theo

A5: Low-Fi Prototype & Pilot Usability Testing

by Team Theo 🧸: Ananya N, Ayana G, Anthony C, Felix Z

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theo

Gentle nudges. Real progress.

The Team

Ananya N.

Ayana G.
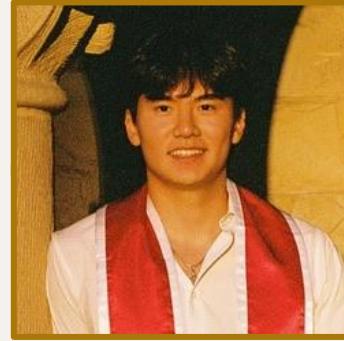
Anthony C.

Felix Z.

Problem

ADHD learners struggle with:

➔ staying on task

➔ hyperfocusing

➔ breaking down large tasks

➔ finding conducive work environments

Problem

ADHD learners struggle with:

➔ staying on task

➔ hyperfocusing

➔ breaking down large tasks

➔ finding conducive work environments

Solution

Provide an artificial source of body doubling that:

➔ offers reminders to take care of biological needs

➔ provides reflection opportunities to refocus/stay on track

➔ aids in task decomposition

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Solution Idea Sketches
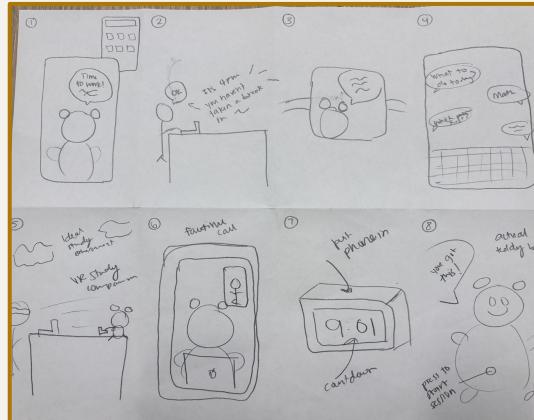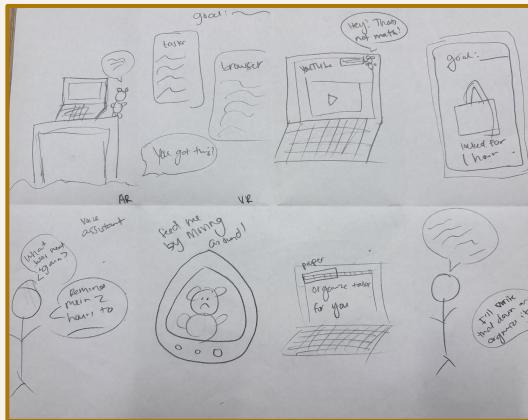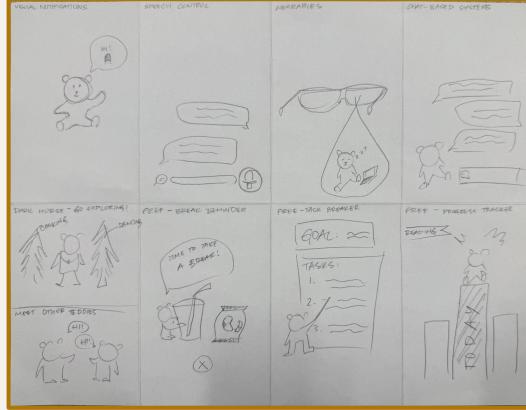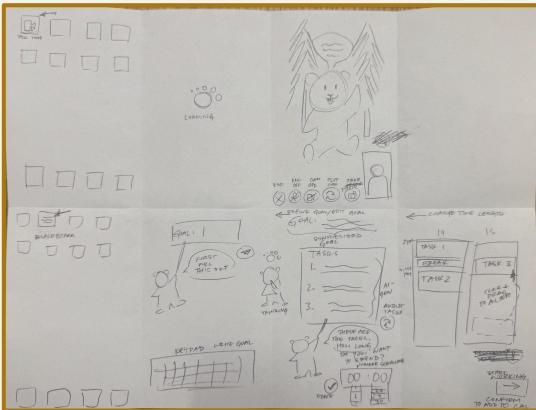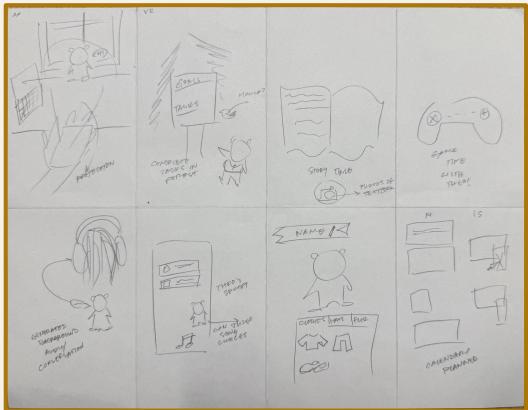
Concept Sketches
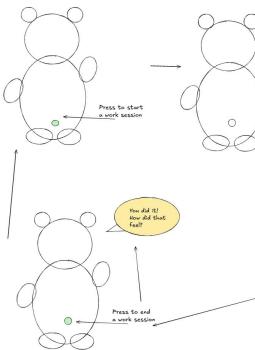
Physical teddy bear w/ interaction capabilities
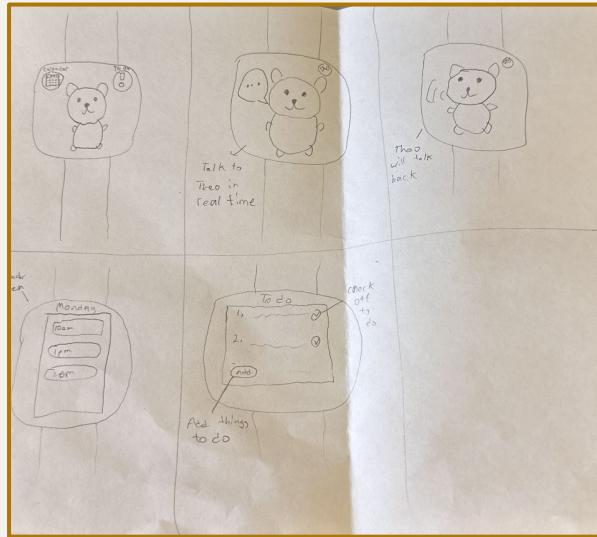
Wearable Apple watch – tracks biometrics
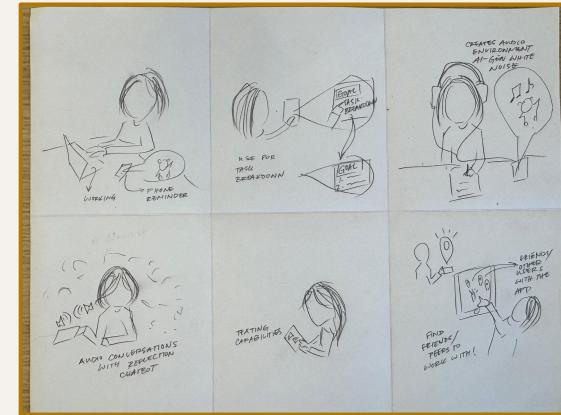
Mobile app – basic uses

