

Re-Interfacing AI For Students

Tej Bhoga

Agenda

1. Problem Space
2. Discovery Research
3. Insights
4. Prototyping Process
5. Usability Testing
6. Closing Insights

Problem Space

Generative AI tools like ChatGPT, Claude, and Gemini have become everyday staples for many students.

While their primary purpose is as a conversational tool, there are several other tools, like editing, coding, and tasking, that its interface might not be the most intuitive for using.

Opportunity

Since these tools have powerful capabilities, but have been limited to a standardized setup, interfaces could be redesigned for optimization for groups like students.

Without changing the LLM technology, can the interface be more optimized for the full capability of these models.

Research Objective

To understand what ways students interact with generative AI interfaces, and what interfacing decisions can help achieve their productivity goal.

Discovery Research Process

1. Competitor Review

- Took a review of several similar products and interfacing options
- Common models for students
- Student/project oriented models

2. User Interviews

- 5 user interviews
- Diverse backgrounds (majors)
- Daily-Weekly AI Usage
- AI Use-Case Walkthrough

3. Analysis & Insights

- Affinity mapping
- Personas
- Journeymap
- HMW Statements



ChatGPT ▾

[Share](#)

Descartes Meditations doubt crit...

Apple Watch band compatibility

Get image height JS

Descartes reason equality

Steady state error derivation

Summarize paper request

Building a Strong Foundation

Movie Realism Variations

Nature vs Nurture Proposal

Journal of Athletic Development

Nature vs Nurture in Athletes

Python Data Analysis Guide

CS Assignments with ChatGPT

Adversarial Search Exercises Help

Music Analysis Comparison

Math 1316 Practice Questions

Tej WU
PlusPasted text(2).txt
Document

this is our paper, can you help me amplify the summary section and really let it land:

can you help me amp up the summar, just give a line or two to add

Your summary is already solid—it just needs a **strong closing punch** that emphasizes impact and why it matters.

Here are 2 lines you can add at the end:

Taken together, this work positions allocentric spatial navigation as a sensitive and mechanistically grounded behavioral marker of Alzheimer's Disease risk, rather than a byproduct of general cognitive decline. By integrating genetic, behavioral, and network-level neural measures, this approach offers a more precise framework for identifying early disease trajectories and distinguishing meaningful subtypes of AD.



+ Ask anything



Claude



Randomize list coordinates ▾

Share

+ New chat

🔍 Search

📁 Customize

💬 Chats

📁 Projects

🔗 Artifacts

Recents

Prioritizing AI interface features f...

Randomize list coordinates ...

Gamifying a website for interactio...

Games

Prioritizing AI interface features f...

College yearbook quote ideas

Your first chat with Claude

Each room has 3 items, so they'd sit at the 3 corners of a triangle. What kind of variation do you want across rooms?

- **Same triangle shape for every room** — consistent scalene layout every time
- **Slightly varied per room** — rotated or scaled differently each room
- **Randomly shifted per room** — same rough scalene shape but nudged a bit each time

[User dismissed — do not proceed, wait for next instruction]



You are out of free [messages](#) until 4:00 PM

[Upgrade](#)

Reply...



Sonnet 4.6 ▾



t

Free plan





Gemini

Centering H1 Element in CSS

Upgrade to Google AI Plus



New chat



My stuff

Notebooks



Fraser Ch 8



+ New notebook

Gems



Chats

Persistent Fatigue: Causes and Next ...

Interaction Design Game Brainstormi...

Centering H1 Element in CSS

Understanding Python Function Syntax

Reapplying for Reposted Senior Jobs



Settings & help



i need to



It looks like you might have hit "enter" a little too early!

Since we've been working on **HTML/CSS** and **Python/Pandas**, were you about to ask something like:

- **"I need to remove..."** (e.g., how to drop a column in Pandas or remove a border in CSS?)
- **"I need to replace..."** (e.g., how to change specific values in a dataframe?)
- **"I need to render..."** (e.g., how to get that image to show up correctly on the page?)
- **"I need to rename..."** (e.g., how to change a column name in your `lev_df` ?)

Go ahead and finish your thought—I'm ready when you are!



Ask Gemini



Tools

Fast ▾





Lion Pride Gendered Behavior

⚡ Instant



+ New chat

Today

Lion Pride Gendered Behavior ...

what is the gendered behavior of lions in a pride



In a lion pride, gendered behavior is distinct and strongly tied to survival and social structure:

- **Females (Lionesses):** They are the primary hunters, working cooperatively to stalk and ambush prey. Lionesses also typically remain in their natal pride for life, raise cubs communally (including nursing each other's young), and defend the pride's territory against other females.
- **Males:** They focus on territorial defense, patrolling and fighting off rival males. Males also protect the pride from external threats. When cubs are present, males rarely hunt but may scavenge or take over kills made by lionesses. Young males are expelled from the pride at 2–4 years old, forming nomadic coalitions (often brothers) until they can take over another pride.

These roles are flexible in certain contexts (e.g., males may hunt if the pride is large or food is scarce), but the general division of labor is strongly sex-typed.



Message DeepSeek



DeepThink

Search



Tej Bhoga

...

MODEL NAME

NEW CHAT

Old Conversation

Old Conversation

Old Conversation

Old Conversation

Old Conversation

Old Conversation

Old Conversation

Old Conversation

Old Conversation

Old Conversation

Old Conversation

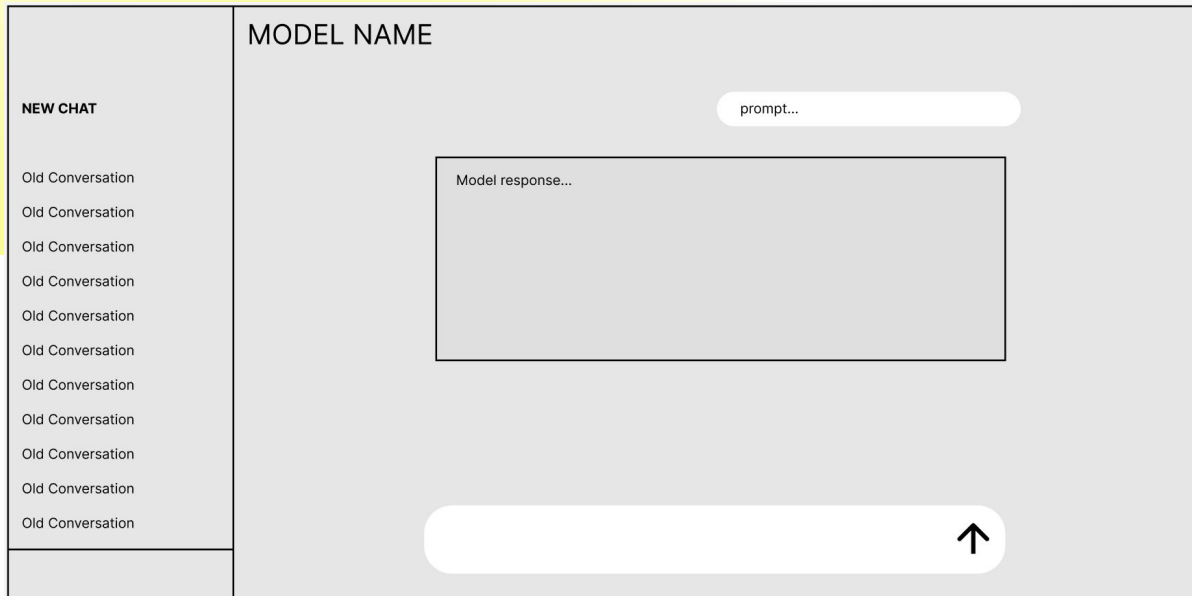
prompt...

