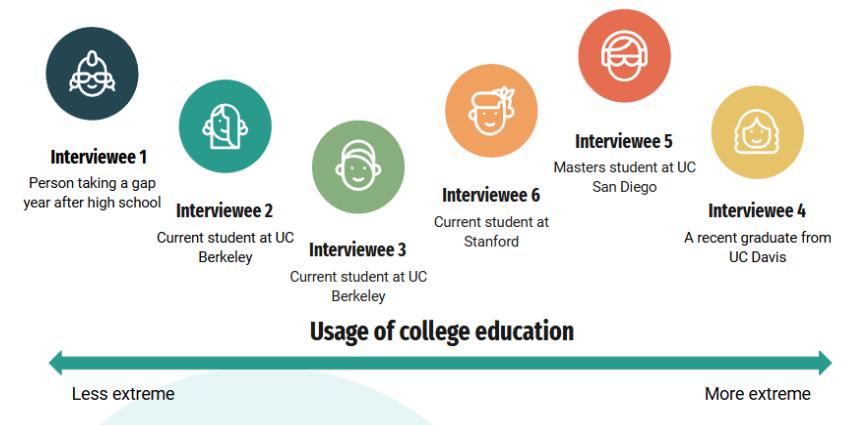


Figure 1 - Distribution of interviewees on a scale from less to more extreme based on their usage of college education

Our questioning process focused on three key areas:

1. **Learn about their identity** – We asked questions such as “What do you study” and “What are your academic goals and interests?” to better understand the backgrounds of each interviewee.
2. **Discover pain points** – We asked questions such as “What difficulties do you encounter when studying?” and “How do you currently manage your schoolwork?” to explore the challenges that they might face.
3. **Explore their behaviors** – We asked questions such as “What tools do you use to stay on top of your assignments?” and “In the case where you experienced difficulty in collaborating with others, what did you do instead?” to understand their current approach to addressing their pain points.

Interviewee details are listed below:

1. Gap year student, 2 years of public high school, 2 years of IB (extreme user)
2. Sophomore at UC Berkeley, public health major, pre-med, researcher at UCSF
3. Sophomore at UC Berkeley, public health major, pre-med, works in the Essig Museum of Entomology
4. Recent graduate from UC Davis, BS in Environmental Science and Management, minor in Environmental Policy Analysis and Planning
5. Masters student at UCSD, electrical engineering major, lives off-campus
6. Masters student in Community Health and Prevention Research at Stanford, pre-med



Figure 2 – Selected photos from needfinding interviews 2,3, and 4

Result Synthesis

Our needfinding interviews provided critical insights into the key challenges faced by students. To analyze the data from our interviews, we created an empathy map for each interviewee, writing notes on what each person says, thinks, does, and feels. We also compiled important quotes from each interview to highlight key themes and perspectives.



Figure 3 - An empathy map from interview 3

Key Quotes

- “My friends and I apply for the same classes together... we try to stick together because the study group goes really well. We tend to do better working together”
- “I don't know anyone in one of my classes, so it's very hard to talk to people, maybe because I feel like they just already talk to other people.”

Key Quotes

- “Sometimes I see the same people around sitting nearby us. And, sometimes when our professor tells us to talk to each other, sometimes we engage with them as well, because they don't have anyone nearby to talk to”
- “One person in our study group got, A+ ... It's one of those people that is naturally smart. Like, get it. I think because their prior experiences, they took, like, linear algebra in high school, they took discrete math”

Figure 4 - Selected key quotes from our interviews

Following our interviews, we arrived at these takeaways:

- Connecting with other students to collaborate or share resources can be challenging
- There are personal barriers to peer collaboration

- Engagement is key to learning

POVs & Experience Prototypes

In our next steps, we reviewed the empathy maps from each interview and selected the three most valuable interviews to analyze further. We decided to craft a POV statement for interviewees 1, 3, and 4. These statements outline who our interviewees are and allow us to establish topics for brainstorming. For each of our POVs, we generated 10 How Might We (HMW) statements to guide the development of solutions.

a. Your final 1-3 POV statements
b. A sampling of the HMWs that stemmed from each POV
c. Top 3 solutions from brainstorming
d. Brief description of each experience prototype:
i. The assumption being tested
ii. Key aspects of the prototype setup
iii. What worked/didn't work, implications

Final POVs and HMW Samples

Interviewee #1

Details:

- gap year student
- 2 years of public high school
- 2 years of IB
- Our extreme user

POV

We met

"Jane," a highschool graduate taking a **gap year** to reapply to college, who feels she hasn't been supported enough during the college applications process.