Mobile App Realization
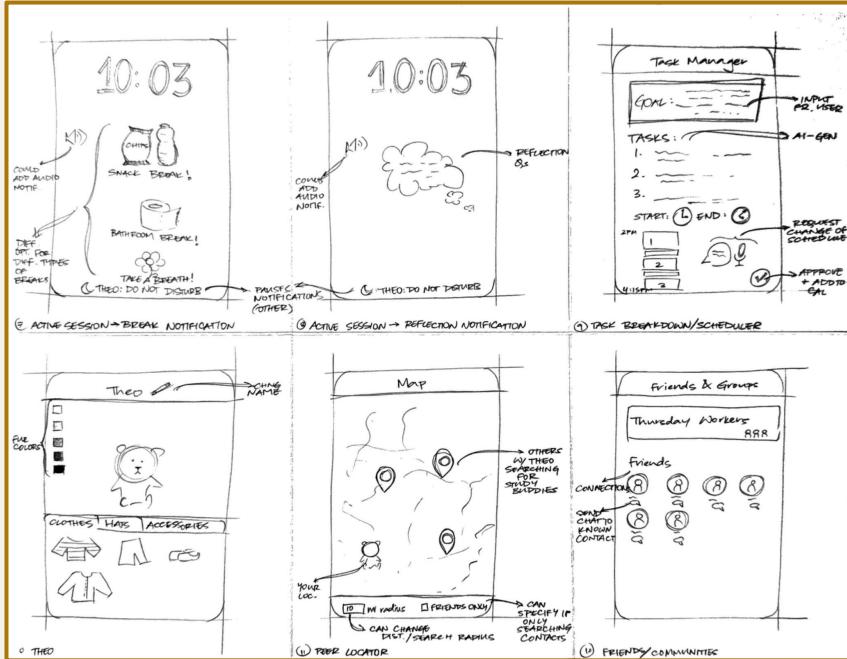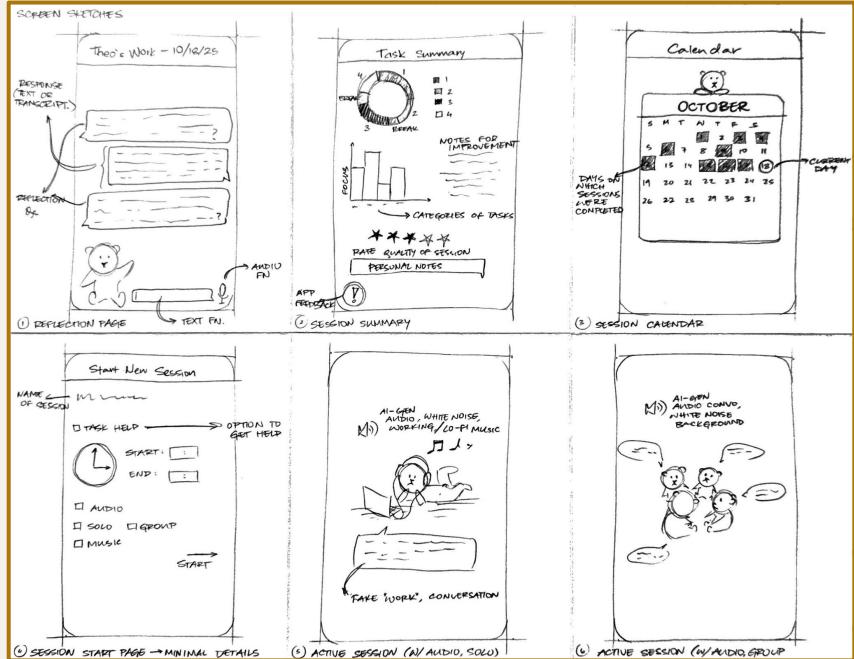
Web App Realization
