Designing Digital Productivity Support for Adults with ADHD: A User-Centered Study of Work and Study Barriers

From Survey Findings to an Interactive Prototype

Master's thesis in Interaction Design and Technologies

Boyang Wei and Yi Yang

Department of Computer Science and Engineering
CHALMERS UNIVERSITY OF TECHNOLOGY
UNIVERSITY OF GOTHENBURG
Gothenburg, Sweden 2026

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Supervisor: Aris Alissandrakis, Interaction Design and Software Engineering, Computer Science and Engineering
Examiner: Michael Heron, Interaction Design and Software Engineering, Computer Science and Engineering

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Department of Computer Science and Engineering
Chalmers University of Technology and University of Gothenburg
SE-412 96 Gothenburg
Telephone +46 31 772 1000

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Abstract

Adults with ADHD and people who experience persistent focus and organization difficulties often encounter barriers in everyday work and study contexts. These barriers can include difficulty organizing tasks, maintaining attention, switching between activities, remembering obligations, regulating emotion, and sustaining routines over time. Although many productivity tools and ADHD-friendly applications already exist, they often rely on assumptions that can be difficult for ADHD users to meet, such as stable planning ability, consistent routines, low setup effort, and positive responses to reminders or progress tracking.

This thesis investigates how adults with ADHD or frequent focus and organization difficulties experience productivity-related barriers, how existing tools fail to meet those needs, and how user research can inform a more targeted digital support tool. The project follows a user-centered design process that combines literature review, survey research, design synthesis, and interactive prototyping. A survey with 69 valid responses was used as the main empirical basis for deriving design requirements. The findings show that participants had already tried many productivity and support tools, but still experienced difficulties related to communication paralysis, hyperfocus and difficulty switching, activation paralysis, emotional dysregulation, working memory gaps, sensory overload, and rejection sensitivity.

The design response translates these findings into a focused prototype direction. The resulting concept explores support for messy thought capture, task breakdown, energy-aware planning, gentle feedback, mood and focus check-ins, and optional focus companionship. The prototype is not framed as a clinical intervention or a universal solution to ADHD. Instead, it functions as a research-informed design artifact that makes a possible model of ADHD-friendly productivity support concrete enough for reflection and user testing. An exploratory evaluation with 15 participants suggested that the mood check-in and focus session flows were relatively easy to complete, while the task breakdown flow showed both strong perceived value and clearer usability problems around discoverability and interaction clarity.

Keywords: ADHD, productivity tools, executive dysfunction, user-centered design, digital prototype, work and study barriers.

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Boyang Wei and Yi Yang, Gothenburg, 2026-06-04

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1
Introduction

Attention-Deficit/Hyperactivity Disorder (ADHD) affects many aspects of daily life beyond clinical symptoms such as inattention, hyperactivity, and impulsivity. For adults with ADHD, difficulties often become visible in ordinary work and study situations: organizing tasks, maintaining focus, remembering obligations, switching between activities, regulating emotion, and sustaining routines over time. These barriers can lead to procrastination, missed deadlines, unfinished work, communication breakdowns, and reduced confidence in academic or professional contexts.

At the same time, the digital market already contains many productivity tools and ADHD-friendly applications. Some tools support task management, some focus on time visualization, some provide timers or focus environments, and others use gamification or reminders to encourage action. However, the existence of these tools does not mean that the problem has been solved. Many mainstream productivity tools are not designed specifically for ADHD users, even when they can be used in ADHD-friendly ways. They often assume that users can plan clearly, maintain routines, respond consistently to reminders, and tolerate complex setup processes. For users with ADHD, these assumptions can create additional friction.

Specialized ADHD-friendly tools also show limitations. While they often address particular symptoms such as time blindness, distractibility, or task organization, they can be fragmented, repetitive, or overly similar in function. User responses to these tools are also mixed. Some users find them helpful, while others abandon them because they feel too rigid, too effortful to maintain, emotionally pressuring, or insufficiently adapted to changing daily states. This suggests a gap between the availability of ADHD-friendly productivity tools and their ability to address the lived complexity of ADHD-related work and study difficulties.

This thesis begins from that gap. Rather than assuming a single problem in advance, the project investigates what kinds of barriers adults with ADHD and focus difficulties actually experience in daily productivity, how existing tools fail to meet those needs, and where a new digital intervention could offer more targeted support. Through literature review, survey research, competitive analysis, design synthesis, and iterative prototyping, the project develops *Poco*: a mobile-first productivity prototype designed to respond to ADHD-related work and study challenges in a more supportive and user-centered way.

1.1 Problem Context

ADHD is commonly described through symptoms such as inattention, hyperactivity, and impulsivity, but its everyday impact is broader than these diagnostic categories suggest [1]. For adults with ADHD, difficulties often appear in work and study contexts where people are expected to plan, prioritize, remember obligations, regulate attention, and complete tasks over time. Barkley frames ADHD as a disorder of self-regulation, especially the ability to organize behavior toward future goals [2, 3]. Brown similarly emphasizes executive function impairments such as activation, focus, effort, emotion, memory, and action, all of which are directly relevant to academic and professional productivity [4].

These mechanisms help explain why ADHD-related productivity problems are not simply a matter of laziness or poor motivation. A person may understand that a task is important but still struggle to form a clear action path, hold multiple steps in working memory, or move from intention to action. Ramsay describes adult ADHD coping difficulties as involving both cognitive and behavioral barriers, where planning, time perception, and task follow-through become recurring challenges [5]. Emotional factors further complicate this process. Shaw et al. argue that emotional dysregulation is a significant part of ADHD, affecting frustration tolerance and reactions to setbacks [6]. In productivity contexts, this means that missed tasks, criticism, unfinished work, or perceived failure can trigger guilt, avoidance, or withdrawal.

