HAPPY Scholar

An app for parents of young ADHD learners

FOUR LEAF DESIGN

SPECIAL THANKS TO:

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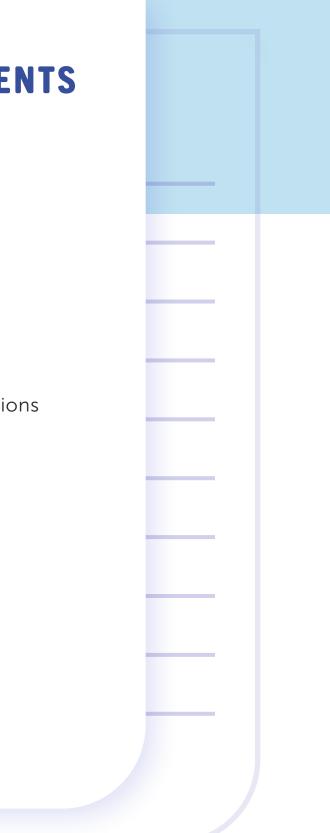
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1



TABLE OF CONTENTS

- 04 Problem
 05 Solutions
 06 Market Research
 08 Objectives
 10 Learning Theories
 11 Technical Specifications
 12 User Profile
 15 Usability Report
 18 Accessibility
- **19** Style Sheet
- 20 Flowchart
- 22 Storyboard
- 40 References



🔅 PROBLEM

Attention-Deficit/Hyperactivity Disorder, or ADHD, is one of the most common childhood neurodevelopmental disorders, with one in 10 children in the U.S. having been diagnosed as of 2022. (CDC) Studies show that children diagnosed with ADHD tend to underachieve academically compared to children without ADHD. The amount of homework a child completes, as well as the time spent on it, is directly related to academic success (Langberg et al., 2011). However, getting a child with ADHD to complete unwanted tasks such as homework can be challenging, and parents of children with ADHD are more likely to turn to ineffective parenting and experience family conflict as a result (Evans et al., 2013).

Behavioral parent training, or **BPT**, is a form of behavior therapy wherein the therapist teaches parents methods to encourage a child's positive behaviors, discourage their negative behaviors, and improve family relationships. BPT is one of the most widely-used behavioral treatments for children with ADHD, and BPT targeting homework compliance has been shown to significantly improve homework completion rates (Langberg et al., 2011; Pfiffner & Hack, 2013). However, traditional BPT is time-intensive, requiring 8 to 12 in-person sessions. Additionally, private insurance does not always cover mental health care; parents unable to afford the out-of-pocket cost for BPT may forgo the treatment entirely (Rowan, McAlpine & Blewett, 2013). To address both poor grades among students with ADHD and lack of access to effective treatments such as BPT, we propose an app called **Happy Scholar** that teaches BPT-derived parenting techniques to parents looking to improve their child's homework performance. **Happy Scholar** also acts as a portal between parents and teachers to track the child's overall grades and moods before and after application of the BPT techniques.

Happy Scholar provides two primary services. Firstly, it offers parenting lessons with prompts like 'How can a reward system benefit my ADHD child?' and 'How do I discipline my child effectively?' These lessons address common parenting challenges. The app also includes opportunities to practice these techniques through interactive scenarios, helping parents gain confidence in applying these skills in real-life situations. Secondly, it displays the child's grades, assignment completion history, and teacher's notes, allowing parents to monitor their child's engagement and identify trends in grades and moods.

With **Happy Scholar**, parents can practice and implement what they learn in a judgment- and pressure-free learning environment, leading to improvements in their child's mood and grades, as well as fostering a stronger parent-child bond.

SOLUTION

MARKET RESEARCH

Content

For parents of children with ADHD looking for information related to ADHD management and academics, the first results on a web search include **WebMD**, the **National Institutes of Health**, or mental healthfocused websites such as **HelpGuide** and **CHADD**. These resources provide general information and tips but are not personalized or focused on homework compliance.

Support apps for students with ADHD include **MyHomeworkPlanner**, **EndeavorRX**, **BriliRoutines**, and **Evernote**. These apps help the user track homework or improve focus, but do not allow for additional support or parental involvement. No BPT-specific app exists.

Schools may integrate learning management systems such as **Canvas** or **Blackboard** into their curricula. These systems centralize learning materials, teacher announcements, discussion boards, assignments, and grades. While they offer personalized statistics on a child's grades, they do not provide guidance on ADHD management or strategies for improving poor academic performance.

We bridge the gap between BPT-focused ADHD education and academic improvement by integrating aspects of each of these resources: the easy access to the student's school performance, and the ADHD management strategies and resources from trusted sources. By doing so, we empower parents to feel involved in their ADHD child's academic progress.

Design

Our application draws inspiration from existing popular mobile sources that approach data visualization, learning, and monitoring in a user-friendly way. We sought to combine strengths from the apps in a novel way and to deliver them in the form of an interactive school portal app.