Model response...



Classic ChatBot experience

- Left panel full of old conversations
- Main panel has an active conversation
- Responses and outputs go up





ChatGPT



The core question you are answering

If you had to reduce your whole study to ONE question:

Does this interface reduce context switching and make editing feel more direct?

What you should be looking for during testing

Good signs:

- user switches tabs confidently
- user treats document as main space
- user edits specific text directly

Bad signs:

- user stays only in chat
- user copies/pastes between tabs
- user gets confused about where content lives

+ Ask anything



Ai Inline Prototype



Preview

```
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4   <meta charset="UTF-8" />
5   <meta name="viewport" content="width=device-width, initial-scale=1">
6   <title>Inline AI Writing Prototype</title>
7   <style>
8     :root {
9       --bg: #f6f4ef;
10      --paper: #ffffdf;
11      --text: #1f1f1f;
12      --muted: #6f6a61;
13      --line: #e7e1d7;
14      --accent: #111111;
15      --chip: #f2eeee;
16      --highlight: #fff0a8;
17      --shadow: 0 10px 30px rgba(0,0,0,0.08);
18      --radius: 18px;
19    }
20
21    * { box-sizing: border-box; }
22
23    body {
24      margin: 0;
25      font-family: Inter, ui-sans-serif, system-ui, -apple-system;
26      background: var(--bg);
27      color: var(--text);
28    }
29
30    .app {
```



New chat

Search

Plugins

Automations

Projects

project 3

Clarify p5 word game 9h

ai prototype

Build AI interface proto... 17h

Chats

Settings

Clarify p5 word game project 3

but the farther words always anchor in the same place, but also remember the real words are not supposed to be random

Worked for 26s >

You're right, and I adjusted it.

Now the placement logic treats words differently:

- **Real precomputed embedding words** keep their semantic placement. They only get a small amount of spacing so labels don't pile up.
- **Unknown/fallback words** get more scatter, because their vectors are estimated and shouldn't pretend to be precise.
- The hidden target words still stay as meaningful anchors, not random points.

So the map should feel less rigid, but the important semantic words should not get tossed randomly around the board.

Hard refresh again:

<http://localhost:8000/index.html>

1 file changed Undo ↺

sketch.js +20 -5

Ask for follow-up changes

+ Default permissions ↕

GPT-5.4 ↕ Medium ↕

Work locally ↕

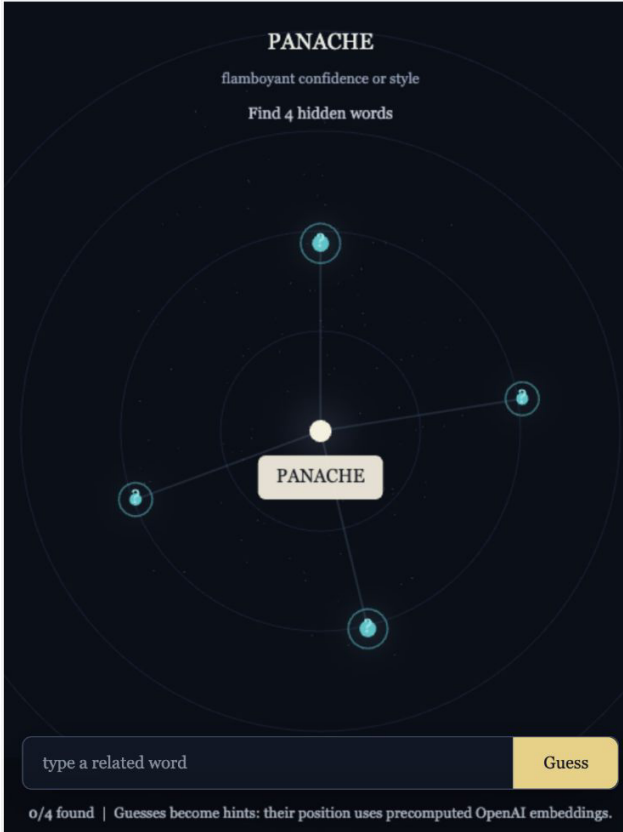
Summary Browser +

localhost:8000/index.html

PANACHE

flamboyant confidence or style

Find 4 hidden words



type a related word Guess

0/4 found | Guesses become hints: their position uses precomputed OpenAI embeddings.

 /  b-tej's projects

Added re-add button for discarded

Now I need to update the ChatInterface to pass the new handler and update page.tsx to handle re-adding:

Added onAddToPanel prop to ChatInterface

Added prop to function

Passed onAddToPanel to OutputBlock

Now let me update page.tsx to add the handler for re-adding blocks to the panel:

Added handleAddBlockToPanel

> Added onAddBlockToP... v6 +70 / -4

Out of Credits

v0 stopped because you are out of credits. Upgrade your plan to continue.

Upgrade Plan

Worked for 1m 23s 7d ago

+ Ask a follow-up...

Upgrade

You are out of free credits. Upgrade Plan

Drafts / AI workspace interface

Settings Share Publish

ThinkSpace

Psych 301 — Essay / Research outline Deep dive Quick tasks Brainstorm

Help me create a research outline for my psychology essay on cognitive behavioral therapy.

I'll help you create a structured research outline. Here's a checklist to guide your research process:

Checklist — 6 items Regenerate Discard

☐ Define your thesis statement on CBT effectiveness

☐ Research 3-5 peer-reviewed sources on CBT origins

☐ Outline key CBT techniques and their applications

☐ Find case studies or meta-analyses for evidence

☐ Draft section on limitations and criticisms

☐ Write conclusion connecting to your thesis

Output Panel

Psych 301 — Essay

Checklists (1) Drafts Notes

Research Outline Steps

0/6 completed · Research outline

☐ Define your thesis statement on CBT effectiveness

☐ Research 3-5 peer-reviewed sources on CBT origins

☐ Outline key CBT techniques and their

criticisms

Filter...

Logs Terminal

13:22:45.866Z [SERVER] Installing dependencies...

13:22:46.447Z [SERVER] Installing dependencies with pnpm@10.33.0...

13:22:46.933Z [SERVER] Lockfile is up to date, resolution step skipped

13:22:46.965Z [SERVER] Progress: resolved 1, reused 0, downloaded 0, added 0

Tej Bhoga

Documents

Library

AI Chat

Complete setup 0/5 Steps

Web Extension

Tutorials

Help

Shortcuts

See Pricing

User Testing Prompt

Share Review See Pricing

T Text B I U S @ Cite Autocomplete

User Testing Prompt

Fill document prompt

Write some paragraphs that describe the user experience, based on research that I supply, of AI interfaces for a project.

