

GLOO

LO-FI PROTOTYPING

CS147: Assignment 5

The GLOO CREW

Meet the Team!



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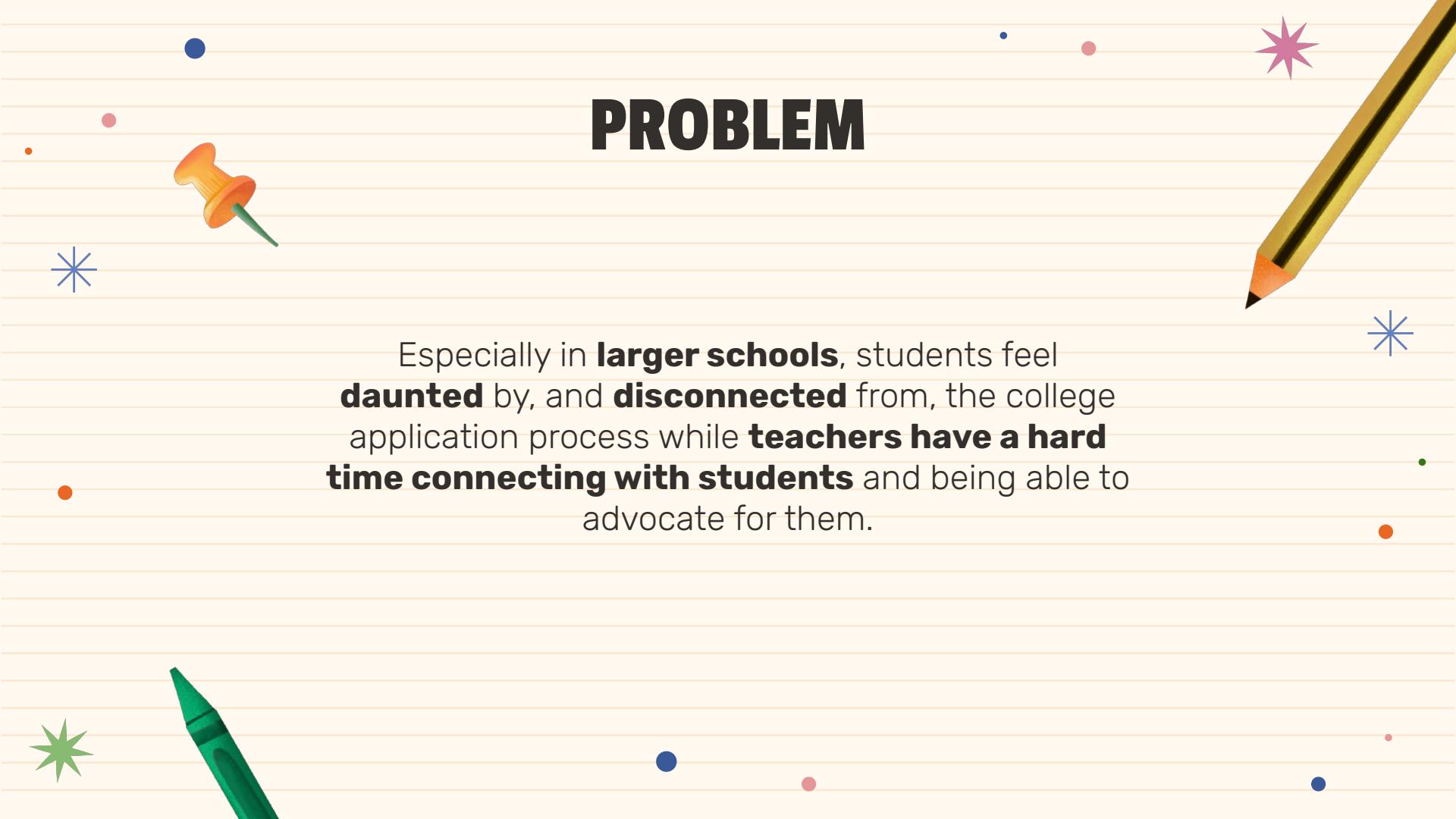
Monica Hicks

Coterm
Computer Science

VALUE PROPOSITION

**“Making
student-teacher
connections
that stick!”**





PROBLEM

Especially in **larger schools**, students feel **daunted** by, and **disconnected** from, the college application process while **teachers have a hard time connecting with students** and being able to advocate for them.

SOLUTION

A platform for **high school students and teachers** who feel disconnected due to the large size of their school to **easily schedule times to meet** and connect with each other.

Gloo includes a **journaling interface** to help both students and teachers remember and **reflect on their interactions** for future reference and an AI algorithm based on interests and student journals to help create **personalized teacher recommendations for students**.

TABLE OF CONTENTS

01 SKETCHING

02 INTERFACE

03 PROTOTYPE

04 TESTING

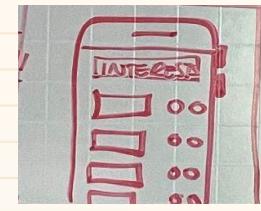
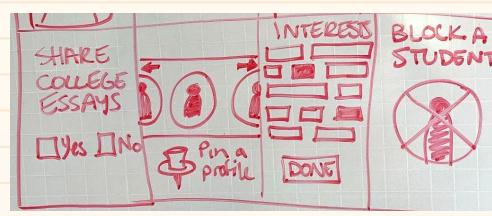
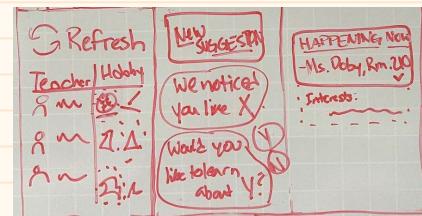
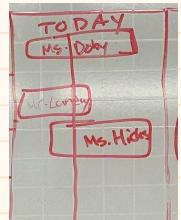
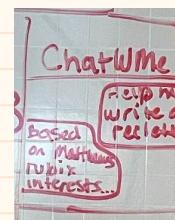
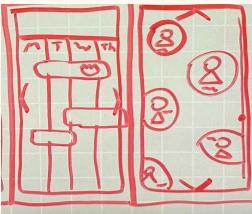
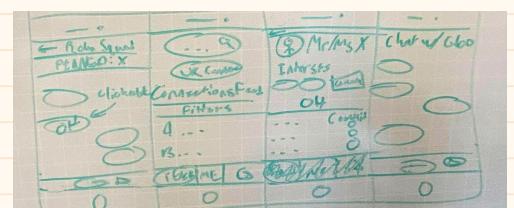
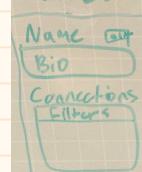
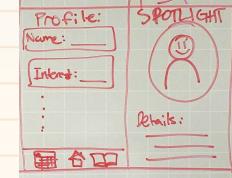
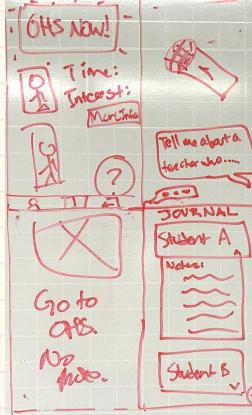
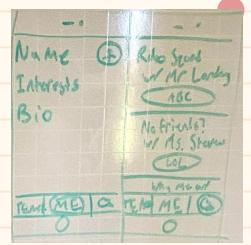
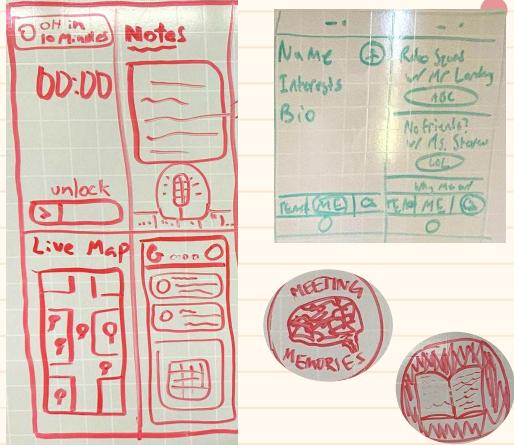
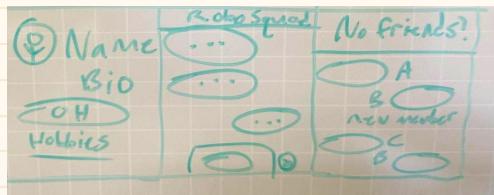
05 DISCUSSION