(II)

Several applications known for their data tracking and visualization are the **Apple Health App**, the **Garmin App**, and **Daylio**. These apps record user-provided information and organize it in a succinct but comprehensible way to track improvement over time.

For the education modules in our app, we drew inspiration from apps like **The Happy Child** and **Duolingo**. These apps present users with new information in manageable, engaging formats, such as minilessons and practice questions. Their minimalist design also provides users with a comfortable, digestible learning experience.

By combining these elements, our app delivers a cohesive and usercentric experience that leverages the best practices from both data visualization tools and educational apps.

MARKET RESEARCH

OBJECTIVES

Global objective

Happy Scholar enables parents of ADHD children to apply principles from parent management training to support their child's academic success.

Sub-objectives

After using Happy Scholar, parents of ADHD children will be able to...

- 01 Learn about Behavioral Parent Training and ADHD
 - Learn about BPT and classify which techniques work for children with ADHD and which are harmful for the parent-child relationship.
 - Identify which school accommodations can be requested, what is necessary to request the accommodations, and the request process.
 - Categorize the parenting tactics being used so the parent can communicate with third parties.

02 Apply their knowledge to aid the child academically

- anxiety.
- 03 Evaluate their own and their child's progress, as well as how well the applied principles of the BPT are working to improve grades and ameliorate the parent-child relationship
 - Compare child's performance before and after the parent's behavior modifications.
 - management

OBJECTIVES

• Apply the principles of BPT to reduce school-related

• Design procedures for a successful study space.

• Assess child's emotional regulation & ADHD

9

LEARNING THEORIES

Minimalist Learning Theory suggests that all learning tasks should be clearly defined tasks with quick outcomes allowing the user to self-direct and correct errors as they proceed. Happy Scholar gives the user clarity by breaking tasks into clearly marked pages that are easily navigable from one page to the other.

Experiential Learning Theory (ELT) suggests that learning happens through actively engaging with and reflecting on experiences. Happy Scholar prompts users to apply their learning through interactive videos and then use these skills with their children, fostering practical application aligned with ELT principles.

Multimedia Learning Theory explains that information should have clear signaling cues and avoid extraneous words or graphics so that learning is focused and efficient. We employ a threecolor scheme across icons, graphs, and page layouts to enhance clarity. Visual hierarchy is established through bold text and graphical cues, guiding users to prioritize key information on each page. BPT guidelines are supported with audiovisuals for easier comprehension.

Hardware and Software

Happy Scholar is compatible with mobile devices such as smartphones and tablets and accessible through major app stores like Google Play and the Apple App Store. The app will have a size of less than 50MB and will automatically update.

Programming Functionality

To function effectively, the app requires network connectivity to receive updates from the school and access older data. However, each semester's data will be stored locally on the device, enabling access to previously downloaded information offline. Lessons can be completed offline, and they are also printable for offline use.

TECHNICAL SPECIFICATIONS

$\overset{\circ}{\sim}$ **USER PROFILE**

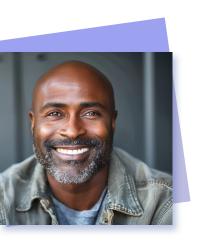
Users

Happy Scholar is designed for parents of children with ADHD who are struggling with academics, particularly homework.

Our primary users are parents of children with ADHD, aged 8-12, who are seeking evidence-based methods to improve their child's school performance from home.

Our secondary users are parents of children without ADHD who want to be able to monitor their child's grades or learn more about the tenets of BPT that can be helpful for all learners.

Our tertiary users are teachers, school counselors, or psychologists who want a resource to recommend to parents.



USER PROFILE \sim

User 1: John

John, 35, is the father of Kayla, a 10-yearold girl recently diagnosed with ADHD. He knows what ADHD is from pop culture but doesn't know many details of the disorder beyond inattention and hyperactivity. John has received several notes from Kayla's teacher expressing concerns about her low grades. Kayla tends to forget assignments, and even when she doesn't, John feels like he must force her to do them. He is worried about his daughter's school performance and wants quick, easy ways to get Kayla to do her homework that won't further strain his relationship with her.

USER PROFILE



User 2: Sara

Sara, 40, is the mother of Amir, a 12-yearold diagnosed with ADHD and currently on medication for it. Amir has excelled in school until now, earning mostly A's with occasional B's. However, since starting middle school, the volume of homework has increased significantly, leading to homework-related meltdowns at home. Sara, who also has ADHD, empathizes with Amir's struggles, recalling her own negative experiences with parental pressure over homework. She is looking for a resource that will give her ideas about how she can help Amir with school beyond medication.

User 3: Mr. Xu



Mr. Xu, 51, is a 5th grade teacher in a public school. Over the years, he has learned to better accommodate students with ADHD in his classroom. He's noticed that homework is a common pain point and has had discussions with many worried or frustrated parents about it. The school requires Mr. Xu to assign his students a certain amount of homework. He would like to recommend a resource to concerned parents about how they can help their children.