Great prompt: Jenni will reference this when generating text

or also

Import from Word (.docx)

Import your work and improve it with AI

Skip Next

Citation settings

Generate Headings

Skip and start writing

3 words

AI Chat

Add context Current document x

Ask AI, use @ to mention specific PDFs or / to access saved prompts

See Pricing

Competitor Review

	CHATBOTS	PROTOTYPING	NEW
CHAT FEATURE	✓	✓	✓
PROJECT CONTINUITY		✓	✓
SIMPLE LAYOUT	✓		✓
MULTI-PROJECT	✓		✓
SPOT EDITING		✓	✓

User Interviews

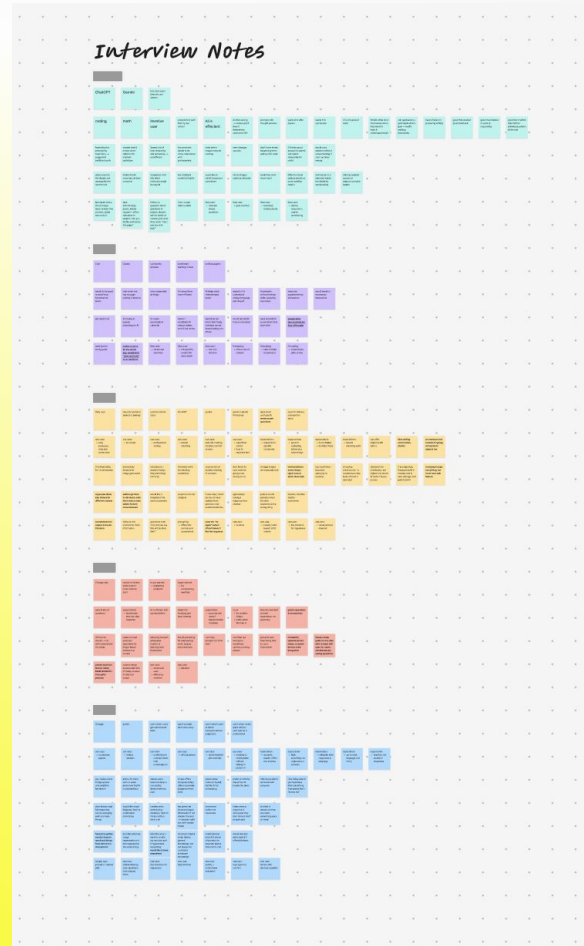
- 5 users interviewed
- Students with diverse academic backgrounds & AI usage
- Did an AI use case walkthrough
 - Asked AI what type of user they were

Affinity Mapping

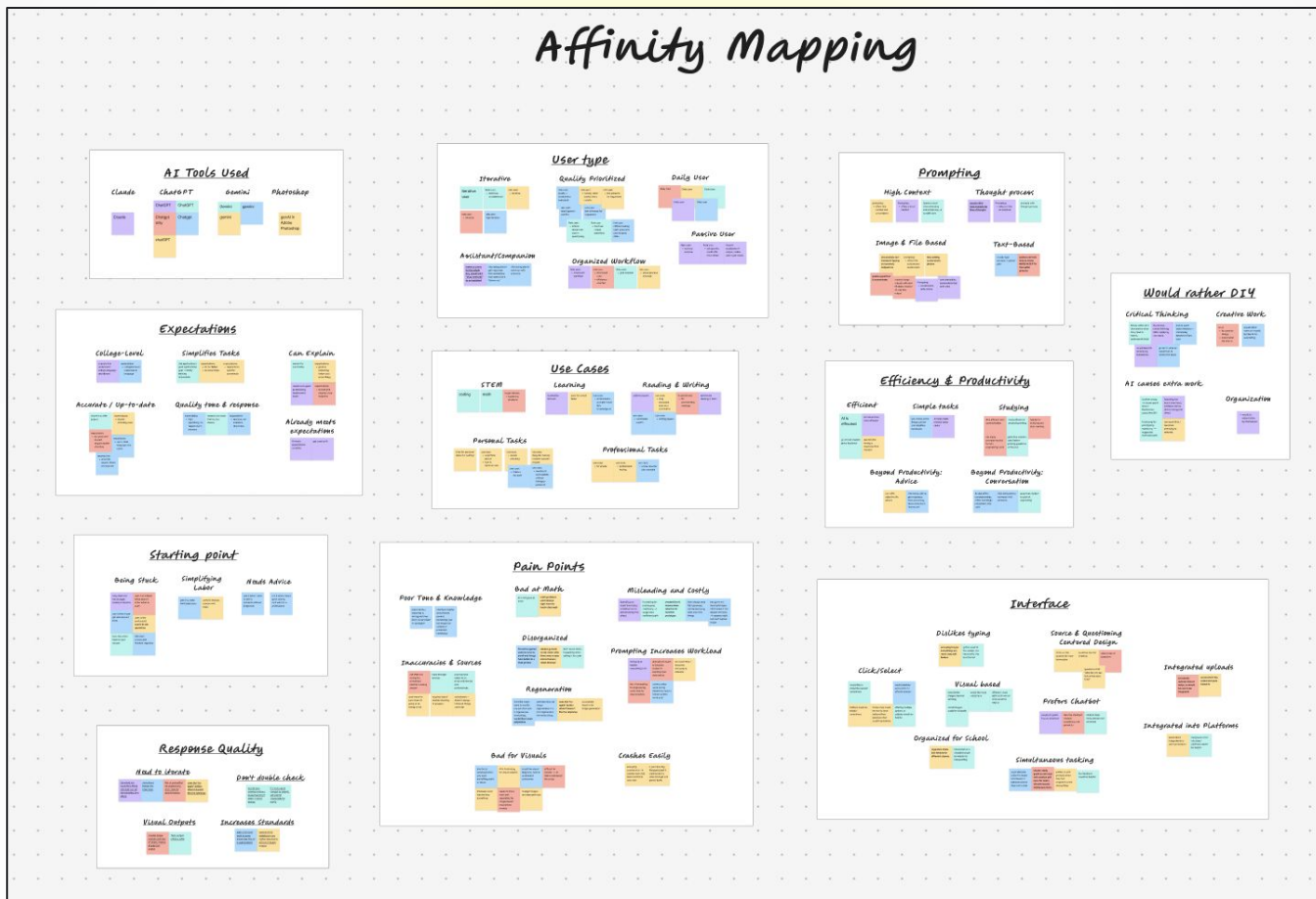
- Identified and grouped traits, desires, pain points, etc

Personas & Journeymap

- Formed 3 distinct personas
- Created a journeymap from these 3 personas



Affinity Mapping



Affinity Mapping

Pain Points

Poor Tone & Knowledge

feels when a response is wrong and they don't correct that or apologize

chat feels helpful when there's general knowledge, but not always for cultural or professional knowledge

Bad at Math

it's not great at math

math problems aren't always right, have to teach chat math

Misleading and Costly

spending too much time trying to figure out how to use the tool, especially if not clear on how to use it

feeling like the tool is not worth the money, especially if not clear on how to use it

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feeling like the tool is not worth the money, especially if not clear on how to use it

Disorganized

format has gotten worse, harder to read, especially if not clear on how to use it

feeling like the tool is not worth the money, especially if not clear on how to use it

Prompting Increases Workload

prompting to get the tool to do what you want, especially if not clear on how to use it

feeling like the tool is not worth the money, especially if not clear on how to use it

Regeneration

doesn't like when I regenerate, especially if not clear on how to use it

feeling like the tool is not worth the money, especially if not clear on how to use it

Inaccuracies & Sources

not often too wrong but sometimes it's a scary answer

need stronger sources

improvement needs to be made, especially if not clear on how to use it

doesn't know for sure when it's wrong or not

regimes lots of clutter, especially if not clear on how to use it

scholarship is not always correct, especially if not clear on how to use it

Bad for Visuals

chatbot is terrible when you want something quick or clear

it's frustrating for visual aspects, especially if not clear on how to use it

visuals are not always clear, especially if not clear on how to use it

chatbot is terrible when you want something quick or clear

it's frustrating for visual aspects, especially if not clear on how to use it

visuals are not always clear, especially if not clear on how to use it

Crashes Easily

chatbot is terrible when you want something quick or clear

it's frustrating for visual aspects, especially if not clear on how to use it

visuals are not always clear, especially if not clear on how to use it

User type

Iterative

Iterative user

Iterative user

Iterative user

Quality Prioritized

Quality user

Quality user

Quality user

Daily User

Daily user

Daily user

Daily user

Passive User

Passive user

Passive user

Passive user

Assistant/Companion

Assistant/companion

Assistant/companion

Assistant/companion

Organized Workflow

Organized workflow

Organized workflow

Organized workflow

Interface

Dislikes typing

Dislikes typing

Dislikes typing

Dislikes typing

Source & Questioning Centered Design

Source & Questioning Centered Design

Source & Questioning Centered Design

Source & Questioning Centered Design

Integrated uploads

Integrated uploads

Integrated uploads

Integrated uploads

Click/select

Click/select

Click/select

Click/select

Visual based

Visual based

Visual based

Visual based

Prefers Chatbot

Prefers Chatbot

Prefers Chatbot

Prefers Chatbot

Organized for School

Organized for School

Organized for School

Organized for School

Simultaneous tasking

Simultaneous tasking

Simultaneous tasking

Simultaneous tasking

Affinity Mapping



ANYA THE ANALYTIC

- * JUNIOR
- * ENGINEERING MAJOR
- * NEARLY DAILY USER

"If I can't explain it myself after, then it didn't help."