06 APPENDIX

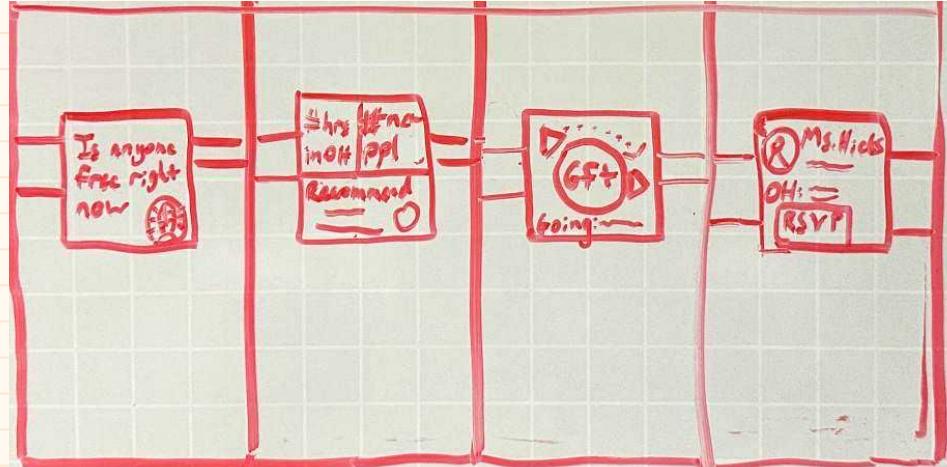
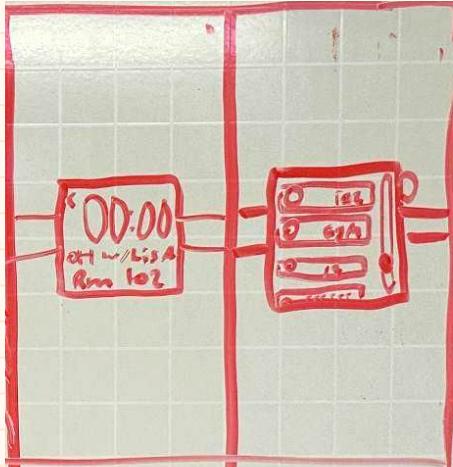
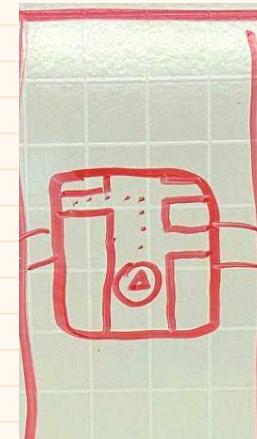
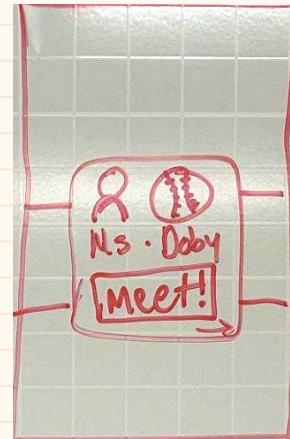
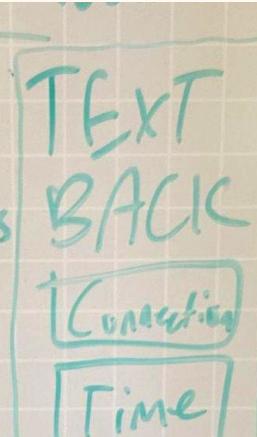
01

SKETCHING

CONCEPT SKETCHES: PHONE

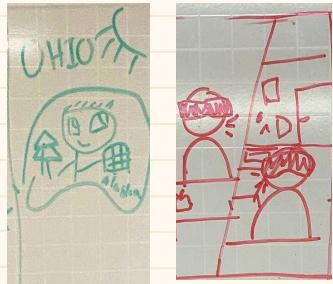


CONCEPT SKETCHES: WATCH

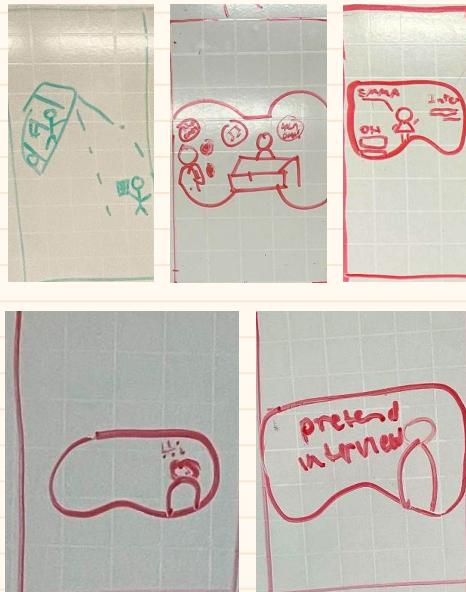


CONCEPT SKETCHES:

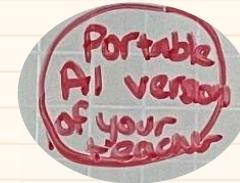
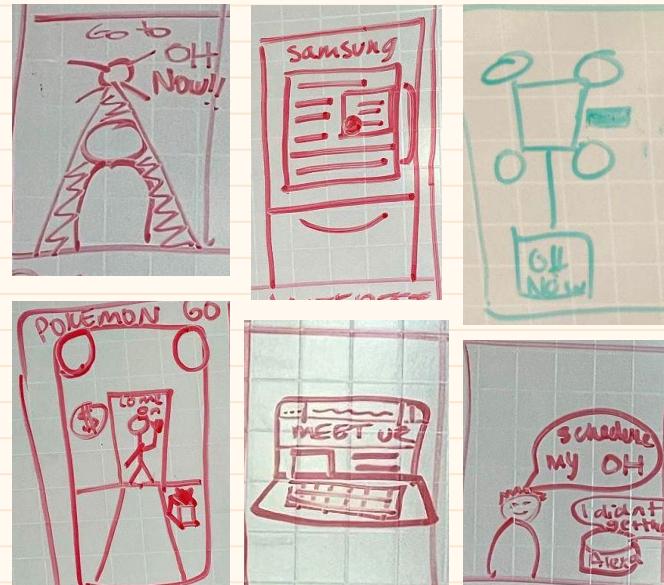
AR



VR



OTHER



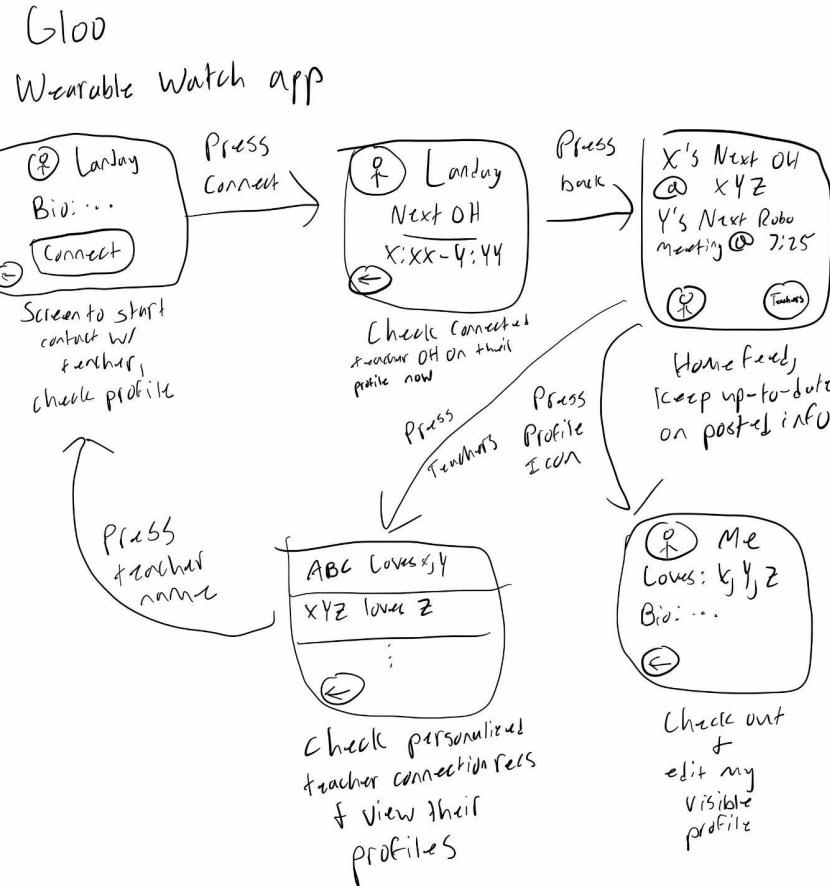
FLESHED OUT: WATCH

Pros:

