

UNFOLD

Final Report

CS147 Fall 2024
Design for Healthy Behaviors
Sarah J., Steven L., Krystal L., Lauren Y.

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PROJECT NAME & VALUE PROPOSITION

Project Name: Unfold

Value Proposition: Your tasks, your story—watch it unfold.

TEAM



Sarah J.
Designer



Krystal L.
Developer



Steven L.
Developer



Lauren Y.
Developer

PROBLEM & SOLUTION OVERVIEW

Problem: People often struggle to stay accountable with their tasks because they find them mundane, difficult to stay engaged with, and lacking in shared support.

Solution: Unfold, an app that incentivizes task completion through narrative story updates that evolve their personalized avatar, highlighting their progress and accomplishments.

NEEDFINDING INTERVIEWS

Locating Participants:

As we were initially searching for who we wanted to interview in our needfinding process, we prioritized three main factors. First, we sought non-Stanford affiliated interviewees to ensure our user research was representative of more perspectives than just those in the Stanford bubble. Second, we wanted to speak with people dealing with a variety of tasks to cover many different angles of accountability. Different responsibilities like schoolwork, chores, corporate work, and personal goals call for varied accountability methods that may better reveal unique ways to keep someone on track. Third, we wanted to represent a diverse range of perspectives and life experiences, looking for variety in age, gender, and careers.

Ultimately we interviewed eight participants, five in person and three over Zoom. We leveraged platforms like Nextdoor and explored locally-based Facebook groups to find participants, also interviewing tourists and visitors on Stanford campus to hear different opinions. We spoke with interviewees in pairs, with one team member serving as a question-asker and the other acting as notetaker. Participants earned coffee on us for their time as a minor incentive to engage in the 25-50 minute long interview, and all also signed a consent form to protect their rights prior to the interview beginning. Our list of interviewees featured a range of different work/accountability need, including a high school senior, a college student working as a caregiver, a retired librarian, two mortgage banker, a ROTC student also working as a small business owner, an undergraduate Stanford student in design, and a Stanford Masters student in CS.

Questions Asked:

We asked questions under four categories:

1. Current methods. How do you keep yourself accountable? What do you keep yourself accountable for?
2. Challenges. What are some of the biggest challenges you face when keeping accountable?
3. Success. What habits or practices have you developed over time to improved your accountability?
4. Next steps. How do you think technology could help you stay on track?

Findings:

After our interviews, we constructed empathy maps to better understand and visualize our interviewees' actions, thoughts, and emotions surrounding their accountability needs (as seen in Figure 1). Then, we viewed these empathy maps together to detect any strong or common trends in our findings. Consolidating these notes resulted in four main takeaways.

1. Users value stability and consistency. They would like systems that act as an anchor in their routines, and a solution should consequently ensure that users can rely on it without having to completely overhaul habits or adjust to overly complex features.
2. Flexibility and adaptability are essential parts of effective accountability. Many interviewees acknowledged that flexibility is essential when things don't go as planned. Any constructed solution should allow users to adjust their goals and tasks while still feeling in control.
3. Many interviewees desire support for their existing habits. Users seek tools that align with their current systems, providing a sense of control and independence. To effectively support consistent and persistent accountability, any solution should be intuitive and integrate with workflows people already use.
4. Reminders should be minimally intrusive. Users enjoy subtle prompts to help stay on track. But, several interviewees mentioned that overwhelming or overbearing reminders of their work could be dissuading.

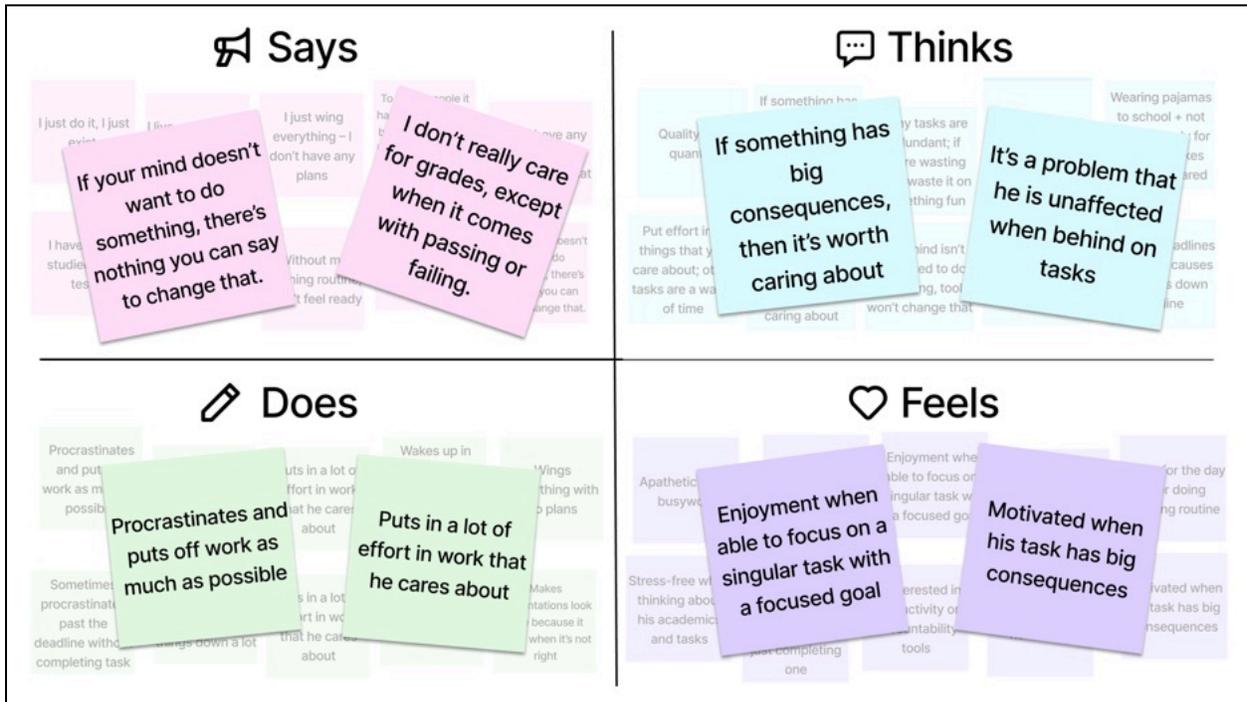


Figure 1: The empathy map for Sydney, a full-time undergraduate student at Stanford studying design while simultaneously working as a clothing seller on the side.

POVs & HMWs

These insights allowed us to move on to develop user “Point of Views” to better understand how to build our solution encouraging improved accountability. Point of View (or POV) statements are structured summaries of a user’s perspective with respect to the problem space, intended to be surprising, descriptive, and insightful. Focusing on three of our users, we developed POVs that led to the creation of “How Might We” statements (HMWs), questions asking how we could transform insights from our POVs into solutions.

Andrew:

POV:

- **We met...** Andrew, a 17-year old high school student who loves video games and wants to eventually become a pilot.
- **We were surprised to realize...** Andrew is a procrastinator but he’s also a perfectionist, so he doesn’t care about most schoolwork but will put 100% effort into projects he cares about.
- **We wondered if this means...** Andrew is most engaged when he can clearly see how his efforts connect to a bigger picture and when tasks feel like a natural extension of his creative expression.
- **It would be game-changing to...** Empower Andrew with a way to visualize the impact of his tasks, helping him to see the bigger picture and how his contributions matter, as well as allow space for his creativity.

HMWs:

- HMW condense redundant tasks to get more done at once?
- **HMW transform mundane tasks into engaging challenges that he looks forward to completing?**
- HMW conserve energy when focusing on a high-commitment project?

Sydney:

POV:

- **We met...** Sydney, a full-time Design student at Stanford and a clothing reseller.
- **We were surprised to realize...** She gets distracted when left to her own devices and studies best when working with someone who’s focused.
- **We wondered if this means...** Sydney is influenced by the energy and motivation of those around her and craves the subtle encouragement that comes from seeing others engaged and driven.
- **It would be game-changing to...** Leverage the productivity of peers as a continuous and collaborative source of social motivation to elevate her focus and help her stay on task.

HMWs:

- HMW reduce the accessibility of distractions to reinforce her focus when it's needed most?
- **HMW make accountability feel like a shared experience instead of an individual journey?**
- HMW empower her to develop confidence when studying independently?

Kevin:**POV:**

- **We met...** Kevin, an engineer with ADHD, who utilizes a variety of apps and develops intricate systems to manage his tasks and social interactions.
- **We were surprised to realize...** that with a suite of sophisticated systems to stay accountable, Kevin still often struggles with setting up and maintaining these tools due to the massive cognitive burden and activation energy required.
- **We wondered if this means...** Kevin's drive to build out these tools reflects a need to reduce the mental load required to maintain accountability.
- **It would be game-changing to...** reduce Kevin's mental load when setting up and updating his accountability tools.

HMWs:

- HMW create incentives that encourage the completion of unfinished projects?
- **HMW make staying accountable so easy that a baby could do it?**
- HMW leverage hyperfocus to make task management more engaging and productive?

EXPERIENCE PROTOTYPES & SOLUTION

We selected three of the top HMWs and generated over ten solutions for each before narrowing it down to the top three solutions selected from the 30+ solutions ideated. From these three solutions, we generated three experience prototypes intended to test critical assumptions about the user experience. An experience prototype represents a central part of the ideated solution and tests a critical assumption needed for the solution to be successful.