Anya is an engineering student with a heavy workload. She often has complex problems to work on across STEM domains and need deep explanations of them.

GOALS & EXPECTATIONS

Anya mostly uses AI for her engineering work, which is heavily STEM oriented.

She expects her AI to be accurate and clear, answering complex follow-up questions in niche topics.

BEHAVIORS

Anya typically uses AI in low-frequency sessions with high levels of iteration between outputs. She typically is trying to build models and uses AI for help, asking questions on the model structures.

PAIN POINTS

- Has been given incorrect instructions in an engineering design. This has led to "**wasted time and money**".
- Has sometimes caught **AI being bad at math** and needed to "teach it".
- Feels that AI requires too much re-prompting that slows down work.

DESIGN IMPLICATIONS

- * INTERACTIVE VISUALS
- * STEP-BY-STEP OUTLINES

USER TRAITS

- * MAKES A NEW CHAT FOR EVERY TASK
- * ORGANIZES CHATS IN PROJECTS BY CLASS
- * HEAVY ITERATER
- * OFFERS HIGH-CONTEXT PROMPTS

USER NEEDS

Anya needs an AI platform to offer her pictures, step-by-step instructions, and interactivity with mechanical models (diagrams, circuit models, etc).

Anya also needs to study most concepts herself in order to learn.



DORY THE DELEGATOR

- * SENIOR
- * PSYCHOLOGY MAJOR
- * DAILY USER

“Okay Chat, I’ve finished my essay, this is my next assignment...”

Dory is a psychology student who juggles a busy school life and social life. She holds leadership in several clubs on campus and tries to get her work done as quickly as possible.

GOALS & EXPECTATIONS

Dory uses her AI for everything. Whether it is editing emails, writing papers, or finding a recipe, she relies on AI.

She expects her AI to switch between tasks quickly and require low effort input. She is satisfied with the current layout of chatbots.

BEHAVIORS

Dory uses AI like a personal assistant. She makes a single chat for the day. She also frequently uses screenshots and images for prompts. She will upload screenshots from within the chat to avoid excessive typing and move more efficiently.

PAIN POINTS

- Conversations and content from earlier in the day **get lost quickly**.
- Doesn't often double check things and may deviate from expectations.
- Conversations can become **disorganized** and **oversaturated**.

DESIGN IMPLICATIONS

- * IMAGE & SCREENSHOT CONSOLE
- * DUAL FLOW

USER TRAITS

- * USES AI LIKE A PERSONAL ASSISTANT
- * USES A SINGLE CONVERSATION FOR ALL TASKS IN THE DAY
- * PRIMARILY PROMPTS WITH IMAGES OF TEXT AND MODELS

USER NEEDS

Dory needs an Image based console to upload images easily.

Since she has multiple tasks, she needs a flow that organizes information, without losing valuable output in chats.



CHARLIE THE CHATTER

- * JUNIOR
- * DESIGN MAJOR
- * DAILY USER

"I like that AI feels like a non-judgmental space to ask questions and bounce ideas."

Charlie is a creative arts student who frequently comes up with fresh ideas for his projects in design and writing. He also thinks deeply on questions, valuing nuance and novelty.

GOALS & EXPECTATIONS

Charlie uses his AI for creating new ideas and working through personal issues.

He expects AI to produce fresh ideas and tweak ideas that he already has. He also expects AI to be an objective soundboard for personal dilemmas as well.

BEHAVIORS

Charlie uses AI like a friend and uses it for long sessions trying to work out personal dilemmas or solve creative challenges.

He often uses it to overcome a creative block, or when he doesn't know where to start.

PAIN POINTS

- Images and PDF's of texts are often **less accurate than pasted text**, but this can be tedious.
- Image & text **regeneration don't spot edit**, and instead regenerates the entire input.
- Does not always create good visual outputs.

