



by Chun Hao Wang



## ADHD Financial Management Service Design

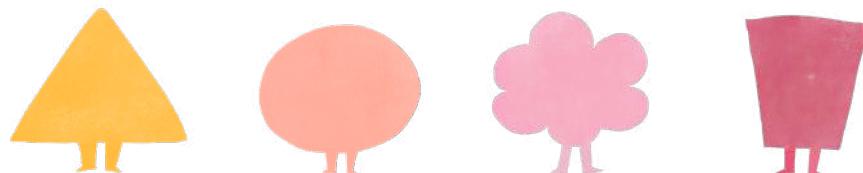
A service that helps young adults with ADHD reduce the urge for impulsive shopping and improve symptom management through the exploration, reminders, and practice of alternative dopamine activities.

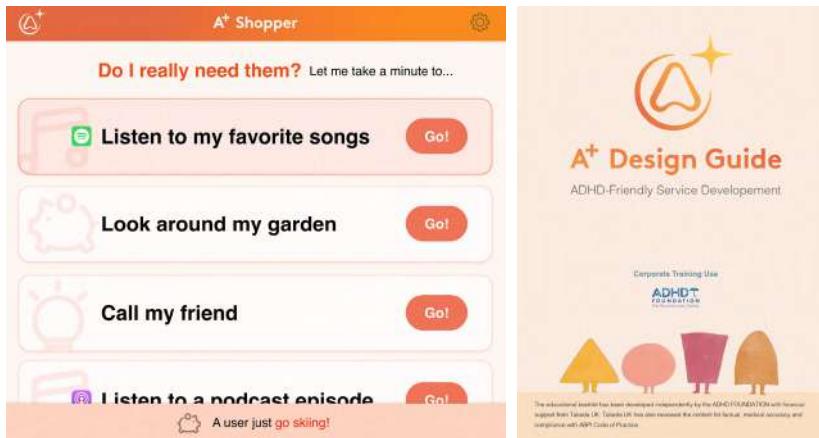
*No brain is the same.*

*No brain is the best.*

*Each brain finds its own unique way.*

*Each brain finds its A+ strategy in finance.*





A service that helps young adults with ADHD reduce the urge for impulsive shopping and improve symptom management through the exploration, reminders, and practice of alternative dopamine activities.

# Abstract

Attention-deficit/hyperactivity disorder (ADHD) in adulthood is associated with challenges in multiple domains of everyday life, including financial management. While existing studies highlight a significant correlation between ADHD symptoms and financial management, a comprehensive overview of this relationship remains limited. This project adopted a case study approach, interviewing 10 individuals with ADHD residing in London and engaging with 9 relevant stakeholders to unravel the intricacies of ADHD financial management knowledge acquiring process. The findings unveiled a multi-decade learning journey for individuals with ADHD to discover personalized dopamine-boosting activities. This journey would not only mitigates the financial consequences of impulsive or addictive dopamine-seeking behaviors but also aids in overcoming the lack of confidence in financial management. Employing co-design and research-through-design methodologies, the project collaborated with young adults (20-30 years old) with ADHD, Non-profit Organizations (NPO), and Not-for-profit Organizations (NFPO) to develop a service facilitating the exploration and practice of personalized dopamine activities during impulsive moments. Future ADHD projects can leverage this project to refine the identified learning curve and further develop related designs to address the challenges inherent in this lengthy learning journey.

## Keywords

Attention-deficit/hyperactivity disorder (ADHD); Financial Management; Impulsive Shopping; Inclusion Design; Co-Design; Research Through Design; Service Design





A dark, grainy photograph of a busy, multi-lane city street. The scene is filled with various vehicles, including several double-decker buses, numerous cars, and a few larger trucks. Pedestrians are scattered throughout the image, some walking on the sidewalks and others crossing the streets. The overall atmosphere is one of a bustling, somewhat chaotic urban environment.

“My brain is like an intersection without traffic lights and traffic police. Thoughts constantly rush in all directions. One moment it can be highly organized, the next moment utterly chaotic.”





D I S C O V E R

# ADHD & Financial Service Design

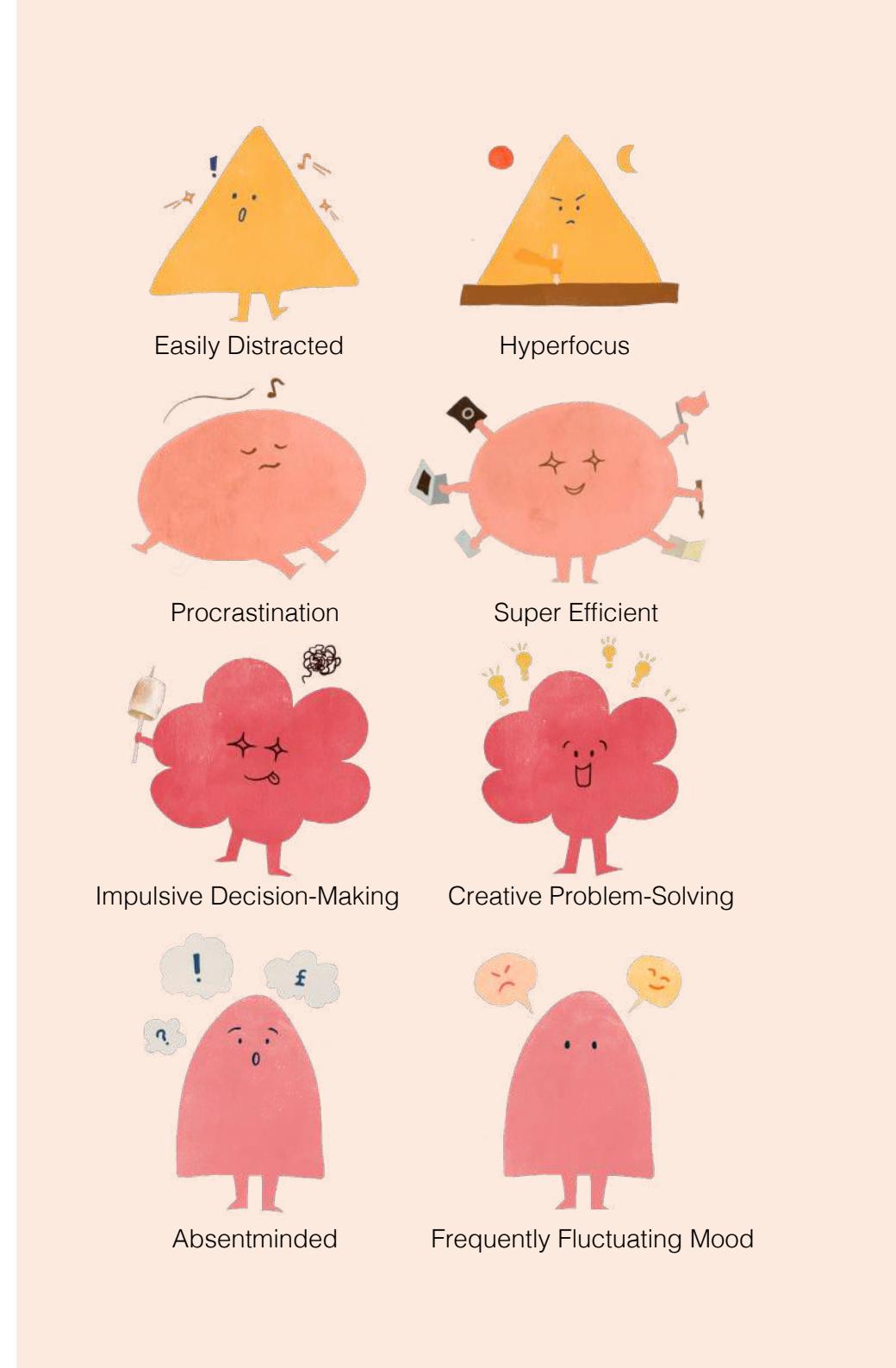
## What is ADHD?

“Each individual with ADHD has a unique ‘factory default’ setting (...) **ten people may exhibit ten different ADHD symptoms.**”

- Foley | ADHD Foundation Coach

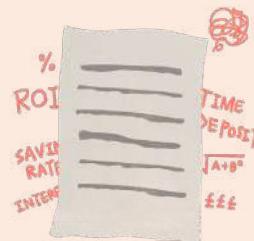
Attention Deficit Hyperactivity Disorder (ADHD) is a condition characterized by a mix of paradoxical traits (Hallowell & Ratey, 2023). Individuals with ADHD often experience a combination of contrasting behaviors, such as difficulty focusing but also the ability to hyperfocus, a tendency to procrastinate alongside the capacity to complete a week's worth of work in just two hours, and impulsive decision-making paired with innovative problem-solving. These divergent behaviors are associated with unique dopamine activity patterns in their brains (Hallowell & Ratey, 2023; Kretschmer et al., 2022). Since symptoms vary significantly from one person to another (Foley, 2023), the ADHD management can be complex (Norvilitis et al., 2019).

Common Paradoxical Traits and Symptoms of ADHD ►





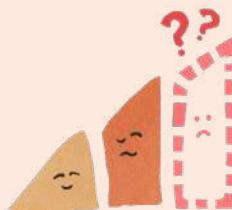
Impulsive Shopping



Paperwork Processing Challenge



Budget Adherence Challenge



Long-Term Financial Planning Challenge



Debt Issues



Overdue Payments

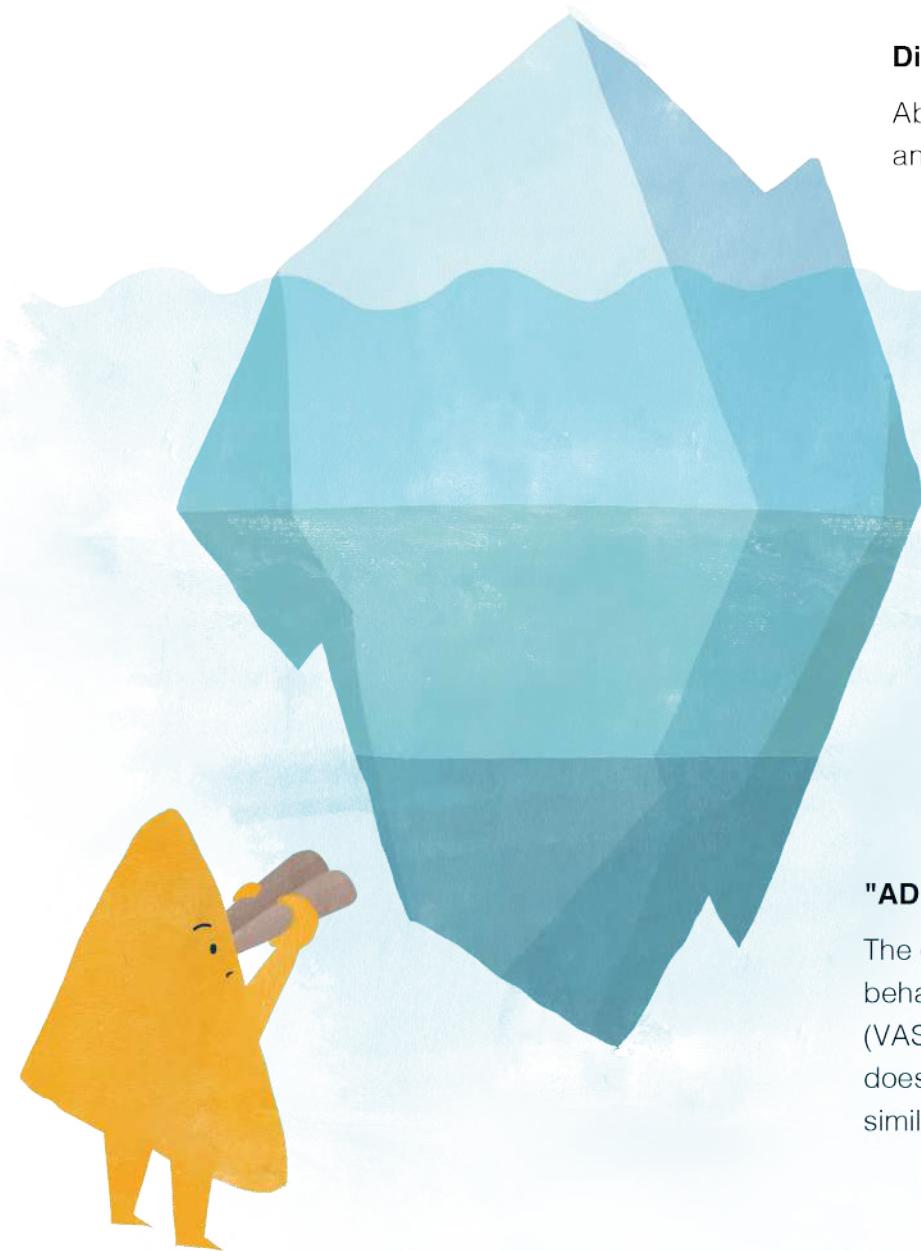
## Why ADHD is Related to Financial Challenges?

“Adults with ADHD may experience similar situations with **making payments on time** or **keeping track of spending**. Poor impulse control among adults with ADHD may lead to **impulsive buying** and **spending more money than earned**.”

- Altszuler et al., 2016

The varied symptoms and the inclination for dopamine-seeking behaviours may potentially increase the risk of financial challenges for individuals with ADHD (Bangma et al., 2020; Pelham et al., 2020). Numerous research studies on adults with ADHD indicate an association between symptoms of hyperactivity, impulsivity and inattention and challenges with financial management (Altszuler et al., 2016; Norvilitis et al., 2019; Bangma et al., 2020). The financial challenges they may face include being unable to understand bank procedures, having debt issues, tendency to buy on impulse, bill managing, and planning and sticking to the budget (Barkley et al., 2011; Bangma et al., 2020). As the symptoms vary, everyone's financial management concerns are also unique.

◀ Common Financial Challenges Related to ADHD



### **Diagnosed**

About 2.6 millions individuals in the UK had received an ADHD diagnosis. (NICE, 2023)

### **Waiting-for-diagnose**

Around 110,000 individuals are presently waiting for an ADHD assessment (Foster & Gandhi, 2023). The influx of people seeking referrals and diagnoses, coupled with the already overwhelmed medical system operating at full capacity, results in a diagnosis waiting period of 3-5 years for ADHD (Barfield, 2023; Townsend, 2023).

### **Undiagnosed & Unrealized**

Adults with ADHD may be at a higher risk of misdiagnosis due to overlapping symptoms like restlessness and anxiety (Breunig et al., 2023). One interviewee in this project, diagnosed at 55, expressed regret for not being aware of ADHD earlier, believing that could have led to better life management.

### **"ADHD-like" Groups**

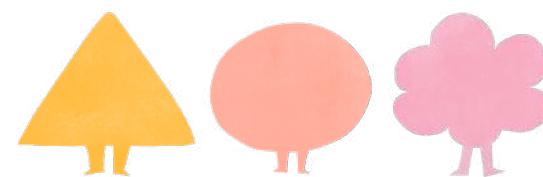
The overwhelming rise in environmental stimuli can lead individuals to exhibit behaviors resembling those with ADHD, termed as "Variable Attention Stimulus Trait (VAST)" by health professionals (Feibel, 2023; Hallowell & Ratey, 2023). While VAST does not align with the diagnostic criteria of ADHD, individuals with VAST may face similar challenges with ADHD and benefit from ADHD-friendly services.

## ADHD Underwater: Undiagnosed and Waiting-for-diagnosed

In 2022, approximately 2.6 million individuals in the UK had received an ADHD diagnosis (NICE, 2023). However, there are still many people who remain undiagnosed or are awaiting results (ADHD UK, 2023; Barfield, 2023). Due to the diversity of symptoms, inconsistent diagnostic criteria, and an incomplete diagnosing system, only 10-25% of adults have received an official diagnosis (Abdelnour et al., 2022; Kretschmer et al., 2022). Furthermore, many individuals exhibit ADHD-like behaviors (Hallowell & Ratey, 2023) but go undiagnosed due to the lengthy 3–5-year diagnosis process (Barfield, 2023). Even for those already diagnosed with ADHD, managing finances can be a significant challenge, not to mention those who remain undiagnosed. These circumstances underscore the pressing need for a dedicated, ADHD-centric approach to support financial management. This opportunity could involve tailored financial tools (Norvilitis et al., 2019) and intervention strategies (Gordon & Fabiano, 2019) to help individuals better manage impulsivity and pursue healthy dopamine-related behaviors (Pelham et al., 2020; Hallowell & Ratey, 2023).

## How This Project Researched and Designed for ADHD

This project started by reviewing existing research in both academia and industry related to ADHD financial education and management to understand how individuals with ADHD learn financial management and use current financial services. Subsequently, the project conducted multiple case studies involving individuals with ADHD, non-profit and not-for-profit organizations, and financial service providers. These studies identified the development of personalized strategies and learning patterns for financial management. The project then explored design opportunities and developed service design concepts through Research Through Design and Co-design workshops. Finally, the project demonstrates the final service concept and evaluates the service impact with stakeholders.



# The Gap of Current Research & Services

## Current Research and Services for ADHD Financial Management in Academia

In contrast to the multitude of symptoms associated with ADHD, academic research on ADHD and relevant financial matters can be broadly divided into two categories.

### Category 1: Comparison between Individuals with and without ADHD

The first category focuses on comparing individuals displaying ADHD symptoms with those who do not exhibit such symptoms. Studies within this category aim to investigate the cognitive and behavioural variations in financial decision-making between individuals with and without ADHD and the consequences of these disparities. For instance, in comparison to adults without ADHD, adults with ADHD may display greater financial dependency, which means they may rely more on family members and government programs for regular and/or emergency financial support (Altszuler et al., 2016; Norvilitis et al., 2019). These circumstances can be attributed to their relatively limited knowledge and skills of everyday financial management (Koerts et al., 2023). These include awareness of the arrival of bills, knowledge of own income, having a reserve fund for unexpected expenses, the ability to state long-term financial goals, understanding of assets and banking protocol, and the ability to interpret numerical data (Altszuler et al., 2016; Bangma et al., 2019; Pelham et al., 2020; Koerts et al., 2021; Koerts et al., 2023). Research in this category shows the heightened likelihood of financial challenges faced by individuals with ADHD, suggesting a need for financial support, intervention, and counselling (Altszuler et al., 2016; Pelham et al., 2020; Koerts et al., 2023).

“Young adults with ADHD indicates that those with the diagnosis are more likely to be financially **dependent on their families or rely on public assistance** than those without the diagnosis (...) correlations between reported worries about student debt, student loan debt, expected loans, and reduced financial well-being are significant and meaningful.”

- Norvilitis et al., 2019

“Results suggest there is **great need for interventions** that can improve financial functioning as children with ADHD reach young adulthood. However, there has been very little work in this area. Paradigms such as **vocational training, supported employment, and counseling on personal finances** (...) can help those with ADHD increase income and savings, improve personal finance habits, and reduce dependence on parents, other adults, and public assistance.”

- Pelham et al., 2020

## Category 2:

### Correlation between Individual's Finance and Traits

The second category focuses on exploring the relationship between an individual's finance and their characteristics and tendencies. This line of research seeks to gain insight into how specific ADHD traits can impact a person's financial well-being. A notable aspect within this category is the examination of impulsivity and impatience. ADHD behaviors linked to impulsivity, such as an intolerance of delay of gratification and dopamine seeking, have been shown to have a significant bearing on an individual's financial situation (Barkley et al., 2011; Hallowell & Ratey, 2023).

Some studies highlight the strong aversion to delay (Yu & Sonuga-Barke, 2016; Marx et al., 2021), making individuals with ADHD prone to difficulties in envisioning long-term, abstract outcomes and more inclined to make financial decisions based on short-term gains. For individuals with ADHD, the feelings of boredom and a lack of control stemming from delayed gratification often outweigh the satisfaction derived from long-term investments (Marx et al., 2018). Additionally, the inclination towards Dopamine-seeking behaviors reinforces their tendency to opt for immediate rewards and decisions (Hallowell & Ratey, 2023), exposing them in a higher susceptibility to addictions and compulsive behaviors (NICE, 2018; Hallowell & Ratey, 2023).

Research within this category contributes to the understanding of how ADHD traits can have a substantial impact on an individual's financial situation (Gordon & Fabiano, 2019). However, it is noteworthy that there is a limited exploration of practical suggestions and implications for mitigating delay aversion and impulsivity related to dopamine-seeking behaviors.

“Individuals with ADHD **choose immediate, over delayed rewards** in part to avoid the negative affective states associated with delay during waiting.”

- Yu & Sonuga-Barke, 2016

“The negative emotional impact of experienced delays, in terms of amygdala-striatal hyperactivation, **triggers impulsive choices**, irrespective of the nature of the rewards.”