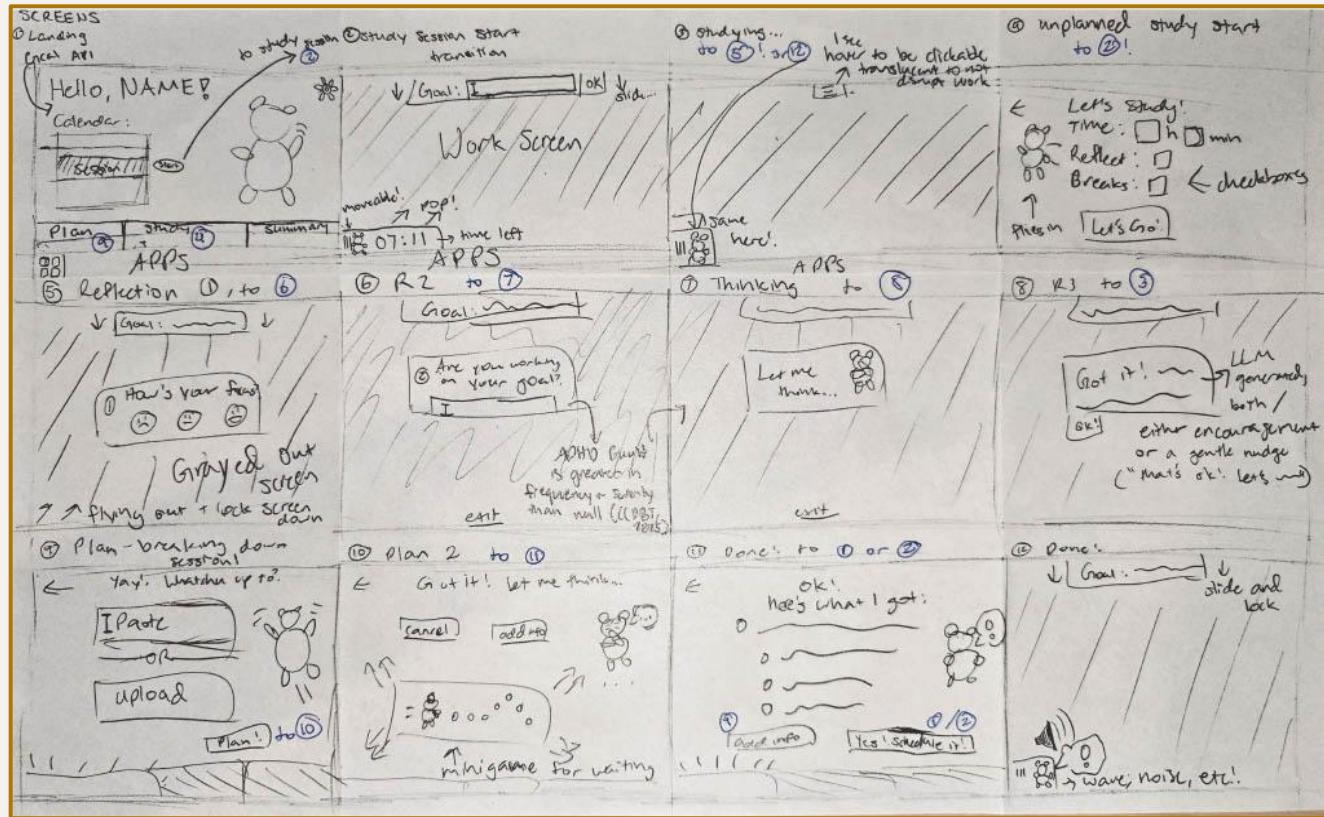
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Mobile Application