Solution #1:

HMW: Transform mundane tasks into engaging challenges that he looks forward to completing?

Solution: An app that turns the task into a story, where each step is part of a larger narrative or mission that unfolds as you progress. Each completed task unlocks the next part of a story, making the user feel like they are progressing through an adventure.

Experience Prototype:

We wanted to test the assumption that users feel compelled to find out what happens next in the story. In our prototype (Figure 2), participants texted a number whenever they completed a task. They received texts with a new part of a story every time they did a task successfully.

We were able to successfully verify this assumption (Figure 3) and found that users felt more purpose in doing their tasks – progressing a story rather than just checking off a to-do list. They expressed a connection to the story’s characters or plot (ex: “I wanted to know more!”). In terms of what didn’t work, we saw that levels of interest varied depending on user’s story preferences and that the next chapter reveal didn’t always match the task’s efforts. With this, we concluded that curiosity can serve as an effective initial motivator, but sustaining engagement requires deeper narratives that users feel personally interested in. Additionally, the story alone may not be enticing enough—a visual aspect may be needed to supplement the text.

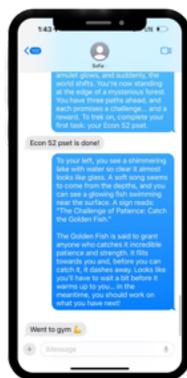


Figure 2: Screenshot of user task updates and their corresponding story progression.

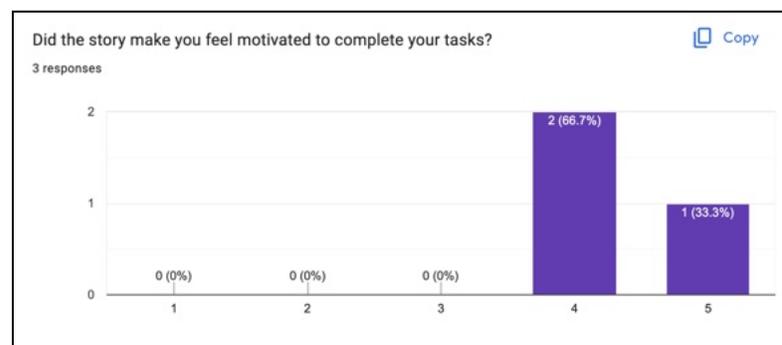


Figure 3: Survey results after the first experience prototype, verifying our assumption that the story-based narrative was effective for motivation.

Solution #2:

HMW: Make accountability feel like a shared goal instead of an individual journey?

Solution: A challenge league for friends centered around their personal tasks and goals. After each week, after the completion of tasks, the person with the fewest completed tasks faces a playful and lighthearted dare chosen by the group.

Experience Prototype:

We wanted to test the assumption that lighthearted dares serve as sufficient motivation for people to complete their tasks. The prototype required us to sit down with a group of friends, ask them if they're working on a similar type of assignment (PSET, essay, etc). If they are, ask them to do a competition where after 10 minutes, whoever makes the least progress has to do a dare.

We found that friendly competition motivated users (Figure 4). Knowing that their friends were working alongside them encouraged users to stay on task, but it led to less collaboration due to the competitive nature of the setting. If this solution were fully implemented, providing users with example dares to vote on could create a more streamlined experience and reduce confusion of what dare to choose.

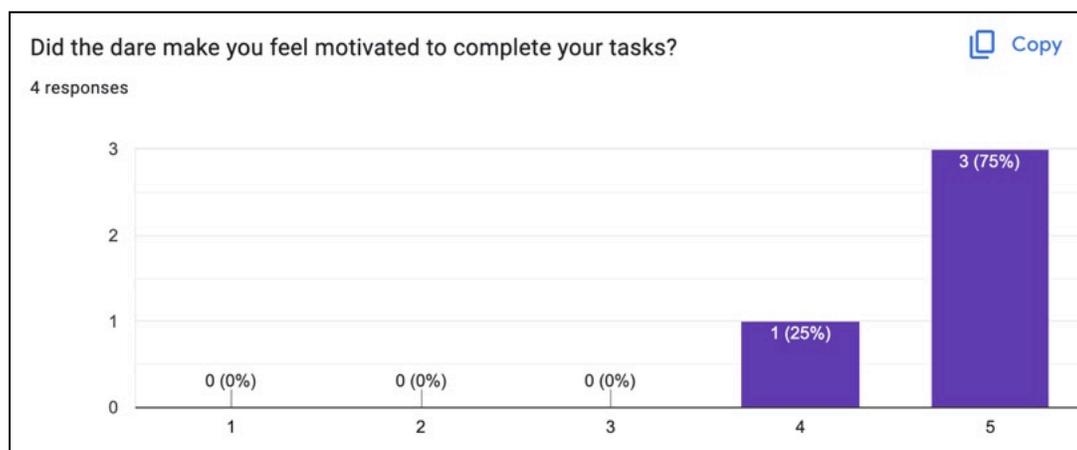


Figure 4: Survey results after the second experience prototype, verifying that lighthearted dares are significant motivation for people to complete tasks.

Solution #3:

HMW: Make staying accountable feel so easy that a baby could do it?

Solution: A digital pet that evolves with the user's task completion that they input. Staying on track keeps the pet happy & healthy, while missed goals make it sad.

Experience Prototype:

We wanted to test the assumption that users feel empathy and a desire to care for their digital pet. This prototype involved us texting an individual with a picture of their digital "pet". Every time a user completed a task, we sent back a picture of their pet with a new accessory.

Following the experience, users reported that they enjoyed their pet gaining new accessories after task completion, feeling a sense of progress and reward. Caring for their pets gave their goals more meaning, which motivated them. However, receiving solely new accessories became less interesting over time and, though the digital pet was helpful for encouragement, it didn't account for variety in task length (ex: would send sad Milo after 2 hours of no tasks complete, but the assignment was more complex). With this, we concluded that, to sustain interest, the rewards for task completion need more variety. Additionally, updates from the digital pet should reflect checkpoints in task completion.



Figure 5: The digital companion whose status & updates were sent to the user.

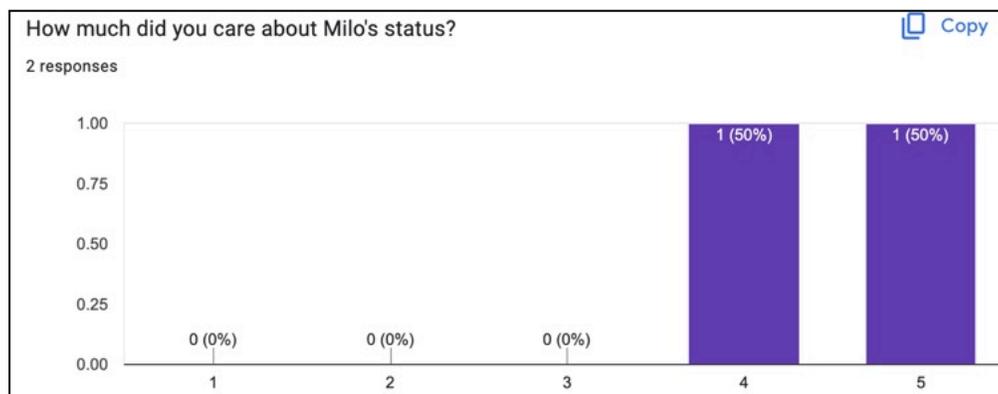


Figure 6: Survey results after the third experience prototype, verifying that users feel empathy for their digital pet.

FINAL SOLUTION

Our final solution is our app, Unfold, which incentivizes users to complete tasks by evolving a personalized avatar, unlocking new narrative story updates with every task they complete.