- Convenient notifications
- More acceptable than phones in classrooms

Cons:

- Inaccessible
- Small screen



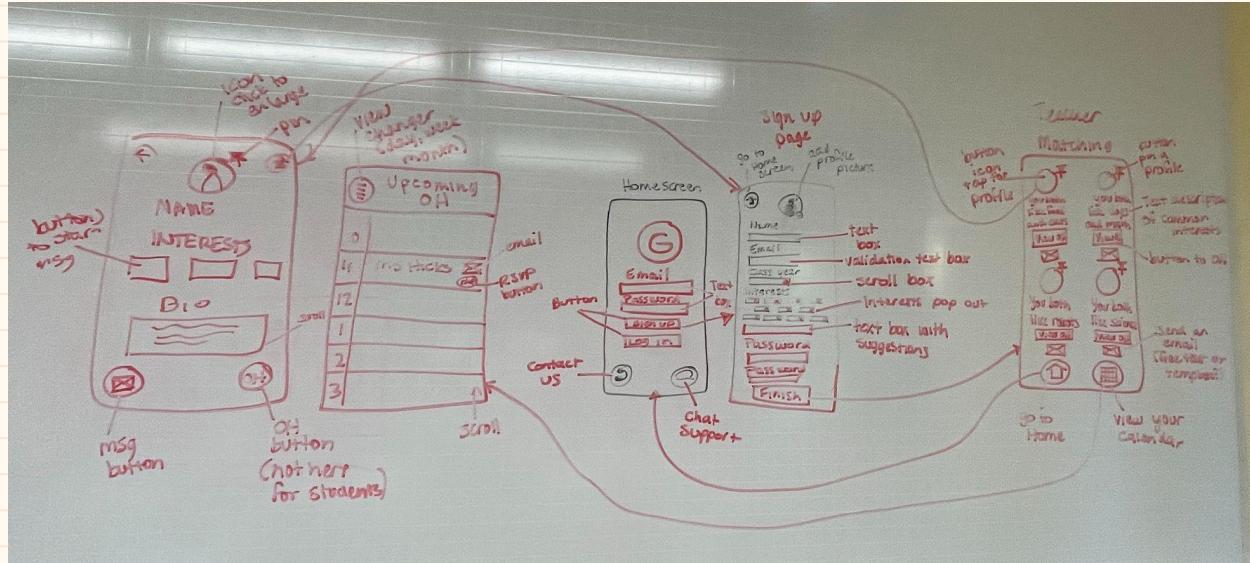
FLESHED OUT: PHONE

Pros:

- Easily display lots of data
- Stronger for calendar + messaging

Cons:

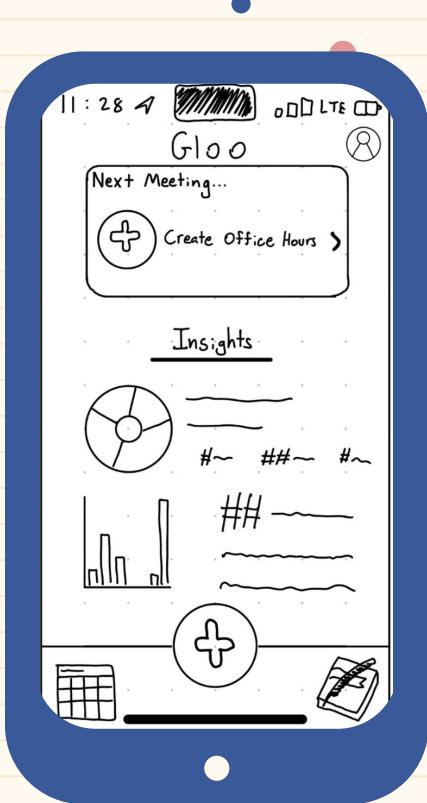
- Risks encouraging phone use in school
- Long-form notes can be inconvenient





02

INTERFACE



• **PHONES!**

DATA & FINDINGS

95% of teenagers have access to a **smartphone**...

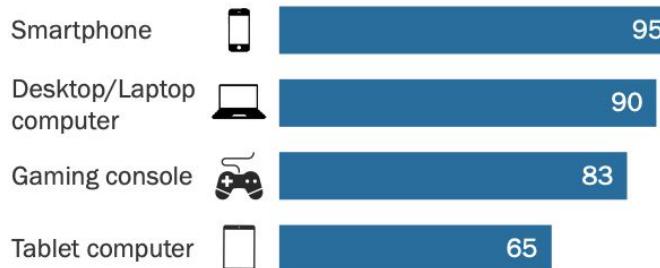
...compared to **smartwatches** at only **13%**.

Watches are also becoming **discouraged** or even **banned** in classrooms.

Phones, while also often discouraged, are **easier to use in short periods** between classes. They don't require set up.

Nearly all teens in the U.S. have access to a smartphone

% of U.S. teens ages 13 to 17 who say they have access to the following devices at home



Note: Those who did not give an answer are not shown.

Source: Survey of U.S. teens conducted Sept. 26-Oct. 23, 2023.
"Teens, Social Media and Technology 2023"

PEW RESEARCH CENTER

OUR RATIONALE

Phones are **more widely used**, something students can easily **use intermittently while in school**, and can support the more **complex interfacing** that we need for Gloo, like typing and scheduling.



03

PROTOTYPE

CREATION!

SKETCHED

By hand using Notability

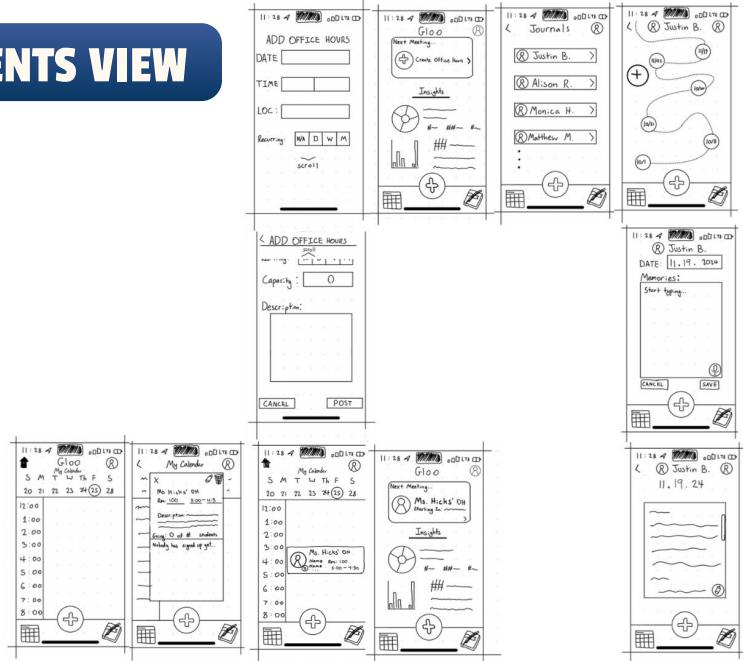
PRINTED

On printer paper, operated by a person swapping pages. Interactions available: buttons and scrolling.

DIGITIZED

For our Zoom interviews, we used Marvel

STUDENTS VIEW



CREATION!

SKETCHED

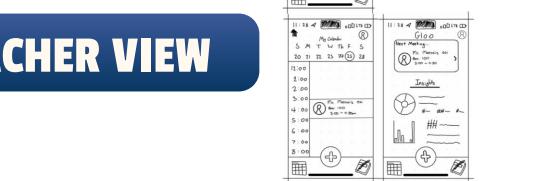
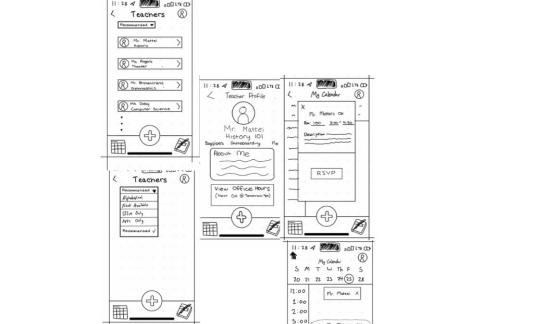
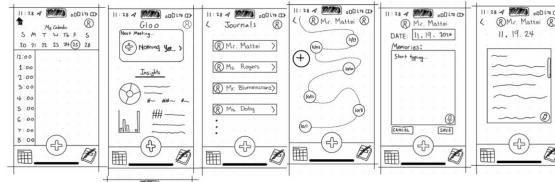
By hand using Notability

PRINTED

On printer paper, operated by a person swapping pages. Interactions available: buttons and scrolling.