Pros

- \+ More accessible/ **portable** → usable for tasks not based on desktop

- \+ Easier to **integrate voice**, camera, GPS compatibility

- \+ **Notifications** and reminders more natural & noticeable

Cons

- \- Much **smaller interface** → lends less to detailed interaction/reflection

- \- **Switching** between phone and work device may be frustrating

- \- Could lead to **further distraction**

Hi, I'm Theo.
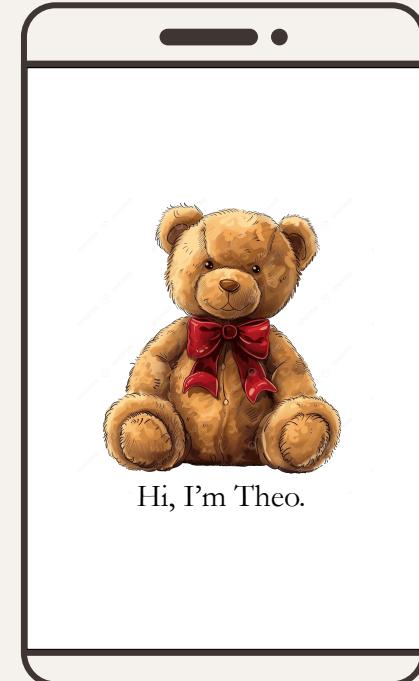
Web Application

Pros

+ Interface more **consolidated** with typical work platform

+ Larger interface → more features & more **long form responses**

Cons

- **Less convenient** for all-time use

- More **restrictive** to text responses

- **Less easily to integrate** with common work apps

- Potentially less effective to **remove from hyperfocus**

Hi, I'm Theo.

Analysis

A web application can offer the benefits of **in-depth reflection** (our complex task), **reduced device switching** (reducing distraction) and more complex features & **customizability**.

A mobile application makes use of a device that is **available** at all times, is **more integrated** into daily life, and can more accurately **replicate the presence** of another human being.

Constraints & Ethics

A web application requires the user to own some form of laptop or computer. Voice interaction will be limited due to the unfamiliar nature of communication with this type of device. The interface may be larger but should be as simplified as possible.

A mobile application may provide reduced accessibility (visual barriers). Navigation must be intuitive and sizable for touch capabilities → this also requires a simplistic interface.

Our Design

While a web application has many benefits and lends itself better to specific features that would be effective to include, **the mobile application is a better embodiment of our values**, physically and metaphorically.

We hope to produce a product that doesn't take too much presence, that is natural to use, and that can be utilized as a friend → to implement the desired effects, we find strengths in the **portability**, **size**, **simplicity**, and **features** that the device offers, specifically **voice control**, emulating conversations with friends and family.

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Production

➔ Derived from task flow storyboards in Excalidraw

➔ Created rough paper sketch version

➔ Expanded by fleshing out the details of each screen (navigation options, keypads and voice activation features, LLM interaction simulation)

➔ Separated screens from pop-up widgets and modals

➔ Printed on paper for testing

Operation & Features

Operated by advancing through a series of setup/instantiation steps:

1. Enter a work session goal
2. (opt.) Allow AI to break down into tasks for ease of completion
   a. Edit AI-generated tasks until personal satisfaction and preparation
3. Complete tasks and take breaks when nudged
4. Reflect between and after task completion

Features: Keypad, voice interaction/response, AI- generated task breakdown and chat experience for reflection

Rough paper sketch

Printed Excalidraw prototype

Contents

Simple task: Start a work session

display total time of this part of the session, but not a countdown of time as this can be stressful

Hi,

Recent sessions

Length: 2 hours Goal: Math pset

Length: 1 hour Goal: Submit application

Start new session

Goal?

Start session

Goal?

Break down into subgoals

Start session

At the very minimum, type in/voice type a goal to have for the session

Let me get my work, too!