- Marx et al., 2018

“ADHD was associated with a number of financial challenges, including lower annual income, more reliance on public aid, and increased risk for homelessness (...) studies of **effective supports and interventions** for individuals with ADHD are needed.”

- Gordon & Fabiano, 2019

In summary, scholarly investigations into ADHD and financial management fall into two main categories. One focuses on comparing ADHD with neurotypical individuals, while another studies the relationship between their traits and finance. **Both underscore the profound correlation between symptom management and one's financial well-being.** However, identifications of people with ADHD's learning process of financial management (Foley, 2023) and the challenges in using current financial services (Gordon & Fabiano, 2019; Pelham et al., 2020) remain scarce.

# Current Research and Services for ADHD Financial Management in Industries

When it comes to services for individuals with ADHD, there is a wide range of specialized support groups and educational resources available to cater to their diverse needs. This creates a rich landscape of learning opportunities covering various aspects of ADHD. However, there is a notable exception in the realm of financial management.

## Diverse Support Groups and Resources

“There is no one or two genes for ADHD but an array, which make ADHD a coat of so many colors (...) In addition to genetics, environmental stressors can cause ADHD.”

- Hallowell & Ratey, 2023

ADHD is a condition that varies significantly depending on the type of ADHD and numerous factors (Hallowell & Ratey, 2023). This diversity in symptoms has led to the development of numerous support groups and educational sessions tailored to specific needs. Take examples from my non-participatory observation and interview. ADHD UK offers regular sessions designed specifically for women, parents, self-employed individuals, and small business owners, as well as topics like emotion management and daily planning. The ADHD Foundation focuses on providing systematic education for corporations while also working to raise awareness about neurodiversity in the workplace. The Brain Charity provides broad support for people with brain-related issues, including ADHD and its co-occurring conditions. Additionally, there are informal meetups and peer groups where individuals can connect and share their experiences. Examples include the UK Adult ADHD Collective and The ADHD Adults.

## Problems in ADHD Financial Management Learning

Nevertheless, when it comes to financial management for individuals with ADHD, several recurring issues are often raised. These include repetitive contents, not ADHD-centric, and pricy.



1) Repetitive Contents



2) Not ADHD-centric



3) Pricy

## 1) Repetitive Contents

“The feedbacks of previous financial management courses were not good. It was difficult to help people manage their money in workshops.”

- Barfield | ADHD Charity Advice Officer

“These are not providing much assistance. **If I already know my finance, why should I bother putting it down on paper?**”

- Podina | Interviewees with ADHD | 28

Existing financial management sessions and workbooks tend to cover similar materials and contents. They typically instruct individuals with ADHD to collect their receipts and record their expenditures, assess their mortgage, bills, and debts, share their financial difficulties, and outline their future savings goals and potential budget plans. These teaching contents are usually one-way teaching (Colin, 2023; Barfield, 2023) and filling questions, which may not effectively assist individuals with ADHD in recognizing their specific financial circumstances and challenges.

▲ Materials Provided by ADHD Financial Coach and Online Sessions

## Managing Money and ADHD: Saving and Spending

**H**AVING SAVINGS IS ONE OF THE BEST THINGS YOU CAN DO for yourself, your family, and your future. Maybe you'll need it to pay for an emergency, or maybe it'll go toward the down payment on a new house, but knowing that you have some money saved can give you real peace of mind.

If you don't have any savings, start small and be patient with yourself as you learn this new habit. You might want to open a special bank account just for savings—or for one particular goal, if it's a big one—and have direct deposits automatically taken out of your paycheck. You might even choose not to have a savings debit card, to make sure you have to think twice before spending money from this account.

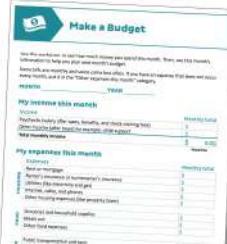
Motivate yourself by making saving money fun and visual. For instance, you could make a chart with a savings "thermometer" and mark it as you save, or create a bar graph on your computer and track your savings daily or weekly. For short-term savings, you might try putting cash in a special jar or an envelope with a photo of whatever you are saving for glued to the outside, just as a place to hold it until you can get it to the bank. That way, every time you put money in the envelope, you'll be reminded of what you're working toward.

### Develop a spending plan

A spending plan or budget can help you prepare for many of the expenses

es you will have in a month or year. Since most utilities (electricity, phone, gas, water) and loan installments are paid every month, you'll probably find it most useful to construct a monthly plan. Some people call this "spending it before you get it," which means that when you get a paycheck, you already know how much of it you need for your expenses, and you will be less likely to spend it on a whim.

First, you need to figure out how much money you need each month—write that amount down so you can see it. A spreadsheet can be helpful in developing this kind of spending plan. [Here's one example of information that might be included on your list.](#)



Find what works for you in creating a budget. Here are some suggestions as you get started:

- **Make a master list of all your expected expenses.** Pull together amounts from purchases you made during the last 12 months. Use your checkbook records as well as bank and credit card statements.
- **Use money management programs such as Quicken or Mint to gather all this information.** You may also find an Excel spreadsheet helpful. (For more information on expenses, see *Managing Money and ADHD: Expenses and Goals*.)
- **Add up all the expenses from the past 12 months and divide by 12 to get your total average monthly expenses.**

Next, think about your spending plan or budget, and how you will stick to it. Here are a few suggestions:

- **Weekly review.** Choose a day of the week to be your regular day to review your spending plan and budget. Determine which bills or

### ▲ The Material is Usually Text-heavy and Information-dense

"Have they (service developers) really talked to people with ADHD? They should understand that we (people with ADHD) struggle with too much information and forms (...) stop asking us to fill out Excel and spreadsheets."

- **Chen** | Interviewees with ADHD | 26

## 2) Not ADHD-centric

"(...) it is all been created by neurotypical people, right? For what they think. They create things that they have an affinity with, but that may not be suitable for neurodiverse groups."

- **Foley** | ADHD Foundation Coach

The second problem relates to the teaching format, which is at odds with the symptoms and traits commonly associated with ADHD. According to the feedback received from interviewees with ADHD in this project, they found it challenging to follow these teaching materials for financial management. The questions and instructions in these materials often seemed mundane and failed to engage individuals with ADHD. Due to the absence of stimulation (Hallowell & Ratey, 2023), people with ADHD may not concentrate on these text-heavy and information-dense forms. This experience led them to develop a sense of self-doubt, such as feeling inadequate in financial management and dealing with numbers. Consequently, they would often avoid these tasks to prevent experiencing frustration again, underscoring the need for more ADHD-centric financial management tools and materials.

### 3) Pricy

The assistance from a financial coach or consultant may be a great support for ADHD personal financial management. However, the cost of such services often poses a significant dilemma for individuals with ADHD. Some interviewees believed these coaches can provide customized strategies to the individual's situation, viewing the coaching fees as an investment. On the other hand, some argued that individuals with ADHD can eventually develop their own financial strategies (Sherman, 2023; Venable, 2021) and expressed concerns about the high fees, which may limit access and affordability for those in need of financial assistance. Consequently, individuals with ADHD who are already grappling with financial challenges, often explore alternative resources to avoid exacerbating their financial stress through costly service fees.



"I believe a financial coach or consultant can better improve a person's financial situation, but these professionals charge by the hour. I do not want to spend this money, and I **do not think financial management for ADHD is a privilege of rich people.**"

- Sherman | Interviewees with ADHD | 58



## **Addressing the Gap between Academic Research and Existing Industrial Support on ADHD Management**

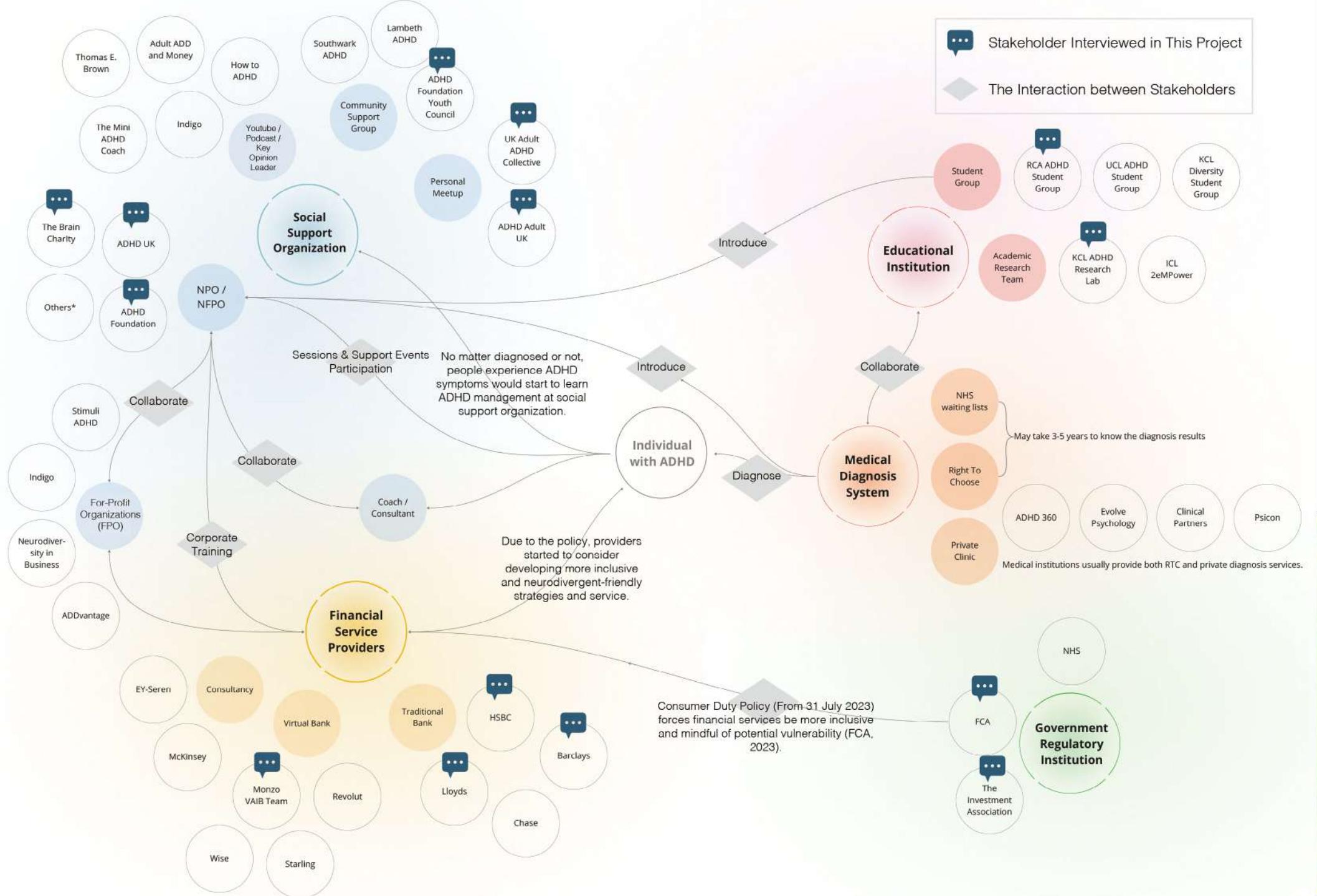
Unlike academic research that emphasizes the relationship between managing symptoms and financial well-being, industrial ADHD support services make efforts to educate and aid people with ADHD in financial management. Nevertheless, there is room for improvement in making these services more ADHD-friendly. Based on these insights, this project employs multiple case studies to explore how individuals with ADHD learn about finances. The goal is to understand the connection between managing ADHD symptoms and finances and how these aspects can evolve. Subsequently, research through design (RtD) and co-design methods will pinpoint design opportunities and develop potential services in collaboration with individuals with ADHD.



# Research Questions

**How is individuals with ADHD's financial management learning journey?**

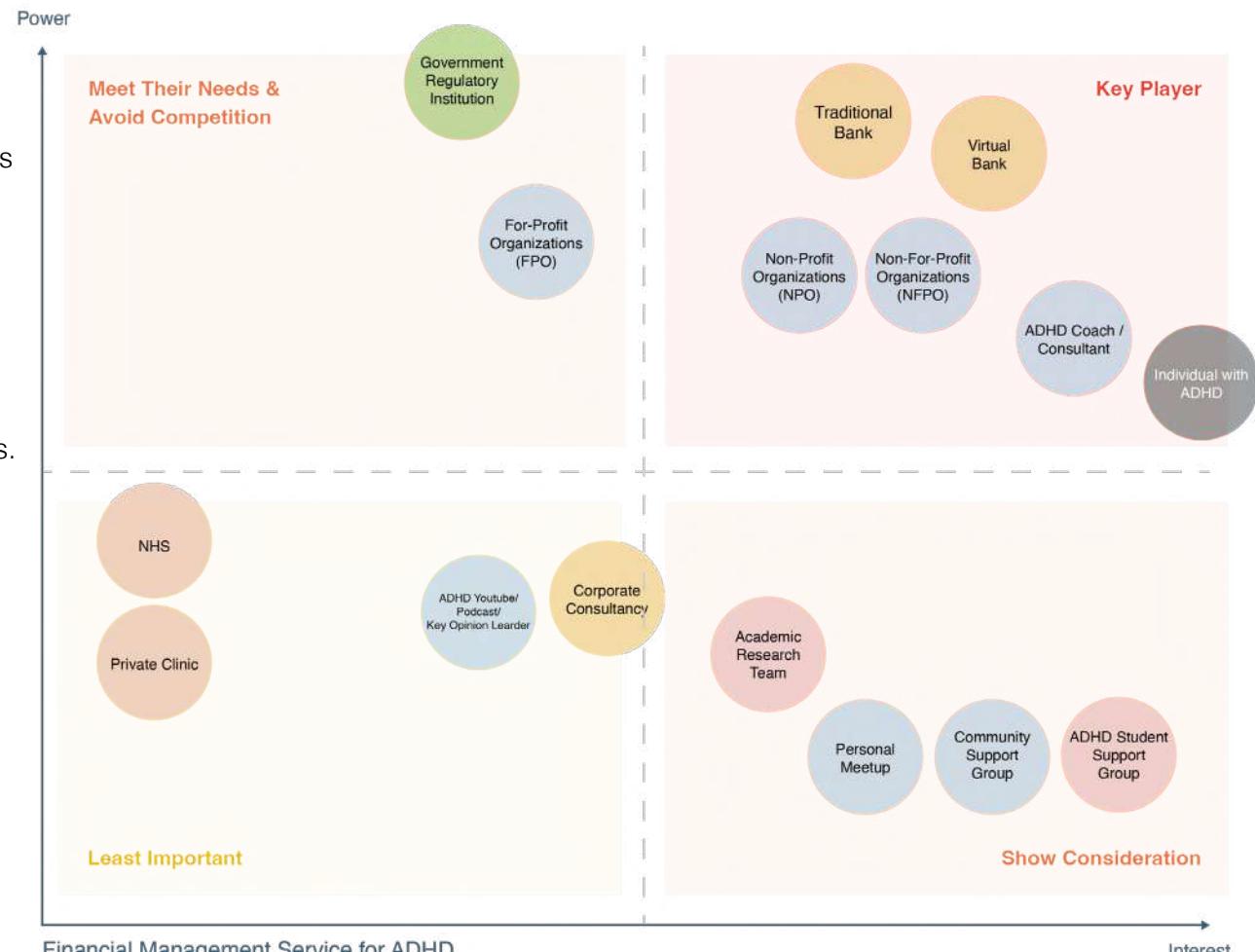
**How can design improve current services to support individuals with ADHD?**



# ADHD Support Ecosystem & Stakeholders

## ◀ ADHD Support Ecosystem Map

Following the exploration of current services and research, this project mapped the ecosystem for ADHD support services to demonstrate the intricacies of stakeholder connections. In response to the two research questions from the previous study, this project utilized the stakeholder matrix (Ginige et al., 2018) to prioritize importance and eventually focus on the relationships and support services provided by individuals, non-profit (NPO) and non-for-profit organizations (NFPO), and financial service providers.



## ► The Power-Interest Stakeholder Matrix

### Key Players

This group played a crucial role in this project. NPOs and NFPOs were committed to improving ADHD symptoms and financial management. Banks could significantly enhance ADHD finance by small service iterations.

### Show Consideration

This group had a keen interest and their insights can significantly contribute to the project's development. They were usually involved in workshops to share their opinions and experience.

### Meet the Policy and Avoid Competition

This group had significant influence but a low interest in ADHD financial management. Their focus was primarily on developing various regulations and other business services with greater profit potential.

### Least Important

This group demonstrated significant influence and interest in other ADHD topic areas, but their impact was lower in the realm of financial management.

### Financial Management Service for ADHD

The Stakeholder matrix helped identify the key players of ADHD financial management issue in the project, facilitating different collaboration strategies with different stakeholders.

# Research & Design Methodology

To mitigate potential stigmatization (Metzger & Hamilton, 2020; Guffey, 2023) that might be detrimental to participants with ADHD and project stakeholders, this project adopted Inclusive Design (Joyce, 2022; Microsoft, 2023) as the primary design methodology instead of problem-solving-focused Design Thinking (IDEO, 2022).\*

\*Please refer to Process Reflection "Design Stigma: Design Thinking is Problematic." (p.XX)

In the research stage, the main methodology utilized was multiple case study analysis, aiming to identify the financial learning journey of individuals with ADHD and using challenges of current services. Subsequent to the analysis of these interviews and the resulting findings, the project refined the research questions and developed the service concept through co-design and research through design.

## Methodologies

### Inclusive Design

Inclusive design is recognised as a way to ensure services are fair and inclusive, especially for consumers in vulnerable circumstances (Kursar, 2021). As a primary methodology, this project consistently maintained a respectful and mindful attitude and interaction with participants, while also reflecting on the limitations of conventional design thinking.

### Co-design

Co-design involves meaningful end-user engagement in research process, spanning from relatively passive to highly active involvement (Slattery et al., 2020). The designed service in this project should be designed and refined by people with ADHD, so the project had consistently collaborated with stakeholders and individuals with ADHD.

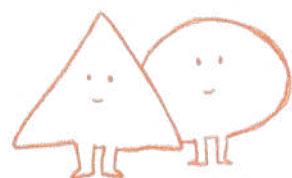
### Case Study

By conducting case interviews and analyzing research, this project can qualitatively discern the learning journey associated with financial management for individuals with ADHD (Kursar, 2021) and delve deeper into identifying potential design opportunities. Moreover, this project had adapted the stories of these cases to engage in discussions and brainstorming with workshop participants during the design stage.

### Research Through Design

RtD is the practice of using design to gain insights beyond the immediate design scope (Frayling, 1994). It allows for the observation of stakeholders' responses and the examination of concepts. The project applied RtD to mitigate designer confirmation bias (Kahneman et al., 2021; Junge, 2022) and the potential creation of an ineffective service.

## Methods



**In-depth Interview**



**Expert Interview**



**Online Survey**



**Non-participatory Observation**



**Workshops**



**Prototyping**



**Desk Research**

Journals & Books &  
Industrial Guidances



**Hypothesis Thinking**

Hypothesis Utilization  
for Progressing Project  
Effectively

### Online Survey

38 Responses from Individuals with ADHD

### In-depth Interview

10 Individuals with ADHD in London

### Expert Interview

ADHD UK (London)

(1 Coach, 1 Administrator)

ADHD Foundation (Liverpool)

(1 Coach, 2 Directors, 2 Administrators)

The Brain Charity (Liverpool)

(1 Administrator)

Financial Service Providers

(1 Barclays Designer, 1 Lloyds Designer, 1 HSBC Manager, 1 FCA Administrator)

Educational Research Institution

(1 KCL Psychology Researcher)

### Workshops

2 Focus Group Workshops

2 Co-design Workshops

3 RtD Workshops

### Non-participatory Observation

Online Supporting Group, Online Sessions, Seminars, Physical Meetups

# Research Process Structure

This project employed the Double Diamond Model (Design Council, 2023), encompassing the Discover, Define, Develop, and Deliver stages, and it included an additional 6 weeks dedicated to topic exploration. Consequently, the overall research process can be characterized as a "Three Diamond" process.

## Topic Exploration

Emerging from a personal interest in financial vulnerability issues, the project delved into their causes and nuances during this stage, ultimately selecting ADHD financial management as the research focus.