Existing productivity tools are not always well equipped to handle this complexity. Mainstream tools such as task managers, calendars, checklist apps, and project management platforms tend to prioritize structure, planning, and output. These tools can be useful, but they may also require exactly the executive functions that ADHD users find difficult: setting up systems, prioritizing tasks, maintaining consistency, and recovering after disruption. Gould et al. show that digital clutter and complex tool environments can create additional burdens for users with ADHD rather than simply supporting them [7]. In this sense, the tool itself may become another source of cognitive load.

ADHD-friendly tools attempt to address some of these issues, but many focus on narrow functions. A timer may support focus but not help a user understand what to start. A checklist may store tasks but not reduce the emotional burden of returning to them. A gamified tool may motivate some users but pressure others. A reminder system may help one person but overwhelm another. Sonne et al. argue that assistive technology for ADHD needs to consider how feedback and judgment are experienced by users, rather than assuming that reminders or automated evaluation are always supportive [8]. Therefore, the challenge is not simply to add more productivity features, but to understand which barriers matter most to users and how design can respond to them without increasing cognitive or emotional load.

The formative survey conducted in this project supports this framing. Among 69 participants who reported ADHD, suspected ADHD, or frequent focus and organization difficulties, most had already used productivity or mental wellness tools. However, participants still reported that existing tools were often too rigid, difficult to maintain, guilt-inducing, and demanding to set up. These findings suggest that a new design should not simply copy existing task-management patterns. It should instead identify specific unmet needs and translate them into more adaptive, supportive, and non-judgmental interactions.

1.2 Aim

The aim of this thesis is to investigate the work and study-related productivity challenges experienced by adults with ADHD and focus difficulties, analyze the limitations of existing productivity tools, and develop a user-centered digital prototype that responds to identified needs.

The project does not begin from the assumption that one single feature can solve ADHD-related productivity difficulties. Instead, it uses research findings to define a focused design scope. *Poco* is developed as a prototype that explores how digital tools can better support users through task organization, task breakdown, energy-aware planning, emotional safety, and gentle focus support.

1.3 Research Questions

The thesis is guided by the following research questions:

1. What work and study-related productivity challenges are experienced by adults with ADHD or frequent focus and organization difficulties?
2. What limitations do users encounter in existing productivity, habit-tracking, and ADHD-friendly tools?
3. How can user research findings be translated into design requirements for a more targeted ADHD-friendly productivity tool?
4. How can *Poco* be designed as an interactive prototype to support the identified needs in a user-centered and non-judgmental way?
5. How can the *Poco* prototype be evaluated in terms of usability, perceived usefulness, cognitive load, and emotional support?

1.4 Contribution

This thesis makes three main contributions.

First, it provides an empirical synthesis of ADHD-related work and study difficulties based on literature review and survey data from 69 participants. The findings highlight a range of barriers, including communication paralysis, hyperfocus, activation paralysis, emotional dysregulation, rejection sensitivity, working memory gaps, and sensory overload.

Second, it analyzes the gap between existing productivity tools and the needs of ADHD users. The thesis shows that while many tools are available, users still experience problems with rigidity, setup effort, loss of engagement, guilt-inducing feedback, and notification burden.

Third, it presents *Poco*, a mobile-first interactive prototype that translates these findings into a targeted design response. *Poco* explores features such as Mind Drop, task breakdown, energy-aware planning, mood/energy/focus check-ins, gentle reminders, and optional focus companionship. These features are not framed as a universal solution to ADHD, but as a design exploration of how productivity tools might better respond to users' cognitive and emotional realities.

1.5 Thesis Structure

Chapter 2 reviews related work on ADHD, executive function, emotional dysregulation, productivity tools, ADHD-friendly applications, and user-centered design. Chapter 3 describes the research and design methodology, including literature review, survey design, data analysis, design synthesis, prototyping, and prototype evaluation. Chapter 4 presents the survey findings and derives design requirements. Chapter 5 explains the design process, function scope, information architecture, and main flows. Chapter 6 describes the *Poco* prototype and implementation. Chapter 7 presents the prototype evaluation and user testing findings. Chapter 8 discusses design implications, limitations, and future work. Chapter 9 concludes the thesis.

2

Background and Related Work

This chapter situates the thesis within literature on ADHD, executive function, emotional dysregulation, productivity tools, digital clutter, and design research. The purpose is not to provide a clinical account of ADHD. Instead, the chapter examines how ADHD-related difficulties appear in everyday work and study contexts, and how these difficulties create requirements for more targeted digital support.

2.1 ADHD in Work and Study Contexts

ADHD is commonly described as a neurodevelopmental condition characterized by persistent patterns of inattention, hyperactivity, and impulsivity that interfere with functioning or development [1]. While this diagnostic framing is important, the focus of this thesis is not clinical diagnosis. Instead, the thesis examines how ADHD-related difficulties appear in everyday work and study contexts, where people are expected to plan tasks, manage time, respond to communication, maintain focus, regulate emotion, and recover from interruptions.

For adults with ADHD or frequent focus and organization difficulties, productivity problems are therefore not limited to being distracted or forgetting deadlines. They can involve a broader mismatch between personal cognitive patterns and the structures assumed by work, school, and digital tools. Productivity systems often expect users to define goals clearly, break them into steps, estimate time, prioritize tasks, and maintain routines over time. These expectations can become difficult when attention, motivation, memory, and emotional regulation fluctuate from day to day.

2.2 Executive Function and Productivity Barriers

A useful way to understand ADHD-related productivity difficulties is through executive function. Barkley frames ADHD as closely connected to self-regulation and goal-directed behavior [2, 3]. From this perspective, the problem is not simply that a person does not know what to do. Rather, difficulty can emerge in the gap between intention and action: remembering the task, holding the goal in mind, sequencing steps, resisting distraction, estimating effort, and acting at the right moment.