Goal:

25 mins

Session

Moderate task: Break down large goal into smaller ones

See summaries of recent completed sessions for sense of progress

Also "recreate" previous sessions for quick-start versus going through session set-up

Hi,

Recent sessions

Length: 2 hours Goal: Math pset

Length: 1 hour Goal: Submit application

Start new session

Landing screen

set up to get to moderate task

Goal?

tap to open keyboard and name a goal

Start session

Goal?

Break down into subgoals

Start session

tap to open keyboard and name a goal, or use voice

Goal?

Break down into subgoals

Subgoals

Start session

Use AI to break down a goal into possible subgoals with time estimation and priority level

Goal?

Break down into subgoals

Subgoals

30 mins — subgoal 1 — Priority: High — break

5 mins

30 mins — subgoal 2 — Priority: Medium — break

5 mins

Start session

Goal?

Break down into subgoals

Subgoals

30 mins — subgoal 1 — Priority: High

5 mins

30 mins — subgoal 2 — Priority: Medium

5 mins

Start session

Edit the generated suggestion

Goal?

Break down into subgoals

subgoal 1

— 30 mins +

Low Medium High

Start session

Change the title and/or the time length

Goal?

Break down into subgoals

new subgoal 1

— 40 mins +

Low Medium High

Start session

Goal?

Break down into subgoals

Subgoals

40 mins — new subgoal 1 — Priority: High — break

5 mins

30 mins — subgoal 2 — Priority: Medium — break

5 mins

Start session

Confirm schedule

Goal?

Break down into subgoals

Subgoals

40 mins — new subgoal 1 — break

5 mins

30 mins — subgoal 2 — break

5 mins

Start session

Let me get my work, too!

Goal:

Current subgoal:

40 mins

Complex Task: Reflect while working
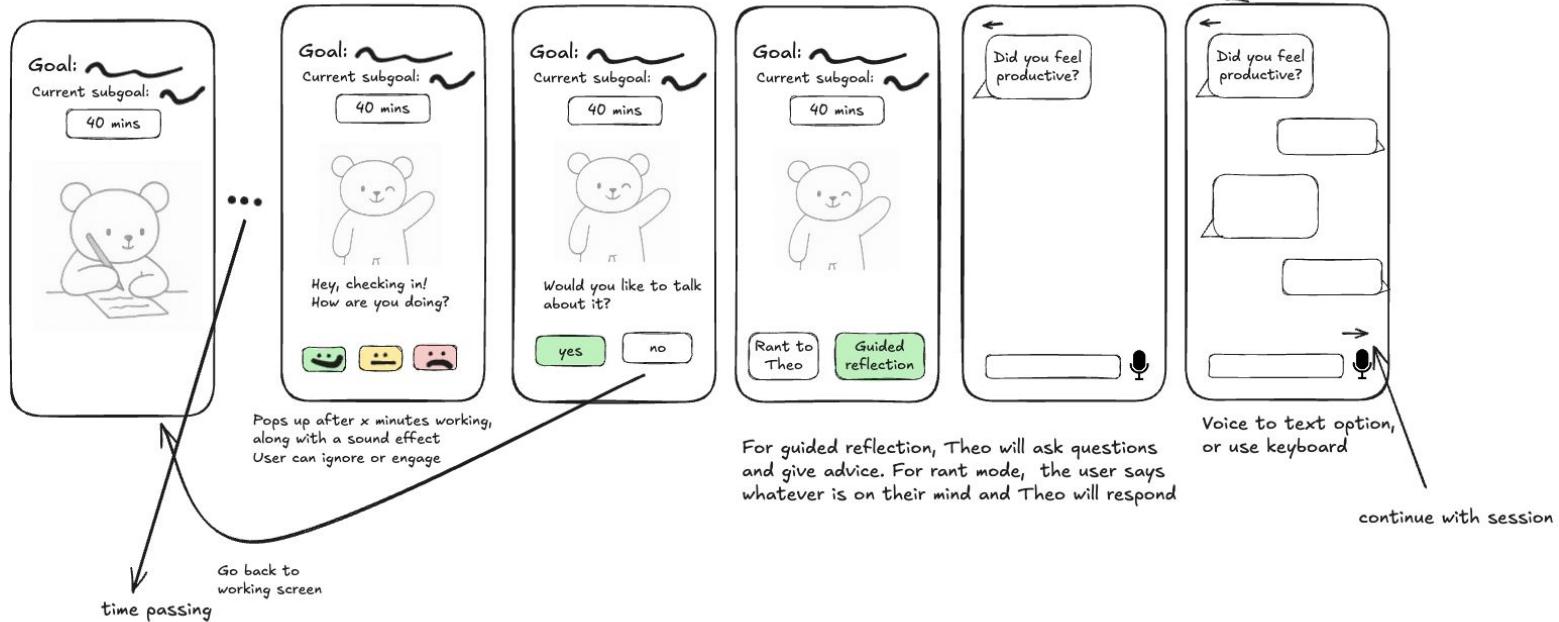
go back to reflection option

Screen 1:
Goal: ~~
Current subgoal: ~~
[40 mins]

Screen 2:
Goal: ~~
Current subgoal: ~~
[40 mins]

Hey, checking in!
How are you doing?