DESIGN IMPLICATIONS

- * TEXT & IMAGE EDITOR
- * WELCOMING DISPLAY

USER TRAITS

- * USES AI LIKE A CONVERSATIONAL PARTNER
- * USES IMAGE GENERATION TOOLS
- * PROMPTS IN A STREAM-OF-THOUGHT STYLE

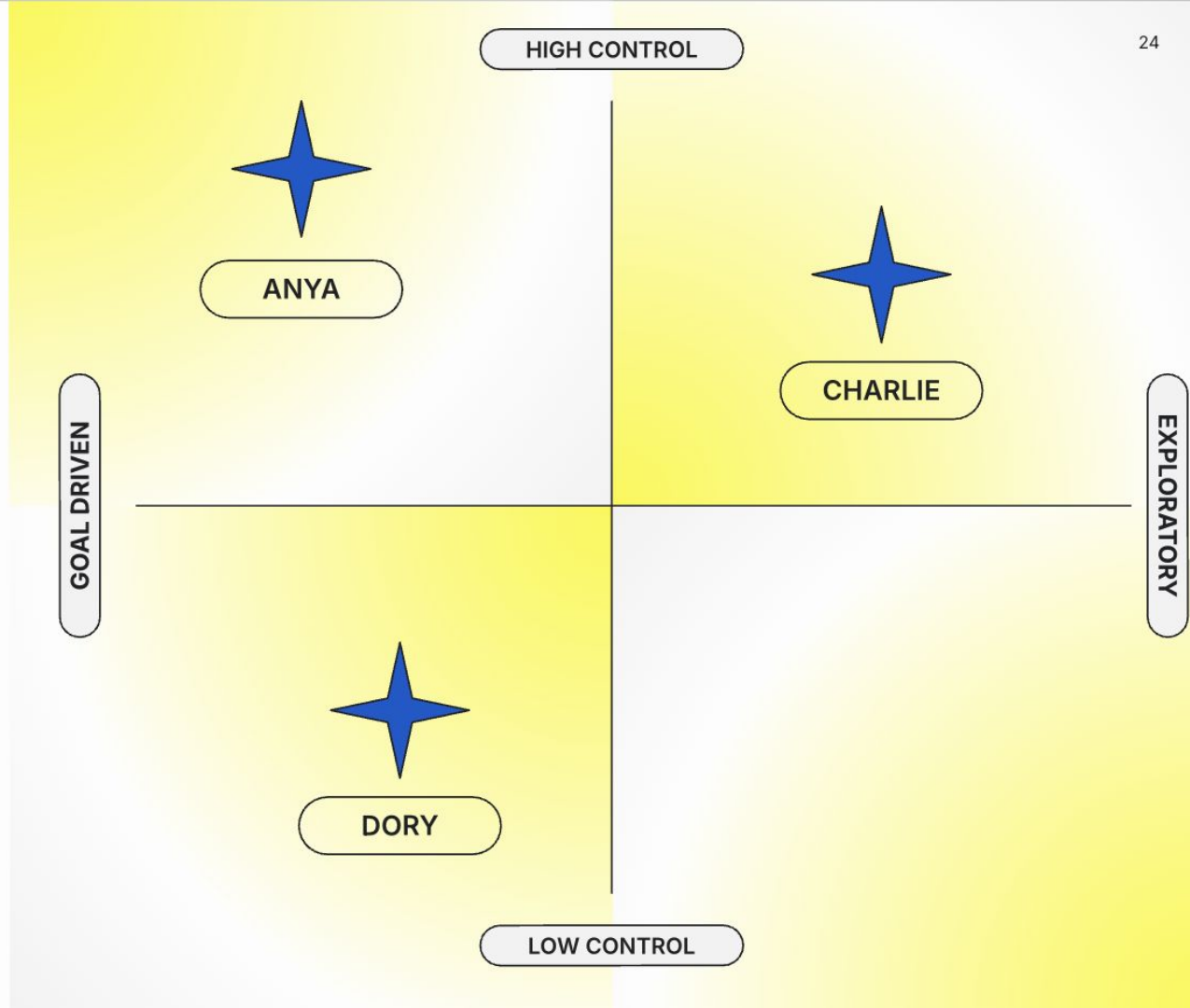
USER NEEDS

Charlie needs an AI interface that is sensitive to tone and has a welcoming appearance.

He also needs the AI to work through frequent iterations of image and text, allowing an editor workflow for specific edits.

Mapping Personas on Spectrum

STRUCTURE VS CONTROL



JOURNEY MAP



At this phase, users are faced with a problem in real life. Whether this be an assignment they need to tackle, or a decision they need to make, they need some help solving this.

Users may attempt to solve the problem on their own at this point, or consult a friend or mentor.

At this phase, some condition has brought the user to AI. Maybe the problem is difficult or the task is tedious and requires AI help.

Users will begin to feel alleviated, as AI will appear as a solution to some of these problems.

At this phase, prompting will initiate. Here, the user will bring their initial problem to AI and will begin working to a solution.

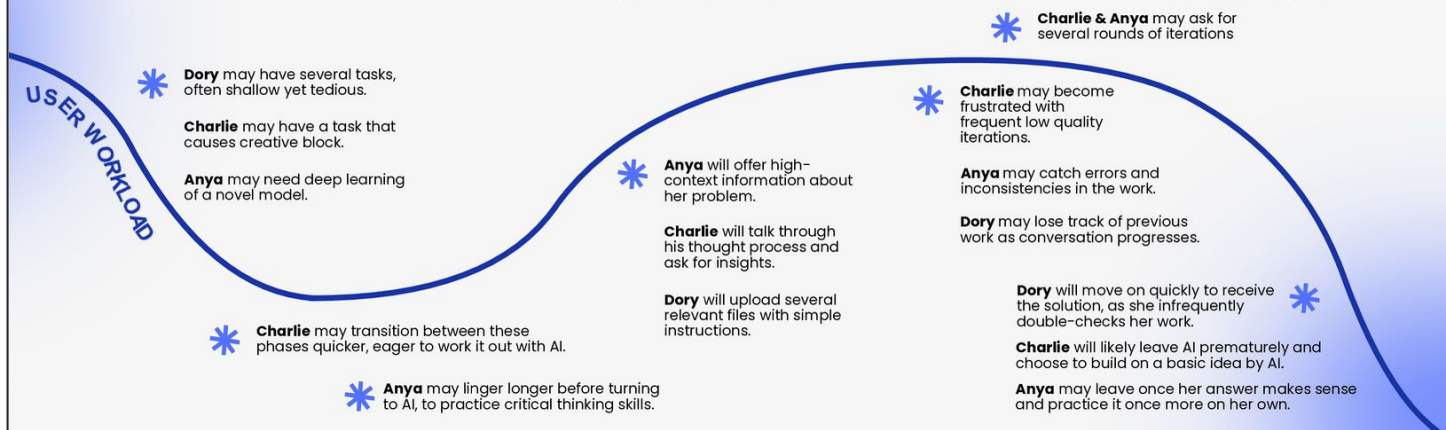
Different users will begin their different prompting styles. Some may require more work to prompt and learn.

At this phase, users are iterating and asking further questions. Users will work towards the solution. This is typically the longest phase of the process.

Different users may iterate more heavily, probing for specific responses.

At this phase, a solution has been achieved that the user is satisfied with. The user then may leave the AI platform and now works back in real life, with what AI has provided.

This may involve the entirety of the project, or only a preliminary portion, which the user then builds upon.



User **Insights**

1

Chat iteration breaks continuity

Users are working on multiple projects and aspects at once. They are constantly editing and working together. When they continue to iterate and build, they lose information from prior outputs.

2

Many users want control over parts

Users, especially high control users, are highly particular about the quality of the product. They will iterate and prefer to do things themselves if iterations are subpar.

3

Prompting is heavy and risks information loss

Prompting and offering context can slow down users and weaken continuity, as well as lose nuanced information in sessions. Limiting prompting efforts is beneficial.

How Might We Statements

HMW structure an AI model to accomodate continous outputs?

Design:

Centralized Product Development Space

HMW allow users to maintain autonomy in product generation?

Design:

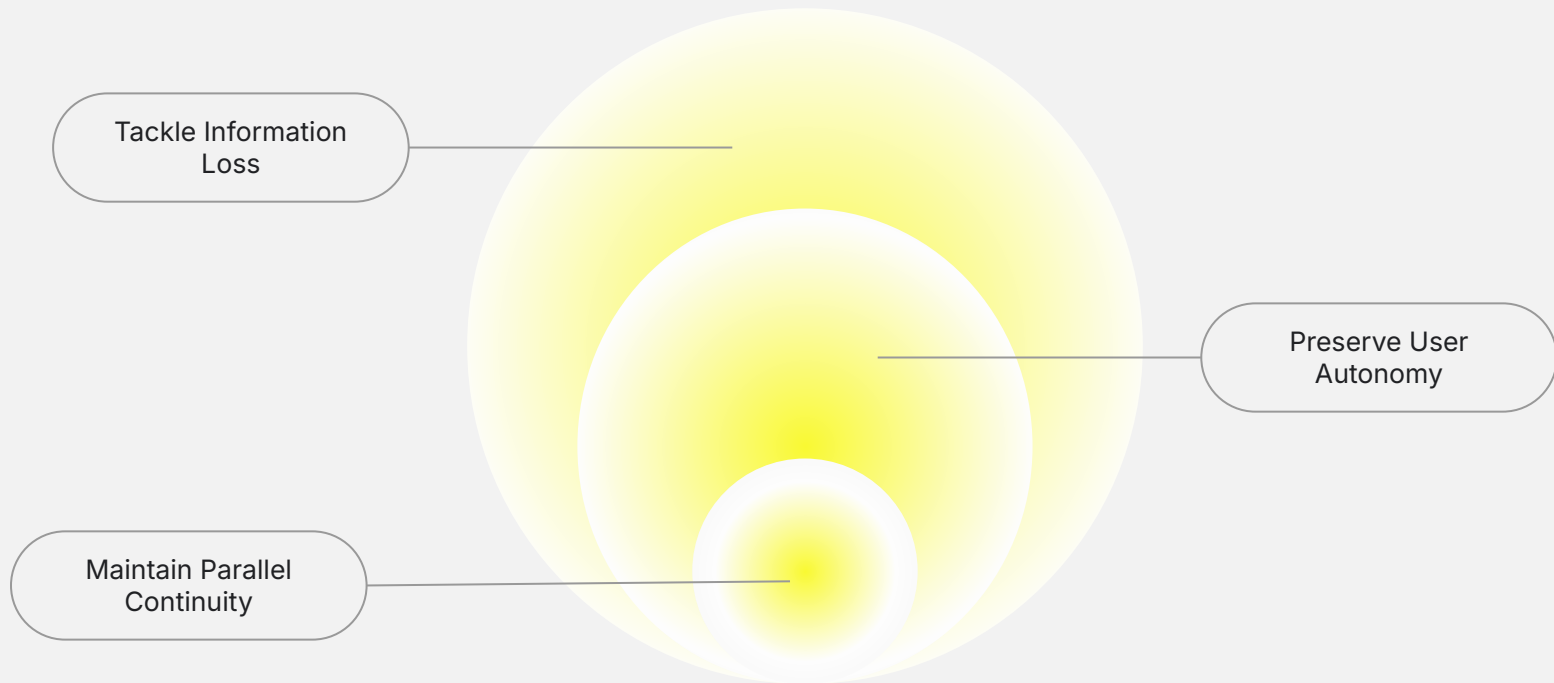
Spot editing and option-based suggestions