Brown similarly describes adult ADHD through impairments in activation, focus, effort, emotion, memory, and action [4]. These dimensions are especially relevant to productivity tools because most tools assume that once a task has been written down, the user can act on it. However, for many ADHD users, recording a task is only the first part of the problem. The task may still feel too large, too vague, too emotionally loaded, or too difficult to begin. This helps explain why a simple checklist may be insufficient even when the user is highly motivated.

2.3 Attention Regulation: Distraction, Hyperfocus, and Switching

ADHD is often simplified as a problem of insufficient attention, but a more useful framing for design is attention regulation. Users may experience distractibility, where attention is easily pulled away by external or internal stimuli. Research on distractibility in ADHD shows that attention control can remain challenging across both children and adults [9]. In work and study contexts, this can make it difficult to sustain effort through tasks that are repetitive, ambiguous, delayed in reward, or emotionally uncomfortable.

At the same time, ADHD can also involve difficulty disengaging from an activity once attention has locked onto it. This is often described in everyday language as hyperfocus. For productivity design, this means that support should not only help users start tasks, but also help them transition between states. A reminder may be technically visible, but still ineffective if the user cannot shift attention away from the current activity. This suggests that ADHD-friendly support needs to consider both sides of attention regulation: entering focus and leaving focus gently.

2.4 Emotional Dysregulation, Shame, and Self-Efficacy

Productivity difficulties are not only cognitive. Emotional dysregulation is also an important part of ADHD experience [6]. In work and study settings, missed tasks, delayed replies, unfinished routines, and repeated failures to follow a plan can become emotionally charged. The user may not simply forget a task; they may avoid returning to it because it has become associated with guilt, disappointment, or fear of judgment.

This matters because many productivity systems communicate failure very visibly. Overdue labels, broken streaks, red warning states, and repeated notifications may be intended to motivate the user, but they can also increase pressure. Sonne et al. show that assistive technology for ADHD involves questions of judgment and emotional experience, not only functionality [8]. This suggests that non-judgmental interaction is not merely a tone-of-voice preference. It is a design requirement connected to emotional accessibility.

2.5 Existing Productivity Tools and ADHD-Friendly Tools

The current digital tool landscape includes mainstream productivity tools such as task managers, calendars, checklist apps, note-taking systems, kanban boards, focus timers, and habit trackers. Many of these tools can be useful for externalizing tasks and organizing information. However, they are often designed for general productivity rather than specifically for ADHD-related barriers. As a result, they may support users who already have stable planning habits, but become difficult for users who struggle with setup, prioritization, task breakdown, and long-term maintenance.

There are also tools that are marketed as ADHD-friendly or neurodiversity-friendly, including visual planners, focus applications, time-awareness tools, and structured task systems. These tools address important parts of the problem space. For example, visual planning can support users who experience time blindness or difficulty perceiving the passage of time [10]. However, the market remains fragmented. A user may need one tool for tasks, another for focus, another for mood, and another for reminders. This fragmentation can create additional work, especially when the user already struggles with organization.

2.6 Digital Clutter, Setup Friction, and Tool Abandonment

Digital tools can become burdensome when they create digital clutter. Gould et al. show that digital clutter can have particular consequences for users with ADHD, because accumulated files, notifications, tabs, messages, and unfinished digital traces can increase cognitive load [7]. This is relevant to productivity tools because a system intended to organize life may itself become another space that needs organizing.

Setup friction is another important limitation. Many tools require users to define projects, categories, tags, priorities, deadlines, views, templates, or automation rules before they can receive meaningful support. These features can be powerful, but they assume the user has enough energy and clarity to configure the system. For ADHD users, this can create a paradox: the tool is most needed when the user is overwhelmed, but the tool may require the kind of organization that the user is currently lacking. This helps explain why tool abandonment is not necessarily a sign of low motivation. It may indicate that the tool's interaction model does not match the user's moment-to-moment needs.

2.7 User-Centered Design for ADHD-Friendly Support

Because ADHD-related productivity barriers are contextual, fluctuating, and emotionally charged, this thesis adopts a user-centered design orientation. Human-centered design emphasizes understanding users, tasks, and contexts of use throughout the design process [11]. This is especially important for ADHD-friendly tools because design decisions cannot be derived only from generic productivity ideals such as efficiency, completion, or optimization. They must also account for cognitive load, emotional safety, fluctuating energy, and the user's existing coping strategies.

The project also relates to research through design. Frayling distinguishes between different forms of research in art and design [12], while Zimmerman et al. describe research through design as a way of producing knowledge through the making and reflection of design artifacts [13]. In this thesis, the prototype is not only a product concept. It is also a design argument: a way to explore how ADHD-related work and study barriers might be supported through task breakdown, energy-aware planning, gentle reminders, mood check-ins, and optional focus companionship.

2.8 Design Implications for the Project

The literature suggests that ADHD-friendly productivity support should move beyond task storage. It should help users externalize messy thoughts, reduce setup effort, make overwhelming tasks more actionable, support attention transitions, and avoid feedback that increases guilt or shame. It should also acknowledge that productivity is affected by emotional state and daily energy, not only by planning skill.

These implications establish the theoretical foundation for the empirical and design work that follows. Chapter 4 examines survey findings from 69 participants and identifies the most prominent pain points and desired features. Chapter 5 then explains how these findings were translated into the project's function scope, information architecture, and main interaction flows.

3

Methodology

This chapter describes the research and design methods used in the project. The project was organized around five connected phases: literature review, survey research, design synthesis, prototype development, and prototype evaluation. These phases were not strictly linear. Literature review helped frame the problem space and shape the survey. Survey findings informed the design requirements. Design synthesis translated these requirements into function scope, information architecture, and interaction flows. Prototype development then made the proposed support model concrete enough to be reviewed and tested.