[😊] [😐] [☹️]

Pops up after x minutes working,
along with a sound effect
User can ignore or engage

Screen 3:
Goal: ~~
Current subgoal: ~~
[40 mins]

Would you like to talk
about it?

[yes] [no]

Screen 4:
Goal: ~~
Current subgoal: ~~
[40 mins]

[Rant to Theo] [Guided reflection]

For guided reflection, Theo will ask questions
and give advice. For rant mode, the user says
whatever is on their mind and Theo will respond

Screen 5:
Did you feel
productive?

Screen 6:
Did you feel
productive?

Voice to text option,
or use keyboard

time passing

Go back to
working screen

continue with session

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Participants, Environments & Apparatus

1 Kevin T.

22 y.o. recent grad with ADHD, works at Google

Interviewed at workplace in Sunnyvale

Devices used: Video recording, Notes app

Compensation: Krispy Kreme

2 Thomas L.

21 y.o. recent grad who works at a tech startup

Interview on Stanford campus

Devices used: Paper notes and pictures

Compensation: N/A

3 Chris S.

25 y.o. early biomedical engineering professional, often procrastinates

Interviewed at a Palo Alto cafe

Devices used: Video, typed notes

Compensation: N/A

4 Tina L.

21 y.o. recent grad working at GSB

Interviewed on Stanford campus

Devices used: Voice recording (notes made by picking up mic after task)

Compensation: Coffee

Roles & Procedure

Each team member took on new roles for each interview.

- Ananya → **Facilitator**/Observer/Computer/Greeter
- Ayana → Computer/Greeter/**Facilitator**/Observer
- Anthony → Observer/**Facilitator**/Greeter/Computer
- Felix → Greeter/Computer/Observer/**Facilitator**

Facilitator introduced and described the prototype. User tapped on the paper screens, and **Computer** placed the next appropriate screen/modal.

Observer recorded sessions for notes and review.

Goals & Key Metrics

Task 1: Starting a Basic Study Session

Goal: Users find the process of starting a session simple and minimally participatory

Metrics: Fewer than 5 incorrect taps to start and complete session with goal

Task 2: Breaking Down a Large Goal

Goal: Users find and utilize breakdown feature without assistance

Metrics: Time to find breakdown feature < 10 sec, fewer than 7 incorrect taps to increase Task 1 time from 30 → 40 min.

Task 3: Engaging with Reflection Feature

Goals: Users notice and respond to reflection reminder with ease

Metrics: Minimal navigation errors between reflection page and returning to session

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Bottom-Line Data

Moderate task took the longest to complete because of over-involved interface – lots of buttons but still need for more robust customizability features
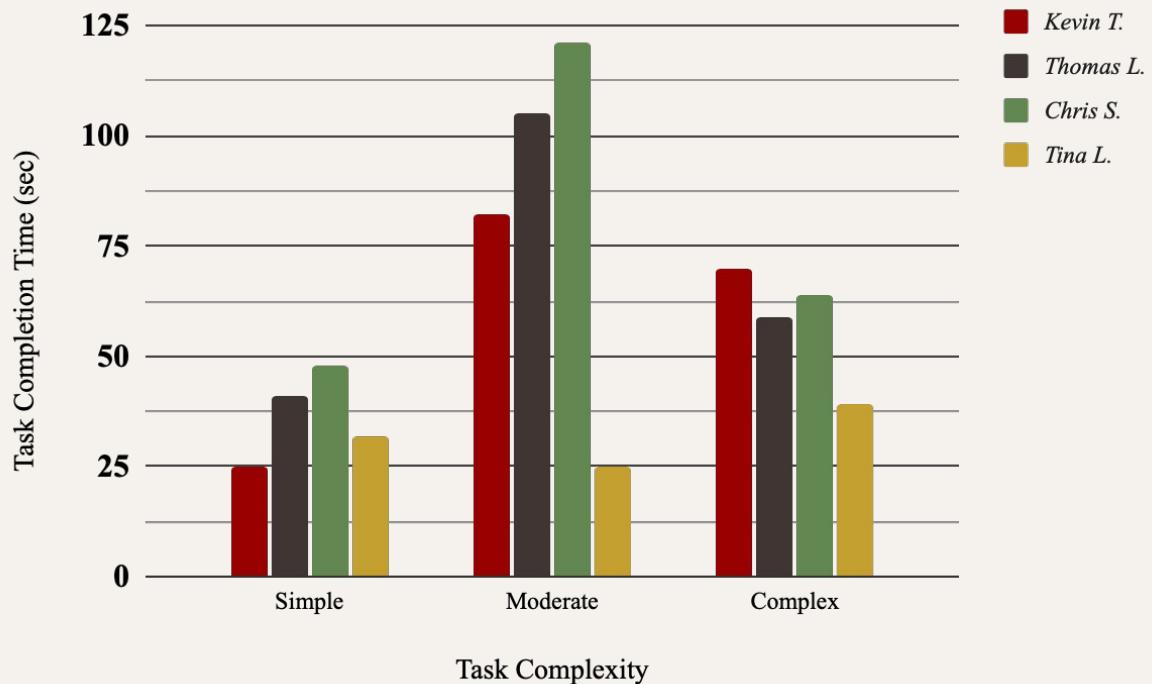
Process Data