HMW ease prompting efforts without sacrificing information?

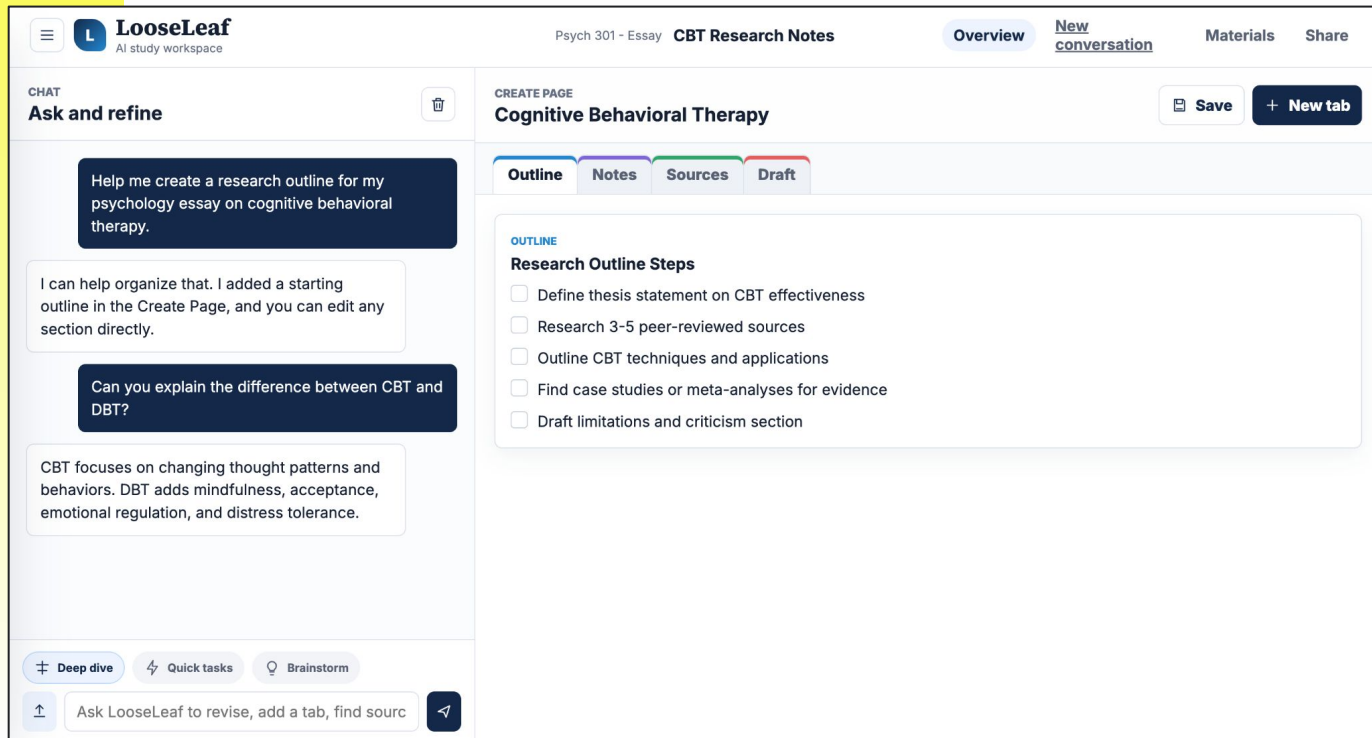
Design:

Create Simultanoues Task Panels

Prototyping: Design Considerations



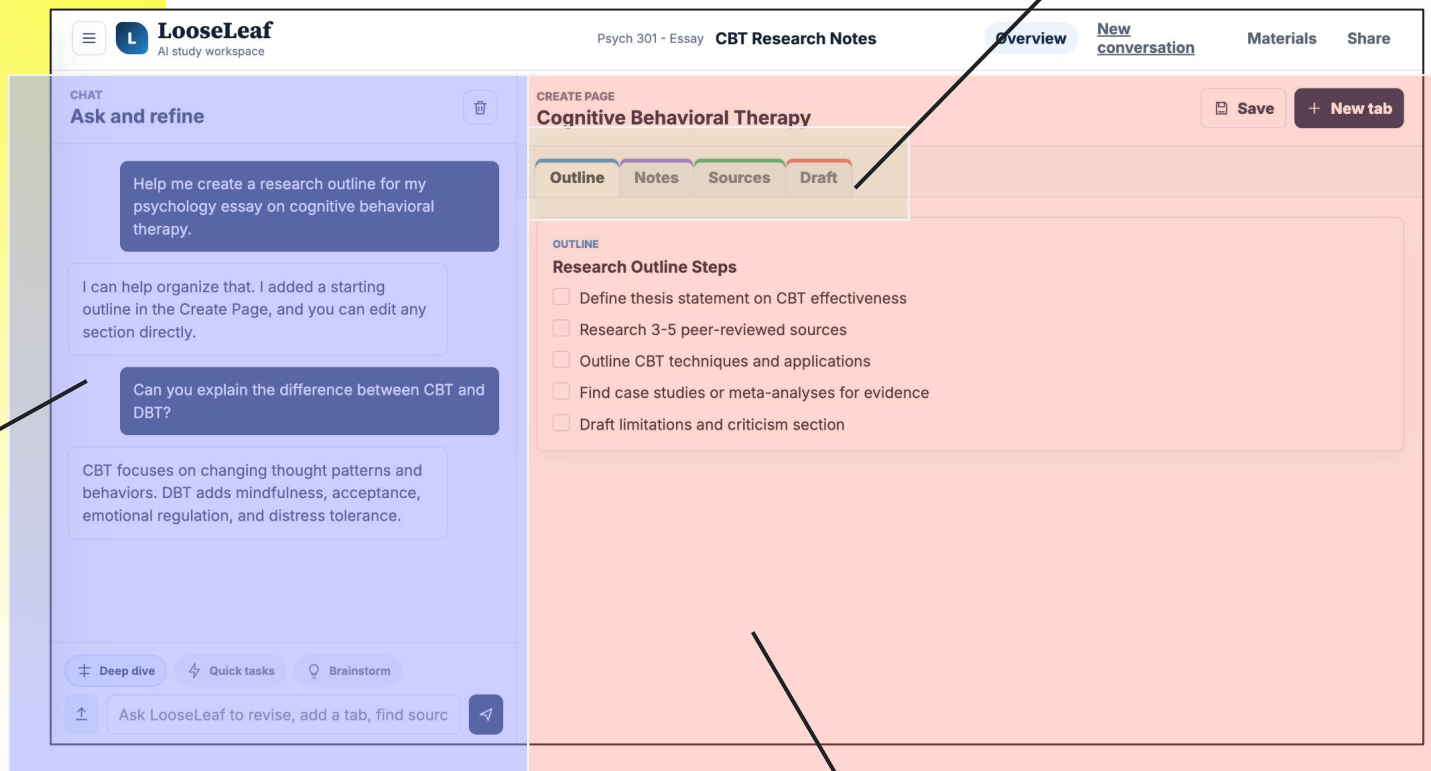
Prototyping: Used v0 and Codex to create a mock AI interface



Switchable project tabs

Prototyping:

Chatbot panel



Project Panel

Prototype:
Information
can be saved
to different
tabs.