Three users participated in a 45-minute moderated usability test using low-fidelity wireframes created on Figma. Users navigated through the **Happy Scholar** app, focusing on layout and content sections. Each user performed several tasks, speaking their thoughts aloud as they interacted with the app. Afterward, they answered follow-up questions and provided feedback which was used to refine the wireframe.

Testers

Tester 1: Male, 40s, no children, diagnosed with ADHD. Tester 2: Female, 50s, mother of two children diagnosed with ADHD. Tester 3: Male, 20s, no children.

Questions/Tasks

- **01** What do you think is the overall purpose of the app, and who might be the intended audience? **02** Where would you go if you wanted to check grades? **03** Where might you click to learn more about helping a child
 - improve their grades?
- that you're currently in, where would you go?
- from this module?

USABILITY REPORT

04 If you wanted to learn more about the science of the module

05 Where might you click to apply the new knowledge you learned

USABILITY REPORT

- 06 Please describe your expectations for navigational elements like a back arrow and an "X" button.
- 07 Did you notice that you can select different (past) dates on the check-in page?
- **08** Did you notice that the grades chart on the stats page also has information on mood and notes?

Results

Our usability testing helped us refine the app's design, prioritizing clear functionality and simplicity over customization and complex information organization.

- All 3 users correctly identified the purpose of the app as a homework aid for parents of children with ADHD.
- Users struggled to determine where to check grades.
- Users felt the "Learn" page was not prominently featured on any page, leaving them unsure where to go to improve grades.
- While all 3 users navigated correctly to the "Read more" section, 2 out of 3 expressed surprise at the scientific content, expecting a more approachable layman's summary.
- 2 users expressed confusion over the intended differences between the "back" and "X" buttons.
- Users disliked words like "test" or "quiz," stating a reluctance to click.

Recommendation

In response to this feedback, we implemented the following changes:

- from the homepage.
- Replaced the quiz at the end of each Learn module with interactive videos.
- summarized view of the week's progress.



• Added additional links to both the "Learn" and "Stats" pages

• Adjusted the usage of "back" and "X" buttons on certain pages to conform more closely to user expectations.

• Separated grade graphs on the Stats page into specific buttons for subjects and timeframes (weeks, months, semesters).

• Simplified the Stats page with toggles for information and a

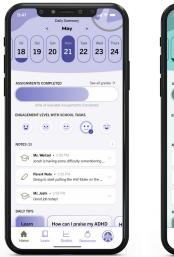
Happy Scholar is designed to be stress-free and approachable. It is accessible for busy parents, with lessons tailored to the parent's preferences.

Each lesson includes audio, visual, and text components to accommodate different learning styles.

Lesson text is written in plain text at a 5th grade reading level.

Text on content pages has a contrast ratio of at least 4.5:1, with body text at least 7:1, in compliance with AA WCAG standards. Fonts and illustrations are optimized for visibility, using high contrast colors that are also colorblind accessible.

Navigation in the app is intuitive, with dedicated buttons and swipe actions. Each page includes a 'help' feature for users who need assistance.



B:41 Daily Summary
Fri Sat Sun Mon Tues Wed Thurs 18 19 20 21 22 23 24
ASSIGNMENTS COMPLETED See all grades >
60% of Available Assignments Completed ENGAGEMENT LEVEL WITH SCHOOL TASKS
* * • • • •
NOTES (3)
Ms. Weitzel • 2:59 PM Jonah is having some difficulty remembering V
Going to start putting the HW folder on the _
Mr. Joshi • 2:59 PM Good job today!
DAILY TIPS
Learn How can I praise my ADHD H
Home Leam Grades Resources