+ **Enjoyed** the presence of a bear character!

→ "Awww Theo", "I love Theo so much honestly, I feel like half the reason I'd use this app is because of Theo." ⭐

+ Was **amazed at the capabilities** of the app in understanding ADHD struggles

→ ⭐ "This is scratching an ADHD itch that I have, this is perfect… this didn't exist when I needed it so I had to make this app myself."

- AI-generated tasks and time estimations requires users to do **excessive editing** if unsatisfactory. Our current system doesn't allow bulk edits and enforces one workflow.

→ "Wait, if I'm halfway through studying and I take a break and come back, do I have to pretend I didn't complete half the earlier tasks?"

- Currently **no provisions** for finishing session early or needing more time to complete a task

→ "What happens if I finish early? Or I'm not done?"

Goal 1: Task Initiation Efficiency

Rationale: As this is an early prototype focused on reducing friction in starting work sessions, users should be able to quickly move from intention to action.

Metrics: < 5 incorrect taps

Participant	Incorrect Taps
Kevin T.	0
Thomas L.	1
Chris S.	0
Tina L.	3

<u>Goal achieved?</u> **Yes** ⭐, all participants took < 5 incorrect taps to successfully set up and navigate through a basic session.

Goal 2: Goal Breakdown Clarity

Rationale: The moderate task feature (breaking large goals into subgoals) is a core differentiator. Users must understand the breakdown process intuitively.

Goal: Identifying and utilizing breakdown feature
Metrics: < 10 seconds finding feature, qualitative feedback for editing interface

Participant	Identified feature (< 10 sec)	Editing Feedback
Kevin T.	Y	Unnecessary extra button(s)
Thomas L.	Y	Buttons were overwhelming
Chris S.	Y	Regenerating/not using suggestions unavailable
Tina L.	Y	No bulk editing

Goal achieved? **Not completely** 🥴, users found editing capabilities limiting but visually excessive.

Goal 3: Reflection Capacity

Rationale: Fewer users might want this, but reflections are a key aspect for individuals who hyperfocus and want to ensure their work is on track.

Metrics: < 10 sec to notice reminder, < 5 navigation errors

Participant	Noticing Reminder	Navigation Errors
Kevin T.	Y	1
Thomas L.	Y	2
Chris S.	Y	0
Tina L.	Y	2

<u>Goal achieved?</u> **Yes** ⭐, all users noticed, responded to, and progressed from their reflections.

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Implications

Needfinding/tasking analysis was a success! **Body-doubling** aspect through a teddy bear was a key hook for all participants! Some users **enjoyed the prospect** of having AI-generated suggestions for larger goals, others **felt restricted** by the generated tasks and wanted more customization power. **Excessive time and focus investment** was needed from the user to first ensure task breakdown was up to par before beginning to work. This interface was overwhelming and needed to be explained to most participants.

Changes

➔ **Emphasize** companionship aspect *further* to draw users in and provide motivation
➔ **Reduce** amount of information on landing page
➔ **Rework** UI for task breakdown – simplify while still providing maximum customizability
➔ Ensure reflection reminders are **subtle** but effective – NOT distracting, more supportive, and customizable

Limitations

While participants expressed interest in the potential functionality and effectiveness of the timer/break system, we were unable to test if they would truly find the nudges distracting or relieving from their work.
This can only be tested by having the participant physically invest time in their work and use the app to have them pause and observe their reactions.

We are also still unsure about what sorts of tasks will be generated by AI when prompted – the quality of this feature relies on the quality of the tasks & accuracy of time estimations.

Thank You 🧸

Questions?