3.1 Research and Design Approach

This thesis uses a user-centered and design-oriented research approach. The project does not attempt to diagnose ADHD, evaluate clinical treatment, or make medical claims. Instead, it investigates how people with ADHD, suspected ADHD, or frequent focus and organization difficulties experience barriers in work and study contexts, and how these barriers can inform the design of a more targeted digital support tool.

The project combines user-centered design with research through design. User-centered design shaped the emphasis on understanding users' tasks, contexts, and needs [11]. Research through design shaped the role of the prototype as a way to explore and communicate a design possibility [13]. The prototype is therefore treated not only as an implementation output, but also as a materialized argument about ADHD-friendly productivity support.

3.2 Literature Review

The literature review focused on three main areas. First, ADHD and executive function literature was reviewed to understand barriers related to planning, activation, attention regulation, working memory, emotional regulation, and goal-directed behavior. Second, existing productivity and ADHD-friendly tools were reviewed to understand current market patterns, repeated feature types, and possible gaps. Third, user-centered design and research through design literature were reviewed to frame the project as a design research process rather than a purely technical implementation.

The literature review had two roles in the project. It provided theoretical grounding for why ADHD-related productivity difficulties should be understood as cognitive, emotional, and contextual rather than simply motivational. It also helped define what the project needed to investigate empirically, especially around existing tool use, tool frustration, and desired support features.

3.3 Survey Design

The survey was designed as an early-stage exploratory study to understand how people experience productivity-related difficulties in everyday work and study contexts. It aimed to collect data on participants' ADHD or focus issue background, the types of barriers they encountered, their use of existing productivity or mental wellness tools, their frustrations with these tools, and the kinds of support features they considered most valuable.

The questionnaire included demographic questions, ADHD or focus issue background, frequency-based screening questions, recent impact on work or study efficiency, seven 1–5 problem severity ratings, existing tool usage, frustrations with current tools, dream feature preferences, and an optional follow-up contact question. The survey intentionally used a broad inclusion criterion. Participants did not need to have a formal ADHD diagnosis. They could participate if they had an official diagnosis, suspected ADHD, or frequent focus and organization struggles. This matched the aim of the project: to understand functional difficulties in work and study contexts, rather than to define a clinical ADHD sample.

3.4 Participants

The survey received 69 valid responses. Among these participants, 32 reported being officially diagnosed by a professional, 25 reported being self-diagnosed or suspected, and 12 reported no diagnosis but frequent focus and organization struggles. All 69 responses were included in the main analysis.

This decision reflects the user-centered nature of the project. Since the aim was to identify design needs and everyday barriers, the analysis focused on shared functional experiences rather than diagnostic status alone. However, this also creates a limitation. The findings should not be interpreted as clinical evidence about ADHD. They should be understood as early-stage design research with participants who reported ADHD-related or focus-related productivity barriers.

3.5 Data Analysis

Closed and scaled survey questions were analyzed descriptively. For the seven problem severity questions, the analysis reports mean scores on a 1–5 scale and Top-2 Box percentages. Top-2 Box refers to the proportion of participants selecting 4 or 5. This was used because it shows not only the average severity of a problem, but also how many participants experienced the problem as strongly present.

Multi-select questions were analyzed by counting how many respondents selected each option and dividing this number by the valid responses for that question. Existing tool usage was calculated from 67 valid responses, while tool frustrations and dream feature preferences were calculated from 68 valid responses. Optional open-ended responses were used as qualitative context rather than treated as a separate fully coded dataset. Recurring themes were identified informally, drawing on the principles of thematic analysis [14], and used to help interpret the numerical findings, especially around emotional burden, tool abandonment, AI tone, and concerns about reminders or accountability.

Subgroup comparisons were also used as a robustness check. The analysis compared patterns across gender groups and ADHD/focus status groups, including participants with an official diagnosis, participants who were self-diagnosed or suspected ADHD, and participants without a diagnosis but with frequent focus and organization struggles. These comparisons were used to check whether the main findings were driven by one specific demographic or diagnostic group. While some item-level differences were observed, the overall pattern of key pain points and design priorities remained consistent enough to support using the full sample as the main analysis population.

3.6 Design Synthesis

After the survey analysis, the project moved from understanding user pain points to exploring possible design responses. The first step was to identify the most strongly reported problem areas, including communication paralysis, hyperfocus and difficulty switching, activation paralysis, emotional dysregulation, rejection sensitivity, working memory gaps, and sensory overload. The second step was to compare these problems with frustrations about existing tools, including rigidity, loss of interest, guilt or stress after missing tasks, setup effort, and notification overload.

Based on these findings, brainstorming was used to generate possible ways of addressing the identified pain points. The ideas were not treated as final features immediately. Instead, they were grouped, compared, and combined according to how well they responded to the strongest user needs. For example, messy thoughts and difficulty starting tasks suggested the need for a low-friction input and task breakdown mechanism. Frustration with rigid tools suggested support for energy-aware planning. Reports of guilt and stress suggested that reminders and feedback should avoid punitive language, broken streaks, or harsh overdue states.

Through this synthesis, several solution directions were developed into functional areas for the prototype. These included messy thought capture, task breakdown, daily planning based on energy, mood or state check-ins, gentle reminders, and optional focus support. The design synthesis therefore acted as a bridge between user research and prototype development.

3.7 Prototype Development

The prototype was developed as a mobile-first interactive web prototype. The aim of the prototype was not to build a production-ready application, but to make the proposed interaction model concrete enough for reflection, communication, and user testing. The prototype includes screens for home overview, task management, messy thought capture, planning, task breakdown, mood check-in, focus support, and personal settings.