DIGITIZED

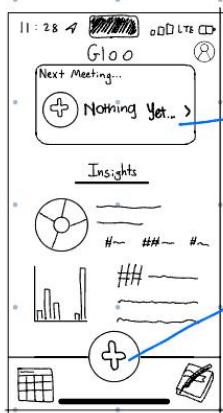
For our Zoom interviews, we used Marvel



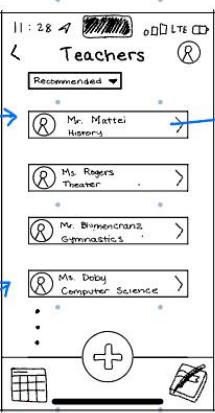
TEACHER VIEW

SIMPLE TASK FLOW: FIND A CONNECTION

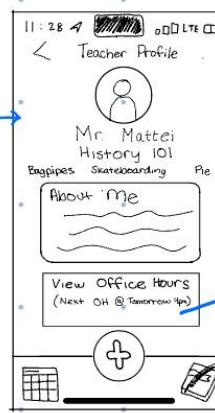
FOR STUDENTS



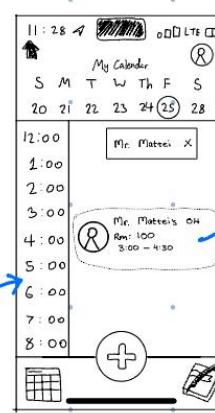
Click to view teachers
(default sort
is AI recommended)



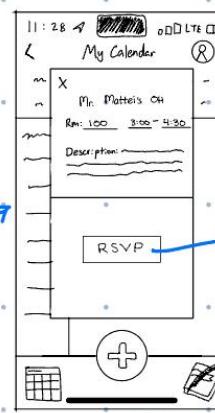
Select a teacher to view their profile.



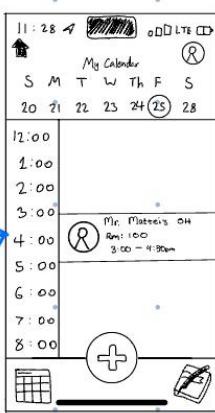
Click to view Office Hours for this teacher



Click the available OH to view full info in card view



Click RSVP to sign up for this teacher's Office Hours

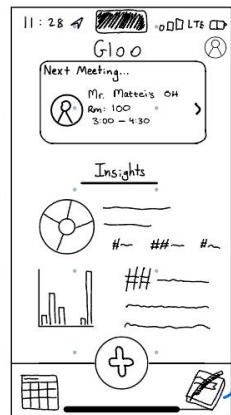


View OH populated to your calendar

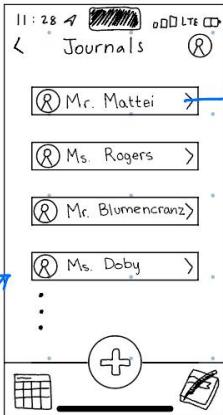
MODERATE TASK FLOW:

JOURNAL AN INTERACTION

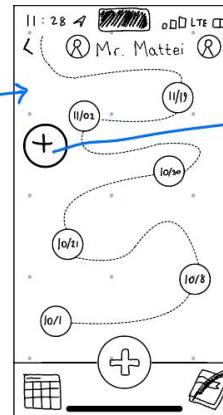
FOR STUDENTS



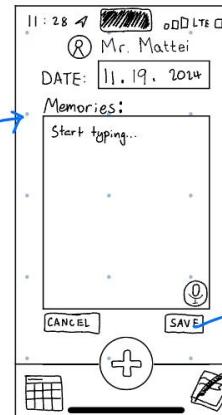
Click the
Journal icon
to view
Teachers



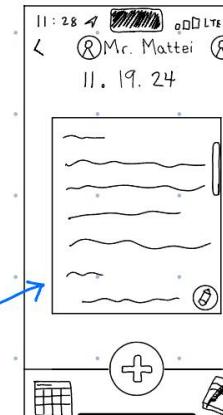
Select a
teacher to
view their
JOURNEY



Click the
plus icon
to add a
new note



Type up a
note and
save

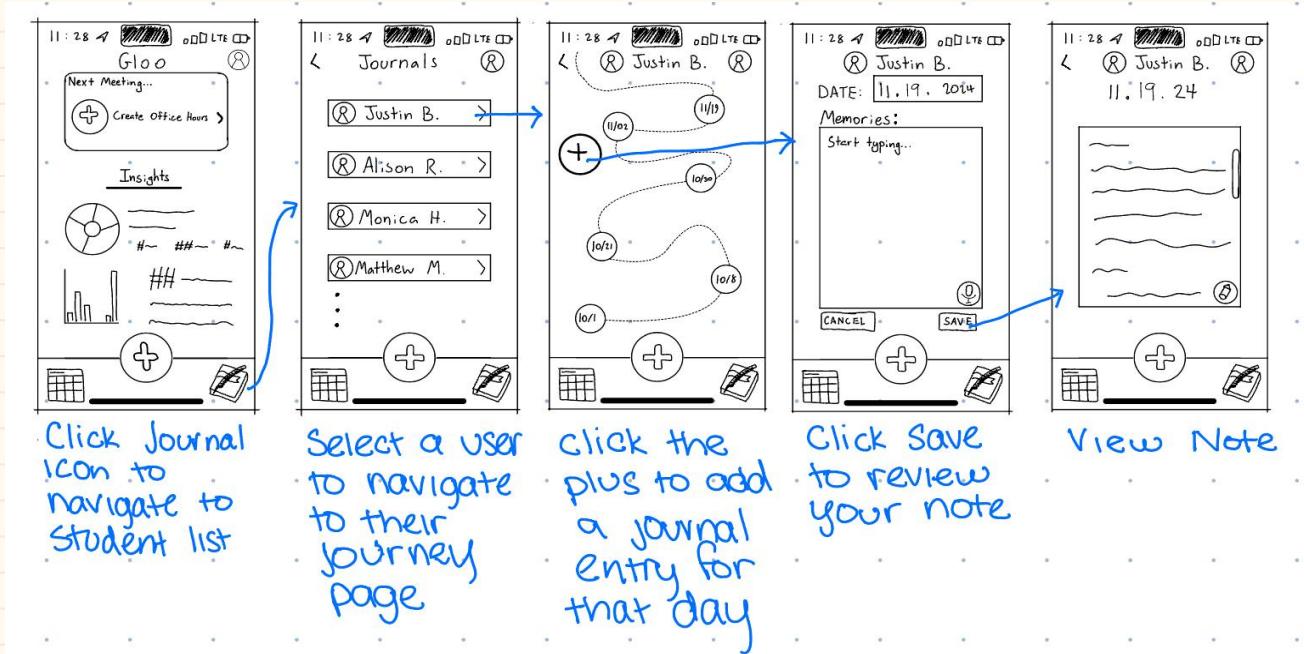


View note

MODERATE TASK FLOW: JOURNAL AN INTERACTION

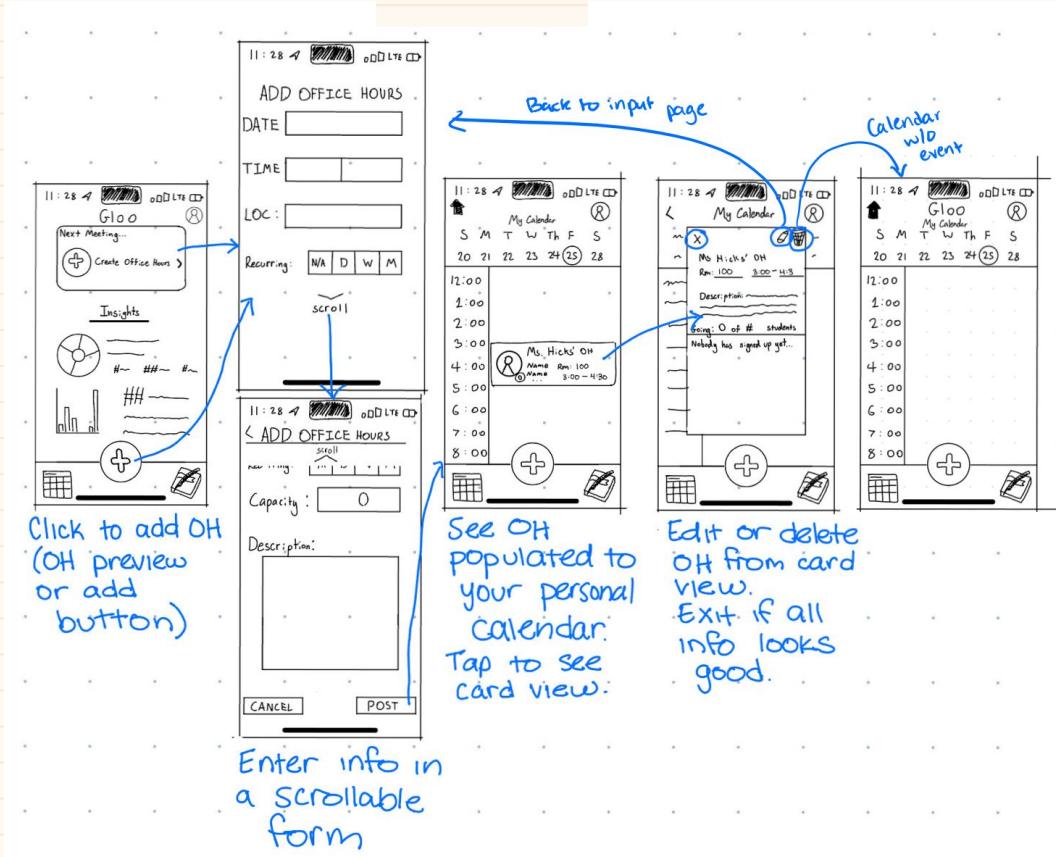
FOR TEACHERS*

*Very similar to the student version! Just slightly different content



FOR TEACHERS

COMPLEX TASK FLOW: CREATE AND SHARE OFFICE HOURS





04

TESTING

PARTICIPANTS: STUDENTS

Recruited via snowball recruitment and cold-approaches. Compensated with appreciation. Blue circles conducted via Zoom.



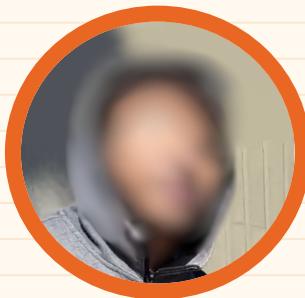
ALAN

A Philly high school student



LUKE

An NYC high school student



SAWYER

A Bay Area high school student



NATASHA

A Spokane high school student

PARTICIPANTS: TEACHERS

Recruited via snowball recruitment and cold-approaches. Compensated with appreciation. Blue circles conducted via Zoom.



NICO

A Bay Area
professor



CALLIE

A Seattle
teacher

ROLES



FACILITATOR



NOTETAKER



**FACILITATOR/
NOTETAKER**



COMPUTER

PROCEDURE

INTRODUCE GLOO

Provide a brief description of how the setup works

TASK EXECUTION

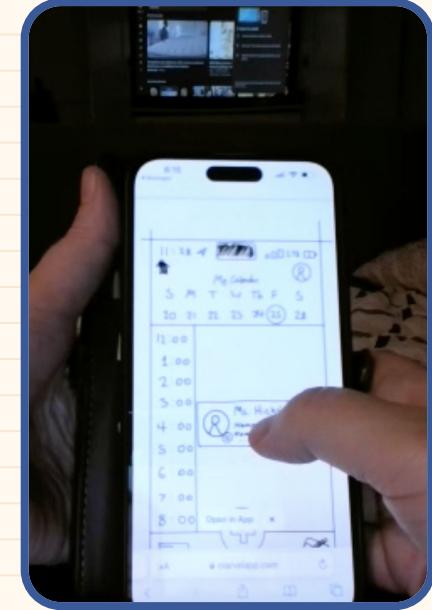
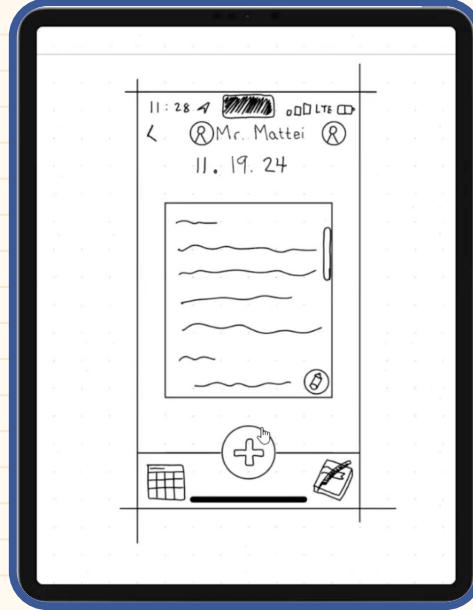
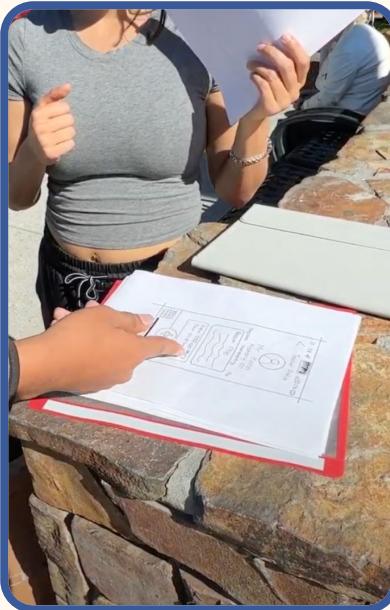
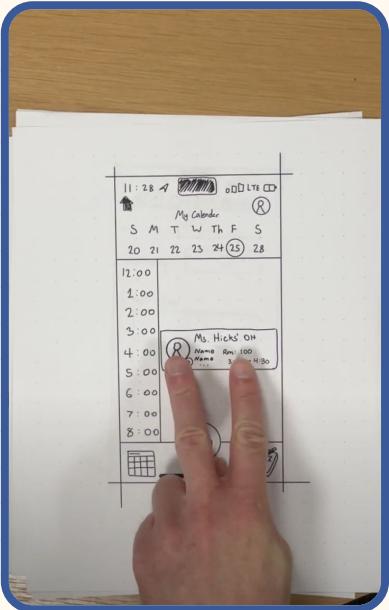
Ask the participant to execute their tasks. A few tasks had small follow-ups (e.g. "how would you edit your office hours?")

DEBRIEF

Ask about any observed confusion during the tasks. Gather thoughts and opinions from the user.



ENVIRONMENTS



PHYSICAL



VIRTUAL

WHAT WERE WE LOOKING FOR?



WHAT WERE WE LOOKING FOR?



GOAL

METRIC

Navigable

Clicks in the wrong direction



Simple

Time to complete task

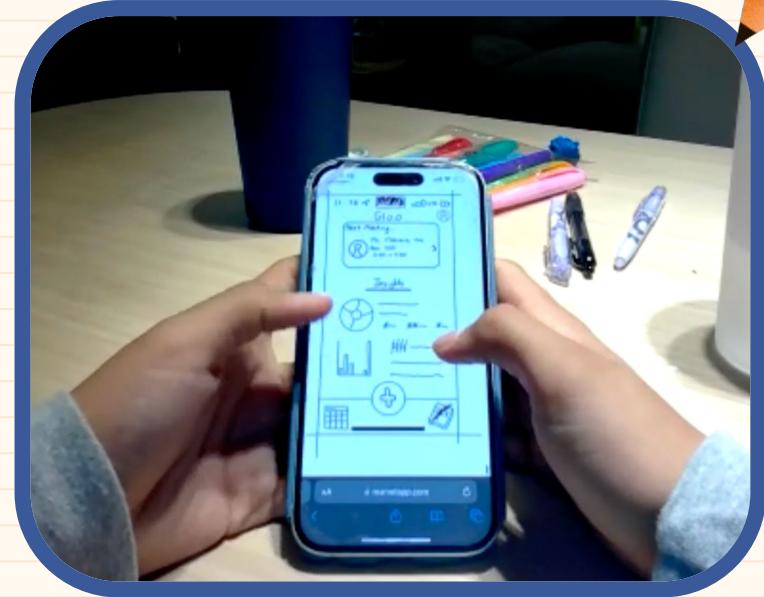


Approachable

Decision time



**SO...
WHAT DID
WE FIND?**





THE BIG PICTURE



DIFFICULT TO START

Confusion about the layout was common, especially as users were first orienting themselves.