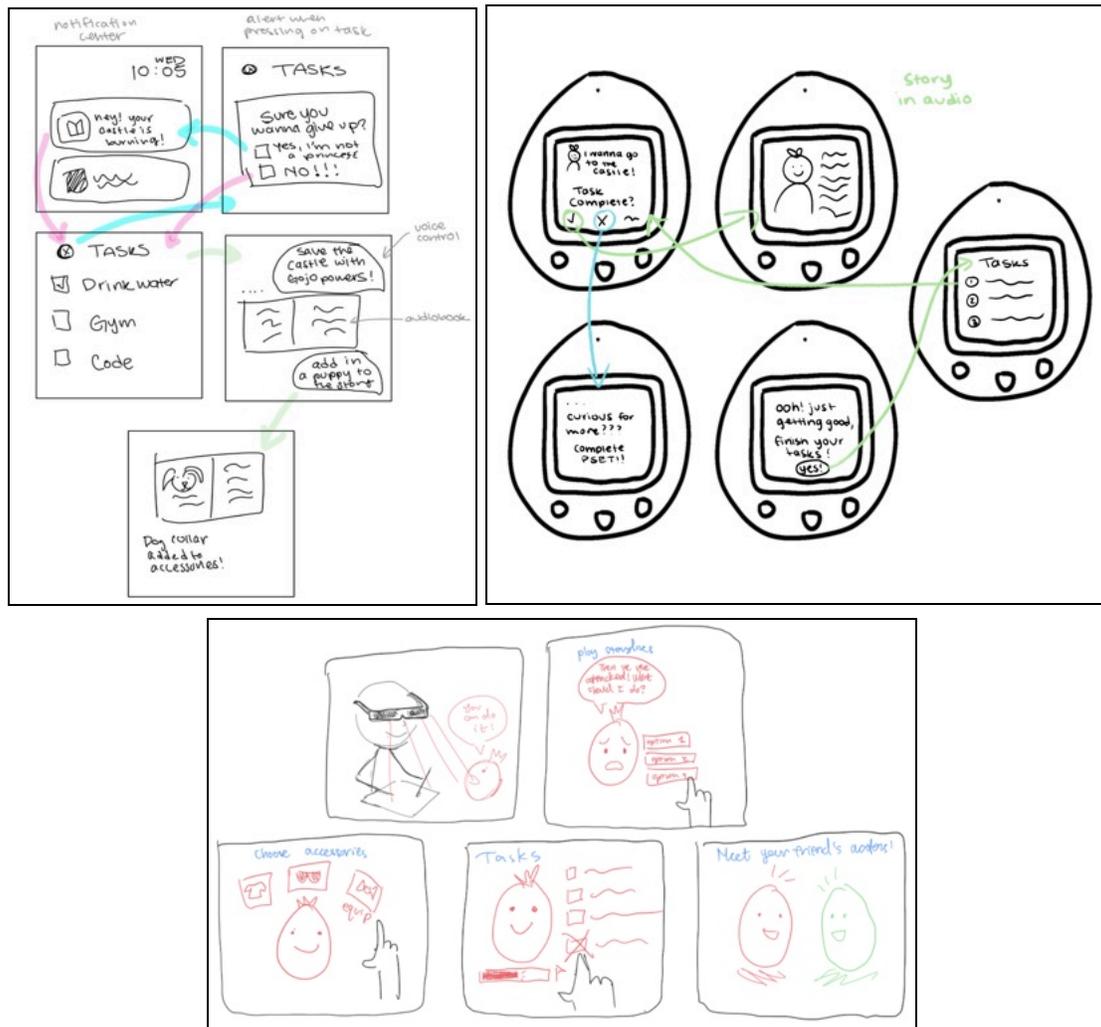
The rationale for our selected solution is grounded in the evidence gathered through our experience prototyping. We tested two key assumptions: that users are motivated by story updates and that users feel connected to a character. Both assumptions were validated. Participants in the story-based prototype consistently reported feeling more purpose in completing tasks as their progress unlocked narrative updates. Users expressed curiosity about what would happen next, indicating that story-driven engagement encouraged users to do their tasks. Similarly, those interacting with a digital pet demonstrated empathy and a strong desire to care for their evolving character. Users reported feelings of accomplishment as their pet gained accessories and developed new traits, reinforcing task completion as a rewarding experience.



Furthermore, our findings from needfinding interviews underscored that users value solutions that integrate into their existing routines, offer flexibility, and provide minimally intrusive reminders. These preferences align with Unfold's design, which is intentionally curated to function as an intuitive task tracker, as well as connect their task completion to progress in a choose-your-own adventure story - unlocking more chapters and customizing your character.

During the ideation phase, we considered alternative implementations, including a Tamagotchi-style physical toy with clickable buttons for task tracking, a 3D character visible through AR glasses for interactive engagement, and a smartwatch app with a touch-screen interface. However, we ultimately chose to design a mobile app due to its accessibility, storytelling potential, and ability to integrate into users' workflows.

Tools used:

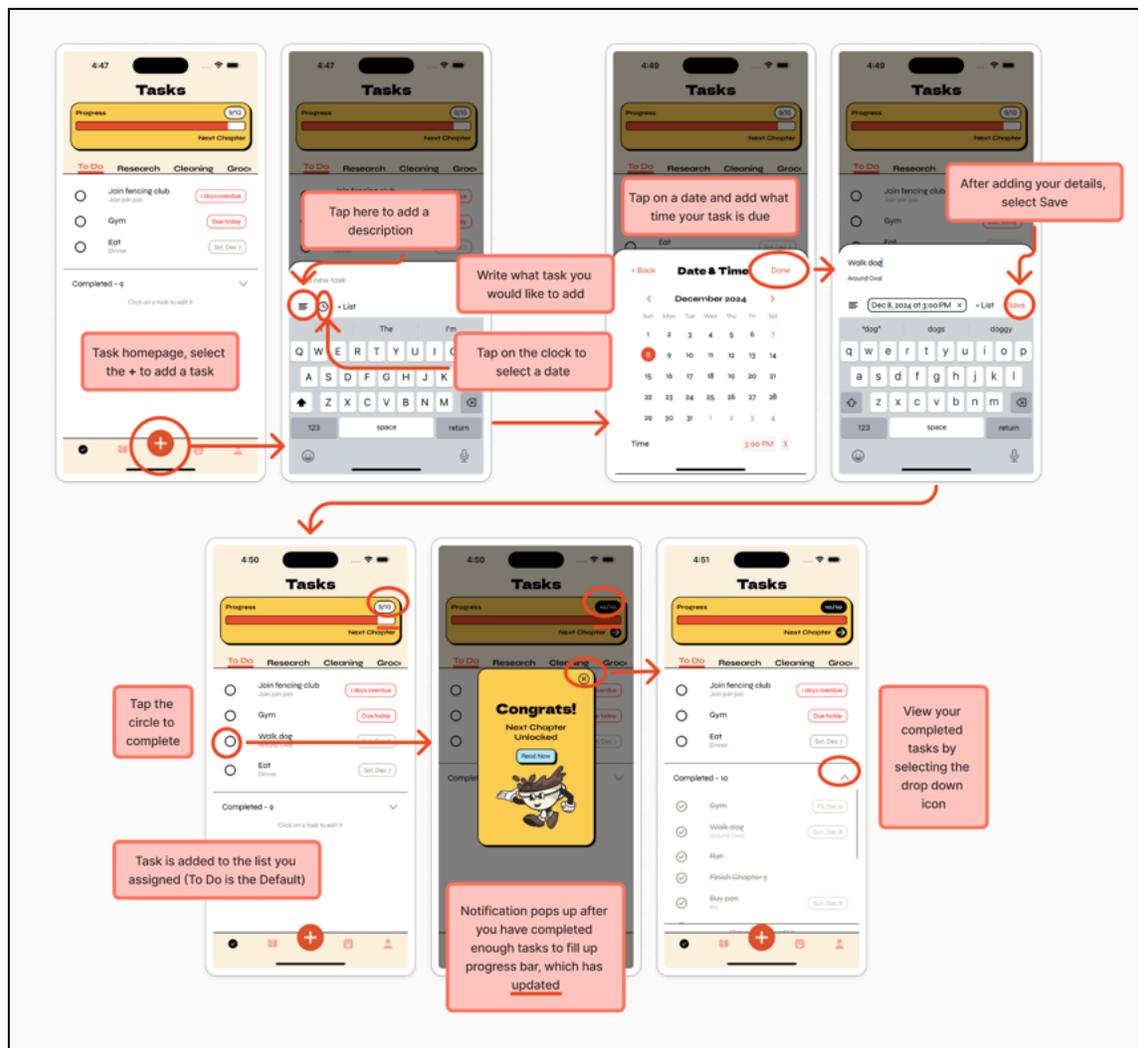


We decided that a mobile app was the most accessible option for our primary user base, busy professionals and students, who are more likely to own and use phones regularly than specialized devices like watches or AR glasses. Additionally, the mobile app format offers sufficient screen space for engaging storytelling elements, such as reading narrative updates, displaying avatar animations, and customizing characters—key components of Unfold’s experience. Compared to a smartwatch interface, which can feel restrictive for complex interactions, the mobile app supports a wider range of features. By choosing a mobile app, we ensured that Unfold aligns with users' preferences and habits, maximizing its usability and engagement while providing a fun, interactive experience that makes task completion creative and meaningful.