We were surprised to notice

She believes guidance from others would have helped her with college applications, but **doesn't know how to reach out to** others for feedback.

We wonder if this means

The **anxiety** of opening up to other students about her application is causing her to fall behind

It would be game-changing if

Students had **assistance** in sharing their application experiences and tips.

We brainstormed HMW statements together in a 5 minute time period for interviewee #1

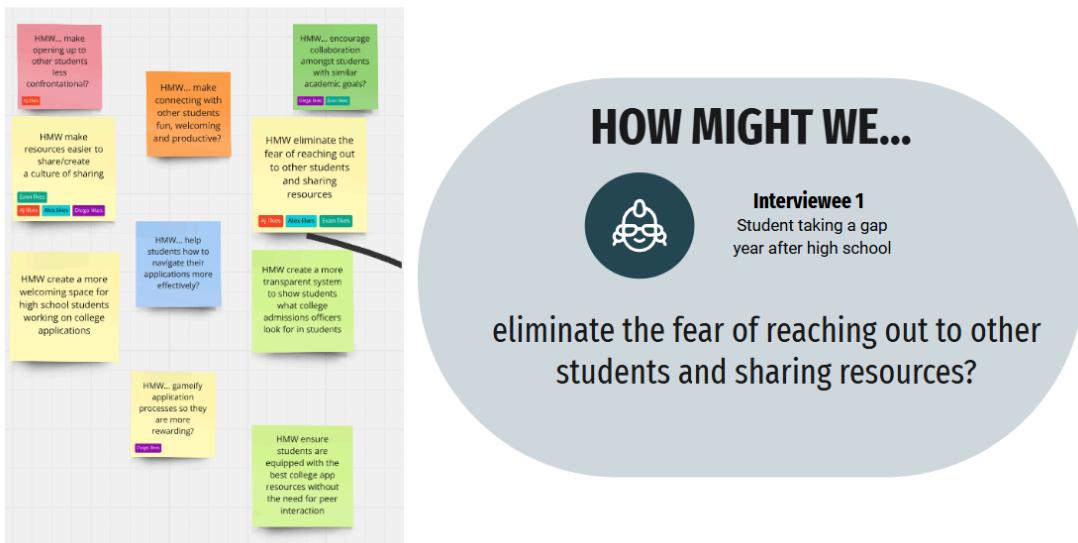


Figure 5 – HMWs for Interview #1 and a highlight of our favorite HMW

Interviewee #3

Details:

- Sophomore at UC Berkeley
- Public health major
- Pre-med
- Works in the Essig Museum of Entomology

POV

We met

"Gavin," a hardworking pre-med student at UC Berkeley who feels he has **less prior**

academic experience than many others.

We were surprised to notice

The **awkwardness** of meeting new people is preventing him from reaching his **academic goals**.

We wonder if this means

The **anxiety** of opening up to other students about her application is causing her to fall behind

It would be game-changing if

Students felt **comfortable** working with each other in every class.

We brainstormed HMW statements together in a 5 minute time period for interviewee #3