The prototype uses local browser state to store tasks, subtasks, mood history, messy thoughts, and focus sessions during use. This implementation choice kept the prototype lightweight and reduced unnecessary technical complexity. It also avoided introducing account systems, backend infrastructure, or privacy-sensitive storage before the core interaction model had been evaluated.

3.8 Evaluation Method

The evaluation was designed as a formative user test using the interactive prototype. The purpose was not to prove clinical effectiveness, but to examine whether the proposed design direction was understandable, usable, and perceived as supportive by target users.

A total of 15 participants ($N = 15$) were recruited through social media and snowball sampling. No clinical ADHD diagnosis was required; inclusion criteria emphasised self-reported challenges with attention, task initiation, and daily organisation. All participants completed both the structured observation session and the post-session questionnaire in a single sitting, lasting approximately 15–25 minutes per participant.

Participants were asked to complete three representative task-based scenarios using the prototype: a daily mood check-in, a breakdown of a large unstructured assignment, and a timed focus session. These tasks were selected to evaluate state check-in, task breakdown, and focus support as central interaction flows rather than to claim that the prototype consists only of three features. During the test, observations were made on task success, hesitation, confusion, navigation problems, and moments where the interface appeared to create or reduce friction.

After the task-based test, participants were asked reflective questions about their experience, covering ease of use, perceived supportiveness, and whether the prototype matched their real work or study needs. Self-report measures included nine 5-point Likert items and raw NASA-TLX subscales [15] to complement qualitative feedback. The questionnaire items were also partially informed by the usability evaluation principles described in the System Usability Scale (SUS) [16].

3.9 Ethical Considerations and Limitations

Because the project concerns ADHD-related experiences and emotional difficulties, the research process required care in how questions were framed and how findings were interpreted. The survey did not ask participants to prove a diagnosis, and the thesis does not treat self-reported experiences as clinical evidence. Optional contact information was separated from the main analysis and was not required for participation.

The evaluation had limitations. The sample of 15 participants, while appropriate for an exploratory prototype evaluation, limits the statistical power of quantitative analyses. The evaluation was conducted in a structured laboratory setting with predefined tasks, which does not capture how *Poco* would be used in naturalistic daily contexts. The study captures first-use impressions; long-term engagement outcomes cannot be measured. Task success ratings were assigned by the researcher who also provided hints during the tasks, which may introduce observer bias.

4 Survey Findings and Design Requirements

This chapter presents the main findings from the survey and translates them into design requirements for the project. The analysis is based on 69 valid survey responses. Earlier exploratory notes and week-by-week project materials were used as background for understanding the problem space, but they are not treated as survey findings in this chapter. The empirical findings reported here come from the survey data analysis.

The results should be understood as early-stage user research rather than clinical evidence. The value of the survey lies in identifying which productivity-related difficulties were most salient for the target audience, how participants experienced existing tools, and what kinds of support they considered most valuable.

4.1 Participant Profile

The survey received 69 valid responses. The sample included participants across different age groups, gender identities, and ADHD diagnosis backgrounds. The largest age groups were 18–24 and 25–34, which together represented most of the sample. In terms of gender, 34 participants identified as female, 28 as male, and 7 as non-binary or third gender.

Regarding ADHD diagnosis background, 32 participants reported being officially diagnosed by a professional, 25 reported being self-diagnosed or suspected, and 12 reported no diagnosis but frequent focus and organization struggles. Although not all participants had a formal diagnosis, all participants reported either ADHD, suspected ADHD, or frequent focus and organization difficulties. This makes the sample appropriate for exploratory user-centered design, while limiting the strength of clinical generalization.

4.2 Subgroup Checks

To check whether the main findings were driven by one specific participant group, subgroup comparisons were conducted across age, gender, and ADHD diagnosis background. ADHD diagnosis background refers to whether participants reported

Category	Response	Count
Age	Under 18	3
Age	18–24	26
Age	25–34	24
Age	35–44	12
Age	45+	4
Gender	Female	34
Gender	Male	28
Gender	Non-binary / Third gender	7
ADHD diagnosis background	Officially diagnosed by a professional	32
ADHD diagnosis background	Self-diagnosed / suspected	25
ADHD diagnosis background	No diagnosis, but frequent focus and organization struggles	12

Table 4.1: Participant profile for the 69 survey responses.

an official diagnosis, self-diagnosed or suspected ADHD, or no diagnosis but frequent focus and organization struggles. Since the survey items used ordinal 1–5 scales, Kruskal–Wallis tests were used to compare group differences. The subgroup check focused primarily on the seven core pain-point items used in this chapter: activation paralysis, hyperfocus and difficulty switching, working memory gaps, emotional dysregulation, rejection sensitivity, sensory overload, and communication paralysis.

For the overall seven-item pain-point index, no statistically significant differences were found across age groups, gender groups, or ADHD diagnosis background groups. The age group comparison produced $p = .6817$, the gender comparison produced $p = .5146$, and the ADHD diagnosis background comparison produced $p = .2238$. This indicates that the overall pattern of reported difficulties was broadly similar across the main participant groups.

A more detailed item-level analysis was also conducted. Across age groups, none of the seven pain-point items showed a statistically significant difference. Across gender groups, communication paralysis showed a significant item-level difference ($p = .0108$), while the other six items were not significant. Across ADHD diagnosis background groups, several item-level differences appeared, especially activation paralysis ($p = .0053$), hyperfocus/difficulty switching ($p = .0167$), sensory overload ($p = .0174$), and communication paralysis ($p = .0320$). Because these item-level tests were exploratory and not corrected for multiple comparisons, they are treated as descriptive signals rather than as standalone explanatory findings.