Protanopia

Tritanopia

01 App Logo and Icon

HAPPY SCHOLAR

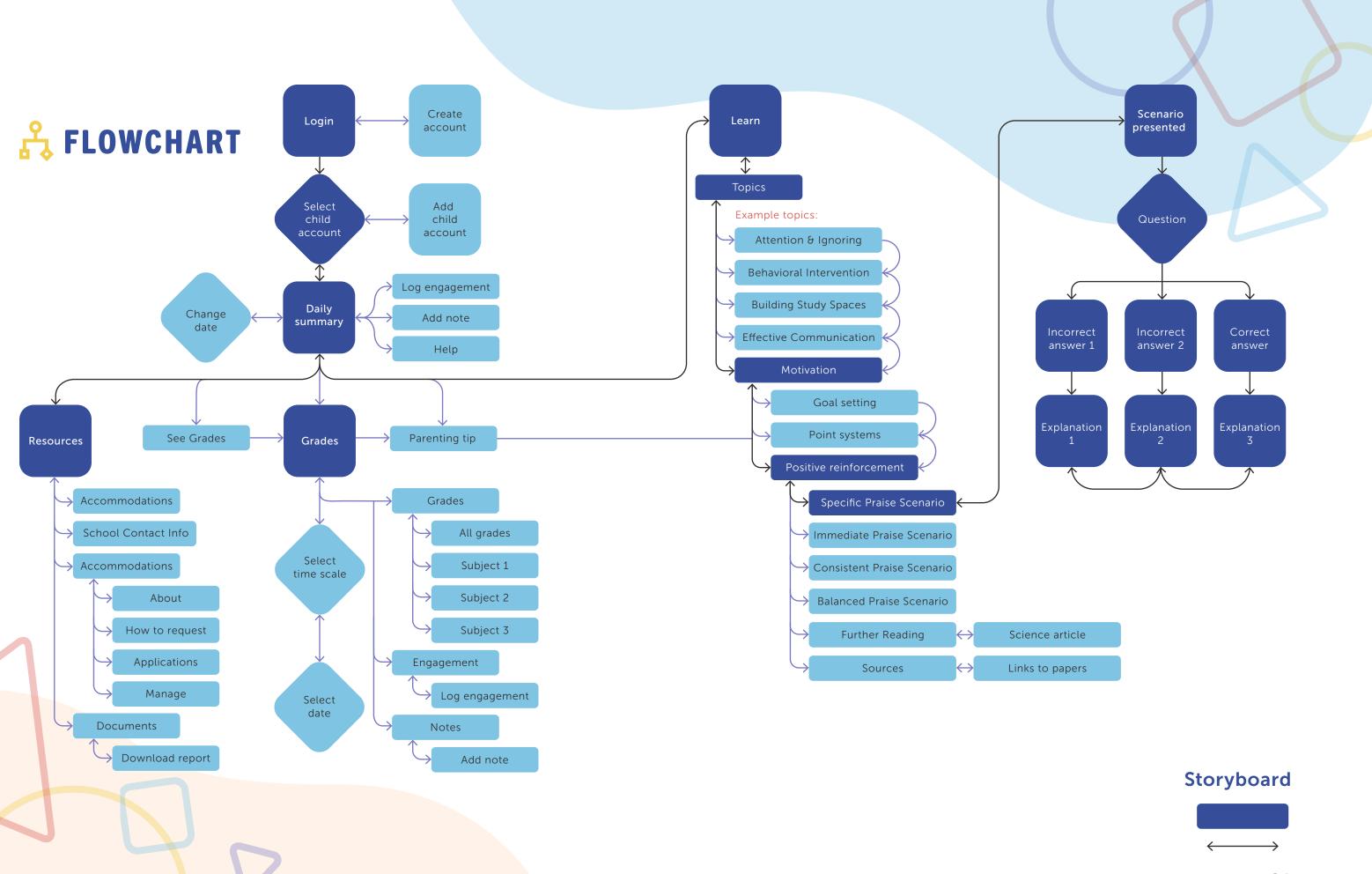
02 Typeface

Trade Gothic Next SR Pro Heavy Condensed ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

Museo Sans 300 ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

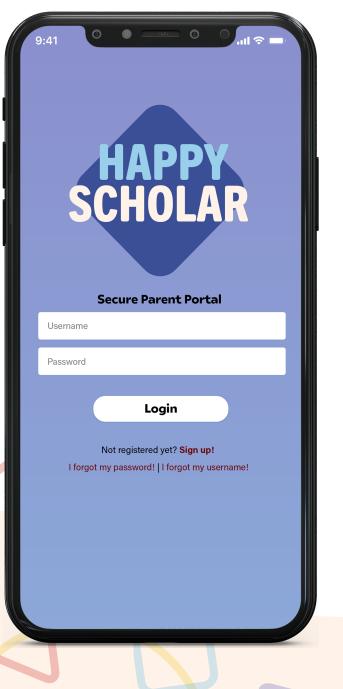
Museo Sans 700 ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz







Login Page



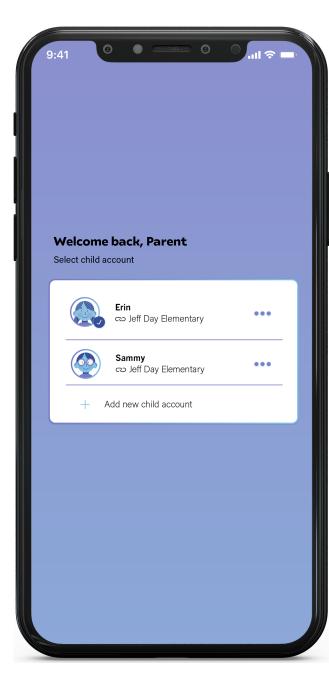
Description

On first opening the app, the user can log in, register, or get help with logging in.

User Action/Interactivity

If already logged in, the user will skip this page. They can enter information in the boxes and tap red links to access the related services. For username or password issues, a reset link will be emailed to the user.