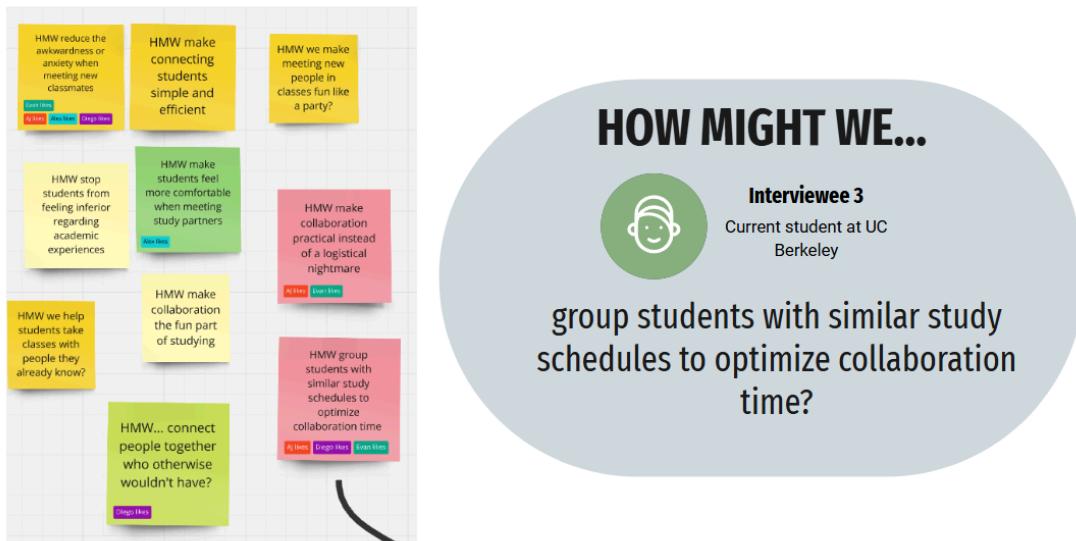


Figure 6 – HMWs for Interview #3 and a highlight of our favorite HMW

Interviewee #4

Details:

- Recent graduate from UC Davis
- BS in Environmental Science and Management
- Minor in Environmental Policy Analysis and Planning

POV

We met

"Sofia," a recent Environmental Science **graduate** from UC Davis, who often felt **overwhelmed** by the pressures of navigating both her academic and career journey.

We were surprised to notice

Despite expressing difficulty in **finding resources** for classes and internships, Sofia was able to name a few that she successfully utilized.

We wonder if this means

The issue may not be an overall lack of resources, but that the resources don't translate into **clear, personalized support** for students.

It would be game-changing if

Students could **confidently** navigate their academic & career paths utilizing personalized available resources.

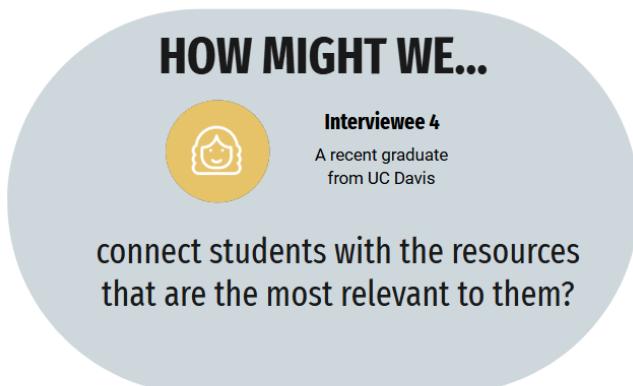


Figure 7 – HMWs for Interview #4 and a highlight of our favorite HMW

Top 3 Solutions from Brainstorming

After brainstorming our HMWs, we formulated a solution for each HMW statement that we highlighted from each interview.