## Discover

- Understand the current situation of ADHD financial management
- Review and analyze existing research and literature
- Formulate research questions

## Define

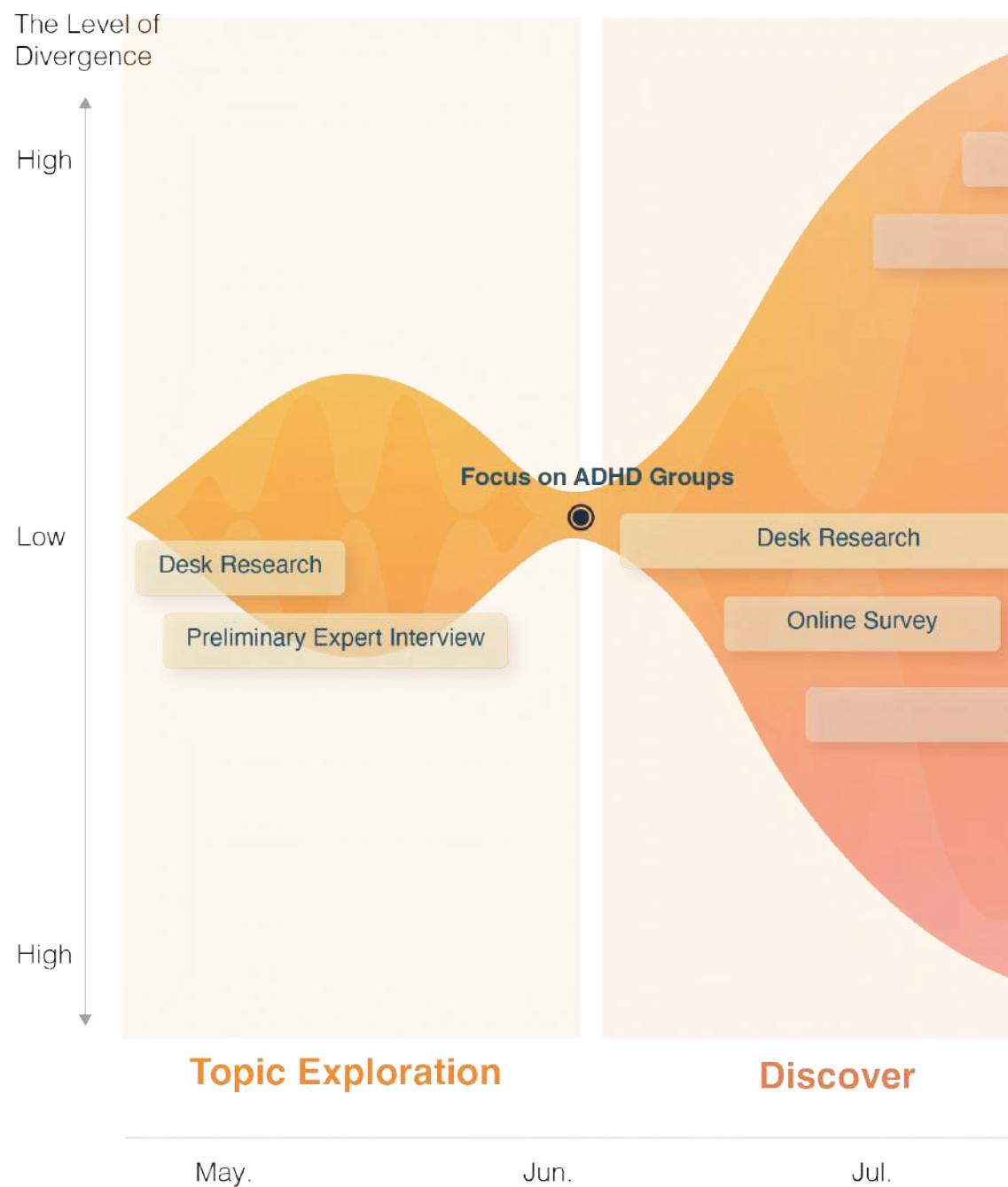
- Continue primary research on the research questions
- Utilize hypothesis thinking tools to find insights
- Formulate HMW and What If questions

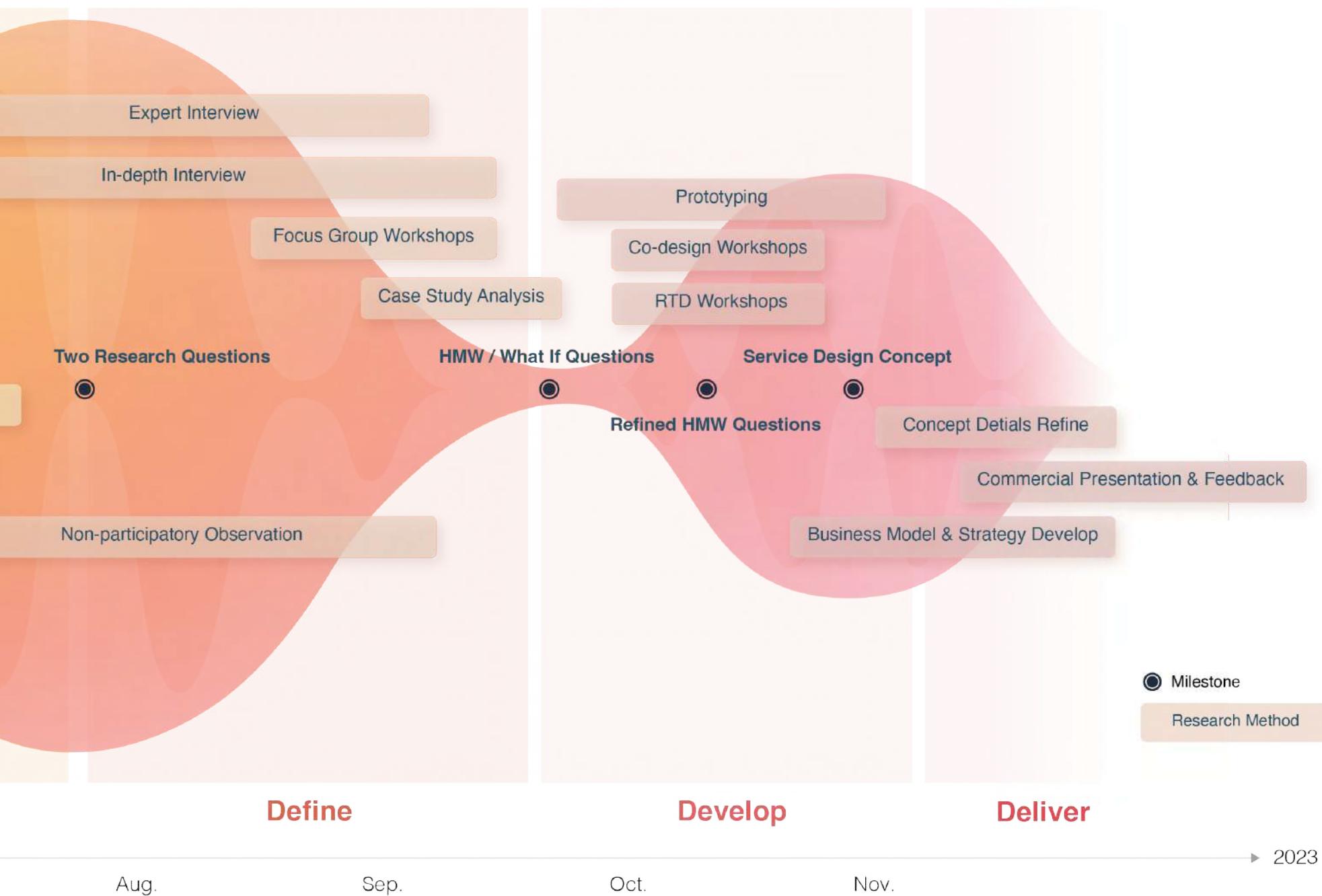
## Develop

- Generate design concepts with young adults with ADHD
- Iterate design concepts and prototypes with relevant stakeholders
- Refine HMW and What If questions by prototyping

## Deliver

- Present the final concept and receive feedback from stakeholders
- Formulate a business model and marketing strategies





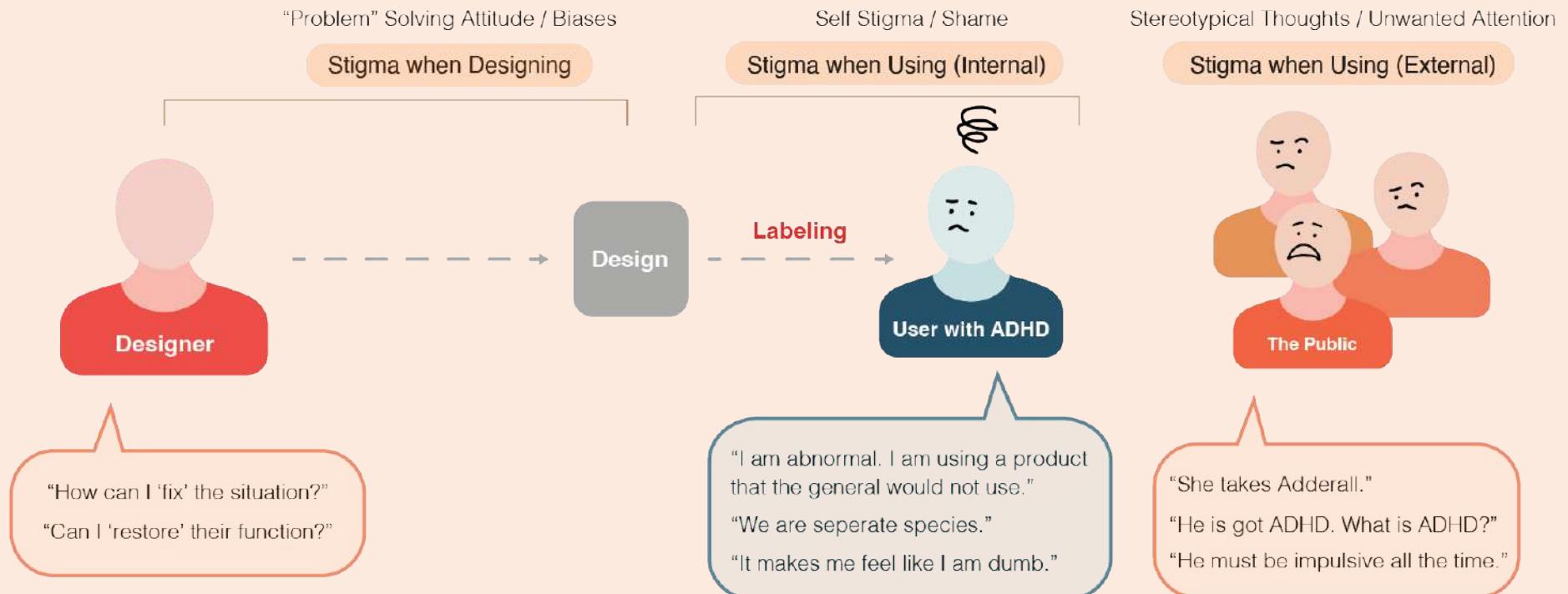
## Process Reflection

# Design Stigma: Design Thinking is Problematic.

"Seeking restoration from a 'problem' tacitly implies that the outcomes are designed for a 'separate species,' that is users with diagnostic 'impairments' that might be **considered grossly abnormal.**"

- Hendren, 2017

During the early interviews with stakeholders, I noticed that the Design Thinking framework, which places problem-solving at its core (IDEO, 2022), can become problematic instead (Hendren, 2017). This framework can inadvertently introduce biases and contribute to stigmatization (Guffey, 2023) when designing for specific groups. These issues often stem from designers' strong emphasis on "user-centric" and "problem-solving" approaches, which might unintentionally marginalize individuals with ADHD (Bennett & Rosner, 2019; Barfield, 2023). Consequently, it can lead these individuals to perceive that designers engage with them through stereotypes and biases (Guffey, 2023), discouraging them from openly sharing their experiences and stories (Barfield, 2023).



“The experience of living with ADHD is being part of **an invisible minority**. They usually face prejudice: ‘Oh, he is a Special Ed Guy.’ ‘He is got ADHD, whatever that is.’ ‘She takes Adderall.’ The stigma rules.”

- Hallowell & Ratey, 2023

“Be careful of using specific terms like ‘suffer’ or ‘difficulty’ because many neurodivergent people would **view that as patronizing**. Such discomfort may discourage them from sharing their experiences”

- Barfield | ADHD Charity Advice Officer

“Design is often proud identity as a problem-solving art (...) Positioning design as solving problems related to struggling or tragic disabled people is **an ableistic prejudice that inadvertently further marginalizes disabled people.**”

- Guffey, 2023

Considering that individuals with ADHD may be at a higher risk of experiencing stigmatization (Hallowell & Ratey, 2023; Metzger & Hamilton, 2020), I was acutely aware of the potential for ADHD-related stigmatization in the research process. This awareness had led me to adopt a humble and inclusive attitude throughout the project. In the subsequent phases of research and design, the avoidance of patronizing or dominating design practices had become a pivotal driving force and decision-making criteria in shaping my project.

Category	Problematic	Better	Why
Common Stigmatizing Words	Problem, Disable, Difficulty, Suffer, fix, Normal People	Challenge, Concern, Neurodivergent and Neurotypical	may regard them as a problem may feel they are not normal
Potential Stigmatizing Words (which I did not notice in advance)	Magic, Believe	Dream that help ADHD, future Imagine,	may feel patronizing may feel “this will not happen in any possibility.”
Category	Mindful	Action	Why
Stereotypical Conversation & Thoughts	Not all individuals with ADHD face financial challenges.  Occasional impulsive shopping is completely acceptable.  Avoid making them feel guilty about any of their behaviors.	If they start sharing, listen first.  Remember to offer encouragement and compliments.	Turn their Rejection Sensitive Dysphoria into Recognition Sensitive Euphoria as much as possible. (Better facilitate the conversation)

#### My Notes on Stigmatizing Words related to ADHD

During the project, I consulted participants and experts to identify any use of sensitive words or behaviors, and then documented these instances in notes.

**ADHD IN ADULTS**  
A GUIDE FOR SUCCESSFULLY  
LIVING WITH ADHD

**AFTER UNIVERSITY**  
Edited by Elizabeth Guffey

**ADHD Service Design SURVEY**  
Can financial management be  
**FUN?**

**We Need Your Voice!**

**DOPA MENU**  
Your Fun Options

**STARTERS**  
QUICK DOPAMINE

- Take a few deep breaths
- Quick gym workout
- Look for a recipe for dinner
- Pin on my Pinterest boards
- Jump around to a high-energy song
- Have a snack

**MAJNS**  
BIGGER BREAK

- Read a book
- Meet with a friend
- Cook a meal
- Visit a park or bird watching
- Meditation
- Go for a swim or a run
- Go out for lunch or coffee
- Have a bath

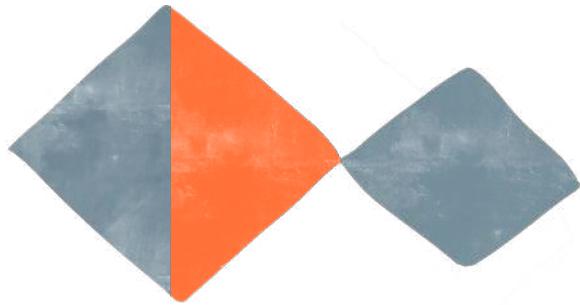
**Impulsive shopping**

**Budget Planning**  
(or Stick on Budget)

**ADHD 2.0**  
New Science and Essential Strategies for Thriving with Distraction

**GOAL**  
**ETHICAL**  
**ENGAGE**  
**VALUE**  
**WORRY**

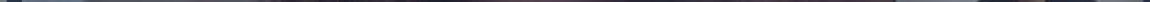
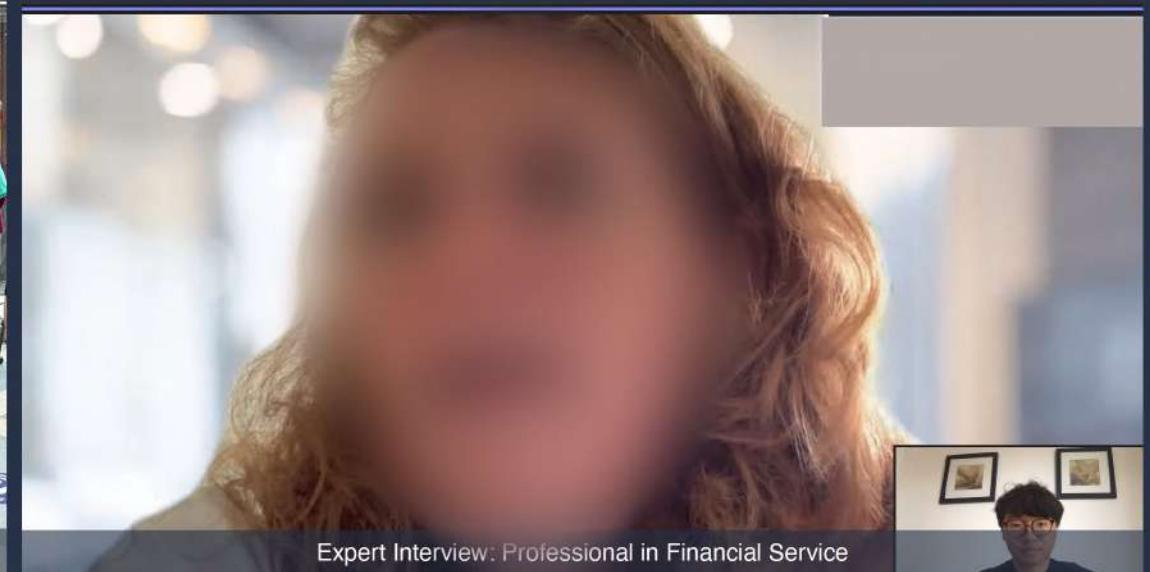
The educational booklet has been developed independently from the ADHD Foundation. The ADHD Foundation has not reviewed or approved this booklet. The information contained in this booklet is not medical advice. It is intended for general information only and is not a substitute for professional medical advice, diagnosis, or treatment. Always seek the advice of your physician or other qualified health provider with any questions you may have regarding a medical condition. Never disregard professional medical advice or delay in seeking it because of something you have read in this booklet.



D E F I N E



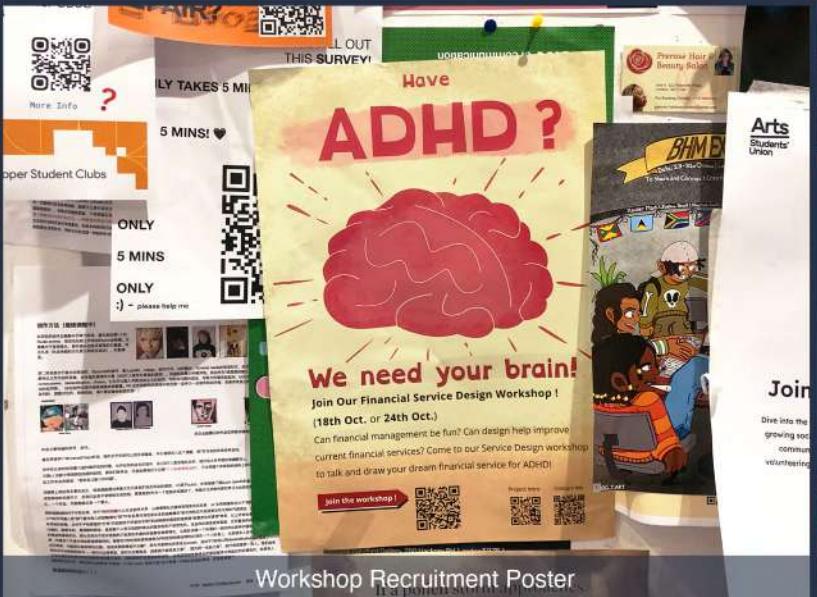
Current position	5/2004 - Age 10	5/2005 - Age 11	5/2006 - Age 12	Yearly income (in US\$)	Apr '02	Apr '03	Apr '04	Apr '05	Apr '06	Apr '07	Apr '08	Apr '09	Apr '10	Apr '11	Apr '12	Apr '13	Apr '14	Apr '15	Apr '16	Apr '17	Apr '18	Apr '19	Apr '20	Apr '21	Apr '22	Apr '23
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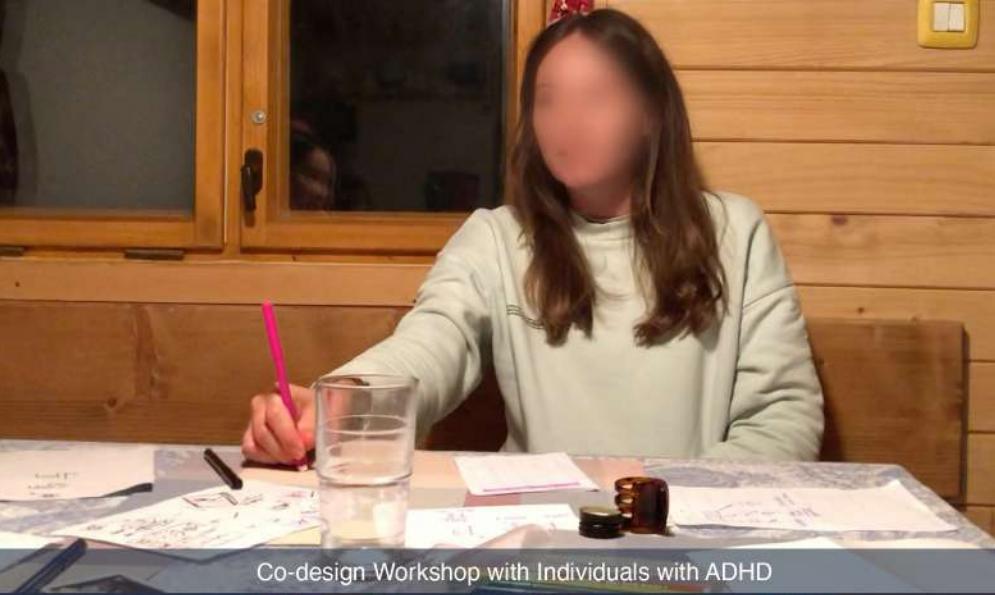
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C20	S40					
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24						
25	Results are approximated.					
26	Creditors in Chosen Order	Original Balance	Total Interest Paid	Years to Pay Off	Month Paid Off	
27	Card #3	760.00	34.22	9/12	May 2024	
28	Card #2	1,400.00	105.70	1	Aug 2024	
29	Overdraft #1	2,000.00	183.10	12/12	Apr 2024	
30	Loan #1	6,000.00	1,115.07	1 / 12	Apr 2025	
31		0.00	0.00	-		
32		0.00	0.00	-		
33		0.00	0.00	-		
34		0.00	0.00	-		
35		0.00	0.00	-		
36		0.00	0.00	-		
37		0.00	0.00	-		
38	Total Interest Paid:		1,408.09	(Lower is Better)		