TASKS

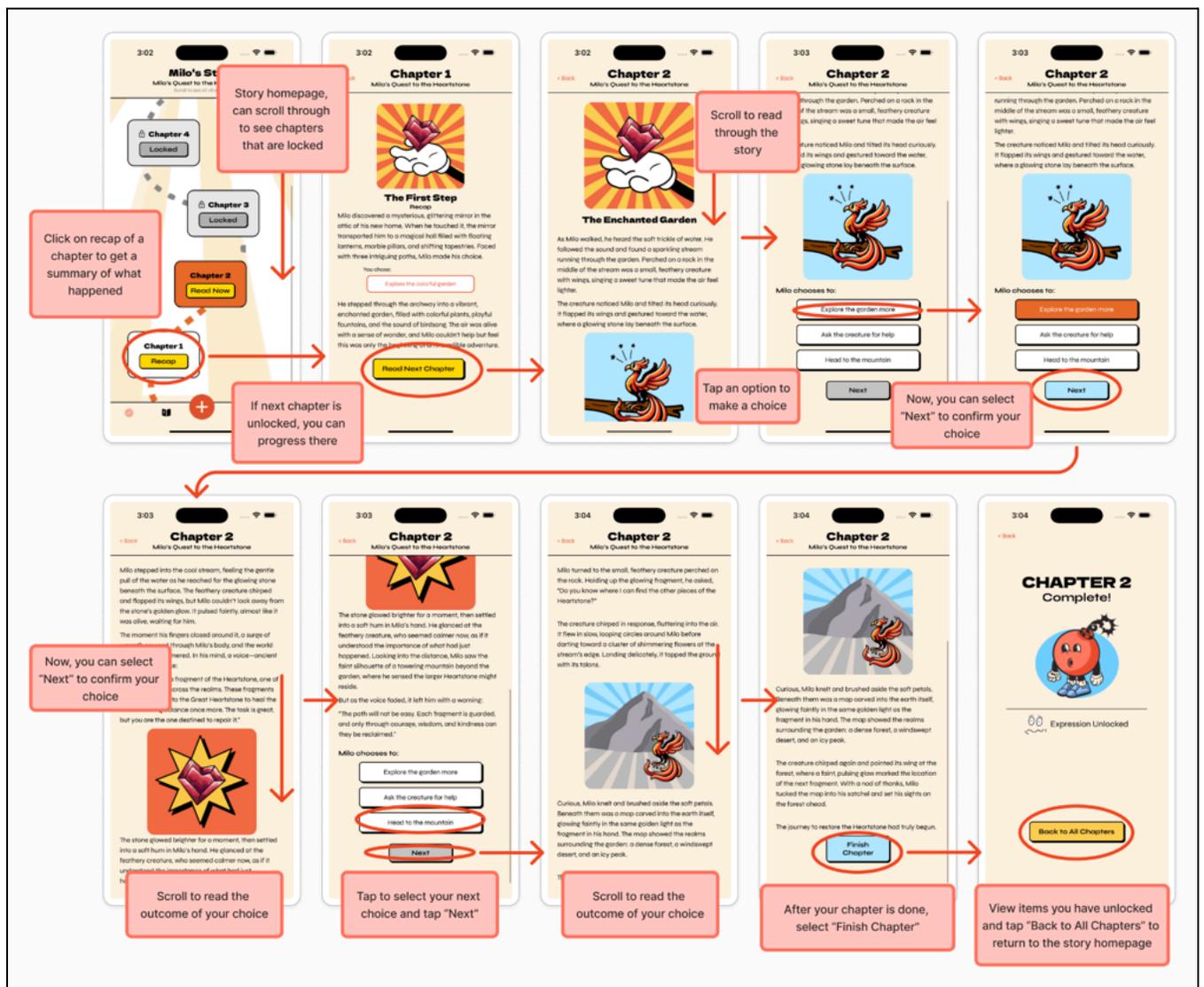
Simple Task: Enter and complete one of your tasks.

This task is essential for our user base, students and working professionals who often struggle to stay accountable, because it reinforces the core cycle of task management in Unfold: entering, completing, and checking off tasks. It is the first and most essential step in unlocking the app's other features, like story progression and personalization. By guiding users through the process of entering, completing, and checking off a task, this step establishes the habit of accountability and connects it to the app's reward system.



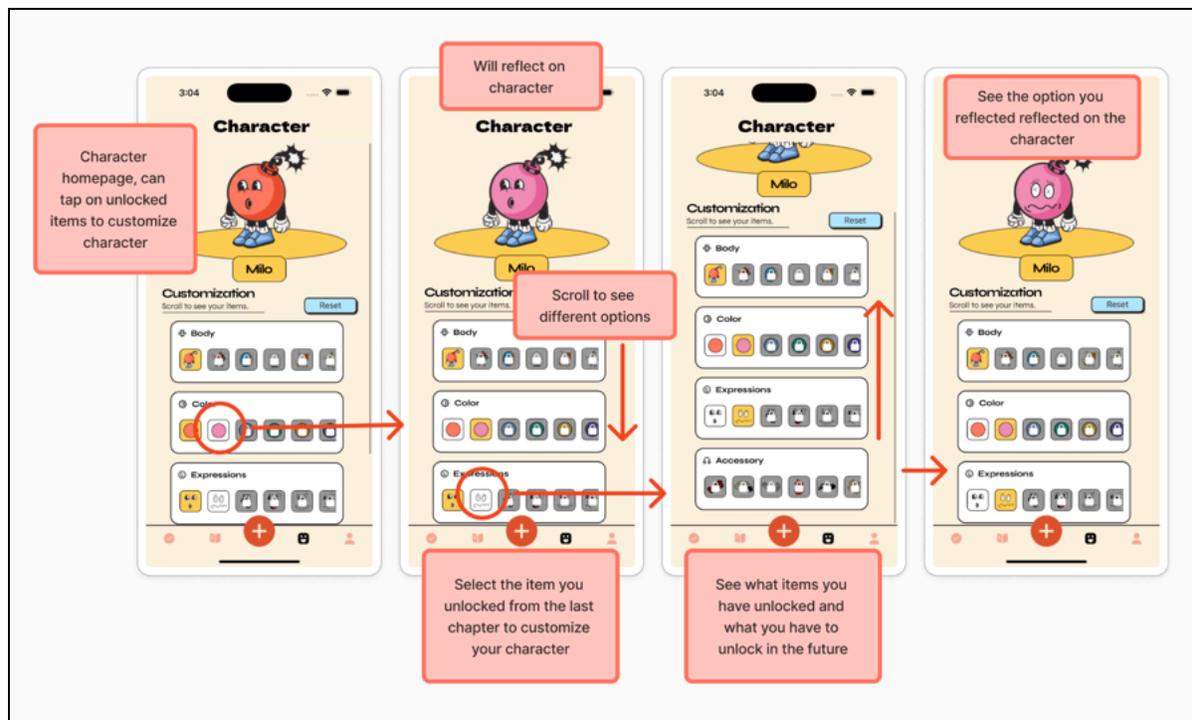
Moderate Task: Choose an in-game option to advance your story.

This task is important because it allows our user base to control the outcome of their story. By giving users creative control, autonomy, and the ability to influence the narrative, this task fosters a personal attachment to both the story and their character. When users see how their actions affect the storyline, they feel a deeper connection and a sense of ownership over their progress. This sense of agency gives them something to look forward to, transforming mundane tasks into meaningful contributions to their unfolding journey. For people who often feel disconnected from the impact of their daily efforts, this feature helps sustain motivation and engagement by making task completion an integral part of an interactive, personalized experience.



Complex Task: Personalize your story theme and character.

This task is crucial because it directly builds on key insights validated during our experience prototyping. Our prototyping showed that attachment to a character was a strong motivator for users, and allowing them to personalize their character deepens that connection. By incorporating story theme selection into the onboarding process, we can recommend narratives that align with their individual interests, whether it's fantasy, mystery, or genres inspired by books they've read – rather than offering a one-size-fits-all experience. This level of customization ensures that Unfold feels personally tailored, making task completion more engaging and meaningful. For users, the ability to shape their narrative and character strengthens their emotional investment in the app, increasing their likelihood of staying motivated and accountable over time.



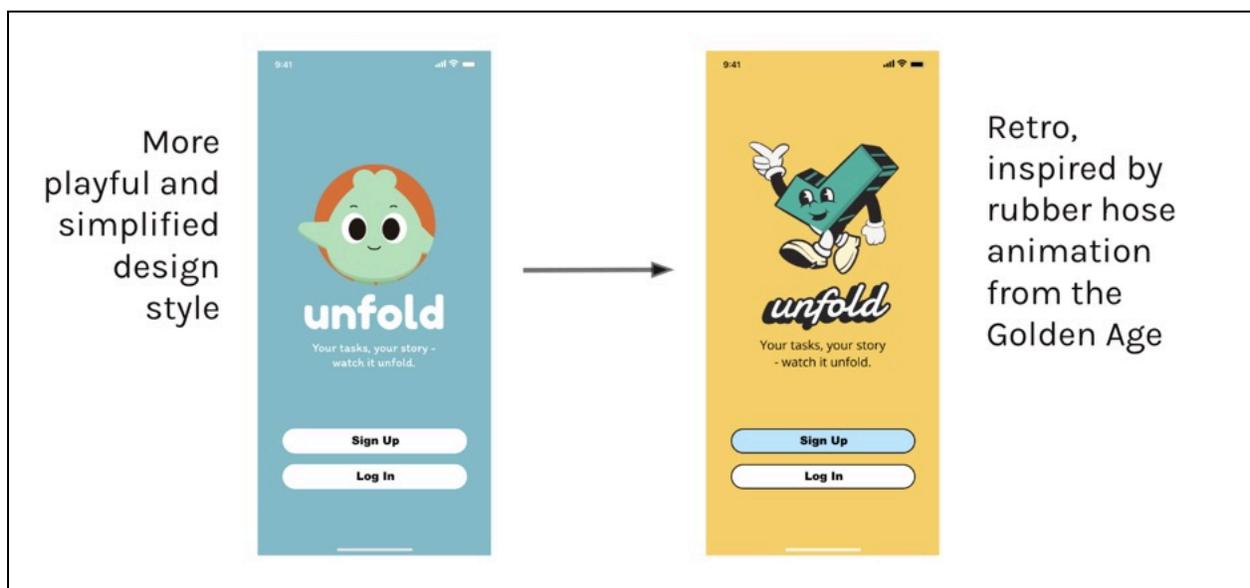
MAJOR UI ITERATIONS

Overall Design

When creating our Medium-Fi Prototype, we pivoted drastically, changing the style of our app from a more simplified design style to a retro style inspired by rubber house animation from the Golden Age.