Solution Selection

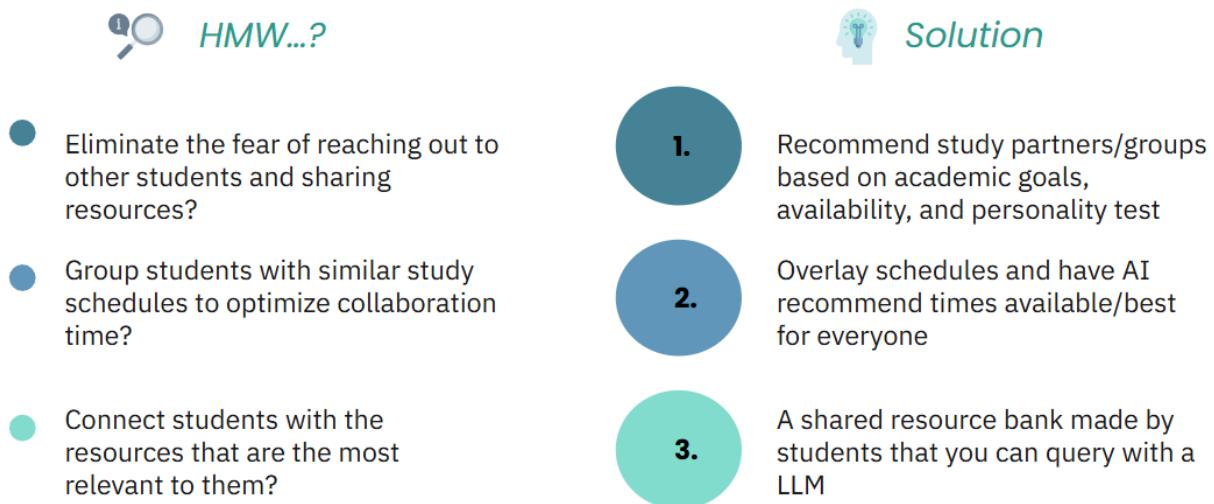


Figure 8 – HMW and solution selection side-by-side view

Experience Prototypes

Solution

Recommend study partners/groups based on academic goals, availability, and personality test

Overlay schedules and have AI recommend times available/best for everyone

A shared resource bank made by students that you can query with a LLM

Assumption

People are open to making a school profile and be matched to other students

People know and can share their study availability in advance

People want to ask study app or resource questions to a LLM

Experience Prototype #1

Assumption - People are open to making a school profile and be matched to other students

Description: We created a questionnaire that asks about study habits, personality and class expectations to determine the “fit” between potential study partners

Props: We created a physical “profile worksheet” containing questions relevant to studying habits and characteristics. Discussions took place after completion.

Participants & Relevance: The participants were all Stanford students, mostly undergraduates under the engineering school. They were recruited through warm contacts.

Method: A person was asked to thoughtfully fill out the profile worksheet, and asked if they would be willing to form a study group with other participants, judging by their previously filled profiles.

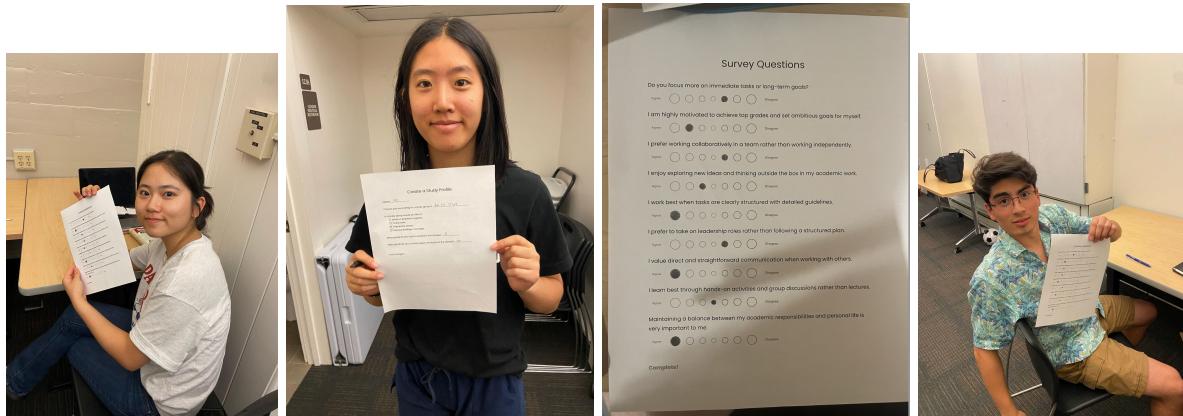


Figure 9 – Our first experience prototype and test participants

What worked: Participants said it was both easy to use and informative on a personal level. They appeared to enjoy answering the survey questions and expressed interest in finding study partners in multiple classes.

What didn't: Participants noted that the lack of definitive scheduling questions may lead to scheduling conflicts in the future

Assumption: Assumption validated. Students are open to, and more than happy to, create profiles for themselves and match with those whose studying habits or personalities matched their own.

Experience Prototype #2

Assumption - People know and can share their study availability in advance

Description: We created a schedule where users can fill in the times that they *would* like to study

Props: We created a physical “schedule worksheet” containing questions relevant to scheduling availability. Discussions took place after completion.

Participants & Relevance: The participants were all Stanford students, mostly undergraduates under the engineering school. They were recruited through warm contacts.

Method: A person was asked to thoughtfully fill out the scheduling worksheet, and asked if they would be willing to form a study group with other participants, judging by their previously filled schedules.