## Financial Session Participation



Workshop Recruitment Poster



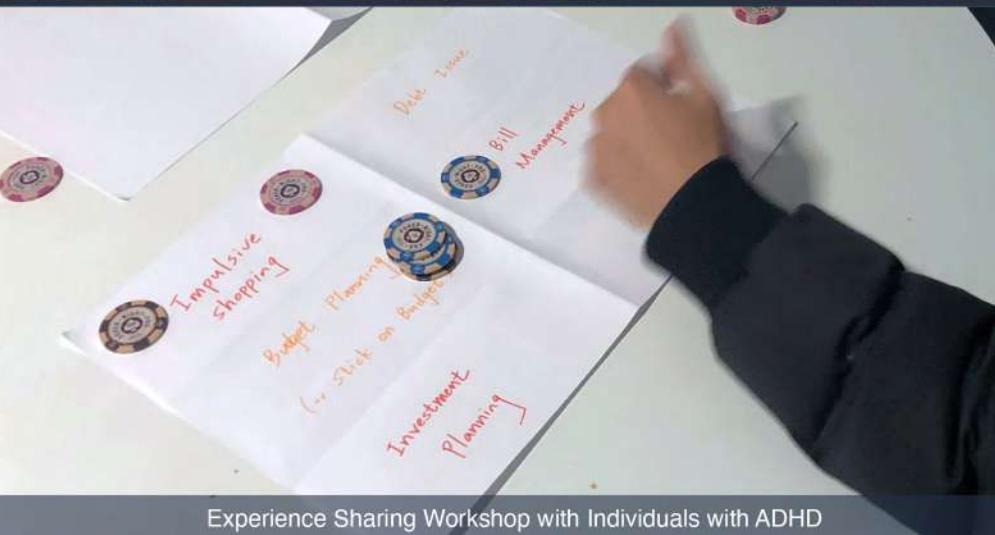
Co-design Workshop with Individuals with ADHD



Co-design Workshop with Individuals with ADHD



RtD Workshop with Individuals with ADHD



## Experience Sharing Workshop with Individuals with ADHD

## DEFINE

## Research Process

## Finding: Financial Challenges and Negative Self-image

Most financial management challenges interviewees with ADHD stem from impulsive decisions driven by the pursuit of dopamine, vague financial planning, and difficulties in implementation. Given the variability in ADHD symptoms, finding a suitable management strategy from others is challenging. As a result, they exert considerable effort to devise personalized approaches to address low dopamine levels and manage their finances. However, this process is far from easy, often leading to frustration in their financial management skills and feelings of shame. This distorted negative self-image (Hallowell & Ratey, 2023) can further exacerbate their low dopamine condition and intensify the urge for impulsive spending.

“They suffer shame as they **misread themselves and misread others' responses** to them. They hold back on opportunities and relationships out of that shame, as well as fear and misunderstanding.”

- Hallowell & Ratey, 2023



“ My Brain’s like: ‘Oh, are you stressed about money? How about some money spent on dopamine?’ ”

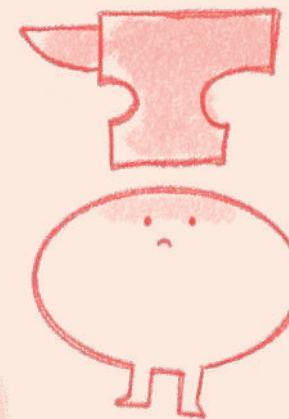
- **Wang** | Interviewees with ADHD | 27

“ My money management skills are not developing as well as I would like them to. I’ve tried to manage my bills, transactions, and savings through my bank account for a long time, but have not succeeded. I need an app that can help me visualize everything quickly and accurately. ”

- **Chen** | Interviewees with ADHD | 26

“ I do feel shame around my financial mistakes. (...) I do self-critical. My partner called me emotionally manipulative for doing that and to be honest, it doesn’t matter that’s not how I intended to be seen, it’s accurate. But that just makes everything that much more shameful. ”

- **Anonymous** | Interviewees with ADHD



“ I do not have a job and I still have student loans. I was diagnosed late in life and the damage had already been done. Now I feel like I live with an anvil over my head that can drop at any moment, and I cannot dodge it. ”

- **Schurch** | Interviewees with ADHD | 44

“ There is a voice around me saying, 'Go ahead and spend the money; be broke so I can stop obsessing over this and move to something else!' ”

- **Podina** | Interviewees with ADHD | 28

“ Trying to have 'discipline' in my finance makes me overly anxious. I'll often be super well-behaved for weeks and then just crack and buy clothes or stuff from Amazon that I can't really afford. (...) It's become unsustainable. I'm really ashamed of this. ”

- **Humajova** | Interviewees with ADHD | 32

## **Finding: Personalized Strategies Development**

Individuals with ADHD who had more experience could develop their own personalized strategies for managing their expenses and symptoms. They had learned about specific techniques that helped them boost their dopamine levels and reduce their anxieties with occasional impulse buying or overdue bill payments. This shift towards a more relaxed mindset also contributed to the improvement of their financial situation.

“I believe impulse control to be part of a challenge to do with order and priority in a person's life. If you are looking for an answer that will work, I think it's better to know what your daily routine is like first, what your diet is like, what your hobbies are.”

- **Foley** | ADHD Foundation Coach

“ I really like gardening, new flowers or new plant growth gives me a dopamine boost and I would not want to go shopping anymore. ”

- **Northey** | Interviewees with ADHD | 52



“ I treat myself like I would a small child or a dog, rewarding myself with positive reinforcement constantly and being ridiculously encouraging after decades of non-stop berating and hating myself. (...) This is the answer. Feeling great about the tiniest thing you have done, allowing yourself to feel your feelings but saying 'things will be okay' instead of going down that worry, depressive, or panic. ”

- **Anonymous** | Interviewees with ADHD

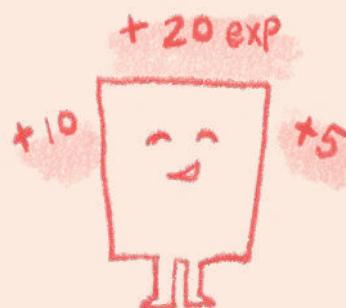


“ I check out my Amazon cart after taking a shower (...) it helps me think about what I do not need actually. ”

- **Singh** | Interviewees with ADHD | 35

“ I once made myself a menu with like 20 more things I loved doing, like taking a walk, gardening, a pot of tea, listening to a favorite song. It was so fun working through it when I wanted a responsible (dopamine) hit. ”

- **Northey** | Interviewees with ADHD | 52



“ I find picturing myself from a third person perspective helps to gamify whatever I'm doing which leads to little buzzes as I complete "objectives" for whichever quest: pay the bill now +5 exp; clean my desk +5 exp; Call my friend to tell her what I gonna to buy +20 exp ”

- **Zavodsky** | Interviewees with ADHD | 33

**Age 26****Income Source**

Master Degree Student;  
Family Support

**Concern**

Stick to buget, money saving planning,  
cigeratte, binge-watching, like to buy a  
lot of snacks to try

**Coping Strategy**

Snacks, call her friends, Korean TV  
series (though occasionally leads to  
binge-watching)

**Age 27****Income Source**

PhD Student; Family Support

**Concern**

Top up too much for games, buy  
drinks for friends

**Coping Strategy**

Play the guitar, play video games,  
drinking

**Age 28****Income Source**

Master Degree Student;  
Family Support

**Concern**

Stick to budget, sometimes impulsive  
shopping online, cigeratte, overall is ok

**Coping Strategy**

Go jogging, go swimming, workout

**Age 32****Income Source**

Office Worker

**Concern**

Impulsive shopping online, stick to  
budget (buy drinks for friends, always go  
out with friends when being invited)

**Coping Strategy**

not quite sure, netflix, go shopping

**Age 35****Income Source**

Office Worker

**Concern**

sometimes impulsive buying toys or  
food, but overall managing is ok

**Coping Strategy**

Take a shower, cooking, looking for  
new recipe

**Age 44****Income Source**

Academic Researcher

**Concern**

Sometimes forget to pay the  
mortgage;  
saving money

**Coping Strategy**

Reading, doing own research

**Age 52****Income Source**

Lawyer; Business Owner

**Concern**

Challenges in long-term investment;  
struggles with paperwork, especially  
tax-related tasks, overall managing well

**Coping Strategy**

Gardening, walk, tea time, listen to  
music (Carpenter), keeps herself busy;  
delegates paperwork to her employees

**Age 58****Income Source**

Office Worker; Real Estate Investment;  
Stock Investment

**Concern**

Challenges in maintaining prolonged  
concentration, occasional impulsive  
spending ("mad money"), overall  
managing well

**Coping Strategy**

Go skiing, build personal excel sheet,  
like to do activities related to investment

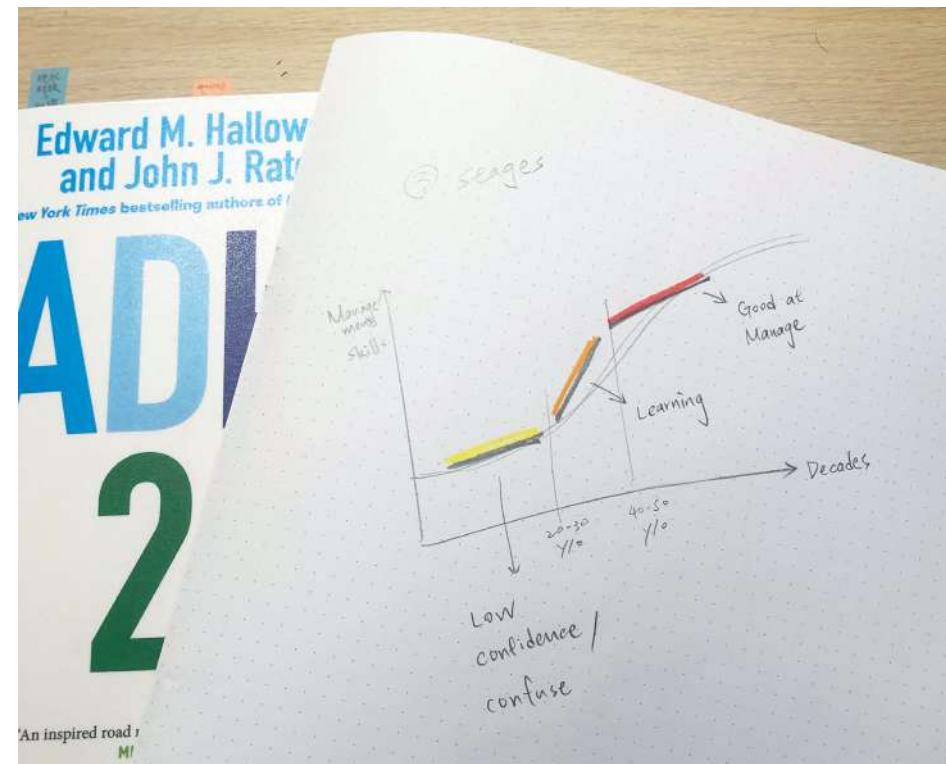
**When Reviewing What They Said in Age Order**

A similar learning curve was identified when reorganizing and analyzing the information gathered from the interviewees.

## Hypothesis: Similar Learning Curve

In addition to the recognition that people with ADHD would eventually develop their unique management strategies, this project unveiled the potential existence of similar learning growth curves among individuals with ADHD. Drawing on academic research that underscores the positive correlation between symptom management and financial well-being, this project identified that individuals with ADHD typically undergo a time period before developing a comprehensive coping mechanism for symptom management. This personalized mechanism enables them to derive dopamine through other preferred activities instead of impulsive spending, thereby alleviating feelings of self-shame.

Consequently, this project formulated a hypothesis based on these findings, positing that individuals with ADHD need to experience a learning curve and invest similar time and effort before they can create their individual management strategies. To validate this hypothesis, the project interviewed some ADHD financial coaches and older individuals with ADHD again, inquiring whether their past experiences aligned with such a growth curve.



The Initial Hypothesis on the Notebook

## Collect Data



## Establish Hypothesis



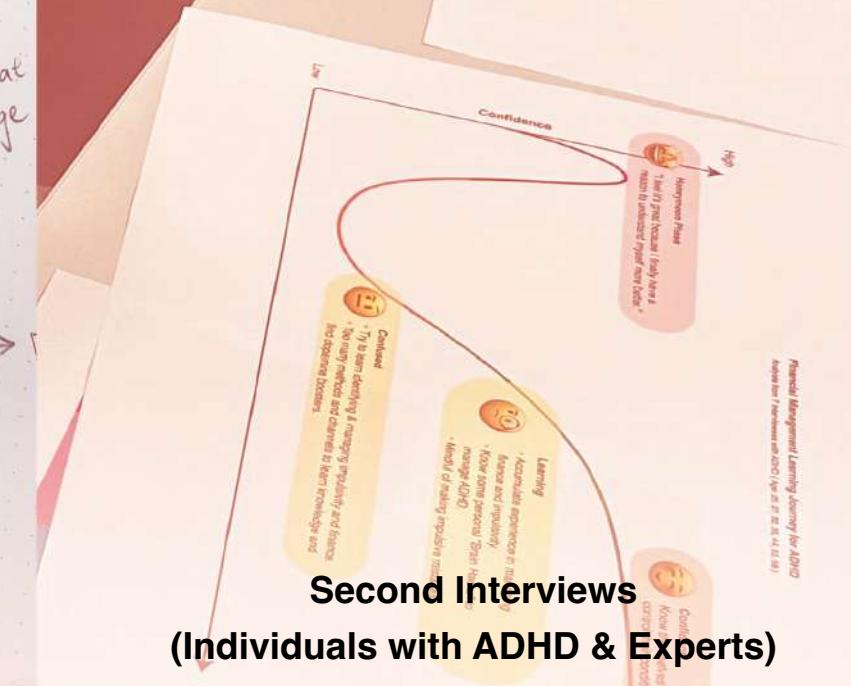
## Case Study Analysis

### First Interviews & Workshops (Individuals with ADHD)

The project conducted interviews with various individuals with ADHD and stakeholders, aiming to understand the correlation between symptoms and financial management.

This project synthesized previous academic research and the learning patterns observed in the interview cases to formulate a hypothesis that demonstrated how individuals with ADHD spend decades identifying their symptoms and developing unique management skills.

## Examine & Iterate Hypothesis



More interviews were conducted with financial coaches and older individuals with ADHD to further refine the hypothesis. An initial stage, describing the process of being diagnosed and the feeling that everything suddenly made sense, was also added into the learning curve. As a result, a clear four-stage learning curve was established.  
(The curve is demonstrated on page XX.)

# Key Insights

By inducting findings from previous research and hypothesis, this project identified two key insights regarding financial management for ADHD:

01

## The Development of Personalized Management Strategies Takes Decades.



"It took me about 15 years to realize this!"

Individuals with ADHD eventually develop their own coping mechanisms to regulate dopamine levels and manage their finances, but this process can take decades.

02

## Individuals with ADHD Lack Confidence During the Knowledge Learning Journey.



"I doubt my ability to handle better finance."

While people with ADHD may employ various management strategies, they experience a similar learning curve in understanding their symptoms and acquiring knowledge about financial management. However, young adults with ADHD might not feel they will ever get a grip on it.

## Process Reflection

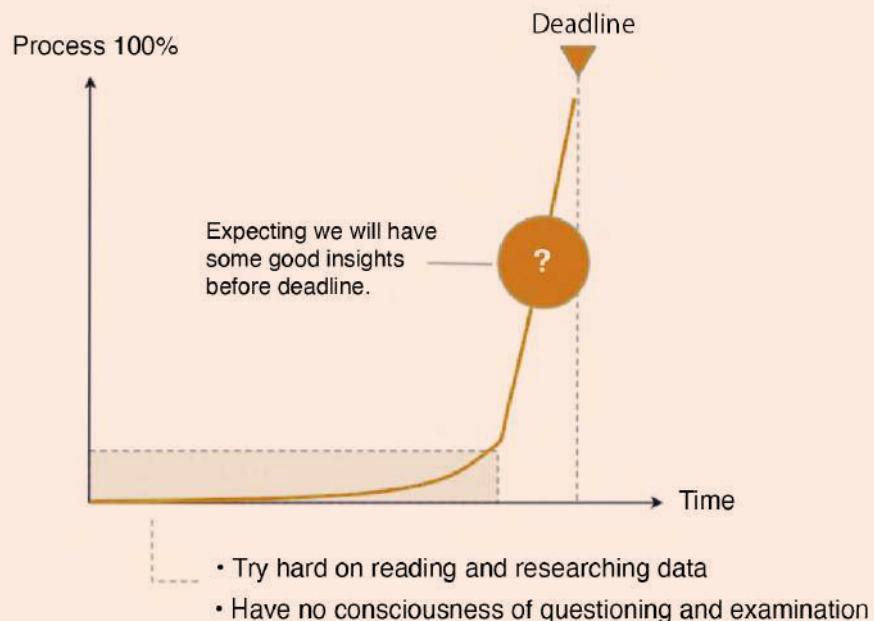
# Hypothesis Thinking: An Effective Way to Find Insights.

I employed Hypothesis Thinking (Uchida et al., 2014) to assist me in identifying insights more effectively in this project.

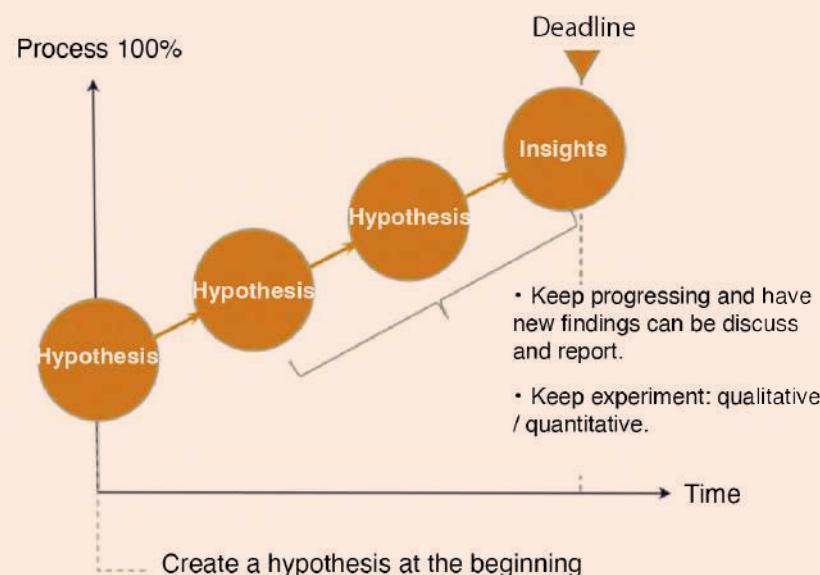
Hypothesis thinking is a commonly used methodology at Boston Consulting Group (BCG), which involves creating hypotheses in advance and continually verifying and refining them during the research process. This approach facilitated the systematic

collection and analysis of information within the constraints of the research time limit. It prevents designers from Finding a Needle in a Haystack (Way 1), where designers become entangled in exploration and get stuck amidst a vast amount of new information without a clear starting point for analysis.