EASY TO PICK UP

Multiple participants commented on the helpful iconography, and everyone was able to complete their tasks!



BOTTOM-LINE DATA

55

Clicks in the wrong direction

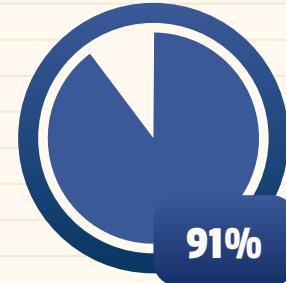
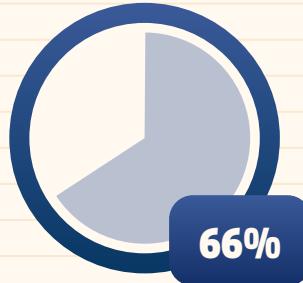
67.1 seconds

Average time to complete each task

5.03 seconds

Average decision time

LOOKING DEEPER



POPULATION → **MISCLICKS**

Students were 66% of our
sample size...

...but 91% of our misclicks!



1.8x longer*

The average additional time it took teachers to complete tasks compared to students



18%

CONTEXT: TEACHERS HAVE MORE INVOLVED TASKS

Average additional time it took teachers to complete tasks compared to students



“I’ve been **teaching for 20 years**. I didn’t start my career with...scheduling on computers. I’m **not a tech native** at all, so things being **intuitive** is super important to **me and my career**.

-CALLIE, COMPLIMENTING GLOO



- “The calendar is **missing some features.**”



“The journal icon is **very clear!**”



“I **LOVE** voice to text!”



“It doesn’t **feel right.**”



LET'S REVISIT



GOAL

Navigable

METRIC

55 misclicks (5 teacher)

ACHIEVED?

Simple

>1 minute/task average

Approachable

5.03 s/decision average

LET'S REVISIT



GOAL

METRIC

ACHIEVED?

Navigable 55 misclicks (5 teacher) For teachers, but not students

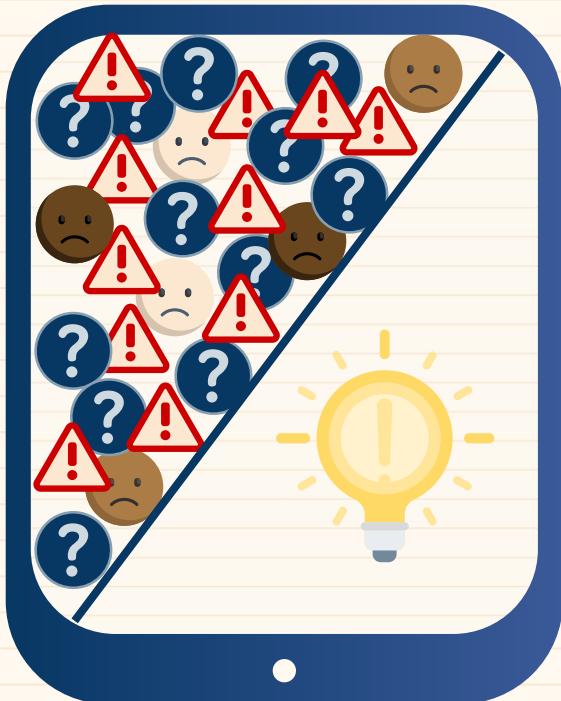
Simple >1 minute/task average Not quite, we want non-typing tasks to be well under 60s

Approachable 5.03 s/decision average This is really promising!

DISCUSSION



IMPLICATION #1: MORE CLARITY



Nobody liked the **multiple plus buttons**.
Even when there was only one, students
didn't know what the button meant

Similarity in pages was confusing for
students

Teachers were confused by the redundancy
in **how to add notes**

IMPLICATION #2: EASIER FOR TEACHERS

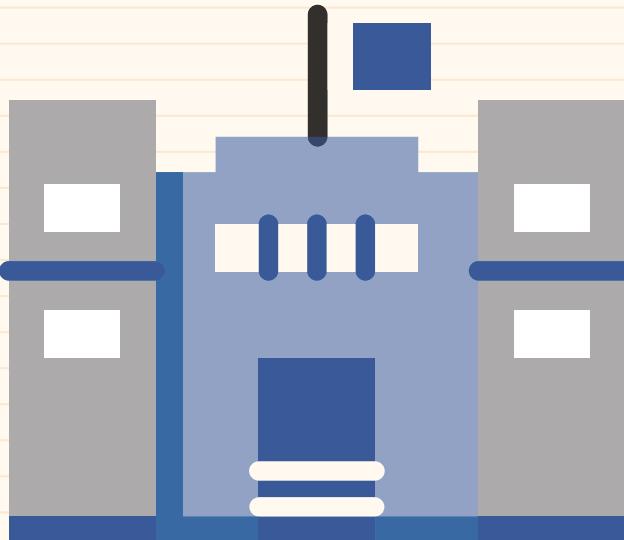
Teachers **took longer**, but made **far fewer misclicks**

The time discrepancy makes sense, because teachers have **slightly more involved tasks.**

Given that our students have simpler tasks, though, **we need to make student task flow more intuitive to prevent confusion**



IMPLICATION #3: RIGHT “SCHOOL” FEEL?



Some words felt “**corporate**”, (e.g. “capacity”)

Font isn’t everything for a paper prototype, but it did throw off one of our users, who said **the font felt too “informal” for school**

On the other hand, some elements were **too school focused** – the list of journals sorted by teacher **reminded one user of assignments**

OUR NEXT STEPS: CHANGES

CHANGE AND ADD WORDS TO BUTTONS

Clarify their meanings
(especially the + buttons)

EXPAND CALENDAR CAPABILITIES

Allow for flexibility between users

MAKE STUDENTS' JOURNALS GENERAL

Reduce conflation of pages

SET A BALANCED TONE

Meet the expectations of the users

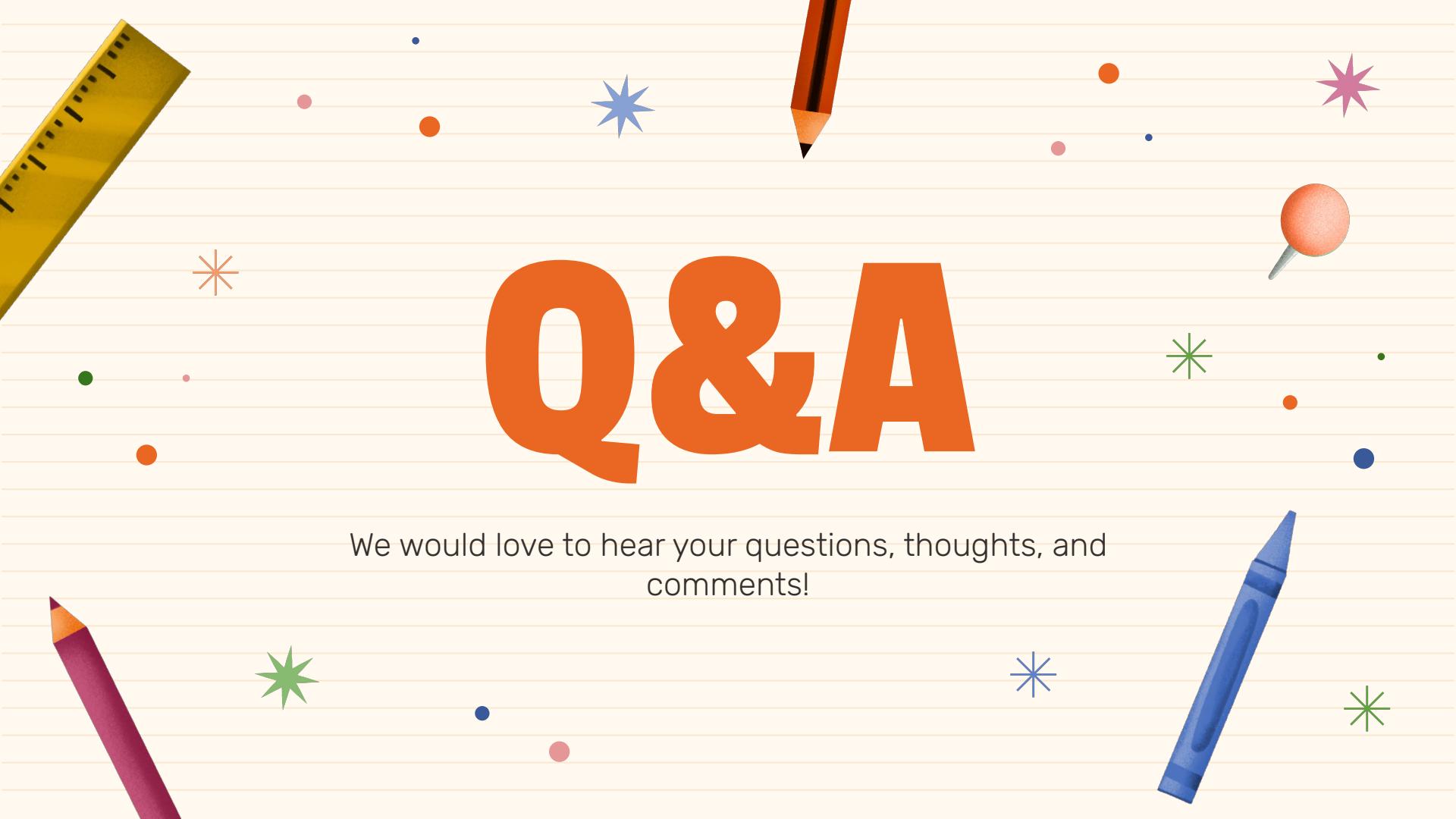
WHAT DID WE MISS?