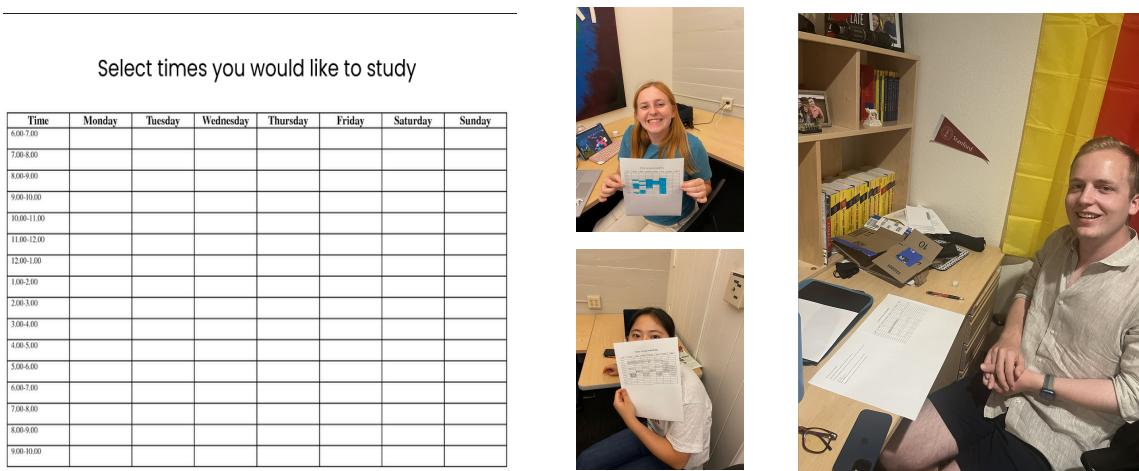


Figure 10 – Our second experience prototype and test participants

What worked: Participants said it was easy to fill and compare, yet insufficient in giving enough information about the potential study partner to be convincing

What didn't: Participants noted that schedules vary a lot throughout the quarter and their availabilities could change unpredictably. In addition, they expressed unpleasant feelings about planning logistics

Assumption: Assumption somewhat validated. Stanford students can plan their schedules beforehand, but are hesitant to make long-term commitments, and find the process unappealing.

Experience Prototype #3

Assumption – People want to ask study app or resource questions to a LLM

Description: We created an “LLM” that **takes in** user questions related to school/career and returns outlined steps reaching said goals or relevant resources

Props: Our prototype was a text message thread that acts as an “LLM” with people ready to respond after user sends questions. Discussion took place after the exercise.

Participants & Relevance: The participant was a Stanford student interested in EE, with industry background. He was recruited as a friend, and was particularly relevant because he is back after a leave and is trying to get study help and find resources.

Method: The participant was asked to text the LLM whenever he had questions on classes, studying, or resources over a 3-hour period. He was on standby to reply as an LLM, using knowledge of Stanford & EE.

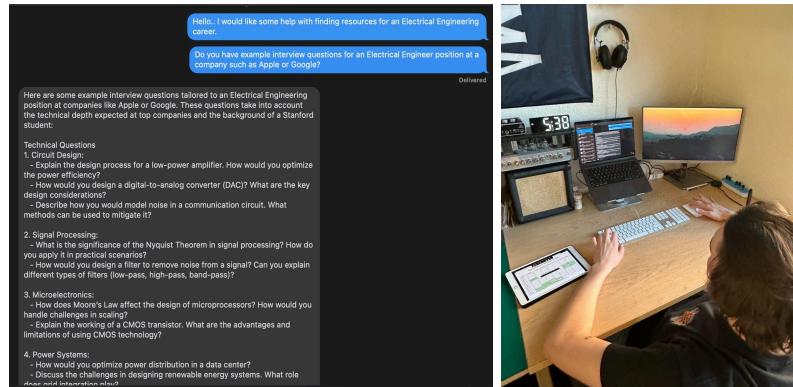


Figure 11 - Our third experience prototype and test participant

What worked: Our participant appreciated how easy it was to use and the range of

functionality (how to access X resource? How to best study for [class]? What classes/actions can I take to break into Y career)?

What didn't: 1) Scraping for very niche or protected information is difficult, could lead to generic or unhelpful answers. 2) Training on school-specific information has many barriers

Assumption: Validated, users find LLMs useful for asking a variety of questions and tend to do so without hesitation (less confrontational than asking others)