### Way 1 : Finding a Needle in a Haystack

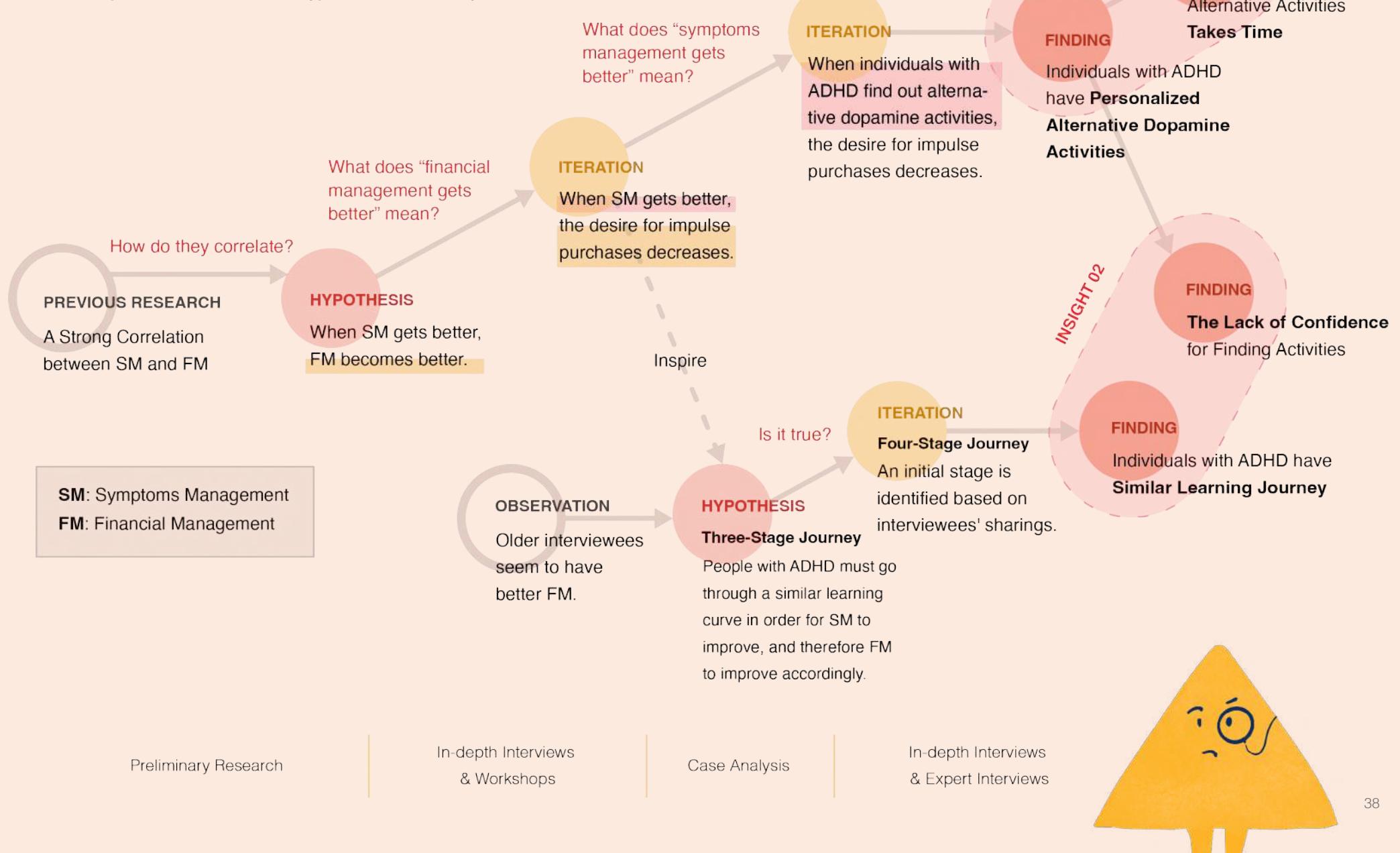


### Way 2 : Hypothesis Thinking



▼ Overview:

Development and Utilization of Hypotheses in this Project



## Key Insight

# Time-Consuming Development of Personalized Management Strategies

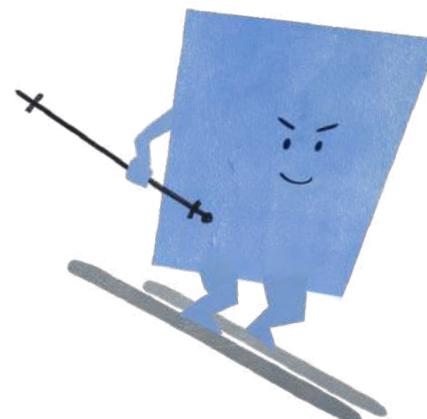
## Personalized Dopamine Activities Help Manage Finance

Because symptoms and personality traits vary widely, the methods that individuals with ADHD employ to increase dopamine levels for brain stimulation can be diverse (Hallowell & Ratey, 2023; Kretschmer et al., 2022). While some may turn to specific music genres for this purpose (Wang, 2023; Humajova, 2023), others may engage in activities such as exercise or cooking to boost their mood and increase productivity and quality of work (Northey, 2023). These practices, often known as "Brain Hacks" (ADHDers, 2023; Rapson, 2023) or "Dopamine Boosters" (Sherman, 2023; Barfield, 2023), can effectively help reduce the frequency of distractions and impulsive behaviours without the need for medication (Hallowell & Ratey, 2023). Over time, people with ADHD will eventually discover and develop their own coping mechanism for managing both their condition and finances (Copestake, 2023).



"I listen to 21 Pilots to keep myself calm. I enjoy it."

- **Humajova** | Interviewees with ADHD | 32



"I check out my Amazon cart after taking a shower (...) it helps me think about what I do not need actually."

- **Singh** | Interviewees with ADHD | 35

"I am a skier. I get huge boosting from skiing. I ski fast (...) there is an adrenaline aspect to it. I love those things. It helps manage myself."

- **Sherman** | Interviewees with ADHD | 58

## But It Takes Decades

However, it is important to note that recognizing one's own ADHD symptoms and identifying suitable dopamine-boosting activities can be a process that takes decades (Copestake, 2023; Hallowell & Ratey, 2023). As a result, individuals with ADHD often share a similar journey of personal growth in this regard.

“They have not known themselves enough (...) They have to, then things get better. It is a long adventure.”

- **Copestake** | ADHD Financial Management Coach

“I found that gardening was a popular activity in my new neighborhood. It seemed enjoyable, so I decided to start my garden. I was so surprised that it boost my dopamine a lot! It took me about 15 years to realize this!”

- **Northey** | Interviewees with ADHD | 52

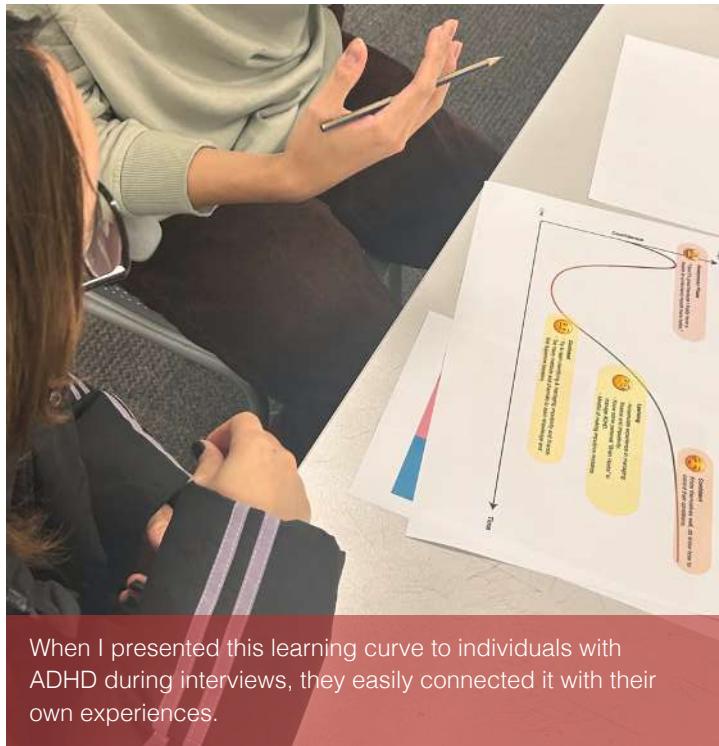


## Key Insight

# The Lack of Confidence During the Similar Knowledge Learning Journey

## Similar Financial Management Learning Journey

As mentioned in academic research and examined in this project's hypothesis, a significant correlation exists between symptom management and financial management abilities. They frequently share a similar learning curve, which can be divided into four stages.



When I presented this learning curve to individuals with ADHD during interviews, they easily connected it with their own experiences.

## Stage 1: Honeymoon



"I felt relieved because I finally had a solid reason."

- **Wang** | Interviewees with ADHD | 27

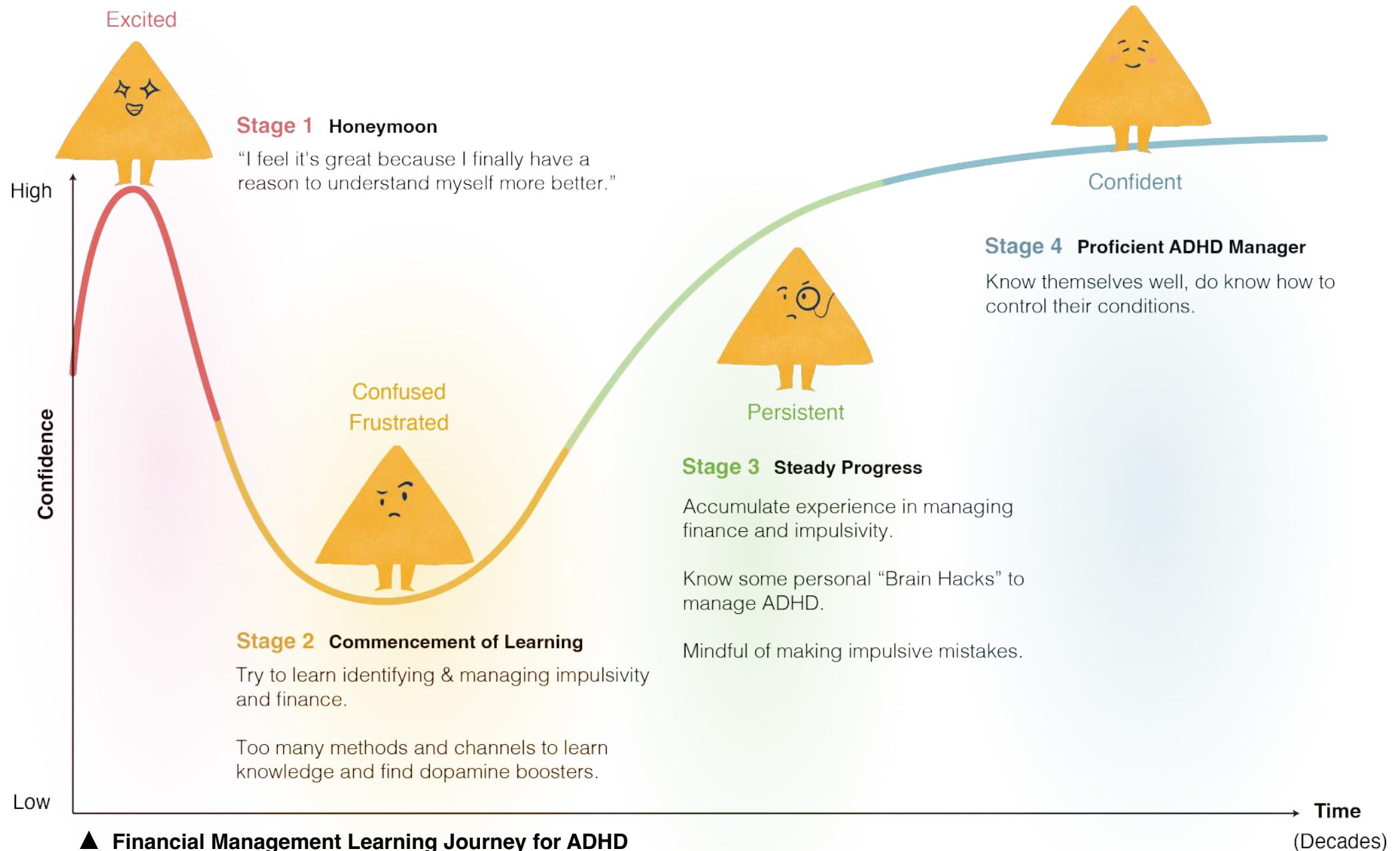
"At that moment, I exclaimed, 'Oh! That is why I behave like that!'"

- **Humajova** | Interviewees with ADHD | 32

"I was so excited (...) even my wife could understand me better from then on."

- **Sherman** | Interviewees with ADHD | 58

Regardless of whether individuals have received a diagnosis and when that diagnosis occurred, they embark on the journey of adapting to their ADHD symptoms following an initial phase commonly termed the "Honeymoon" Stage (Foley, 2023; Copestake, 2023). This phase marks the period when individuals become conscious of their ADHD and uncover the underlying reasons driving their behaviors (Hallowell & Ratey, 2023). In this stage, they experience a sense of excitement and motivation (Copestake, 2023) stemming from the realization that they have at last found the key to understanding themselves more. They are eager to learn more about their own ADHD symptoms and how to effectively manage them.



## Stage 2: Commencement of Learning



“The overdue payment frustrates me so much. I try to tell myself that it's okay (...) The shame spiral around finances is real.”

- **Chen** | Interviewees with ADHD | 26

The Honeymoon Stage's momentum is often short-lived (Copestake, 2023). Individuals with ADHD feel overwhelmed by the plethora of information and strategies for managing their condition (Chen, 2023; Podina, 2023; Schurch, 2023). To cope, they engage in support groups and organizations and make their own Dopamine Menu to address impulsivity and financial matters (Foley, 2023; Copestake, 2023). During this phase, they begin recognizing the impact of dopamine levels and seek alternatives activities instead of impulsive spending or reliance on substances (Barfield, 2023; Hallowell & Ratey, 2023). They also start learning to evaluate their spending and create short-term financial goals (ADHDoers, 2023; Copestake, 2023; Rapson, 2023).

In this stage, individuals with ADHD exhibit heightened self-awareness, which can lead to self-blame when impulsive actions or minor errors occur (Chen, 2023; Podina, 2023). This confusion, sensitivity to negative outcomes, and a lack of a sense of accomplishment (Hallowell & Ratey, 2023; Norvilitis et al., 2019; Pelham et al., 2020) can result in frustration as they navigate their symptom and financial management journey.

“I am notorious for impulsive online shopping, trying to buy something new online, as well as binge eating junk. I'm starting to recognize it as a dopamine seeking behaviour.”

- **Anonymous** | Interviewees with ADHD

“I initially believed managing my ADHD would be straightforward after the diagnosis, but it turned out to be more complex than I anticipated.”

- **Podina** | Interviewees with ADHD | 28

“At the beginning, I actively engaged in various learning activities as there was an overwhelming amount of knowledge, and it was challenging to absorb.”

- **Schurch** | Interviewees with ADHD | 44

“Some people are prone to addiction to alcohol, tobacco, or even drugs because they have not found ways to increase their dopamine, and these are the things that most clearly increase dopamine.”

- **Barfield** | ADHD Charity Advice Officer



### Stage 3: Steady Progress

“I feel less nervous and just let it happen sometimes (...) when I learn how to control my condition, I think spending some extra money occasionally is nothing.”

- **Schurch** | Interviewees with ADHD | 44

“It takes me a few years to learn how to curb my thoughts and keep reminding myself in mind.”

- **Singh** | Interviewees with ADHD | 35

With time, individuals accumulate life experiences, leading to a deeper understanding of their symptoms (Northey, 2023). They persist in acquiring and fine-tuning personalized coping strategies for symptom and financial management (Schurch, 2023; Northey, 2023). They maintain a rough grasp of their weekly or monthly spending limits. When faced with low dopamine levels and the temptation of impulsive spending to stimulate their brain, they have techniques to remind themselves to stay composed and redirect their focus toward other activities. They come to understand that occasional impulsivity and making mistakes are not only acceptable but essential components of their journey and management strategies (Schurch, 2023; Barfield, 2023).



### Stage 4: Proficient ADHD Manager

“Even though dealing with taxes and stock ROI (return on investment) remains challenging, I have learned to break them down into smaller tasks and do them during the evening hours (...) You will discover more effective approaches to handle these tasks as you become more seasoned.”

- **Northey** | Interviewees with ADHD | 52

“I think it becomes easier as you gain more experience. You will find a role that leverages your strengths and minimizes your weaknesses.”

- **Sherman** | Interviewees with ADHD | 58

After decades, individuals with ADHD have progressed through various stages, acquiring the confidence and skills required to manage their symptoms and finances (Copestake, 2023; Hallowell & Ratey, 2023). They have refined techniques for handling impulsivity, identifying activities that boost dopamine, managing paperwork, budgeting, and long-term future planning (Barkley et al., 2011; CHADD, 2019). They are aware of their strengths and weaknesses, allowing them to excel in their work and be open to seeking support from others (Hallowell & Ratey, 2023; Northey, 2023; Sherman, 2023). They have also become proficient in financial management. Even when confronted with tasks that are typically challenging for people with ADHD, such as dealing with complex bank protocols or engaging in information-intensive activities like long-term investments or tax management (Barkley et al., 2011), they have formulated their own strategies to tackle these challenges (Northey, 2023). As a result, they now proficiently manage both their symptoms and finances.

## The Lack of Confidence in the Trough

"Is it (the learning curve) real? I doubt my ability to handle finance. That is what I am really not good at."

- **Chen** | Interviewees with ADHD | 26

"I did make a menu in the course, but I do not want to open my notebook when I felt low (dopamine)."

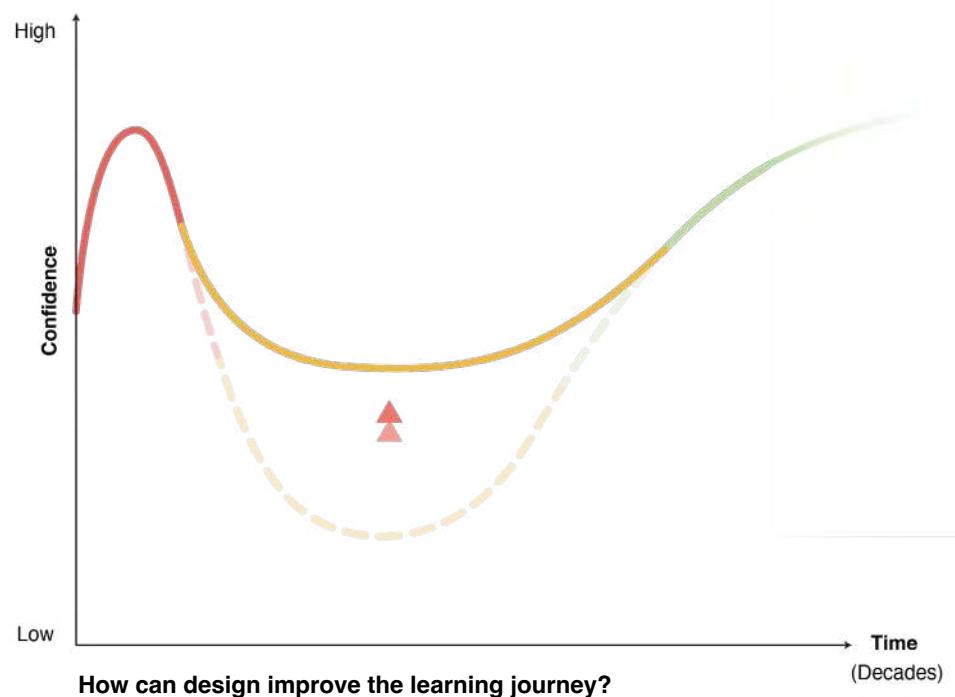
- **Podina** | Interviewees with ADHD | 28

The time cost was an inevitable aspect of the journey for individuals with ADHD as they learned to manage their symptoms and finances. However, the prolonged learning process could be detrimental and should be improved. It might make young adults with ADHD more vulnerable to addictions (Barfield, 2023; Hallowell & Ratey, 2023). Many young adults with ADHD in the Beginning Stage struggled with managing impulsivity because they were unaware of alternative activities that could provide a sense of satisfaction (Hallowell & Ratey, 2023). This circumstance led them to resort to impulsive shopping, alcohol, or video games when they became bored, seeking a dopamine boost (Hallowell & Ratey, 2023; Norvilitis et al., 2019; Marx et al., 2021). Even with awareness of alternative dopamine activities, individuals experiencing low dopamine levels might be powerless to find out and review the menu they had created or might entirely forget about it (Podina, 2023).

Surrounded by financial issues such as overspending and debt, individuals with ADHD in the trough did not feel confident in budgeting and other financial management (Chen, 2023). They lost learning motivation and continued to use unhealthy ways to seek dopamine.