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Mobile App Pros & Cons (full list)

Pros	Cons
+ Always accessible/portable	- Can contribute to distractions
+ Push notifications are more effective	- Smaller interface
+ More likely to become habitual	- Less detailed capabilities
+ More user-friendly → behaves like other well-known built-in apps	- Separate device from work (most people do work on desktop) → switching may be tedious
+ Easier for voice activation/interaction	- Separate development for separate operating systems
+ Easier to link with other apps/platforms	
+ Can be wearable through smart watches (ex. iPhone → Apple Watch)	

Mobile App Pros & Cons (full list, cont.)

Pros	Cons
+ Can use GPS sensors to send notifications/reminders based on geographic location + Easy camera access for adding visuals to reflections or having VR experience	

Web App Pros & Cons (full list)

Pros	Cons
+ Larger interface → more customizability and features	- Less integrated with other apps due to limited nature of React Native
+ No switching between devices (most people work on desktop)	- Not always convenient or accessible for all manner of tasks
+ Potentially usable without installation	- Less integrated into daily use
+ More in-depth communication and feedback possible	- If using browser version, less ability to manage push notifications → must manually silence other distractions and/or permit browser notifications
+ Easier to lock screen or make reflection/break reminders more apparent	- More awkward for voice and geographic features
	- Potentially less effective in removing from hyperfocus zones

Low-fi prototype

Link to Excalidraw session

Link to paper print-out version

Link to testing script

Critical Incidents Log #1 - Kevin T.

Task Complexity	Severity	Description of Incident
Simple	0	**Loved** the ability to see recent work sessions to check how long a similar goal previously took to complete – "Oh, awesome! This is exactly what I was looking for!"
Simple	2	Was **slightly irked** at the fact that homepage would be empty if no sessions completed yet
Simple	4	**No current functionality** for completing a task sooner or later than time budgeted
Moderate	0	Was **amazed** at the task breakdown feature – "Wow! This app didn't exist when I needed it… This is scratching an ADHD itch, this is perfect."
Moderate	1	Extra editing button increased time to complete task out of **confusion of usage** – "Oh, that seems unnecessary…"
Complex	0	**Surprised** at incorporation of LLM chat feature in reflection – "Oh, it has a chat?? This is great!"

Critical Incidents Log #2 - Thomas L.

Task Complexity	Severity	Description of Incident
Simple	0	Thought the bear was **friendly** -"Oh, Theo is cute"
Simple	2	Got a bit **stuck** on the home page and the recent sessions buttons
Moderate	1	**Didn't really understand** breaking down into subgoals - "What's a subgoal"
Moderate	2	Editing button for subgoals was **confusing**. He didn't understand why he had to click edit twice
Complex	3	Found the reflecting while working **not as helpful** for him. "I feel like the reflection while working is **distracting** for me"
Complex	0	**Liked** the option to rant and **just vent** to Theo - "Oh I lowkey just rant to Chatgpt about stuff like this already"

Critical Incidents Log #3 - Chris S.

Task Complexity	Severity	Description of Incident
Simple	0	**Liked** the bear – "Aww Theo"
Simple	2	Thought he had to press the break into tasks button to continue – "**Do I break it down into tasks?** I don't have tasks in mind."
Moderate	1	Prefers the language **"tasks" vs. "subgoals"**
Moderate	2	**Wasn't clear** at first that AI was being used
Moderate	2	**Wanted to remove** all AI suggestions and start over – "What if I have more than two tasks to do?" "What if I'm in the middle of a project?" "Can I just do it without AI generation?"

Critical Incidents Log #3 - Chris S. (cont.)

Task Complexity	Severity	Description of Incident
Moderate	1	**Many taps required** to complete moderate task of breaking down a goal into subgoals – Took 2 minutes to complete
Complex	0	**Enjoyed** the three-emoji tap system to prompt the reflection – Smiled when this screen popped up
Complex	0	Understood rant vs. guided reflection – "I definitely need some guidance"
Complex	1	**Did not use voice** feature at all – "I don't talk to my phone"

Critical Incidents Log #4- Tina L.

Task Complexity	Severity	Description of Incident
Simple	3	Assumed all buttons were part of the task – "What are all these **extra buttons** for? Do I need to use all these to start the session?"
Moderate	4	**Wasn't able to bulk edit** subgoals – "Wait, if I'm halfway through studying and I take a break and come back, **do I have to pretend** I didn't complete half the earlier tasks?"
Complex	0	**Enjoyed** Theo prompting – "**I love Theo so much** honestly, I feel like half the reason I'd use this app is because of Theo."
Complex	1	Found **much of the functionality redundant** – "Wait, isn't [rant] the same thing as 'reflection'? What's the point of having a different screen for both?"