We felt that this original, minimalistic design did not convey our unique value proposition and felt too generic compared to other apps. It gave off a youthful vibe, but we wanted a design that appealed to users of any age. With our pivot, our new design focused on integrated classic cartoon visuals that evoke storytelling and nostalgia, aligning with our narrative-driven value proposition. We recognize there may be some associations between Unfold's retro theming and a potentially problematic and antiquated society. We have and will continue to design Unfold with accessibility in mind, both in offering varied and representative options in our stories/characters, and in ensuring Unfold is usable for individuals regardless of their obligations or backgrounds.

Consciously using rubber hose animation poses a fantastic opportunity to create diverse and inclusive characters, many who do not have to be gendered as well. As Unfold continues development, we have chosen to continue using this style but will be careful in ensuring our users are well represented along the way.



In refining our design, we shifted from an overly stylized, heavily white-toned retro theme to a cleaner retro style that leans into a warmer, book-inspired aesthetic while still maintaining a playful tone. This adjustment was made to create a more approachable and visually engaging experience that aligns with the storytelling

essence of Unfold. The new design balances warmth and nostalgia, drawing users into the narrative while appealing to a broad demographic. By softening the style and introducing warmer tones, we aimed to make the app feel less stark and more inviting, ensuring it resonates with both young and older users without compromising the playful charm that defines Unfold’s identity.

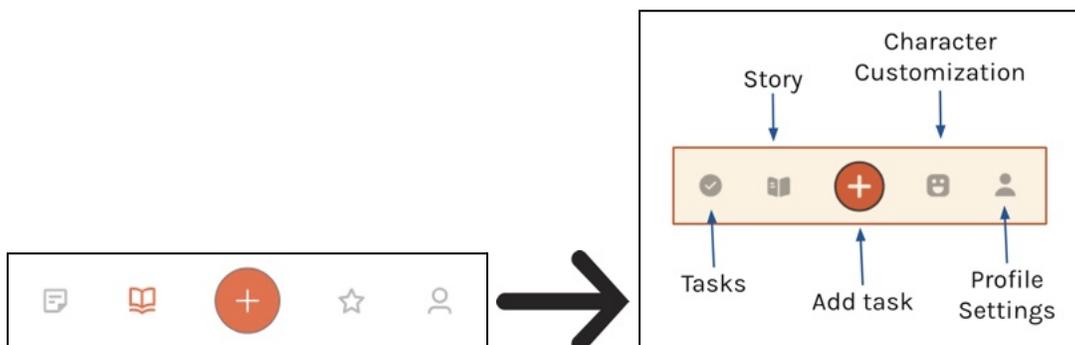
This change was also made from Heuristic Evaluation feedback, that the:

- Cursive font difficult to read and intrusive
- Difference in title and body font makes the design seem less cohesive & clean
- The retro style did not come across in certain screens

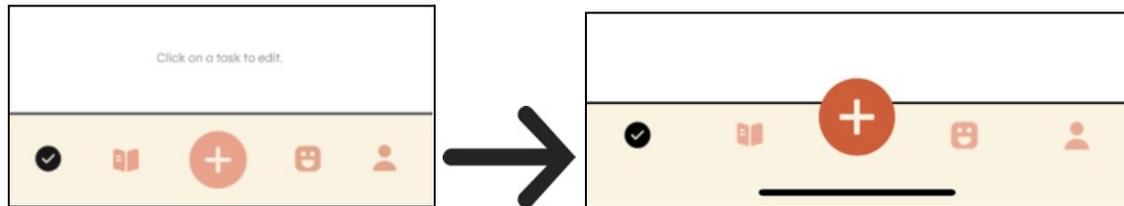


We also made significant changes to the navigation bar to improve usability and align with the core functionality of our app.

- [H6] Navigation bar icons are confusing and not intuitive as to what screens they lead to



Thus, we changed the navigation bar icons to better reflect the screens they lead to. We also modified this version of the bar to place the "+" button in the center of the bar, slightly above, reinforcing its role as a primary action rather than a page within the app. This central placement differentiates it as a pop-up feature for adding tasks, ensuring it can be accessed from anywhere in the app for convenience - except when users are immersed in reading a chapter, where uninterrupted focus is necessary.

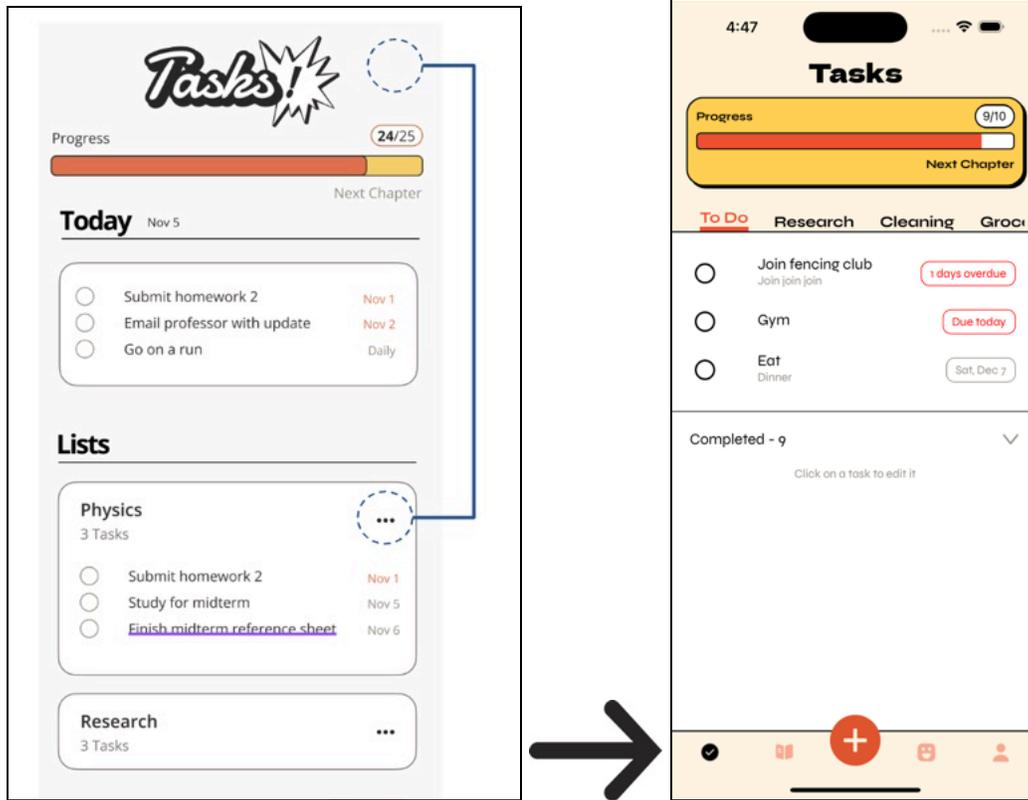


Simple Task

During the transition from our medium-fi to high-fi prototypes, we addressed several major UI issues based on heuristic evaluations. Two severity 3 violations were identified in our simple task flow:

- [H4] the absence of a three-dots icon for the "Today" tasks section, preventing users from editing or deleting tasks
- [H6] the inconsistency of the three-dots icon across task sections, making options like edit and delete difficult to access

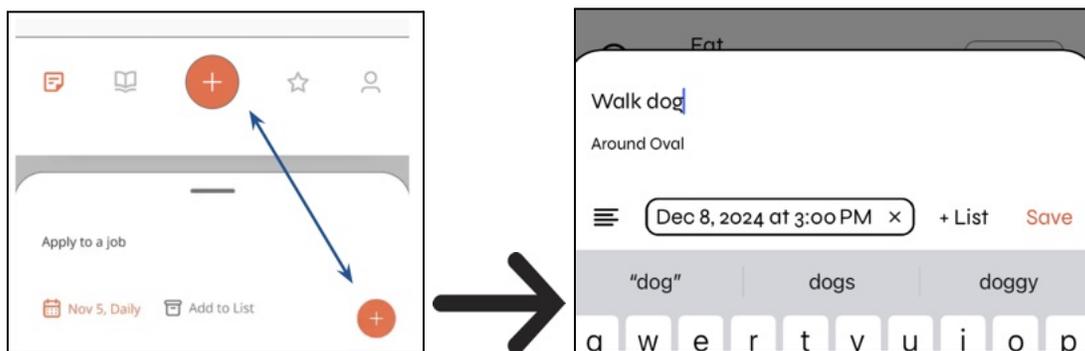
In response, we revised the design to allow users to click directly on a task to edit it, eliminating the need for the three-dots menu. This change improved accessibility and convenience, resolved inconsistencies in the UI, and streamlined the appearance by removing unnecessary menus. These updates enhanced the overall user experience by making task management more intuitive and visually clean.