We can always explore more! Some things we didn't test include:

- **Reactions to** the actual act of **journaling**
- Setting up a **profile**
- How task flows feel for **experienced users**

These are things we hope to look into out more deeply in future iterations!





Q&A

We would love to hear your questions, thoughts, and comments!



06

APPENDIX

WATCH: PROS AND CONS

Pros

- More acceptable than phones in class
- More convenient to check notifications - especially useful for things like calendar reminders
- Integrates more naturally into daily life

Cons

- Most high school students do not have watches
- Smaller screen is much harder to navigate
- Inputting data on a watch is difficult
- Watch is designed for simple tasks (not moderate or complex)

PHONE (selected interface): PROS AND CONS

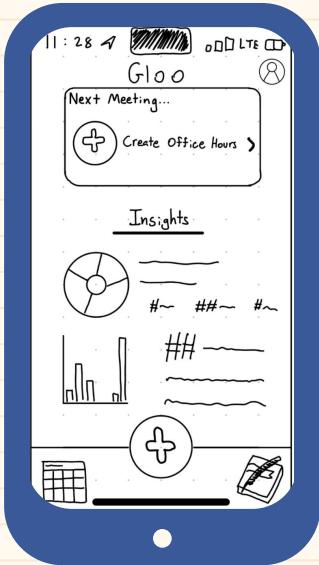
Pros

- Ability to display a large quantity of data at once
- Commonly used by teachers/high schoolers, which leads to easier adoption
- Able to handle a wide variety of task difficulties
- Strong existing calendar + messaging system

Cons

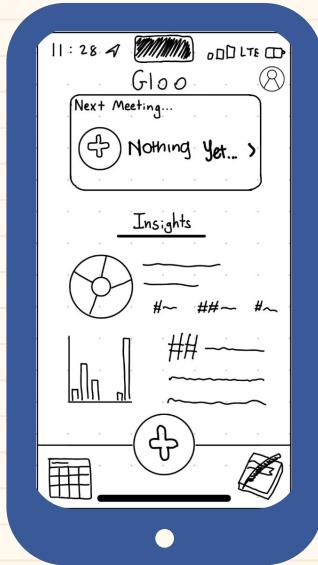
- Can't always have phones in the classroom/on school grounds
- Might encourage use of phones in school
- Inconvenient for long-form notes/journaling

DIGITAL PROTOTYPES



TEACHER

<https://marvelapp.com/ff73113>



STUDENT

<https://marvelapp.com/1109gg54>



SCRIPT: INTRODUCTION

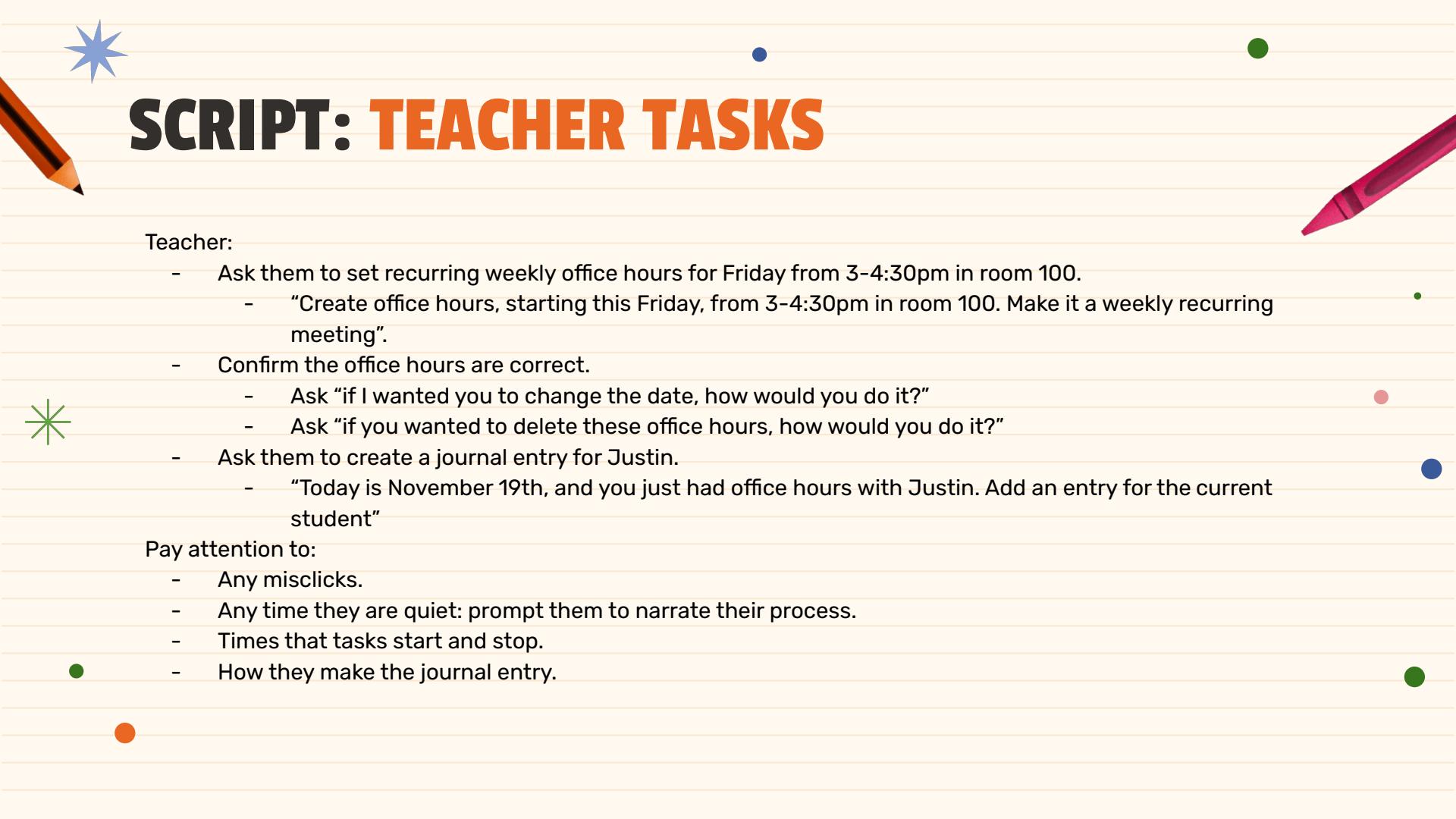
"Thank you so much for taking the time to test our app prototype! Our app is called Gloo; it is a platform for high school students to help them find and meet teachers in their school who share common interests and want to get to know students better.

We will have you interact with a paper prototype of the app. I will be the facilitator explaining what is going on, and my partner is going act as the app, moving the pages in response to your actions.