These item-level differences suggest that some difficulties may be experienced differently depending on gender or ADHD diagnosis background. However, they did not change the overall design interpretation. Communication paralysis, activation paralysis, hyperfocus/difficulty switching, and emotional dysregulation remained

Grouping variable	Groups compared	Mean range	p-value	Significant
Age	Under 18, 18–24, 25–34, 35–44, 45+	3.81–4.11	.6817	No
Gender	Female, Male, Non-binary / Third gender	3.78–3.94	.5146	No
ADHD diagnosis background	Official diagnosis, self-diagnosed/suspected, no diagnosis but frequent struggles	3.71–3.94	.2238	No

Table 4.2: Kruskal–Wallis subgroup checks for the overall seven-item pain-point index.

Pain-point item	Age p-value	Gender p-value	Diagnosis p-value
Activation paralysis	.3689	.0556	.0053
Hyperfocus / difficulty switching	.2460	.9220	.0167
Working memory gaps	.7463	.5080	.8768
Emotional dysregulation	.6194	.6898	.4801
Rejection sensitivity	.5360	.2612	.9011
Sensory overload	.4552	.2147	.0174
Communication paralysis	.7869	.0108	.0320

Table 4.3: Item-level subgroup checks for the seven core pain-point items.

important across the sample. Therefore, the thesis uses all 69 responses as the main analysis population, while acknowledging subgroup variation as a limitation and a potential direction for future research.

4.3 Current Productivity Tool Usage

Most participants had already tried digital tools for productivity, habits, focus, or mental wellness. Among the 67 participants who answered the app-type question, 55 had tried task managers and checklists, 42 had tried focus or soundscape apps, 31 had tried emotion or mood tracking apps, 26 had tried tools that break down big tasks, and 7 had tried relationship or social reminder apps.

This finding is important because it shows that participants were not simply lacking access to tools. Most had already tried task managers or related support apps. Therefore, the design opportunity is not to create another generic to-do list, but to understand why existing tools do not fully address their needs.

App type	Count	Percentage
Task managers and checklists	55 / 67	82.1%
Focus and soundscape apps	42 / 67	62.7%
Emotion and mood tracking apps	31 / 67	46.3%
Tools that break down big tasks	26 / 67	38.8%
Relationship and social reminders	7 / 67	10.4%

Table 4.4: Types of apps previously tried by participants.

4.4 Problem Severity Ranking

Participants rated seven productivity-related problems on a 1–5 scale. The analysis reports both mean scores and Top-2 Box percentages. Top-2 Box refers to the proportion of participants who selected 4 or 5.

Rank	Problem	Mean	Top-2 Box
1	Communication paralysis	4.33	85.5%
2	Hyperfocus / difficulty switching	4.00	69.6%
3	Activation paralysis	3.99	72.5%
4	Emotional dysregulation	3.96	78.3%
5	Rejection sensitivity	3.70	62.3%
6	Working memory gaps	3.67	63.8%
7	Sensory overload	3.57	58.0%

Table 4.5: Problem severity ranking based on all 69 responses.

The highest-rated problem was communication paralysis: forgetting or avoiding replies to texts or emails for days or weeks, even when the participant cares about the person, because replying feels overwhelming. This finding complicates a narrow understanding of productivity as task completion alone. For participants, productivity breakdown also affected relationships, obligations, and social maintenance.

Hyperfocus and activation paralysis were also highly rated. Together, they show that participants experienced difficulty in both directions: they may be unable to start important tasks, but also unable to stop or switch away from unproductive or highly stimulating activities. Emotional dysregulation also had a high Top-2 Box percentage, suggesting that emotional support cannot be treated as secondary. A tool that organizes tasks but increases shame, guilt, or pressure would fail to address a central part of the problem.

4.5 Frustrations with Existing Tools

Participants selected their biggest frustrations with existing productivity apps. Among 68 valid responses, the most common frustration was that tools were too rigid and did not adapt to daily energy levels. The second most common frustration was losing interest after one or two weeks. Nearly half of the respondents also selected feeling guilty or stressed when missing tasks or breaking streaks.

Frustration	Percentage
Too rigid; does not adapt to daily energy levels	54.4%
Lose interest after a week or two	50.0%
Feel guilty or stressed when missing tasks or breaking streaks	44.1%
Require too much effort and energy to set up	38.2%
Too many annoying or overwhelming notifications	26.5%

Table 4.6: Main frustrations with existing productivity apps, based on 68 respondents.

These findings explain why existing tools may fail even when users are motivated. A rigid tool assumes that each day has similar energy, attention, and capacity. A setup-heavy tool assumes that users can invest effort before receiving support. A streak-based or punishment-like system may create guilt when the user falls behind. For ADHD-related productivity support, these frustrations suggest that flexibility, low setup effort, and non-judgmental interaction are central design concerns.

4.6 Dream Feature Priorities

Participants were asked to select up to two dream features they would find most valuable. The strongest feature priority was a brain dump area that could organize messy thoughts into a step-by-step plan. This was selected by 58.8% of respondents. Other highly selected features included an AI or virtual companion for company and accountability, gentle non-judgmental reminders, and automatic adjustment of a to-do list based on high- or low-energy days.

Dream feature	Percentage
Brain dump area that organizes messy thoughts into a step-by-step plan	58.8%
AI or virtual companion for company and accountability	35.3%
Gentle non-judgmental reminders	33.8%
Adjust to-do list based on high- or low-energy day	32.4%
Automatic distraction blocker	13.2%

Table 4.7: Dream feature priorities, based on 68 respondents.

The brain dump result provides the strongest support for a low-friction input and task breakdown mechanism. Gentle reminders and energy-based task adjustment directly respond to the frustrations reported in the previous section. The virtual companion result suggests interest in companionship and accountability, but this direction requires caution because companion features may introduce issues around tone, dependency, distraction, or emotional triggers. Automatic distraction blocking received the lowest support, so it is better treated as a lower-priority or future feature rather than a core part of the first prototype.