Account Page



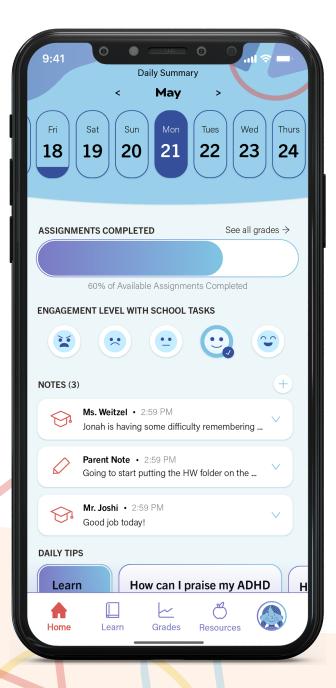
Description

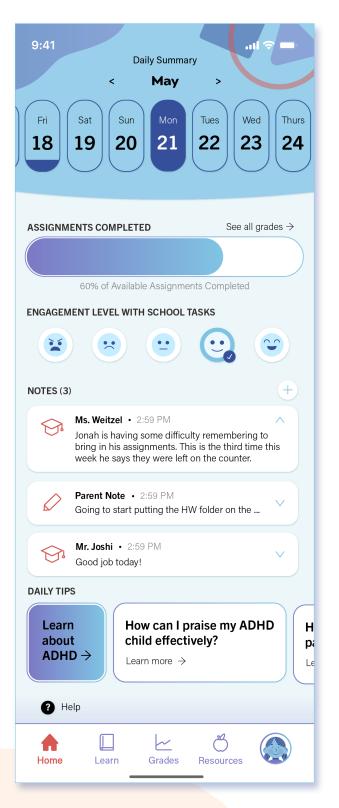
The first screen lets the parent select their student or add a new one. The app will return to this screen when idle to protect student privacy.

User Action/Interactivity

To view a student's account, tap on their name. To add a new child, tap the "Add a new child account" button, enter basic information (name, profile photo), and link the child to the school using a secure single sign-on. The three dots next to each profile allow the parent to edit the account, including relinking, changing the name or photo, or deleting the account.

Home Screen





Description

The home screen provides an overview of the child's progress. It defaults to the current day (highlighted in dark blue on the calendar). Past dates with data will have a dark blue accent. The screen shows outstanding assignments from the school, any teacher or parent notes, moods for the day, and parenting tips that change daily and cover topics not yet completed in the Learning Modules.

User Action/Interactivity

The user can select past dates by clicking on the date pill in the top calendar, scroll through dates, or use the arrows next to the month. Once scrolled, the calendar will minimize to be less intrusive. It is still clickable. They can view grades and assignments by clicking the "Assignments Completed" graphic or "See all grades" text. The user can record or change their child's mood, add notes that will be sent to the school, and read teacher notes, which can be expanded if needed. Daily Tips can be clicked to access relevant learning modules or "Learn about ADHD " for more information. The "Help" button at the bottom provides a tutorial on the app. The bottom navigation bar remains visible during scrolling and page navigation. It lets the user return to the home page, access the Learn page, Grades page, and School Resources. The user can switch students by clicking the student icon.

Switching Accounts



Description

The user can switch students without logging out of the app.

User Action/Interactivity

To switch students, tap the student icon on the bottom right of the navigation bar. From the pop-up, select a student to make them active. Use the three dots next to each profile to edit the child's account, including relinking, changing the name or photo, or deleting the account.

Grades



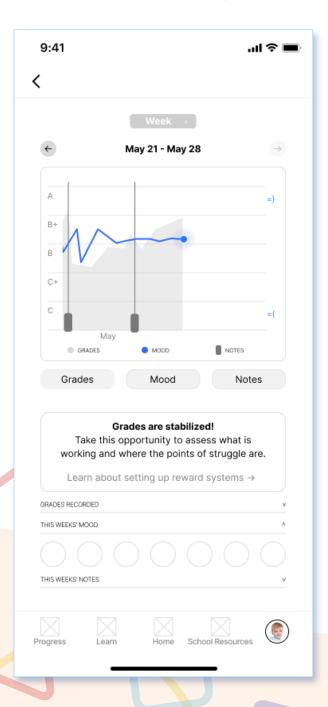
Description

The graph page allows the parent to review their child's data, sorted by quarter. This enables them to see the connection between all data they have been tracking. It is exportable to support accommodation requests.

User Action/Interactivity

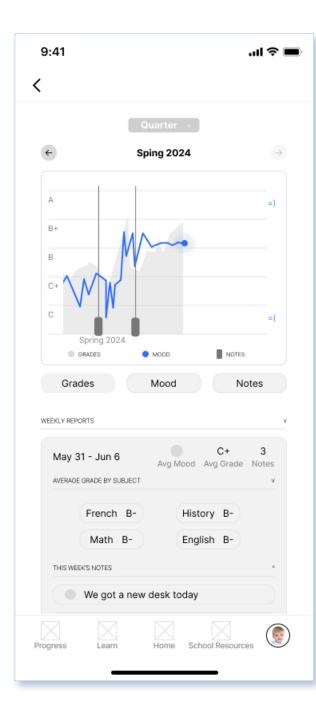
The user can toggle visibility of data types on the graph and scroll through past dates. The weekly summaries can be expanded for more detailed information. If stuck, the user can use the "Help" button to get more information.