## Can Design Make the Learning Journey Shorter and Smoother?

This project believe that design can create tools or enhance existing services to help these young adults discover their personalized dopamine-boosting activities more efficiently, making their learning journey smoother, and reducing the risk of financial vulnerability or unhealthy addictions



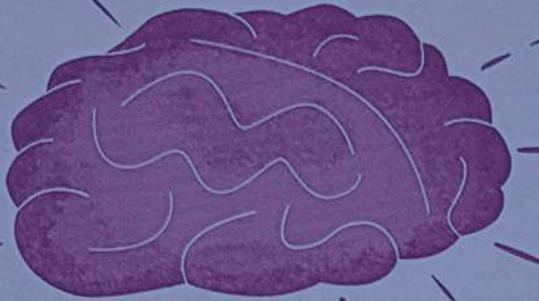
# Design Questions

**Can young adults with ADHD explore alternative dopamine activities and learn impulsivity management without such a time cost?**

**What if a service could help young adults with ADHD identify their suitable dopamine activities and consistently remind them?**

**How might current financial service providers develop more ADHD-friendly services for young adults with ADHD?**

# ADHD -



## We need your brain!

Join Our Financial Service Design Workshop !

(18th Oct. or 24th Oct.)

Can financial management be fun? Can design help improve current financial management?

Come to our Service Design workshop to talk and draw!

Join the workshop

Jerry is a young adult pursuing a master's degree in art, and he was diagnosed with ADHD just a year ago. Although the diagnosis gave him a main reason for his impulsive and talkative behaviors, he started to find learning ADHD management challenging, particularly in the realm of financial management. He often struggles to handle his finances and adhere to a budget. In social situations, like parties with his classmates, he tends to make impulsive decisions, such as buying drinks for everyone without careful consideration. Similarly, he often succumbs to online shopping temptations, leading to the premature exhaustion of his monthly budget.

When confronted by his parents about his spending habits, Jerry finds it difficult to recall the details. Despite his desire to manage his finances effectively, he remains wary of his impulsive tendencies. This internal conflict between wanting financial stability and the guilt associated with occasional overspending creates a significant emotional burden for Jerry. The pressure to overcome these challenges weighs heavily on him, and he is uncertain about how to navigate this complex situation.

I am Jerry!

... would  
... who has  
... purchase for  
... friend & card  
... differentiable  
... meaningful for

Smart Shoppy

Are you ready to checkout?  
Let's do something first!

Go!

Go!

Go!

Go!

You

gamify

A  
B  
C  
D  
E

London / Lenton  
Luton / Longdon

Spent £52.  
£2.75  
£6.20

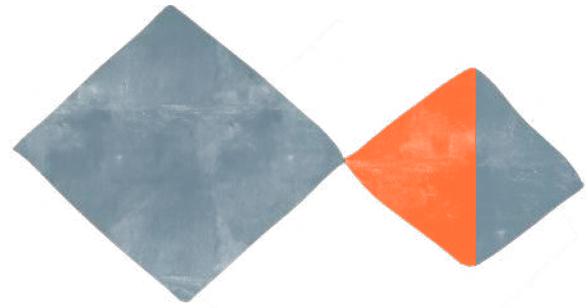
How can I spend my budget?

budget Translator

Weekly Budg  
04-09-01 44746734

£153  
Earning 1% AER  
You have spent £47 this week.

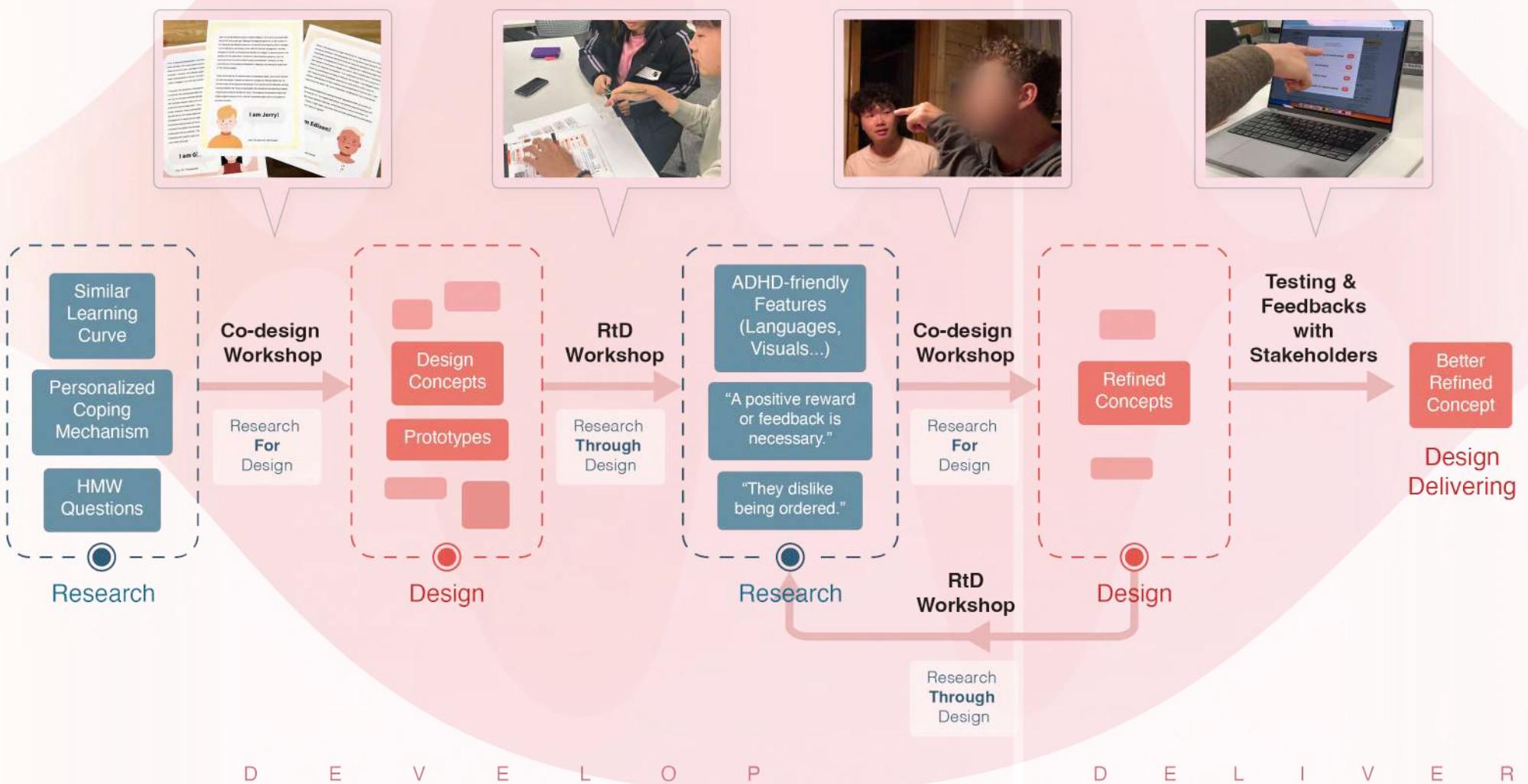
Gina, a freelance photographer, cherishes the "creative burst" that her ADHD brain provides. This unique ability allows her to generate diverse and innovative ideas around the clock, resulting in photographs that have garnered international acclaim. However, this creative surge comes with a trade-off – occasional episodes of burnout. During these periods, Gina finds herself unmotivated to engage in any activities, preferring to laze on the couch with her cat. Edison, the proprietor of a legal consulting firm, discovered a profound affinity for financial laws during his childhood. Well-acquainted with the industry from an early age, he established his own firm, specializing in accounting and taxation. As a lawyer, he understood my ADHD for what it was: a superpower rather than a disability. His response is consistent: "I've understood my ADHD and the brain differences related to the financial industry for what it is, and I can delegate tasks to other employees, allowing me more time for what I excel at." Edison underscores the time it takes to comprehend ADHD and the importance of patience. His preferences and areas of difficulty – "As the boss, I can delegate tasks, but I don't enjoy it" – are well-known among his employees. "Once understood, he perceives it as a superpower," says one employee. "It's like he's got a superpower that he can't control, but he can use it to his advantage." Gina's response is similar: "I understand my ADHD, and I know my preferences and areas of difficulty. As the boss, I can delegate tasks, but I don't enjoy it." She continues, "I've understood my ADHD and the brain differences related to the financial industry for what it is, and I can delegate tasks to other employees, allowing me more time for what I excel at." Edison underscores the time it takes to comprehend ADHD and the importance of patience. His preferences and areas of difficulty – "As the boss, I can delegate tasks, but I don't enjoy it" – are well-known among his employees. "Once understood, he perceives it as a superpower," says one employee. "It's like he's got a superpower that he can't control, but he can use it to his advantage."



D E V E L O P

# Ideation Process

The project iterated design concepts through co-design workshops and Research through Design (RtD) workshops. The persistent interactions with stakeholders and end-users ensured that the designed service could be refined and aligned with the lifestyles and habits of young adults with ADHD.



## Co-design and RtD are Vital in the Project

### **"Nothing about ADHD without ADHD."**

The relationship between research and design usually follows the "Research for Design" approach, involving the collection of substantial evidence and data that culminate in the form of a product (Frayling, 1994). However, there is a common tendency for designers to oversimplify user groups (Junge, 2022) and make decisions on their behalf (Guffey, 2023; Hendren & Wong, 2020), which lacks inclusivity and may potentially lead to stigmatization. Therefore, this project is committed to the spirit of "Nothing about ADHD without ADHD," treating individuals with ADHD as service developing partners and avoiding making unilateral decisions on their behalf.



### Images

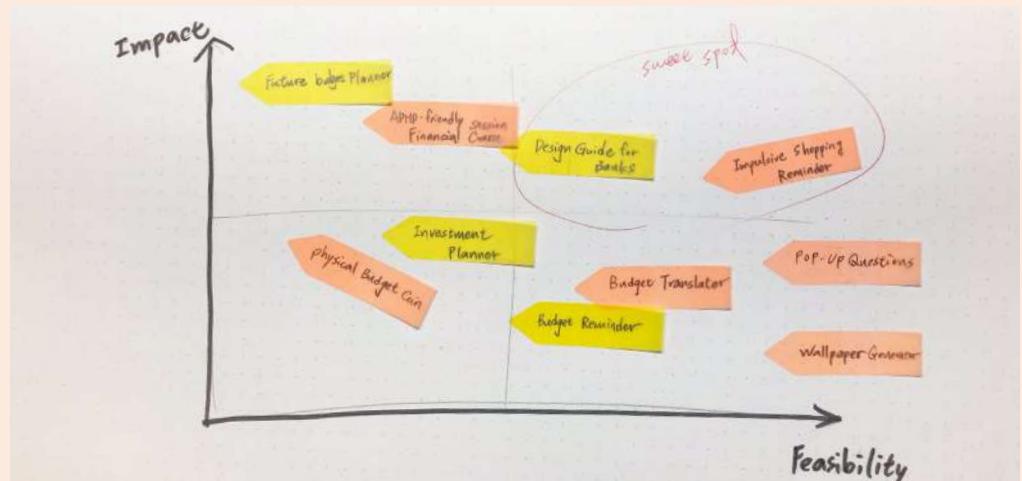
- 1
- 2
- 3
- 4

- 1- Use Case Study to Co-design
- 2- Test Prototype with Interviewees with ADHD
- 3- Collect feedbacks and Adjust Details
- 4- Demonstrate Prototypes to Bank Developers

## Process Reflection

### **Ideation and Iteration are Endless, but Time is Limited.**

Design concepts and outcomes always have the potential for continuous iteration and improvement. I avoid using the term "final service" throughout the design process, as the project's outcome remains open to improvement beyond the 6-month timeline. To ensure effective decision-making within a limited time, I consulted individuals with ADHD for design direction and sought support from evaluation tools like the BCG Impact-Feasibility Matrix (please refer to the next page). This approach enabled reasonable decision-making and ongoing refinement of concepts.



#### **Using BCG Impact-Feasibility Matrix & Finding Sweet Spots**

Finding a sweet spot (Uchida et al., 2014) that can be achieved by a single person in six months is crucial for the management of this project.

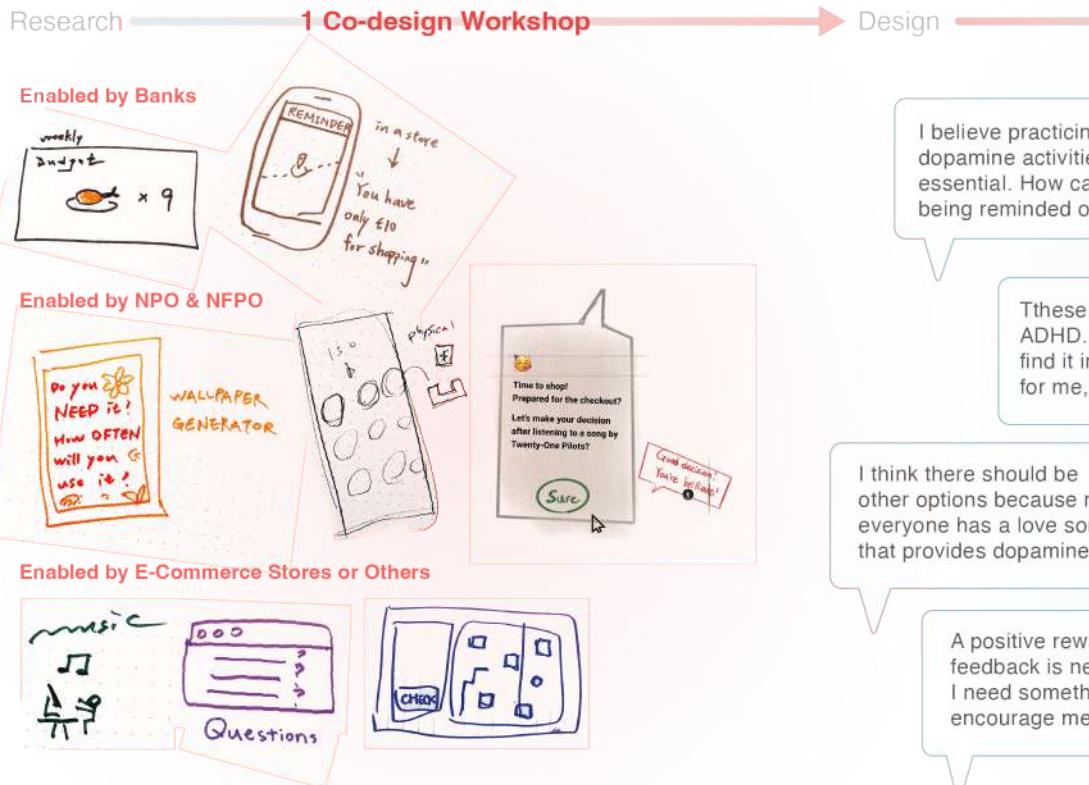
# The Divergence and Convergence of Ideas

## The Difference Between Two Types of Workshops

In the ideation process, Co-design workshops primarily emphasized concept divergence. Designers engaged in brainstorming and discussions with participants with ADHD and relevant stakeholders, actively encouraging them to express their creative ideas and fostering the generation of more concepts. On the contrary, Research through Design workshops represented the convergence of ideas. They placed an emphasis on documenting participants' feelings and imaginings when using the prototypes and understanding the design preferences of young adults with ADHD.

## How Ideas were Diverged and Converged ►

The right-hand process demonstrates how design concepts were iterated in two co-design workshops and three Research through Design workshops. It explains how analysis tools and user opinions were utilized to evaluate and select concepts.



## Idea Evaluating & Selecting: Values Check

To evaluate and select ideas, this project checks for a "contradiction in values," comparing the values of service concepts with those of service providers.

For instance, individuals with ADHD sometimes engaged in repeated purchases. Participants suggested an idea where e-commerce platforms could review users' buying history in the past week to avoid unnecessary duplicates. However, this project recognized that this idea mismatched the profit-driven values of e-commerce platforms. These platforms were unlikely to support a service that might reduce their profits. As a result, the workshops explored alternative options and service providers, such as allowing users to authorize a third party to monitor their purchase history.

## 1 RtD Workshop

Research

## 1 Co-design Workshop

Design

## 2 RtD Workshops

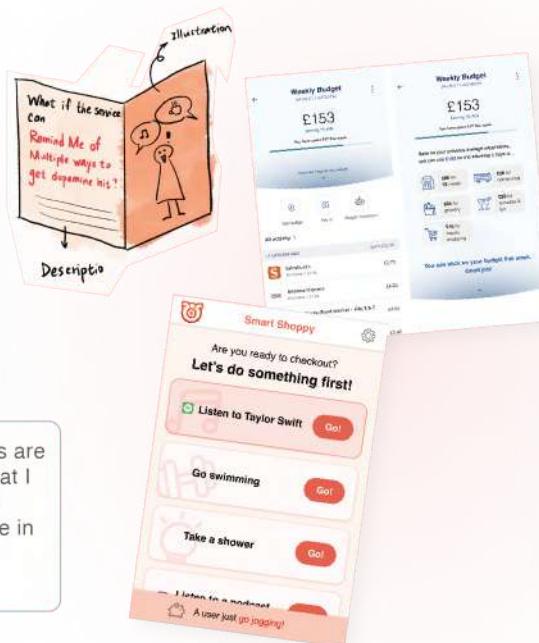
Research

Ideation Process

conscious association of alternative ways when the dopamine level is low is can you help them in practicing or that?

concepts are really helpful for individuals with For example, with the focus app, some may convenient that social media is restricted, but this is the app I need. It is very useful.

Sometimes when my dopamine levels are low, it is often too late to consider what I can do to improve. Having a pre-built menu and reminders should assist me in quickly engaging in an activity to experience a dopamine boost.



If you got dopamine some other way, and then went back to the shopping, you might feel like, 'oh, I do not know why I wanted that because I just got some dopamine over here.' It seems logical to me that this idea would work.

The tone is directive. People with ADHD do not like being ordered. They prefer to act on their own volition.

I like that it reminds me to call my friends before shopping! My friends are always helpful when I want to buy some unnecessary items.

I like the tone and terms used in the Be Focused (an focus app)...

This concept involves financial regulations... there are concerns about proceeding when high security is necessary to protect user privacy.



## Idea Evaluating &amp; Selecting: Feasibility Check

## The Contradiction in Values

"Does the value provided by this service concept align with that of the service enabler?"

"If not, can other enablers operate this service concept?"

## Short-term Strategy

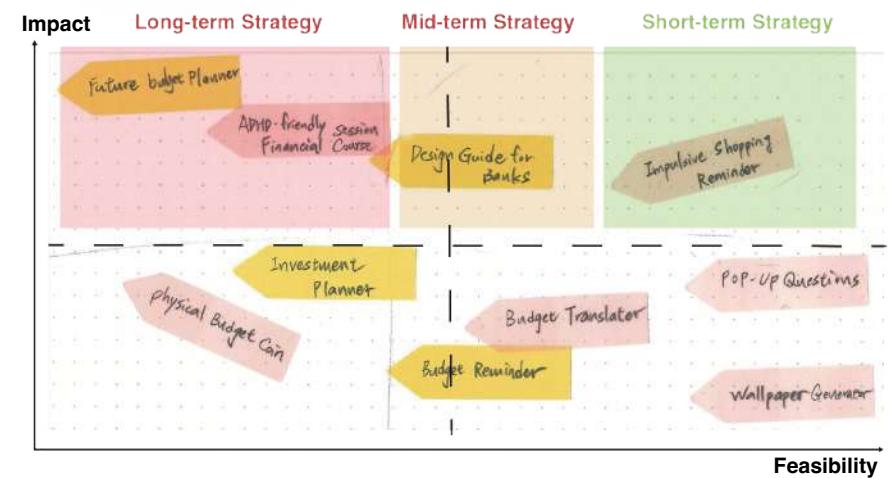
High impact and could be completed within the project time. This project eventually focused on the development of this concept.