4.7 Derived Design Requirements

Based on the findings above, the project derived six design requirements. These requirements do not represent final interface solutions. Instead, they summarize what the design should support before specific features and flows are developed.

1. **Support messy input.** Users need a low-friction way to externalize thoughts before those thoughts are fully organized.
2. **Convert overwhelming tasks into small actionable steps.** The tool should help users move from vague or intimidating tasks toward concrete first actions.
3. **Adapt planning to daily energy.** Planning should account for low-energy and high-energy days rather than assuming stable capacity.
4. **Avoid shame, guilt, and punitive feedback.** Missed tasks should not be framed as personal failure. Feedback should remain gentle and non-judgmental.
5. **Provide optional companionship and accountability.** A sense of presence may support focus, but it should remain optional, calm, and non-intrusive.
6. **Reduce setup effort and notification burden.** The tool should rely on simple defaults and restrained reminders rather than complex configuration.

4.8 Summary

The survey findings show that participants had already tried many productivity and support tools, but continued to experience significant barriers in work, study, and communication contexts. The strongest problems were not limited to planning or task storage. Communication paralysis, difficulty switching, activation paralysis, and emotional dysregulation all emerged as major pain points.

The findings suggest that a targeted ADHD-friendly productivity tool should not simply add more task management features. It should reduce friction before action, support messy thought capture, adapt to fluctuating energy, and avoid feedback that increases guilt or shame. These design requirements provide the bridge from user research to the design process described in the next chapter.

5

Design Process

This chapter explains how the survey findings were translated into design directions, feature scope, information architecture, and main interaction flows. While Chapter 4 presented what participants reported, this chapter focuses on how those findings were interpreted and developed into a coherent design proposal.

The central design challenge was to avoid creating another generic productivity tool. The research showed that participants had already tried many task managers, focus apps, and mood tracking tools. Therefore, the design process focused on identifying what was missing from existing tools: support for messy input, task breakdown, daily energy fluctuation, non-judgmental feedback, and optional companionship.

5.1 From Pain Points to Design Opportunities

The design process began by reviewing the strongest pain points from the survey: communication paralysis, hyperfocus and difficulty switching, activation paralysis, emotional dysregulation, rejection sensitivity, working memory gaps, and sensory overload. Although communication paralysis was the highest-rated problem, it was not selected as the main focus of the first prototype because it belongs more strongly to a social communication problem space. Since the project aimed to develop a work and study productivity support tool, communication paralysis was documented as an important finding and future direction rather than a core MVP focus.

The remaining pain points were then compared with participants' frustrations with existing tools, especially rigidity, loss of interest, guilt from missed tasks, setup effort, and notification overload. Rather than translating each pain point directly into one feature, the team first used brainstorming to explore different ways of responding to these problems. Some ideas addressed task organization, some addressed emotional support, some addressed focus, and some addressed reminders. These ideas were grouped and compared according to how strongly they responded to the survey findings, how feasible they were for a prototype, and whether they risked adding more cognitive or emotional burden.

5.2 Function Scope

The function scope was developed by prioritizing solution directions according to user need, design relevance, and prototype feasibility. The strongest survey-supported direction was a brain dump area that could organize messy thoughts into a step-by-step plan. This became the highest-priority feature area because it responded directly to messy input, activation paralysis, and working memory load.

Energy-based planning and gentle reminders were treated as high-priority supporting features. They responded to participants' frustration that existing tools were too rigid, stressful, or guilt-inducing. Optional focus companionship was treated as a secondary feature because participants showed interest in accountability and company, but this direction required careful handling to avoid dependency, distraction, or emotional pressure. Communication paralysis was kept outside the core MVP scope because it would require a separate social communication design direction. Automatic distraction blocking was treated as future work because it received lower support and could become intrusive or technically over-scoped.

Priority	Feature area	Rationale
P0	Brain dump / task breakdown	Strongest dream feature; responds to messy input, activation paralysis, and working memory load.
P1	Energy-based planning	Responds to frustration with rigid tools and daily energy mismatch.
P1	Gentle reminders / anti-guilt feedback	Responds to guilt, stress, and broken-streak frustration.
P2	Optional focus companion	Responds to desire for company and accountability, but requires caution.
P3 / Future	Communication support	Highest-rated pain point, but outside the core work and study productivity scope.
P3 / Future	Distraction blocker	Lower survey support and higher risk of being intrusive.

Table 5.1: Function scope derived from survey findings.

5.3 Design Principles

Six design principles guided the design process.

Small first step. The design should help users identify an action that feels possible, rather than only showing a large task.

No shame. Copywriting, reminders, task states, and progress indicators should not frame missed tasks as personal failure.

Low setup. The tool should provide value before asking users to configure a complex system.

Energy-aware. A low-energy day should be treated as valid input, not as a failed version of a high-energy day.

Calm interface. The interface should use restrained visual hierarchy and feedback to reduce cognitive burden.

Optional support. Reminders, companionship, and accountability should help users when needed, but should not become forced intervention.

5.4 Information Architecture

The information architecture was organized around three functional areas.

The first area is the task and planning hub. It contains messy thought capture, task lists, planning, and task breakdown. This area responds to activation paralysis, working memory gaps, and the need to turn vague thoughts into manageable actions.

The second area is focus support. It contains focus preparation, focus sessions, optional companion presence, and post-focus reflection. This area responds to hyperfocus, difficulty switching, and the need for gentle accountability.

The third area is wellbeing and reflection. It contains mood, energy, and focus check-ins. This area responds to emotional dysregulation and the finding that productivity is affected by daily state, not only by planning ability.

5.5 Main Interaction Flows

Several main flows were developed from the function scope and information architecture.