Grades: Low Fidelity



User Action/Interactivity

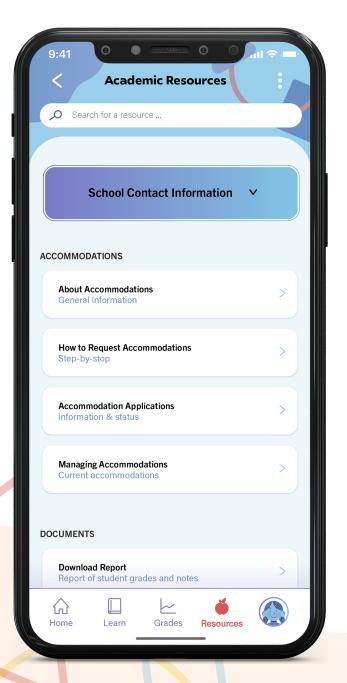
The weekly summary can be clicked into to jump to that week's detail view. Each category can be expanded to see information entered that week, such as daily school engagement ratings, all the notes from the week, and grades by subject and date.



User Action/Interactivity

The weekly summaries can be expanded to see a preview of the weeks' notes and average grades by subject.

Resources



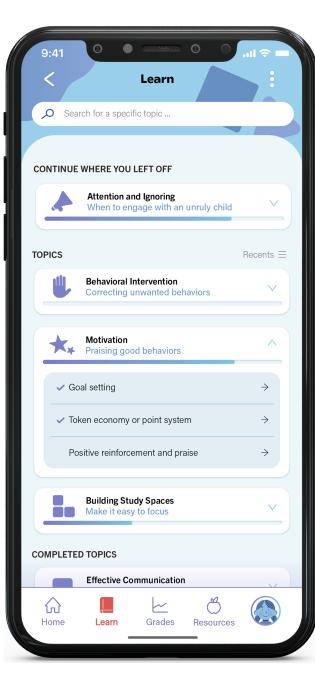
Description

The Resources page helps parents access school resources and services. It includes links for accommodations, forms, and guidance on how to get them. Parents can download grades, notes, and mood reports, and find contact information for school personnel. The page also features PDF downloads and in-app pages on parenting techniques, which help parents explain their support strategies to teachers or therapists.

User Action/Interactivity

The user can click on any module to view the information. Use the back arrow to return to the previous screen, and the three dots to access a "Help" option if needed. The school contact information includes details for administration, the student's teacher, the school guidance counselor, and other relevant professionals.

Learning Page



Description

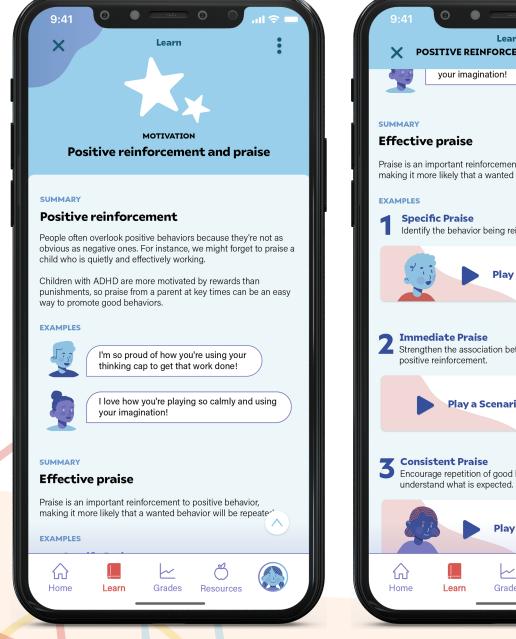
The Learn page has modules designed for quick, student-focused learning. A progress bar indicates how much has been completed, and finished modules move to the bottom to reduce clutter.