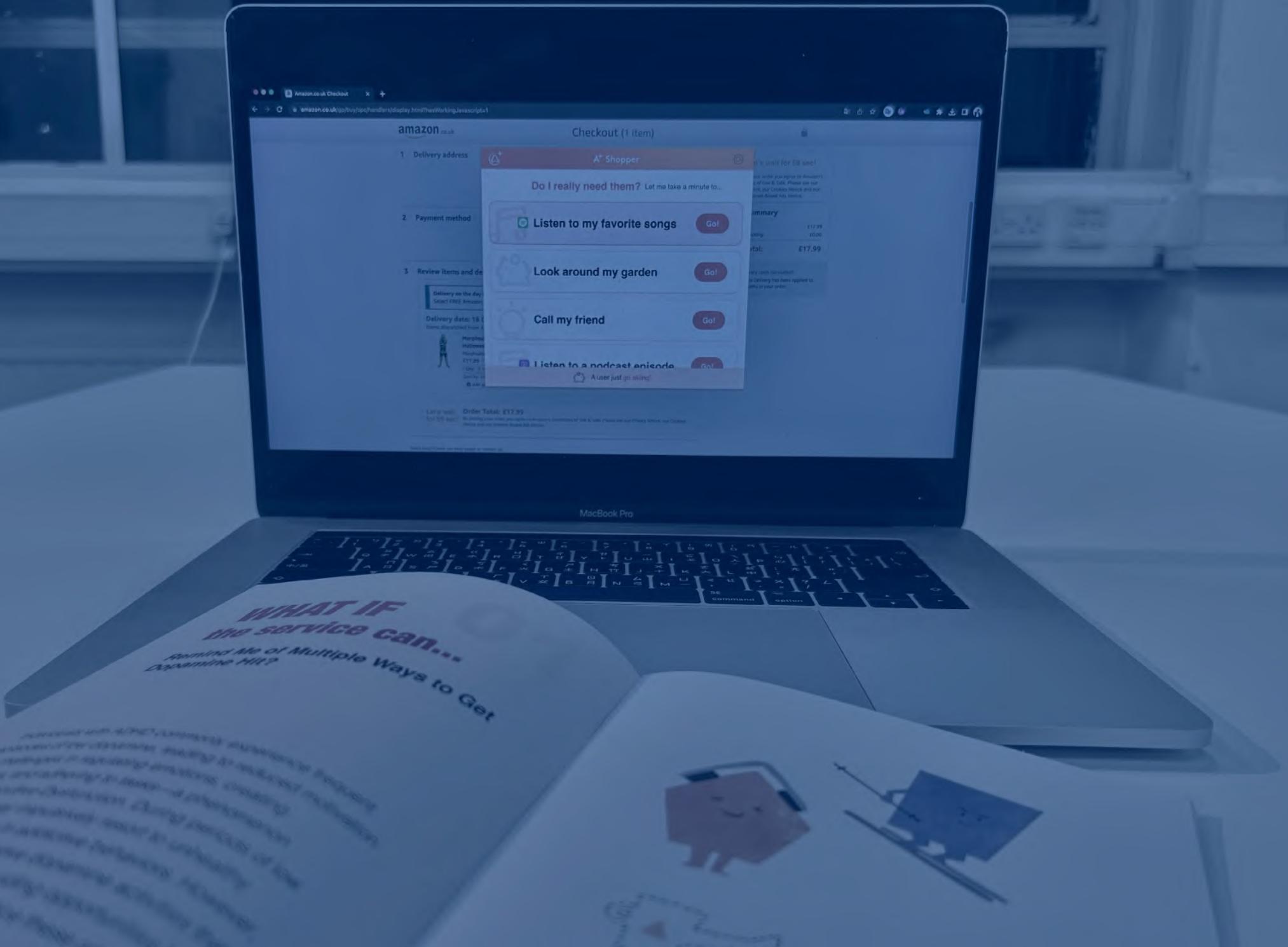
## Mid-term Strategy

It was possible to complete it within the project time, but the results might not be evaluated immediately. This project simplified this concept and used it as the touchpoint of Impulsive Shopping Reminder.

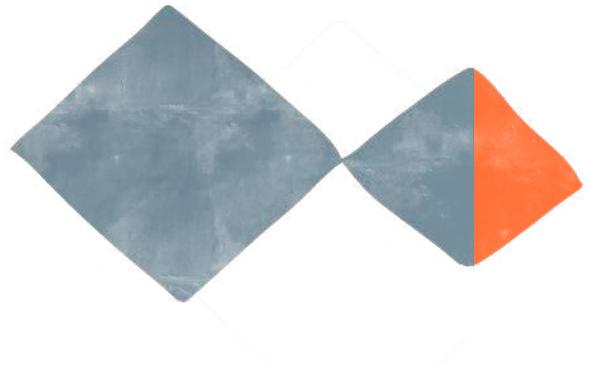
## Long-term Strategy

It might have a high impact, but it could not be achieved within the project time. It could be the implication which inspired design projects in similar research area.

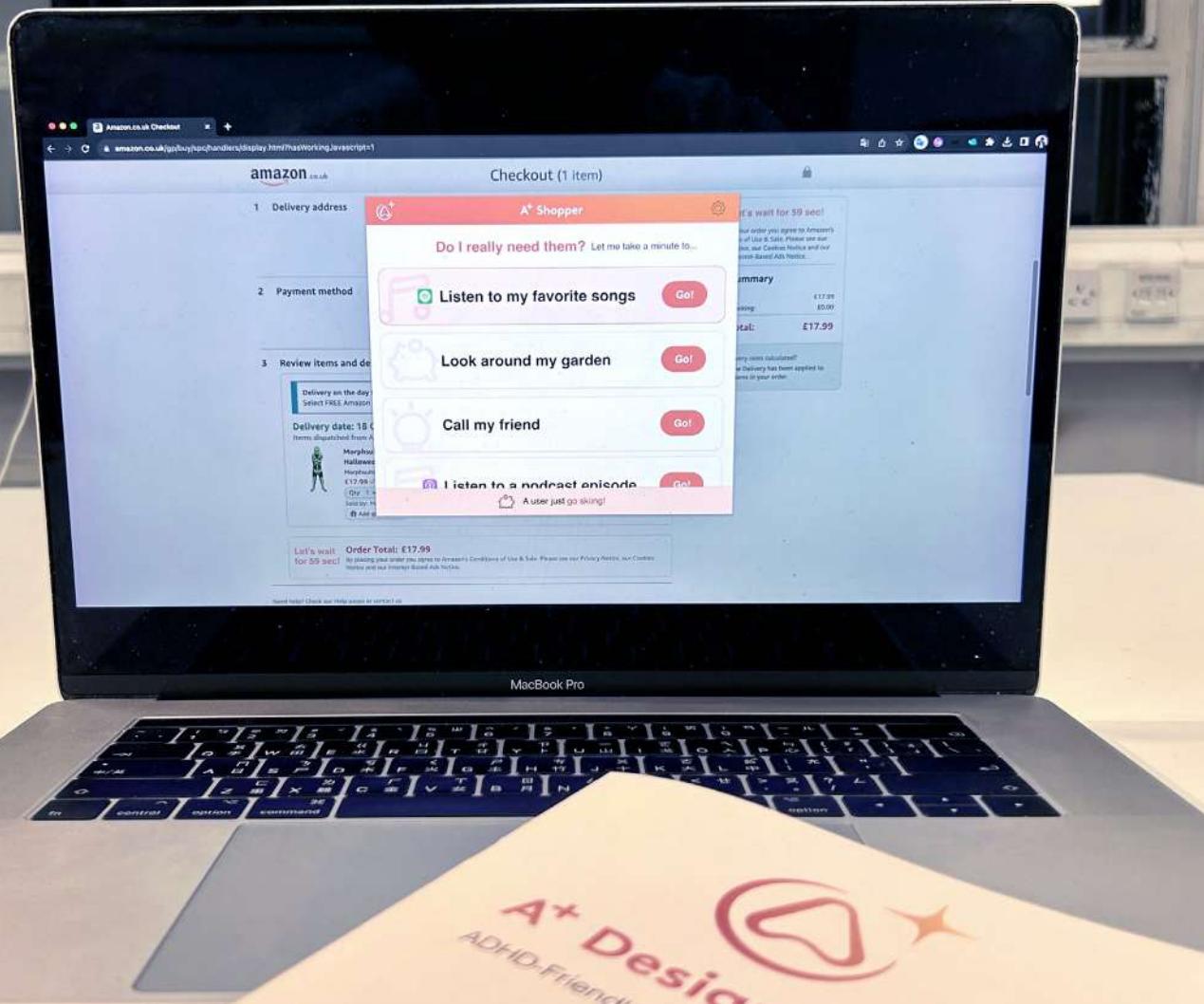




**WHAT IF**  
the service can...  
*Remind Me of Multiple Ways to Get*  
*Dynamite Hill?*



D E L I V E R



A+ in Finance comprises **A+ Shopper** and **A+ Design Guide**. The former is a Google extension designed to remind young adults with ADHD to try alternative dopamine activities when they feel the urge for impulsive online shopping. The latter serves as a promotional tool and touchpoint for A+ Shopper. It provides developers with a clearer understanding of how to create ADHD-friendly products while also showcasing the ADHD-friendly features of A+ Shopper.

Chrome Extension Co-developer  
Paxton Wang | Engineering

# Service Introduction

## WHO

Young adults with ADHD who are either in the initial stages of learning about symptoms and financial management or are looking to practice alternative dopamine activities to redirect their attention from impulsive behaviors

## WHY

This group with ADHD may not fully understand their symptoms and the activities that increase their dopamine. Early identification can significantly reduce their desire for impulsive consumption or addictive substances, offering easier-approach activities for seeking dopamine.

## WHAT

A Google Chrome extension with highly customized content that can detect e-commerce payment pages, prevent impulse purchases

## HOW

By detecting checkout pages, consumers with ADHD can receive immediate reminders. If they are consuming to increase dopamine, they can explore other alternative dopamine activities listed on their own. This helps reduce regret and financial burden after impulse purchases.

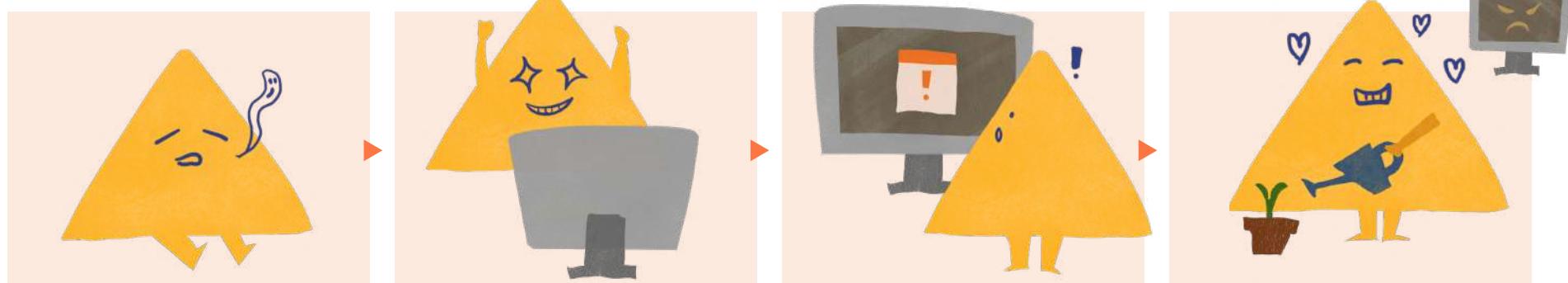
## WHERE

Major e-commerce websites (currently mainly focused on Amazon in the development stage).

## BY WHOM

NPO & NFPO  
(This project used one of the collaborators, ADHD Foundation, as an example.)

## Using Scenario Storyboard



The user feels low dopamine, being bored and powerless.

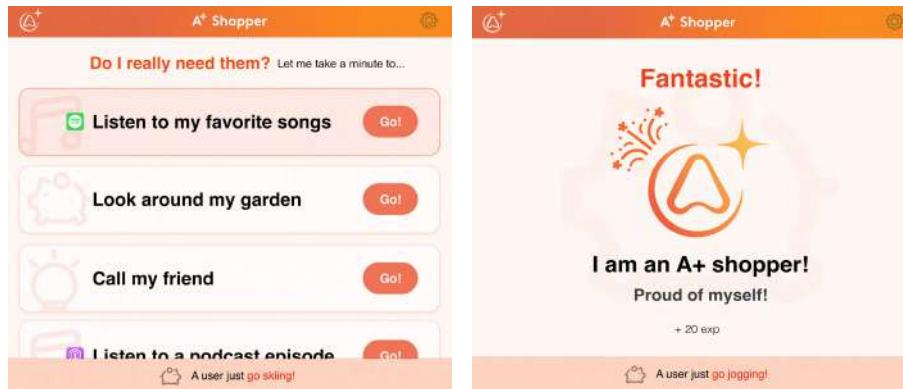
The user wants to increase dopamine through online shopping.

A+ Shopper pops up to remind the user about alternative ways to produce dopamine.

The user's attention is redirected from shopping, and they also gain dopamine through other activities.

# A+ Shopper

A Chrome Extension for Young Adults with ADHD to Reduce Impulsive Shopping Urges



## Personalized Reminder

Users can customize each alternative dopamine option, enabling them to add A+ Shopper as a reminder the moment they discover a new activity.

## Positive Language Stimulus

Besides adopting a first-person perspective to avoid feeling ordered, A+ Shopper will affirm their action, boosting user confidence.

## Sharing & Inspiring

A+ Shopper can showcase the dopamine activities others have engaged in, assisting users in finding new inspiration for alternative dopamine activities.

# A+ Design Guide

A Guide for Service Providers and Developers to Create More Inclusive Services



## Clear Explanation and Example

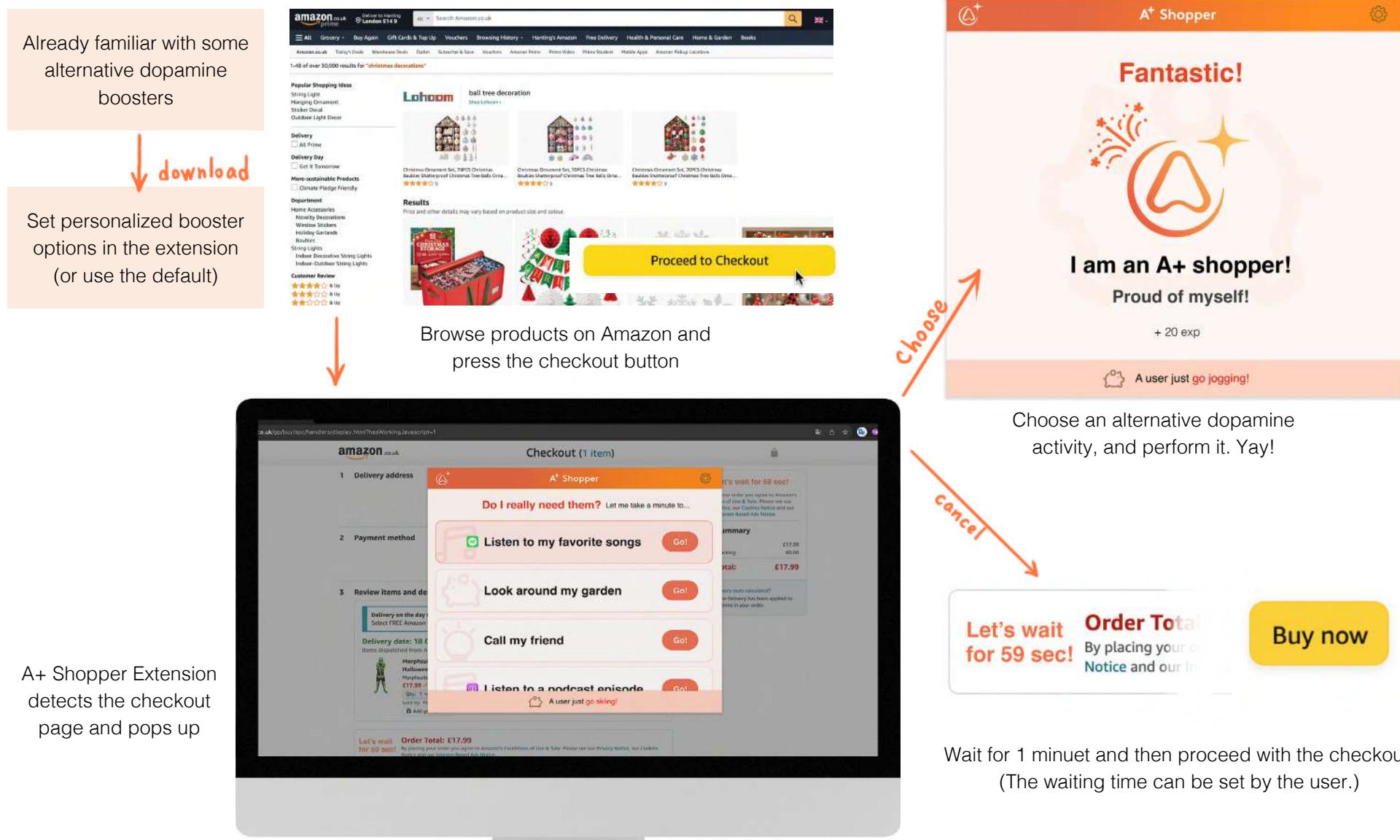
The Design Guide not only outlines the habits, and preferences of individuals with ADHD but also includes examples. This allows developers to gain specific insights into what functions or services are considered ADHD-friendly.

## A New Touchpoint & Promotion Material

The Design Guide can be integrated into the in-house training activities of the ADHD Foundation or other non-profit organizations, serving as a medium to promote A+ Shopper.

# Service Flow Diagram of A+ Shopper

## Example: Shopping on Amazon



# Touchpoints & System Map

## Touchpoints

### Existing: Dopamenu Sessions

The ADHD support NPOs offer sessions to help individuals with ADHD comprehend the importance of alternative dopamine activities and assist participants in creating their personalized Dopamine Menu.



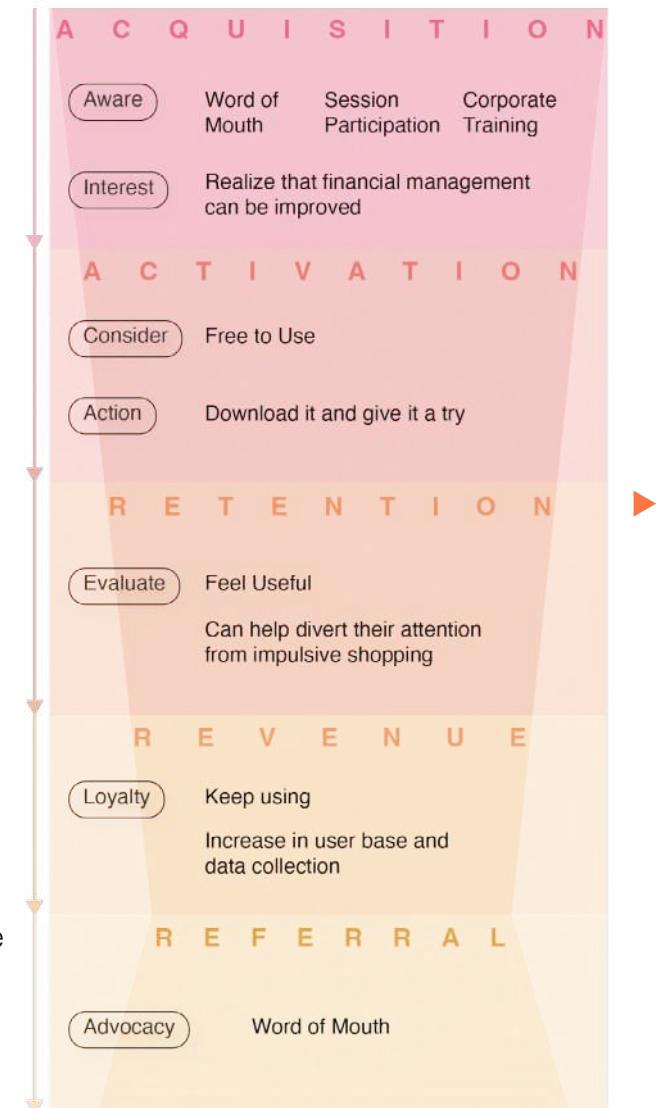
### New: Design Guide during Corporate Training

During corporate training sessions, NPOs provide corporate employees with an inclusive service design guide to enhance their understanding of ADHD-friendly services. This includes emphasizing the significance of alternative dopamine activities and introducing A+ Shopper.