We also addressed a severity 3 heuristic violation:

- [H5] the orange "+" button's meaning changed midway through the task creation process, potentially confusing users

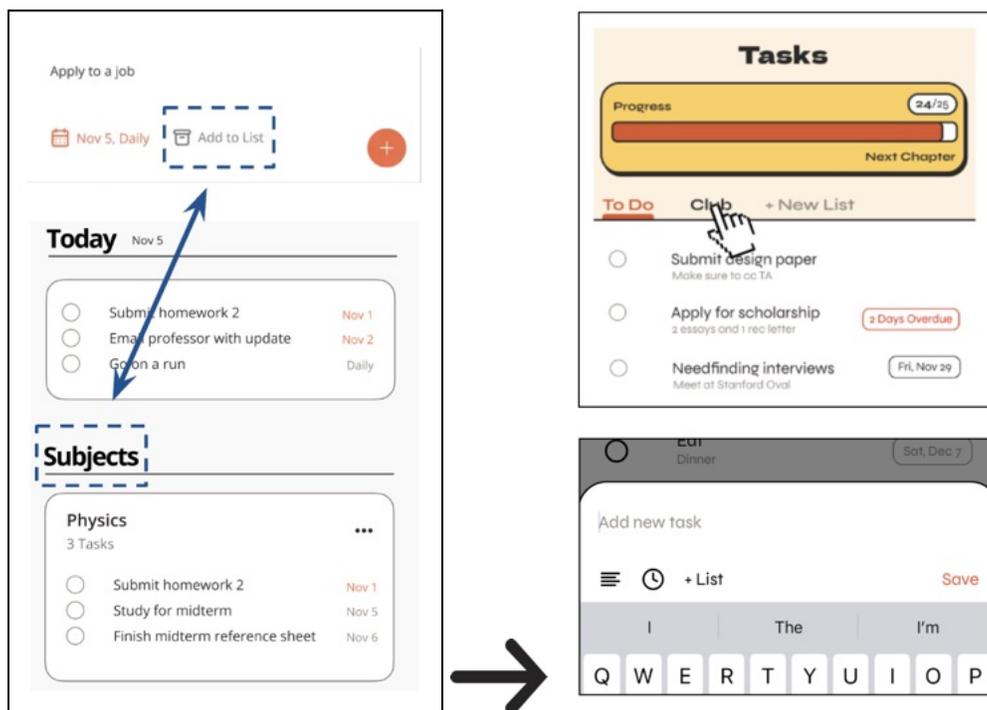
To resolve this, we revised the design by replacing the "save" functionality of the button with a clear text-based "Save" button. This change clarified user instructions, differentiated the "add task" action from the "save" action, and ensured a more intuitive and seamless task creation process. This adjustment reduced user confusion and improved overall usability.



Finally, for the simple task flow, we addressed two more severity 3 heuristic violations related to the "Lists" feature:

- [H4] the "List" description was confusing
- [H4] the "Today" section was missing titles, making navigation unclear

To resolve these issues, we introduced a simplified list navigation bar at the top of the interface, clearly categorizing tasks and improving user understanding. Additionally, we revised the task-adding process so users can click directly into the desired list to add tasks, rather than choosing a list after task creation. These changes improved clarity, streamlined navigation, and enhanced the overall usability of the "Lists" feature.



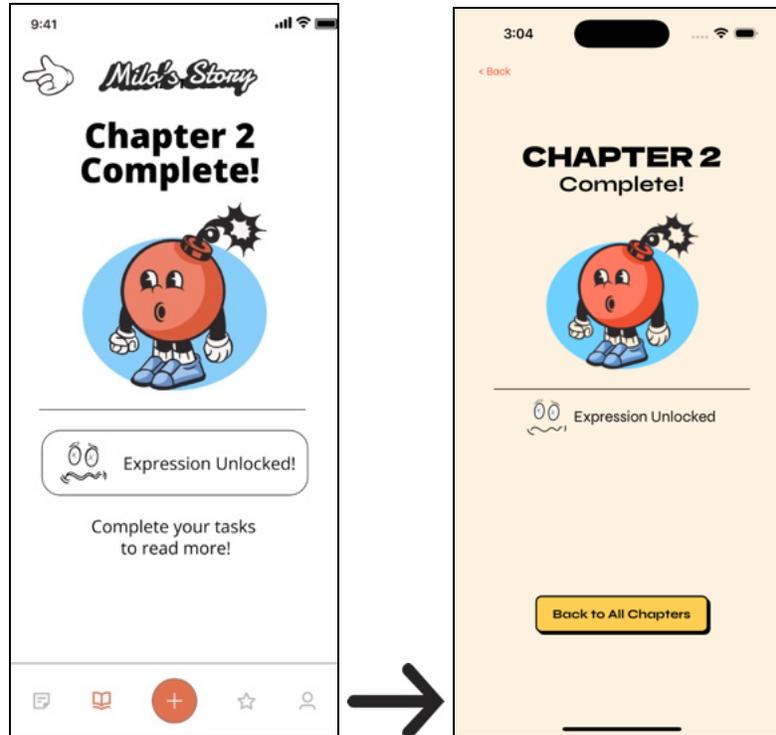
Moderate Task

We addressed two heuristic violations related to the "Expression Unlocked" feature:

- [H4] it lacked functionality
- [H5] users expected it to be a clickable button leading to the customization page

To resolve this, we updated the design so that the "Expression Unlocked" text does not look like a button, but instead text on a screen. Additionally, we introduced a

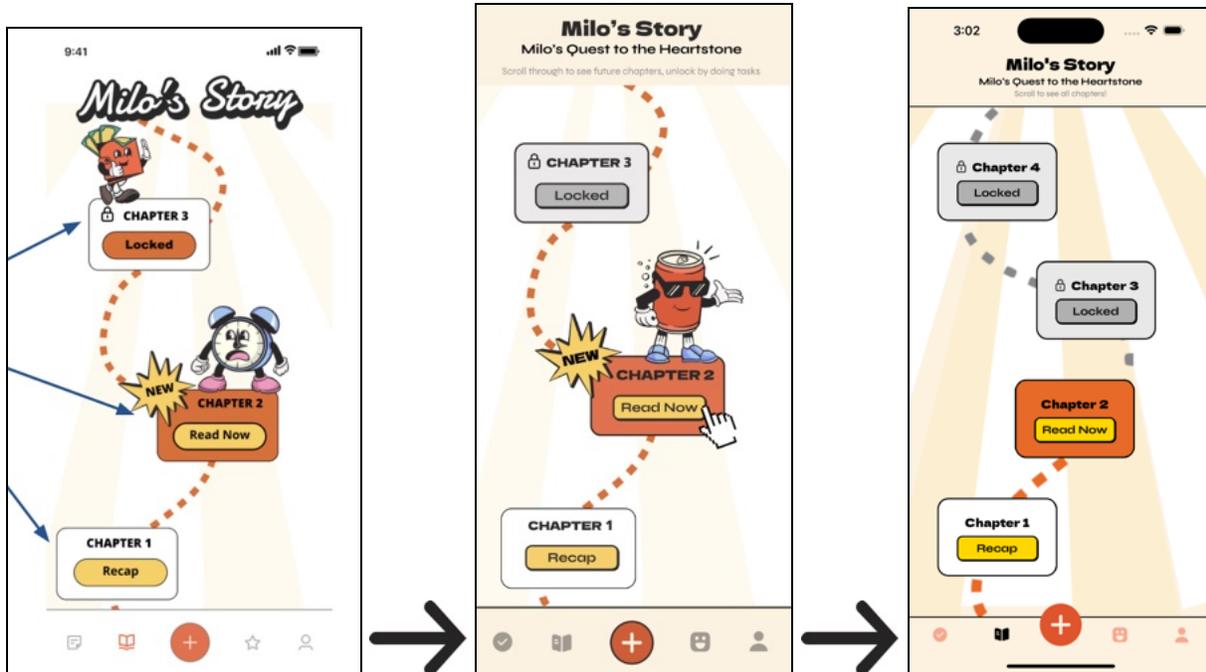
"Back to All Chapters" button to provide users with clear guidance for returning to the full story, enhancing navigation. These revisions improved usability by aligning with user expectations and creating a more intuitive and engaging experience.



We addressed a heuristic violation related to the story map:

- [H7] the colors used were inconsistent and unintuitive, making it difficult for users to understand which chapters they could access

To resolve this, we revised the design by changing the colors and contrast of chapters to reflect their read status, helping users quickly identify completed chapters. Additionally, we clarified the distinction between locked and unlocked chapters, ensuring users could easily understand their progress and navigate the story. Any chapters locked, in addition to the path, were gray. These updates improved visual consistency and usability, making the story map more intuitive and user-friendly.