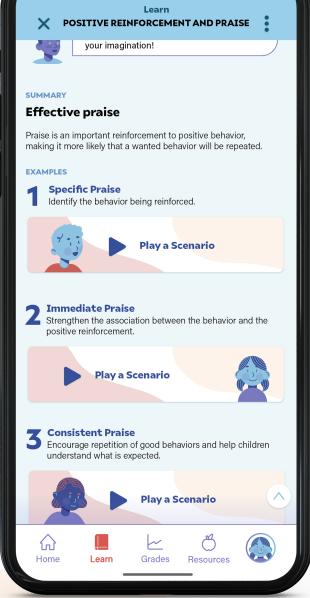
User Action/Interactivity

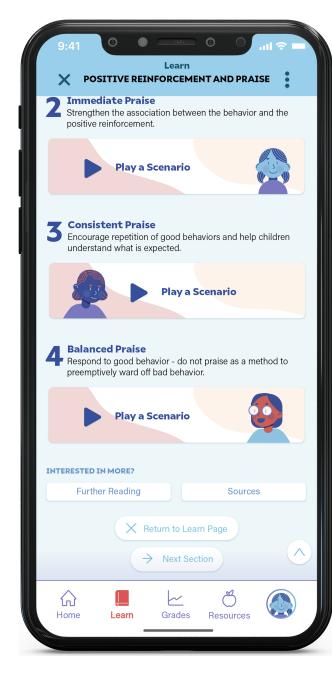
The user can tap on any module to view its details and completion status, then tap the title to read the article. The user can search for topics using the top bar and scroll through the module list. The back arrow returns to the previous page, and the three dots provide a "Help" option and a "Sources" link for additional resources.



Module Example







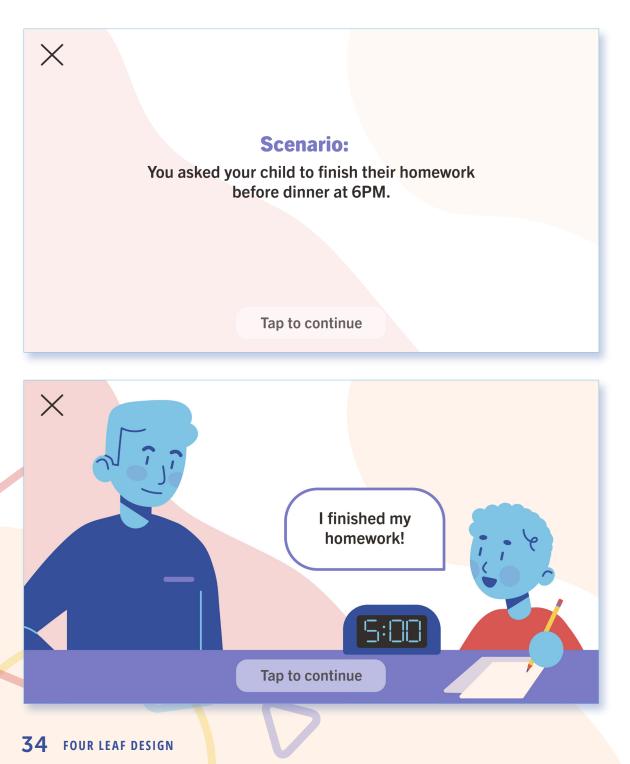
Description

A complete Learn module is divided into small, manageable sections with examples of behavior modifications and sample dialogues to illustrate the tips.

User Action/Interactivity

The user can scroll through the module and interact with elements by tapping the "Play a Scenario" box. The X button closes any open windows and returns the user to the previous page. Users can tap the vertical ellipsis to save or share the module. An arrow at the bottom right lets the user return to the top of the page. Buttons at the bottom allow the user to return to the Learn page, proceed to the next section, read additional articles, or view sources used for the lesson.