Here is the paper prototype. It is meant to mimic a smartphone screen. I will show you one screen at a time, starting on the home page. You can interact with the app by pressing on the paper with your finger. All of the functionality necessary to complete the task(s) we ask of you will work, but some of the extra buttons are not functional for this prototype.

While interacting with the prototype, we ask that you speak aloud as much as possible. Describe what you are thinking and doing in as much detail as you can. You should verbalize what you are doing every time you do something.



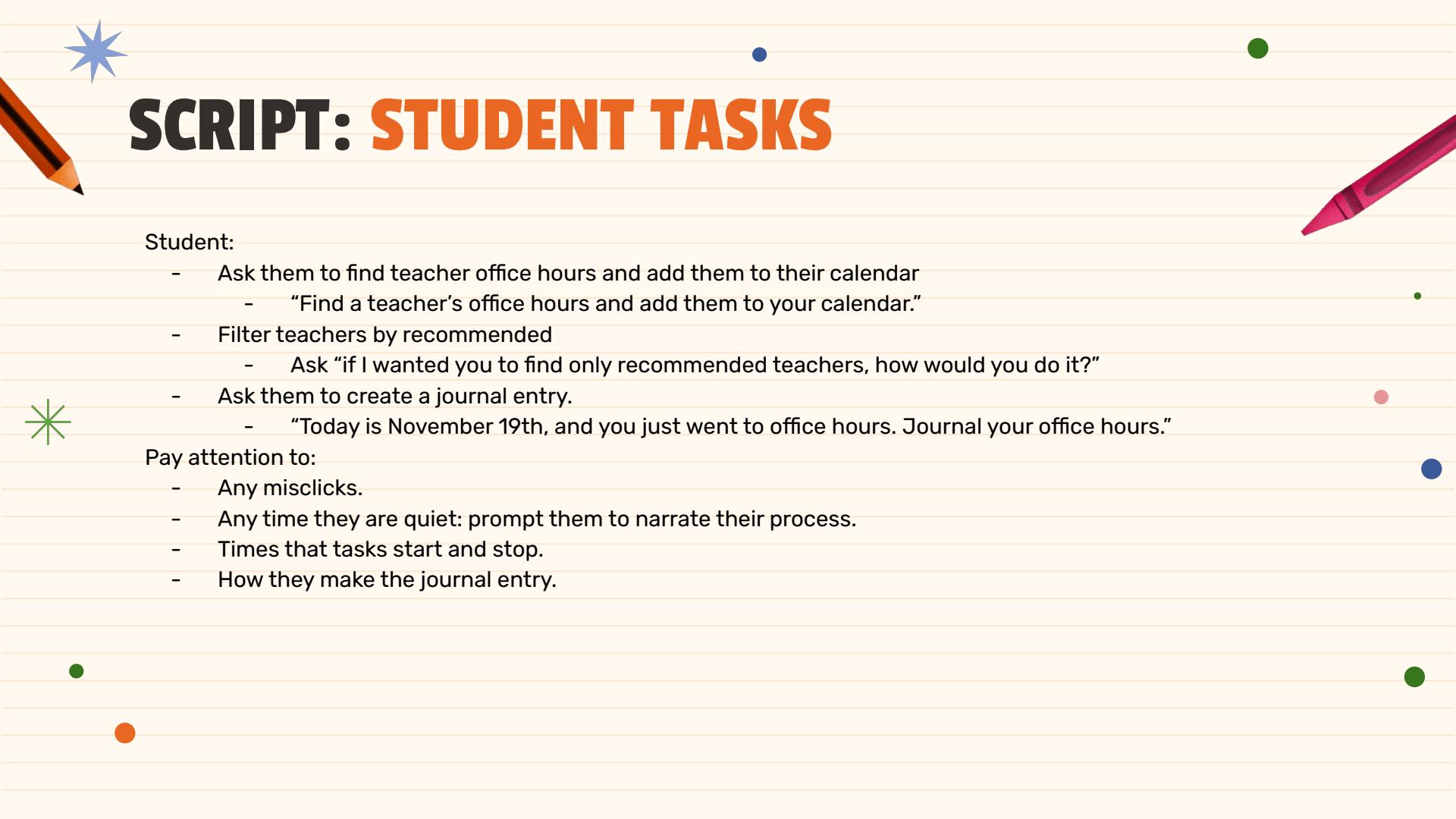
SCRIPT: TEACHER TASKS

Teacher:

- Ask them to set recurring weekly office hours for Friday from 3-4:30pm in room 100.
 - "Create office hours, starting this Friday, from 3-4:30pm in room 100. Make it a weekly recurring meeting".
- Confirm the office hours are correct.
 - Ask "if I wanted you to change the date, how would you do it?"
 - Ask "if you wanted to delete these office hours, how would you do it?"
- Ask them to create a journal entry for Justin.
 - "Today is November 19th, and you just had office hours with Justin. Add an entry for the current student"

Pay attention to:

- Any misclicks.
- Any time they are quiet: prompt them to narrate their process.
- Times that tasks start and stop.
- How they make the journal entry.



SCRIPT: STUDENT TASKS

Student:

- Ask them to find teacher office hours and add them to their calendar
 - "Find a teacher's office hours and add them to your calendar."
- Filter teachers by recommended
 - Ask "if I wanted you to find only recommended teachers, how would you do it?"
- Ask them to create a journal entry.
 - "Today is November 19th, and you just went to office hours. Journal your office hours."

Pay attention to:

- Any misclicks.
- Any time they are quiet: prompt them to narrate their process.
- Times that tasks start and stop.
- How they make the journal entry.

CRITICAL INCIDENTS: ALAN



TASK	DESCRIPTION	RATING
Find a teacher's OHs	"My next meeting is obviously not where I'm going to find that" [missing the plus button]	2
Find recommended teachers	Went to journals to find recommended teachers, even after having seen recommended teachers	3
Writing a journal	Figured out how to add a journal entry without misclicks and in under 20 seconds	0
Debrief	Would want to see calendar in month form	1
Debrief	"It's very self explanatory...very easy"	0



CRITICAL INCIDENTS: LUKE



TASK	DESCRIPTION	RATING
Find a teacher's OHs	Went to calendar to search for office hours	2
Find a teacher's OHs	Did not click on teacher recommendations because he had seen list of teacher journals	3
Find a teacher's OHs	Did not know he was in the calendar page	1
Writing a journal	Went to the calendar to put something in for a specific date	2
Debrief	Having buttons with the same icons on the same page was confusing, as was having buttons that lead to the same place on the same page	1

CRITICAL INCIDENTS: SAWYER



TASK	DESCRIPTION	RATING
Find a teacher's OHs	Did not see the difference between available and booked office hours	1
Finding a teacher's OHs	Did not know what RSVP means	1-2
Writing a journal	Immediately identified the journal icon	0
Writing a journal	No misclicks in the entire journal section	0
Debrief	Did not know how to get back to the homepage	2





CRITICAL INCIDENTS: NATASHA



TASK

DESCRIPTION

RATING

Find a teacher's OHs

Went to journal instead of calendar

2

Finding a teacher's OHs

Confused list of journals with list of recommended teachers

2

Writing a journal

Had an "aha" moment when opening the journal writing screen

0

Debrief

"A series of trial and error"

1

Debrief

Described app as "informal" because of the font - "school doesn't feel informal"

1



CRITICAL INCIDENTS: NICO



TASK DESCRIPTION RATING

Creating OHs Correctly entered all OHs info 0

Creating OHs Easily able to find edit/delete buttons 0

Writing a journal Confused about how to add a new note for a date where a note already existed 2

Writing a journal Unsure of how to handle the two plus buttons 2

Debrief Expected to see a list of journal entries instead of a map 1

CRITICAL INCIDENTS: CALLIE



TASK	DESCRIPTION	RATING
Create OHs	Described an expected calendar popup when inputting dates	1
Create OHs	Described want for a "repeat until XX/YY"	2
Create OHs	Confused "End Time" entry with "AM/PM"	1
Writing a journal	[After seeing the microphone button]: "I love to do voice to text."	0
Debrief	Thinks "capacity" is too corporate for school	1
Debrief	Had remarkably little issue navigating the app	0

INTERFACE SOURCES

“Teens, Social Media and Technology 2023”

Article [here](#)

**“Smartwatches: The Next Challenge for School
Cellphone Policies”**

Article [here](#)

**“Schools Are Banning the Apple Watch. Is It Time to
Ditch Yours at the Office?”**

Article [here](#)