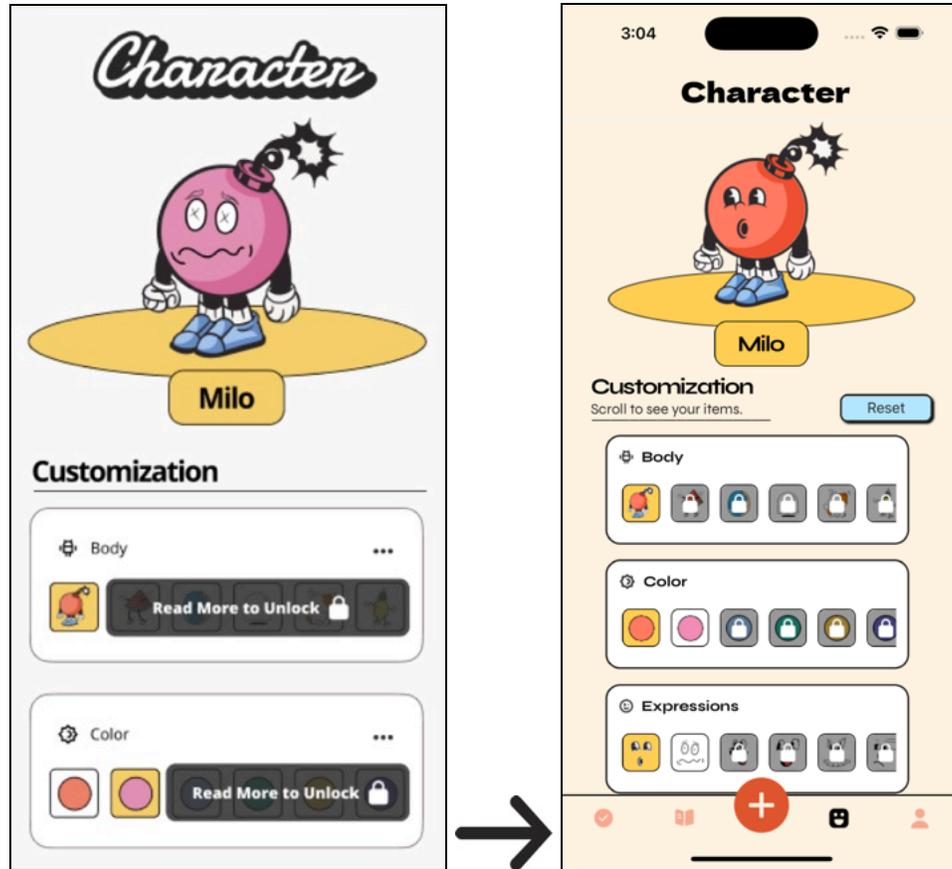


Complex Task

We addressed multiple heuristic violations related to the visibility and navigation of features:

- [H7] there was no indication of newly unlocked items
- [H11] scrolling through features was unintuitive
- [H8] locked features were completely hidden behind a black overlay, reducing user excitement about unlocking them

To resolve these issues, we added user instructions to make scrolling more intuitive for first-time users, ensuring they understand how to navigate the features. Additionally, we made locked items partially visible behind the overlay text, allowing users to see what they are working towards and increasing anticipation. Finally, we introduced clear indications for newly unlocked items, improving feedback and enhancing the user's sense of accomplishment. These changes made the interface more engaging, transparent, and easy to use.



We addressed two heuristic violations regarding the back button:

- [H7] it was inconsistently available, disappearing on the genre choice screen
- [H8] its overly stylized design (a finger pointing in the rubber hose animation style) made it intrusive and less intuitive for first-time users

To resolve these issues, we replaced the stylized back button with a text-based design, making it clearer and more user-friendly. Additionally, we reduced its size to ensure it did not obstruct or distract from the content on the screen. These changes improved navigation consistency and accessibility, creating a smoother and more intuitive user experience.

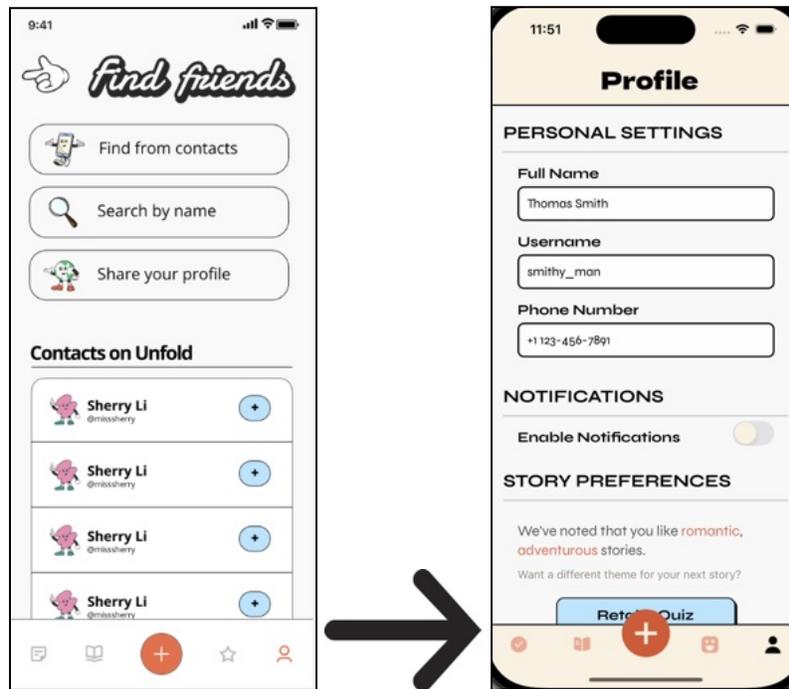


We addressed several heuristic violations related to the "friends" feature we had in our med-fi prototype:

- [H7] the indicator of a friend successfully being added was confusing

- [H4] the concept of "friends" lacked a clear purpose within the app
- [H6] there was no visible list of existing, confirmed friends

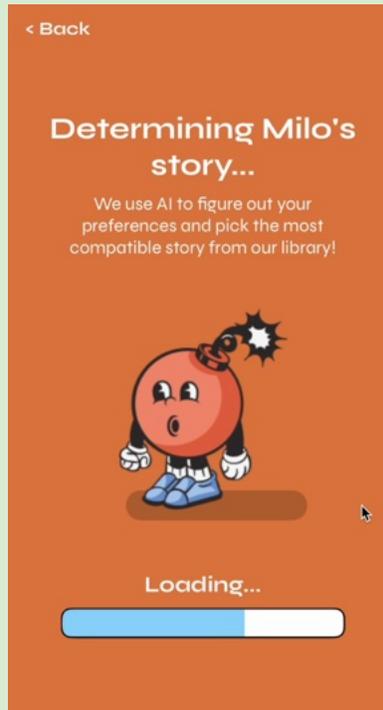
To resolve these issues, we removed the internal app friends list entirely, simplifying the app's features and reducing unnecessary distractions. This change streamlined the user experience, focused the app on its core functionality, and eliminated confusion around the "friends" feature.



HEURISTIC EVALUATIONS

Severity 3 or 4 HE Violation	Fix or Not Implemented	Rationale
[H4] Three-dots icon is missing for "Today" tasks section.	Fixed	See pages 19-20
[H6] The task sections use a three-dots icon (on the top right corner). This icon, similar to a hamburger menu, nests (hides) user options such as edit, delete etc.	Fixed	See pages 19-20
[H5] In creating a task, the meaning of the orange + button changes halfway through the process, which could trip up users	Fixed	See page 20
[H4] When a user creates a task, there are two buttons "add to list" and "+."	Fixed	See page 20
[H5] The new expression unlocked statement has no functionality and when you click on it does nothing	Fixed	See pages 21-22
[H11] Having an audio / play aloud option for the stories.	Not Implemented - This feature may be considered for future iterations as we expand the app.	We did not implement the audio/play-aloud option as it was outside the scope of our current development phase and most devices already have a built-in screen reading ability.

		While it could further enhance accessibility and user choice, our focus was on refining core functionalities like task completion and story progression.
[H6] Confusing star icon on the bottom bar	Fixed	See pages 18-19
[H3] Back button exists on screen before, but disappears on the genre choice screen.	Fixed	See page 24
[H3] No back button on determining milos story page	Fixed	See page 24



<p>[H3] No indication that user can edit personal settings.</p>	<p>Fixed</p> 	<p>We made sure that text boxes that could be edited had a consistent style, introduced to the user during onboarding, in comparison to buttons which have a second border. What this means is that the user can easily edit their personal settings by typing and also utilizing a toggle feature, which is intuitive.</p>
<p>[H1] Indicator of a friend successfully being added is confusing</p>	<p>Fixed</p>	<p>See pages 24-25</p>
<p>[H1] No list of existing, confirmed friends</p>	<p>Fixed</p>	<p>See pages 24-25</p>

[H7] Story Preferences hidden in profile.

Fixed

Profile

Full Name
Thomas Smith

Username
smithy_man

Phone Number
+1 123-456-7891

NOTIFICATIONS

Enable Notifications

STORY PREFERENCES

We've noted that you like **romantic**, **adventurous** stories.
Want a different theme for your next story?

[Retake Quiz](#)

We removed the Edit Profile text and instead made the Profile page into the three essential functions: editing the username, name, and phone number, then enabling notifications, and then the story preferences section. This is to make the f

VALUES IN DESIGN

The key values identified for Unfold include:

1. **Playfulness:** Keeping users engaged with entertaining stories and compelling cliffhangers.
2. **Reward Balance:** Setting up in-game rewards that motivate users while fostering intrinsic motivation and routine in real-world tasks.
3. **Accessibility:** Ensuring the app is intuitive and usable for a broad user base, including those with varying familiarity with games.
4. **Flexibility:** Making the app adaptable to users with diverse tasks and goals.
5. **Sustainability:** Ensuring motivation is maintained over a long period to support consistent accountability.

Playfulness: Embedded through the narrative-driven interface with entertaining storylines and cliffhangers that encourage users to return to the app. The use of retro-inspired visuals adds a nostalgic, playful element that aligns with storytelling.

Reward Balance: In-game rewards, such as evolving a personalized avatar and unlocking story chapters, are designed to balance intrinsic and extrinsic motivation. Clear visual cues for progress (e.g., Chapter Update notifications) help users feel accomplished while staying on track.

Accessibility: Simplified navigation with clear buttons and instructions ensures ease of use for users with varying familiarity with apps or games. The removal of overly stylized elements, such as the back button, improved usability by making the interface more intuitive.