Useful for
notes &
sources.

The screenshot displays the 'LooseLeaf' application interface, specifically the 'Paper & Project Workspace' for 'Task 1 prototype'. The interface is divided into two main sections: a 'CONVERSATION' pane on the left and a 'CREATE PAGE' workspace on the right.

CONVERSATION Pane:

- Research assistant:** A chat window with a trash icon. It contains three items:
 - NOTE: Comparison and pressure:** Labeled 'Added'. Text: 'Social media can increase anxiety when students compare themselves to peers or feel pressure to maintain a constant online presence.'
 - NOTE: Sleep disruption:** Labeled 'Add to Notes'. Text: 'Late-night scrolling and notifications can interrupt sleep, which may worsen stress, attention, and mood during the school day.'
 - SOURCE: Adolescent social media and anxiety review:** Labeled 'Added'. Text: 'Use as a background source for patterns connecting screen time, comparison, sleep, and anxiety.'
 - SOURCE: Student well-being survey dataset:** Labeled 'Add to Sources'.

CREATE PAGE Workspace:

- Header:** 'Paper & Project' with 'Save' and 'New tab' buttons.
- Tabs:** 'Notes 1', 'Sources 1', 'Paper', and 'Project'.
- Content:** A 'SAVED NOTE' titled 'Comparison and pressure' with the text: 'Social media can increase anxiety when students compare themselves to peers or feel pressure to maintain a constant online presence.'
- Footer:** A search bar with the text 'Ask about anxiety and social media, create the' and a submit button.

Prototype:
Multiple
projects can
be worked on
with tabs.

The screenshot displays the 'LooseLeaf' application interface, specifically the 'Paper & Project Workspace' for 'Task 1 prototype'. The workspace is organized into several sections:

- Top Bar:** Includes a back arrow, the 'LooseLeaf' logo, and navigation options like 'Class Project', 'Paper & Project Workspace', 'Paper & Project' (selected), 'New conversation', and 'Reset flow'.
- Left Panel (CONVERSATION):**
 - Research assistant:** A chat window with a trash icon. It contains a message about late-night scrolling and notifications affecting sleep.
 - SOURCE Cards:** Two cards are visible:
 - Adolescent social media and anxiety review:** Described as a background source for patterns connecting screen time, comparison, sleep, and anxiety. It has an 'Add to Sources' button.
 - Student well-being survey dataset:** Described as a possible evidence source for connecting social media habits to reported stress. It also has an 'Add to Sources' button.
 - Actions:** A 'draft an outline' button and a text box stating 'I added an editable draft outline to the Paper tab.'
 - Input:** A search bar with the text 'Ask about anxiety and social media, create the' and a send icon.
- Main Content Area (CREATE PAGE):**
 - Paper & Project:** The title of the current page.
 - Tabs:** Four tabs are shown: 'Notes' (1), 'Sources' (1), 'Paper' (selected), and 'Project'.
 - PAPER Section:**
 - Draft Outline:** A rich text editor with bold (B), italic (I), bulleted list, and link icons, followed by an 'Insert paragraph' button.
 - I. Introduction:** A bulleted list:
 - Brief overview of social media prevalence
 - Rising concerns about mental health, especially anxiety
 - Research question: How does social media use relate to anxiety levels?
 - Thesis: Social media contributes to anxiety through comparison, information overload, and disrupted habits, though effects vary by usage patterns
 - II. Background and Context:** A bulleted list:
 - Growth of platforms such as Instagram and TikTok
 - Increased daily usage among young adults
 - Parallel rise in reported anxiety symptoms
 - III. Mechanisms Linking Social Media and Anxiety:** A bulleted list:
 - Social comparison: exposure to curated, idealized lives
 - Fear of Missing Out: constant awareness of others' activities
 - Information overload: continuous stream of content and news

Prototyping:
New projects
can be made
within the
same chat.

These retain
the context of
past chat and
past projects.

The screenshot displays the LooseLeaf interface, which is divided into two main sections: a chat area on the left and a project workspace on the right.

Chat Area (Left):

- Header:** Includes a back arrow, the LooseLeaf logo, and the text "Task 1 prototype".
- Conversation:** Titled "Research assistant", it shows a chat history with a trash icon. The messages include:
 - anxiety review:** "Use as a background source for patterns connecting screen time, comparison, sleep, and anxiety."
 - SOURCE Student well-being survey dataset:** "Use as a possible evidence source for connecting social media habits to reported stress." An "Add to Sources" button is next to this message.
- Actions:** A "draft an outline" button is located below the chat history.
- Chat Log:** Two messages are visible:
 - "I added an editable draft outline to the Paper tab." followed by a "presentation" button.
 - "I created a presentation based on the draft outline and added it to the Project tab."
- Input:** A text input field at the bottom contains the text "Ask about anxiety and social media, create the", with an upward arrow icon on the left and a send icon on the right.

Project Workspace (Right):

- Header:** Includes "Class Project Paper & Project Workspace", a "Paper & Project" tab, and buttons for "New conversation" and "Reset flow".
- CREATE PAGE:** A section with a "Save" button and a "+ New tab" button.
- Navigation:** Tabs for "Notes 1", "Sources 1", "Paper", and "Project" are visible.
- PROJECT Presentation Deck:** The main content area shows a presentation slide titled "Slide 1: Title" with a "Generated" label. The slide content includes:
 - A purple tab labeled "1".
 - The title "The Relationship Between Social Media and Anxiety" in large blue font.
 - The subtitle "Understanding the Impact of Our Digital Lives on Mental Health" in smaller blue font.
 - An illustration of a smartphone with social media icons (heart, thumbs up, person) overlaid on it.

Usability Testing

- 5 users tested
- Students with diverse academic backgrounds & AI usage
- Two tasks

1. Paper & Project

- Observe simultaneous tasking and project continuity

2. Spot Editing

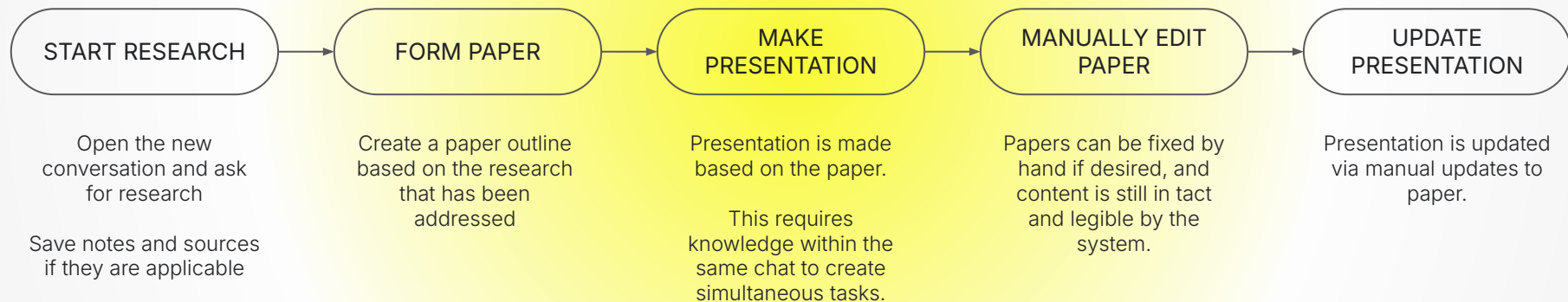
- Observe intuitive behavior of spot editing



LooseLeaf

AI study workspace

Task 1 – Paper & Presentation



Usability Test: Task 1 Findings

1

Users like simultaneous task panels

Users across the board rated simultaneous task panels highly, noting that this method combatted information loss.