Interactive Learning Example



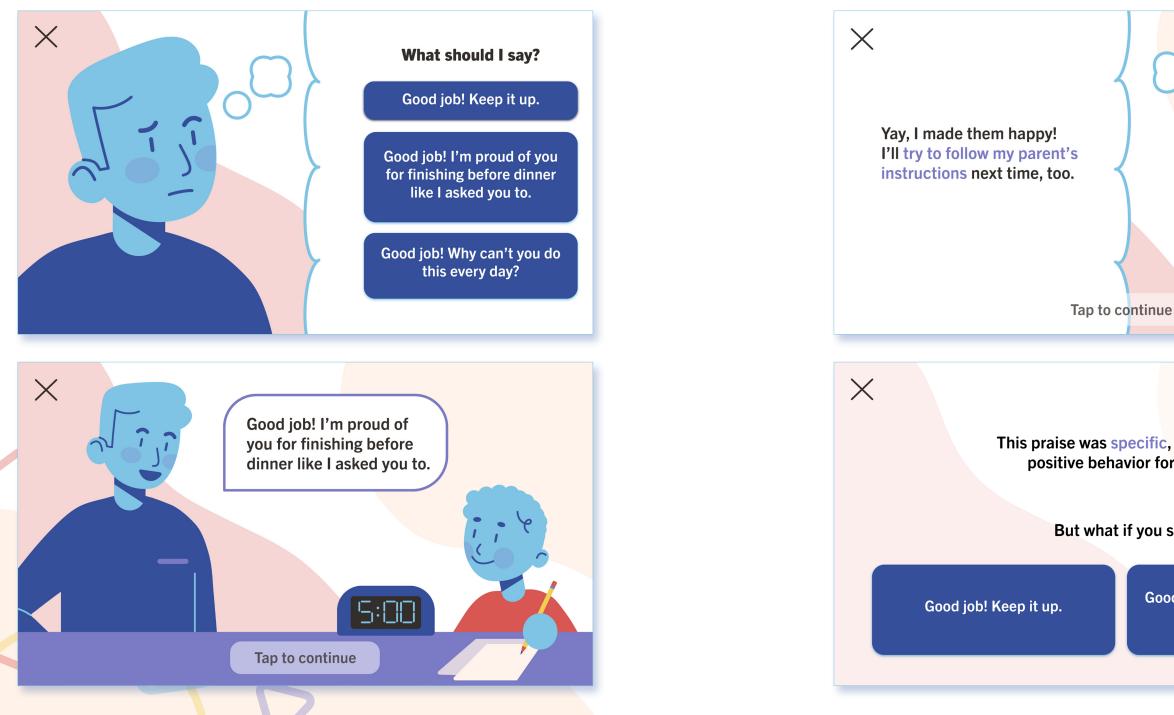
Description

In the interactive scenario, the user can see examples of situations in which they might apply their new knowledge from a learning module, as well as read explanations on why or why not a particular parenting method might work for a child with ADHD. The scenarios are designed using the tenets of BPT to provide context for lessons and correct common parenting mistakes.

User Action/Interactivity

Upon tapping the "Play a Scenario" box on the Learn module page, the screen will turn sideways, prompting the user to manually reorient their phone. The user can then play the scenario by tapping anywhere on the screen to progress to the next segment. After being presented with a scenario, the user can choose from several responses to see the possible result of that response. Once the user has read the explanation, they can choose a different response to view another result. The user can press the "X" button at any time to return to the Learn module.

Interactive Learning Example: Correct Answer

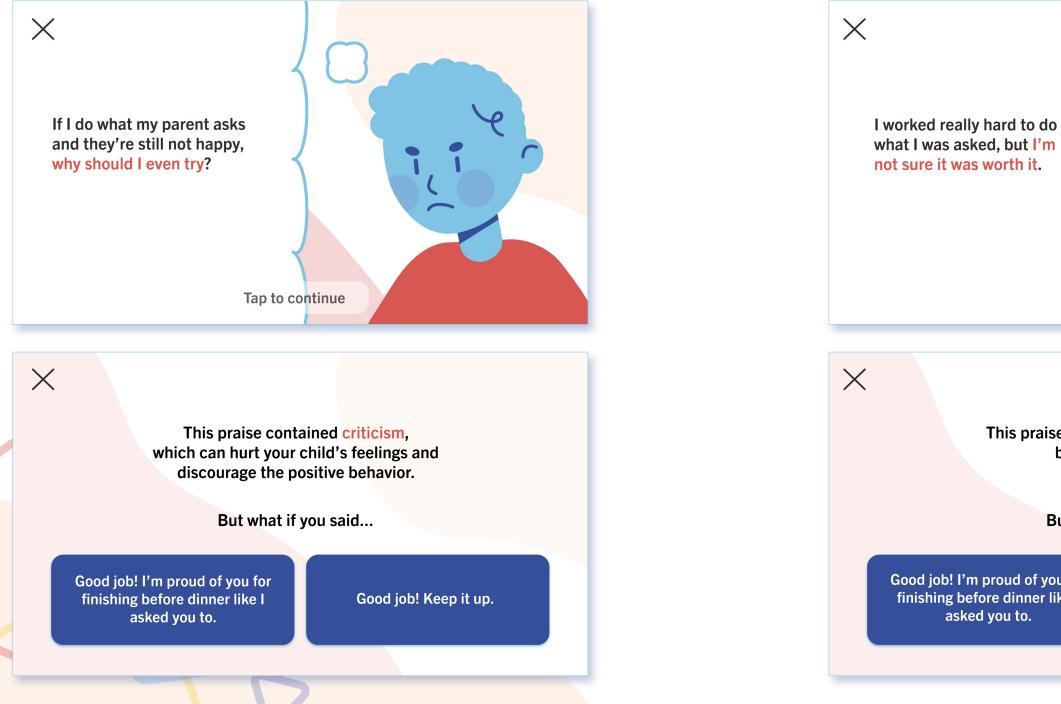


This praise was specific, reinforcing the positive behavior for next time.

But what if you said...

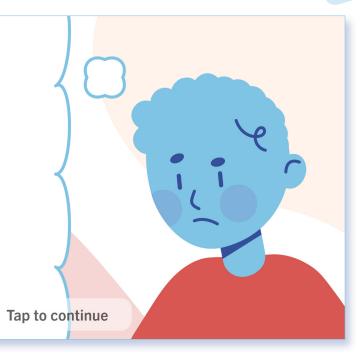
Good job! Why can't you do this every day?

Interactive Learning Example: Incorrect Answer 1



Interactive Learning Example: Incorrect Answer 2





be underwhelming.

Good job! Why can't you do this every day?

39 KAVITA SUBRAMANIAN | ALEX DANNHARDT | HANNAH FORWARD | TERRY NGUYEN

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