Flexibility: Users can customize their story themes and characters, allowing them to align the app experience with their personal preferences and goals. Task management is designed to accommodate a variety of tasks, making the app applicable to a wide range of users.

Sustainability: Progress bars and indicators of unlocked items provide long-term motivation by showing users tangible results over time. The balance of fun, flexibility, and routine supports sustainable task accountability.

Two key value tensions were identified:

1. **Playfulness vs. Accessibility:**

- **Tension:** Making the app engaging through gamification and retro visuals risked alienating non-gamers or users unfamiliar with the style.
- **Resolution:** The design was refined to ensure the retro aesthetic didn't overwhelm accessibility. For instance, overly stylized elements, like the back button, were replaced with simpler, text-based alternatives. The use of warm tones and a book-inspired theme balanced the playful retro visuals with usability.

2. **Flexibility vs. Reward Balance:**

- **Tension:** Designing rewards that cater to users' unique interests while remaining deep and emotionally engaging presented a challenge.
- **Resolution:** Story themes were made customizable during onboarding to align with individual user preferences, ensuring emotional investment. However, the depth of rewards was kept consistent to maintain routine and motivation.

While most tensions were resolved through thoughtful design iterations, challenges remain in ensuring long-term sustainability without over-complicating features. Future iterations may focus on refining these balances further.

FINAL PROTOTYPE IMPLEMENTATION

Tools used:

We utilized several tools to build **Unfold**, ensuring a functioning high-fidelity prototype that aligns with our design goals:

1. React Native:

a. Pros:

- i. Enabled cross-platform development, ensuring compatibility on iOS and Android devices.
- ii. A large library of components and community support made it easy and efficient for developing a lot of features quickly.
- iii. There are a lot of tutorials online for how to build with React Native, and we have access to CS 147L resources.

b. Cons:

- i. Performance can sometimes lag behind fully native apps, but for the purposes of this class and our current app state, this wasn't an issue.

2. Expo:

a. Pros:

- i. Simplified app deployment and testing on real devices, making it easy to share builds with team members.
- ii. Extensive library of prebuilt modules accelerated the development process. (Perfect for navigation-related work!)

b. Cons:

- i. Limited ability to customize native code with expo libraries

3. Visual Studio Code:

a. Pros:

- i. IDE with extensions that improved productivity
- ii. Highly customizable to suit individual developer workflows.

b. Cons:

- i. Not every team member has the same extensions, so there were some inconsistencies across devices..

4. GitHub:

a. Pros:

- i. Enabled seamless collaboration with version control among our team
- ii. Branching and merging features ensured organized and conflict-free integration of code contributions. (We had a dev branch per person working on the code and merged in main)

b. Cons:

- i. Managing merge conflicts was occasionally challenging for less experienced team members.

Hard-coded Techniques:

We were able to implement all 3 of our primary tasks in our application. Because all of these 3 tasks occur in the context that a user already exists, our prototype operates under the circumstance that the user is already logged in.

1. **Tasks Page:** Progression to the next chapter is hard-coded to require the completion of 10 tasks.
2. **Story Portion:** Despite branching paths, the outcome remains consistent after reading Chapter 2: unlocking the same scared expression.
3. **Customization Page:** All customization options (e.g., expressions, outfits) are predefined and already unlocked at the start of the app. The amount of options unlocked is simulated to the user's current chapter progress, which in this case is hard-coded to Chapter 2.
4. **Profile:** Personal Settings ("Full Name," "Username," "Phone Number") are pre-filled at the start but editable during a session, but they are not retained after refreshing the app.
5. **Personalization:** Story preferences are static, with all users receiving "Spooky, nail-biting, and edgy" as their recommended genre. However, this will not change anything about the story, as we do not yet have multiple stories.

Wizard of Oz Techniques:

We utilized many Wizard of Oz techniques to build out intended features and have a finished product for user testing. We tried to minimize the amount of Wizard of Oz techniques as possible, but the ones we did have are below:

1. **Tasks Page:**
 - The system notifies users that Chapter 2 has been unlocked upon completing 10 tasks. However, Chapter 2 is always unlocked, with the notification serving to simulate progression logic.
 - In addition, the system does not reset completed tasks to zero after the new chapter unlocks, requiring the user to "undo" the tasks to go below 10 again in order to re-simulate achieving the 10 tasks notification during user tests.
2. **Story Portion:**
 - Users are presented with choices to influence the narrative. These choices trigger different story branches but will eventually lead to the same outcome: unlocking the "scared expression."

3. **Customization Page:**
 - The "scared face" expression appears as unlocked upon finishing reading Chapter 2, but the expression can technically be chosen before reading Chapter 2 as it's always unlocked.
 4. **Profile:**
 - The "Enable Notifications" toggle button provides interactivity but does not activate functional notifications.
 5. **Personalization:**
 - During onboarding, users go through questions to simulate personalized story recommendations. However, all recommendations default to a predefined genre: "Spooky, nail-biting, and edgy."
 - There is even a fixed-time progress bar for the "AI" determining the user's preferences.
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REFLECTION AND NEXT STEPS

Key Learnings:

1. **Empathize with users every step of the way:** Our design process highlighted the importance of actively listening to users and rooting our design in addressing their needs. For instance, our needfinding interviews revealed that users value systems that reinforce positive habits while also allowing for flexibility with their current set-ups. By empathizing with their stories, such as Andrew's desire for meaningful tasks and Madison's struggle with motivation, we thought about features like task personalization and narrative-driven rewards. This empathy-driven approach ensured that we were designing Unfold to directly address user pain points in meaningful ways.
2. **Think about where prototyping fails:** Reflecting on what wasn't tested in our prototypes revealed opportunities for new ways to think about our solution. For example, while our low-fi prototype simulated task completion unlocking a story chapter, it didn't account for how engaging this would be for users long-term. Identifying these gaps led us to explore AI customization and progress visualization that would keep Unfold's user experience dynamic.. This iterative mindset rooted in user testing helped us continue to think about how to evolve our design and address real needs, rather than relying solely on assumptions.

3. **Small rewards promote a sense of progress:** We found that small rewards, such as story progression or unlocking avatar accessories, help users better visualize and space out their accomplishments so they feel consistent motivation. This insight came about through our early prototyping tests, where we saw that people needed variety in their rewards to maintain interest long-term. This learning led us to design rewards that offer personalizable components through the story and avatar, so they are always meaningfully tied to user efforts.
4. **Efforts are most effective when connected to bigger goals:** We found that users were most motivated when they saw their tasks contributing to larger goals that reflected their values. For example, Andrew's engagement stemmed from how tasks connected to his creative aspirations. This insight guided us to incorporate features like narrative arcs that evolve based on user input, reinforcing the sense that their actions matter in both the app and their personal lives.

Future Work:

There are several directions we'd like to explore given the time to continue iterating on and refining our app:

Task weighting for story progress:

- **WHY?** Currently, all tasks entered by users are treated equally in determining how many tasks are needed to unlock a new chapter. However, we recognize that this approach may be discouraging for users tackling larger, more demanding tasks, such as completing a major project or leading a meeting. While we could attempt to infer task significance on our end, we want to avoid making assumptions about what is important or challenging for each user.
- **HOW?** Instead, we aim to empower users by allowing them to assign weights to their tasks themselves. These weights would determine how quickly users unlock new story chapters, making the process more personalized and rewarding while strengthening the connection between task completion and narrative progression.

Integrating tasks and avatar into the story:

- **WHY?** Building on our needfinding insights that users are drawn to opportunities for personalizing their experience, particularly through customizing their avatars, we want to deepen the connection between the

avatar and the story. Additionally, to make the story feel more uniquely tailored to the user, we thought about embedding their tasks into the storyline.

- **HOW?** While the story text already reflects the avatar's journey, we want to go further by integrating the character directly into the visuals, creating a more customized narrative experience. In the same vein, completed tasks would not only influence the narrative outcomes but also be referenced directly within the plot. For example, if a user completes the task "go to the gym," their character might embark on a training arc, gaining strength to overcome an enemy. This integration ties the user's real-world actions to the story, reinforcing their sense of progress in both the app and their personal life.

Tailored onboarding process:

- **WHY?** Our needfinding and prototype feedback revealed that user engagement with Unfold depends a lot on having compelling, personalized stories to motivate task completion. Users want narratives that align with their interests, which highlights the importance of a tailored onboarding process to set the tone for their journey. Onboarding is our first opportunity to introduce users to their avatar and invite them to create their own narrative in a way that feels meaningful and motivating.
- **HOW?** We envision an interactive onboarding flow that uses AI to analyze user preferences to curate a story that is fit to their media and reading interests. The current onboarding experience includes a hard-coded version that adapts to basic user inputs, such as their priorities or story preferences. However, our goal is to implement AI to parse these preferences more dynamically and generate custom stories that truly connect to each user.

Final Remarks:

Thank you for joining us on Unfold's design journey! This project has been an amazing experience, from conducting our needfinding interviews to brainstorming solutions, and refining our final product through rapid iteration. We're deeply grateful to Professor Landay, our Course Assistant, Paige Olson, and everyone in our Design for Healthy Behaviors section, for all of their guidance and support throughout this process.

For more details about our design process and to explore the final prototype, visit: <https://web.stanford.edu/class/cs147/projects/Design-for-Healthy-Behaviors/Unfold/>