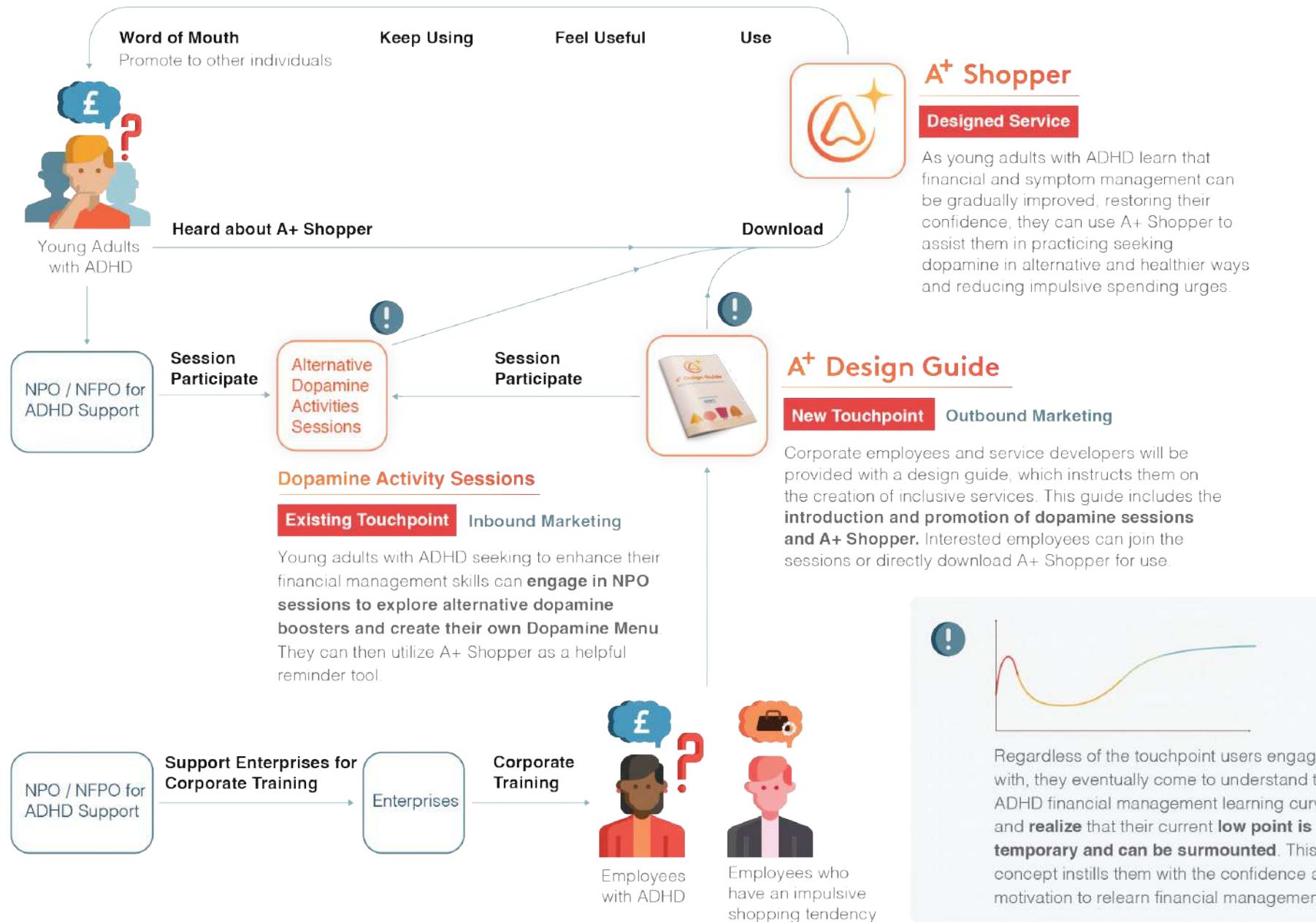


## Pirate Funnel

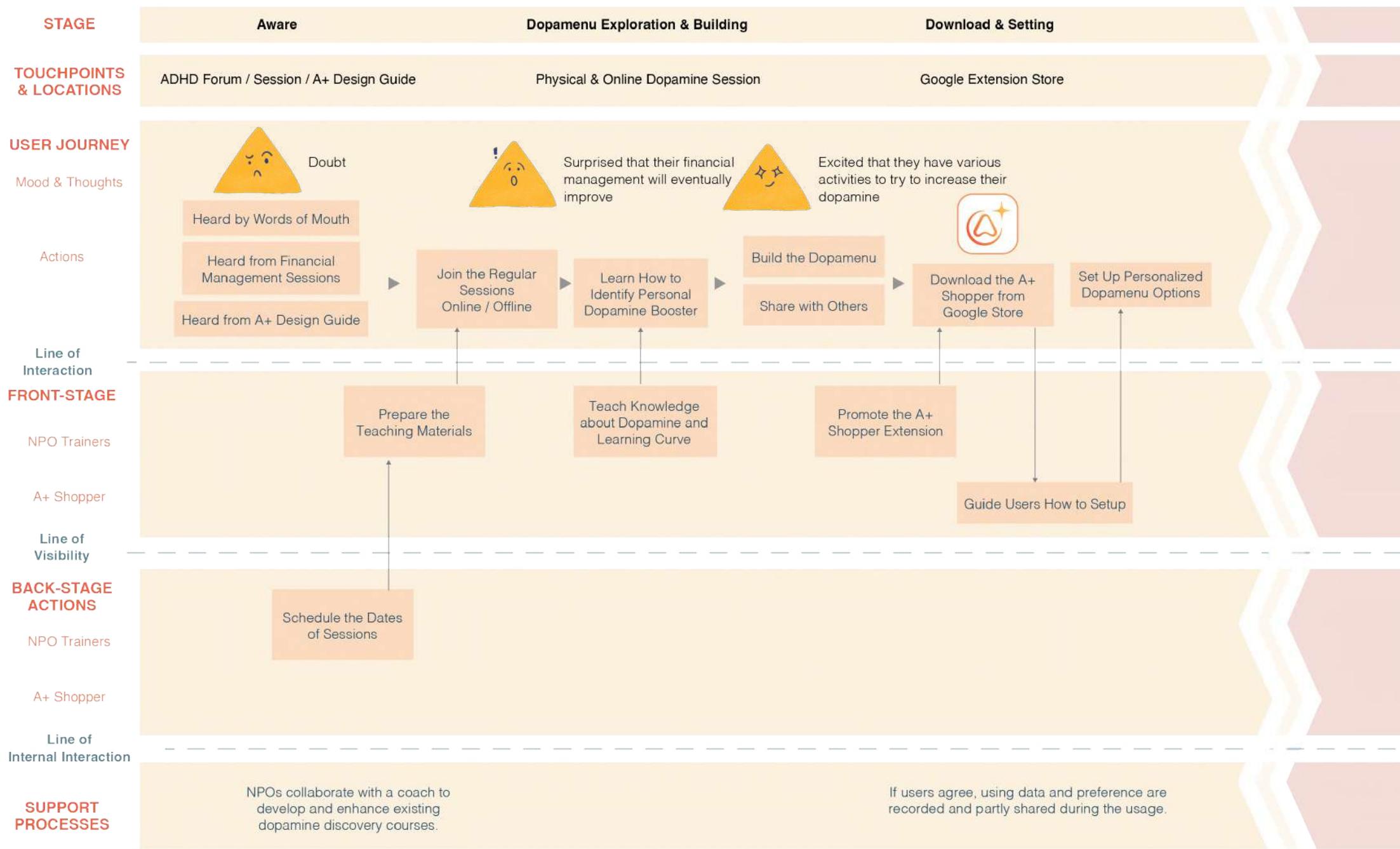
This project used the business marketing tool, the Pirate Funnel, to **arrange touchpoints** and **strategize user engagement and conversion** in the service system (Balke, 2021). ADHD Foundation mainly relied on inbound promotion, such as sessions, sharings, and other content operations (Rensburg, 2022), to attract young adults with ADHD interested in improving their financial management or unaware of alternative dopamine activities. This project then established a new touchpoint within NPO's existing corporate training journey, embedding a proactive outbound promotion to attract potential users and promote A+ Shopper. This project based on the Pirate Funnel, creating the system map with A+ in Finance Service.

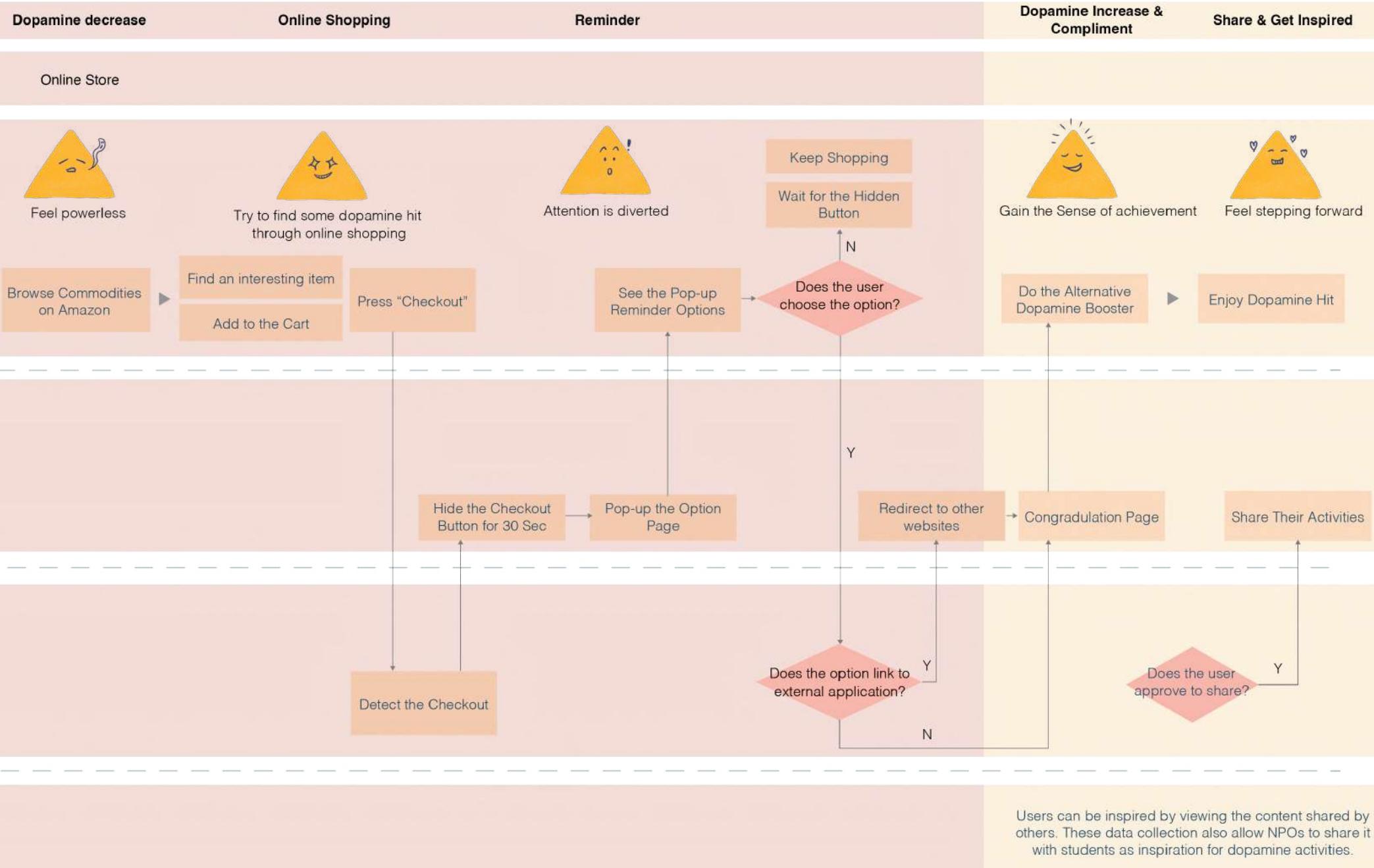


## Service System Map



# Service Blueprint (Online Shopping on Amazon as an Example)

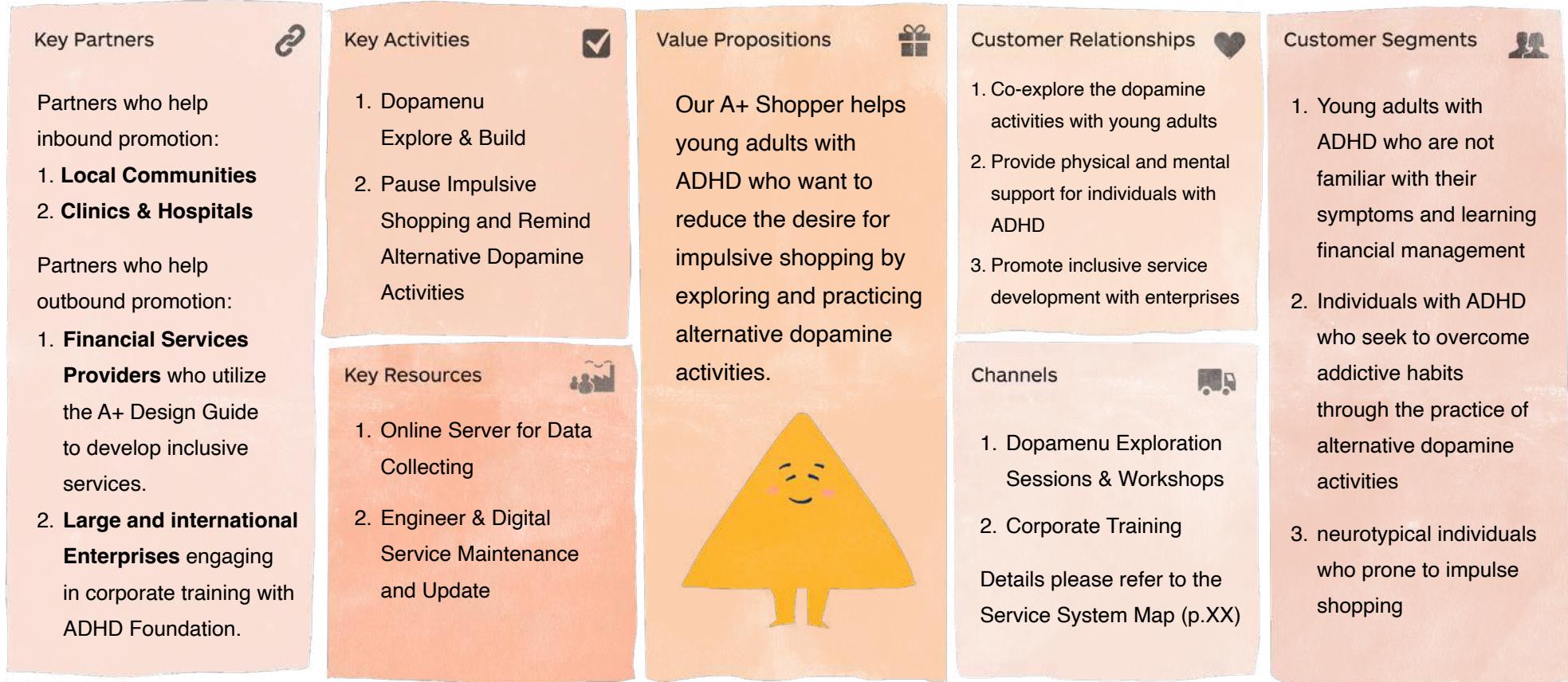




# Business Model & Develop Strategies

## The Business Model Canvas

The canvas utilizes the non-profit organization ADHD Foundation as the service provider.



# SWOT Analysis & Relevant Strategies

## STRENGTHS

### Organization Aspect

1. The UK's largest ADHD support nonprofit organization.
2. Provides rich and diverse training courses, including ADHD Financial Management,
3. Dopamine Exploration Workshop, and various corporate training.  
Offers extensive network resources, hosting the Neurodiversity Conference regularly every year, gathering more than 1,000 people.
4. Has been promoting neurodiversity in business and employment for many years and enjoys a high reputation.

### Service Aspect

1. Combined with organized courses, individuals with ADHD can receive guidance when learning to restrain their impulses, making the entire dopamine exploration more comprehensive.
2. Enable individuals with ADHD to discover alternative sources of dopamine and practice diverting impulse shopping.
3. Assist individuals with ADHD in finding inspiration for alternative dopamine activities and help them identify suitable activities more quickly.

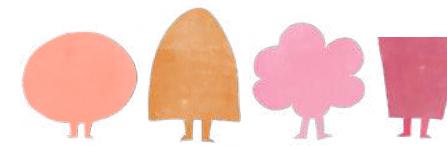
## OPPORTUNITIES

### Organization Aspect

Incorporating the A+ Design Guide into corporate training enables companies to gain more specific insights on developing inclusive services

### Service Aspect

1. There is a lack of impulse management tools on the market that are truly convenient and easy for individuals with ADHD to use. A+ Shopper can be a pioneer in this market.
2. The development of AI technology may further upgrade services, allowing AI to use algorithms to help users find personalized replacement dopamine faster.



## WEAKNESS

### Organization Aspect

1. It is not easy to run an organization, and it relies heavily on corporate donations and funding.
2. The headquarters is located in Liverpool. Although there are branches in London, the number of activities is smaller compared to ADHD UK (based in London).

### Service Aspect

There is a risk of user saturation, where individuals with ADHD might discontinue using A+ Shopper once they are well-acquainted with their alternative dopamine activity and can easily redirect any low-dopamine urges. However, on the contrary, younger generations of users are likely to continue using this service.

## THREATS

### Organization Aspect

Other non-profit organizations also offer a large number of free sessions in diverse topics and issues, making this industry competitive.

### Service Aspect

Non-profit organizations (NPOs) engage in intense competition for donations, and companies offering A+ In Finance services may escalate labor costs or indirectly decrease the number of employees tasked with fundraising.

# Project Conclusion

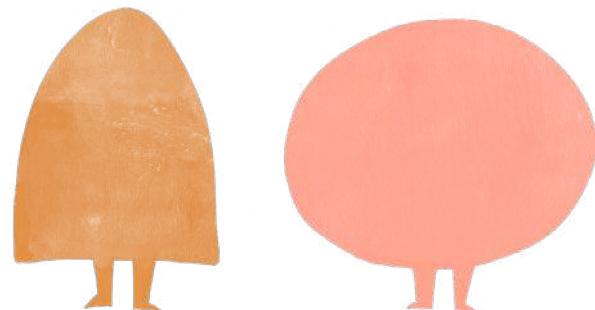
The process of learning symptom management and financial skills is intricate and time-consuming. According to the insights from this project, many young adults with ADHD, who may have lost confidence in this journey, often struggle to identify suitable alternative dopamine activities or lack opportunities to remember and practice them. This situation may lead individuals to seek dopamine through easily accessible but unhealthy activities, such as shopping or addictive substances.

In collaboration with a non-profit organization, this project designed a reminder tool and integrated it into existing dopamine exploration sessions, enabling young individuals with ADHD to explore and practice personalized dopamine activities more effectively. This service design not only enhanced symptom management but also contributed to improving financial health. As its functions are refined and enhanced, there is potential for its expansion to neurotypical groups accustomed to impulse shopping, benefiting a broader user base with valuable support in managing impulsive behaviors.

## Limitation & Implication

While this project employed a case study qualitative research for investigation and analysis, it is crucial to acknowledge that the findings may be subject to regional limitations and sampling bias.

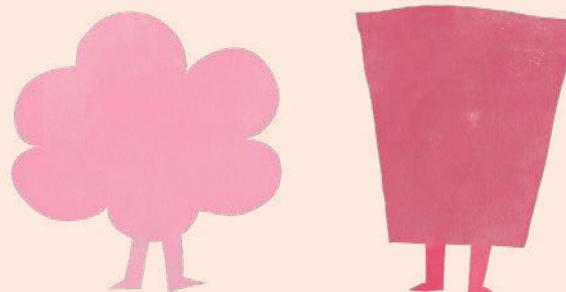
Future studies on ADHD and financial management can build upon this project to refine the learning journey curve and explore more specific situations that lead individuals with ADHD to face challenges and remain stuck in the trough stage. Subsequently, designers can use these insights to develop services aimed at helping individuals overcome these challenges and progress beyond the trough stage.



## Overall Project Reflection

# Designing Inclusively with Stakeholders with ADHD

Through this project, I gained a deeper understanding of how to practically apply inclusive design. The essence lies in transcending the traditional role of designers as problem solvers. Apart from consciously viewing design as an opportunity to co-create something beautiful (Hendren & Wong, 2020) with stakeholders, I realized the need to discard the "deliberate empathy" often associated with it. From the beginning of the project, I approached stakeholders with the mindset of "let us talk as friends" rather than the idea of "I hope I can help you and understand your situation." Designers cannot become representatives of stakeholders or over-translate stakeholders' struggles and feelings with designers' own experience. As someone without ADHD, I cannot explain what the feeling is when low dopamine hits extremely frequently from my perspective. Therefore, I do not deliberately empathize with their feelings through relating to my own experience but use extensive conversations to record their experiences as a medium for understanding.



## However, Is Inclusive Design Inclusive?

"Sometimes I think **inclusion efforts presume a kind of central majority group of people** and their willingness to graciously extend the canopy of their goods and services to other people."

- Hendren, 2020

Despite learning about numerous inclusive mindsets and tools, I contemplate whether inclusive design is genuinely inclusive or not if designers need to use the term "inclusive design" to remind themselves about their attitudes and thoughts. As Sara Hendren has pointed out, I often reflect on whether I am genuinely inclusive enough or if there still exists a privileged perspective that centers designers. I hope I can genuinely treat each user as equal and unique, even without the need to label it as inclusive design one day. After all, I believe I have made a good start in using and implementing inclusive design.

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## Designer

**Sebastian (Chun-Hao) Wang**

sebaswang.design@gmail.com

Linkedin