Users liked that context was preserved across projects without extra prompting.

2

Users work on tasks in parallel

Some users like to start both the paper and presentation in a single prompt at the start.

These users may also iterate simultaneously, with single chats.

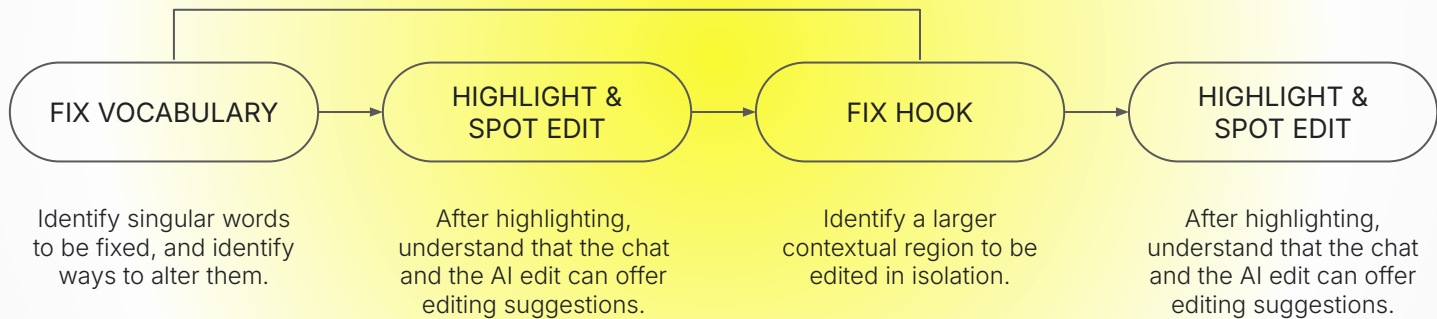
3

Users prefer options in creation

Optionality, such as which information to add and include in the presentation was desirable.

Additionally, if options were suggested for the generation phases (i.e. text generation), it would be useful.

Task 2 – Spot Editing



Task 2:

Spot edits of highlighting specific words.

Maintains context but isolates AI use.

The screenshot shows the 'LooseLeaf' 'Spot Editor' interface. The top navigation bar includes a back arrow, the 'LooseLeaf' logo with 'Task 2 prototype' below it, 'Essay Editing', 'Spot Editing', and tabs for 'Task 2' and 'Task 1'. The main interface is split into two panels. The left panel, titled 'CONVERSATION Spot editor', contains three AI edit suggestions for the word 'complex': 'More academic' (multifaceted), 'Clearer' (complicated), and 'More precise' (context-dependent). Each suggestion has an 'Apply' button and a 'Save suggestion' button. The right panel, titled 'CREATE PAGE Essay Draft', has a 'Save' button and a '+ New tab' button. It features three tabs: 'Draft', 'Suggestions' (with a count of 0), and 'Edit history' (with a count of 0). The 'Draft' tab shows a 'SELECTED TEXT CALLOUT' for the word 'complex', with a 'Callout 1' box containing the word and 'Edits generated' and 'Save suggestion' buttons. Below this, the 'ESSAY' section shows the title 'Social Media and Student Anxiety' and a text editor with a toolbar (B, I, link, and AI edit). The essay text includes the word 'complex' highlighted in blue. At the bottom of the left panel, there is an upward arrow icon, a text input field with the placeholder 'Ask to tweak the hook or revise a specific wor', and a submit button.

LooseLeaf
Task 2 prototype

Essay Editing Spot Editing

Task 2 Task 1

CONVERSATION
Spot editor

AI edit for selected text
Selected: complex

SELECTION
More academic
multifaceted
Apply
Save suggestion

SELECTION
Clearer
complicated
Apply
Save suggestion

SELECTION
More precise
context-dependent
Apply
Save suggestion

CREATE PAGE
Essay Draft

Save + New tab

Draft Suggestions 0 Edit history 0

SELECTED TEXT CALLOUT

SELECTION
Callout 1
complex
Edits generated Save suggestion

ESSAY
Social Media and Student Anxiety

B / AI edit

Social media is used by many people every day, and it can affect anxiety.

For students, digital platforms are not only entertainment spaces but also places where social comparison, constant updates, and social pressure happen quickly.

The relationship between social media and anxiety is **complex** because the impact depends on how often students use it, what they see, and whether the use interrupts habits like sleep or studying.

This essay will look at how social media can make anxiety worse through comparison, information overload, and disrupted routines.

↑ Ask to tweak the hook or revise a specific wor

Suggestions
are prompted.

<

L

LooseLeaf
Task 2 prototype

CONVERSATION
Spot editor

Edit the hook

I can make the hook more specific and attention-grabbing without changing the whole essay.

Hook revision options
Here are targeted edits. You can apply one directly or save it in Suggestions.

HOOK
More vivid opening

Applied

For many students, social media is the first thing they check in the morning and the last thing they see at night, making it a constant part of their emotional lives.

Save suggestion

HOOK
More academic opening

Apply

As social media becomes woven into students' daily routines, researchers have become

↑ Ask to tweak the hook or revise a specific word ↴

Essay Editing **Spot Editing**

Task 2 Task 1

CREATE PAGE
Essay Draft

Save + New tab

Draft Suggestions 0 Edit history 1

SELECTED TEXT CALLOUT

SELECTION
Callout 1

complex

Edits generated Save suggestion

ESSAY
Social Media and Student Anxiety

B I ✎ AI edit

For many students, social media is the first thing they check in the morning and the last thing they see at night, making it a constant part of their emotional lives.

For students, digital platforms are not only entertainment spaces but also places where social comparison, constant updates, and social pressure happen quickly.

The relationship between social media and anxiety is complex because the impact depends on how often students use it, what they see, and whether the use interrupts habits like sleep or studying.

This essay will look at how social media can make anxiety worse through comparison, information overload, and

Usability Test: Task 2 Findings

1

Users often prefer to edit on their own

Often, deep editing efforts are preferred to be done manually. More general and broad changes are deferred to AI.

2

Users like suggestions for edits

Users like that suggestions for edits are offered, and can be taken or discarded, rather than forced into input. This preserves their autonomy in their product.

3

Users want generation to understand context

Users want new words to be generated in context, not in isolation. Spot edits should consider the full context to be satisfactory.

Closing **Insights**

1. Context & continuity are valuable assets

The ability to preserve context and continuity across multiple projects saves time and energy, and produces higher quality work.

2. Autonomy matters

Student users want their work to be in their control. While AI can generate, they should allow users to make their own manipulations and accept/reject AI suggestions.

3. Workflows are not linear or singular

Users work back and forth between tasks. The product is not linear or singular. They make iterations and changes and then need to apply those changes across domains. Productive AI interfacing for students adjusts this tool to work easily across domains.

Questions?