5.5.1 Messy Thought Capture

The messy thought capture flow allows users to quickly externalize an unstructured thought without immediately categorizing it. This reduces the pressure to organize before writing anything down.

5.5.2 Friction Identification

The friction identification flow asks what makes a task difficult right now. The purpose is to avoid assuming that every task is difficult for the same reason. A task may feel hard because it is too vague, too large, emotionally uncomfortable, or mismatched with the user's current energy.

5.5.3 Task Breakdown

The task breakdown flow turns a messy or overwhelming task into a first step and follow-up steps. The goal is not to create a perfect plan, but to reduce the barrier between intention and action.

5.5.4 Planning

The planning flow supports choosing a small number of tasks based on the user's current energy level. This flow avoids treating a long to-do list as the default measure of productivity.

5.5.5 Mood and State Check-In

The mood and state check-in flow asks users to reflect on mood, energy, and readiness to focus. This creates a lightweight way for the system to acknowledge that work capacity changes from day to day.

5.5.6 Focus

The focus flow supports users in setting an intention, choosing a focus duration, and working with optional companion presence. The companion is designed as a gentle form of accountability rather than a performance monitor.

5.6 Iteration from Low-Fidelity to Interactive Prototype

The design process moved from low-fidelity flow exploration to an interactive prototype. In the low-fidelity stage, the focus was on clarifying the relationship between core flows: capturing messy thoughts, identifying friction, breaking down tasks, planning according to energy, checking mood, and starting focus. This stage helped test whether the overall structure made sense before investing effort in visual details or implementation.

The interactive prototype then made these flows clickable and stateful. This allowed the team to examine whether the design logic was understandable in use: whether users could move from a thought to a task, from a task to smaller steps, from current energy to a plan, and from intention to a focus session. The prototype therefore served as a bridge between design concept and evaluation.

5.7 Summary

This chapter described how the project moved from survey findings to design decisions. The process did not treat findings as a direct checklist of features. Instead, pain points and tool frustrations were interpreted through brainstorming, prioritization, and design synthesis. The resulting design direction focused on low-friction input, task breakdown, energy-aware planning, gentle feedback, optional companionship, and reduced setup effort.

These decisions form the basis of the interactive prototype described in the next chapter. While this chapter explains why the design took its current form, the following chapter describes how the prototype was implemented and how its core screens and interactions work.

6

Prototype and Implementation

6.1 Prototype Overview

This chapter describes the interactive app prototype developed from the design process presented in Chapter 5. The prototype was built to make the proposed design direction tangible enough to be reviewed, demonstrated, and tested with users. It is neither a production-ready application nor a clinical intervention; it is a working artifact that lets the support model be experienced in use, so that its design choices can be examined rather than only described.

The prototype focuses on work and study productivity support for adults with ADHD or frequent focus and organization difficulties. It allows users to capture messy thoughts, manage tasks, break down difficult tasks, plan a small daily focus list, check in with mood and energy, and start a focus session with optional companion support. These flows were selected because they respond directly to the design requirements derived from the survey findings: low-friction input, task breakdown, energy-aware planning, non-judgmental feedback, and optional accountability.

6.2 Main Pages and Navigation

The prototype is organized around five main navigation pages: Home, Task, Mood, Focus, and Me. These pages form the primary structure of the app and provide access to the main support flows.

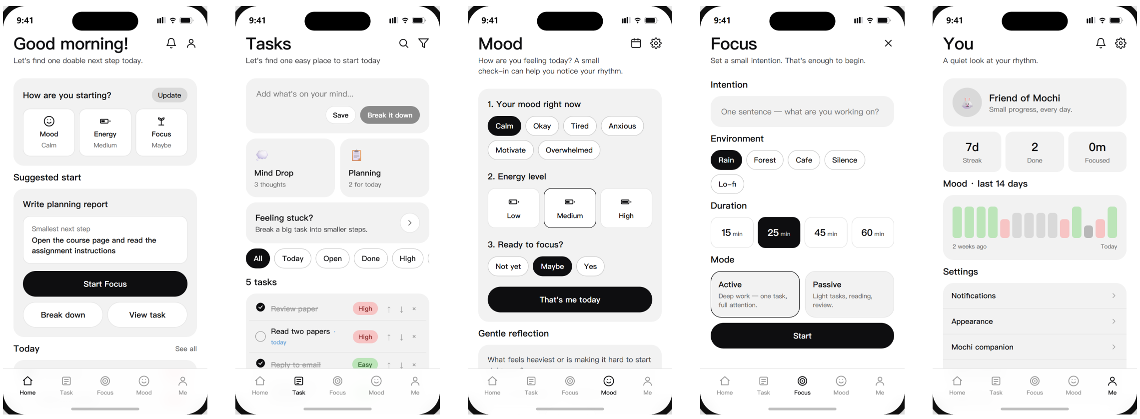
The Home page acts as the starting point. It shows the user's current mood, energy, and focus state, which are updated through the Mood page. It also provides a suggested start, a preview of today's tasks, and quick entry points into focus, task breakdown, task viewing, and reflection. The purpose of the Home page is to reduce the need for users to decide where to begin. Instead of presenting the whole system at once, it offers a small number of immediate next actions.

The Task page is the main task and planning hub. It allows users to capture what is on their mind, save thoughts into Mind Drop, break down a difficult task, open the planning flow, filter existing tasks, and view tasks that need to be completed. It also shows task states such as high-priority tasks, easy tasks, today's tasks, completed tasks, and tasks with subtasks. This page supports users who need a place to externalize, organize, and act on work or study obligations.

The Mood page records the user's current mood, energy level, and readiness to focus. This information is used to update the state summary shown on the Home page and can inform how the user interprets their daily capacity. For example, a low-energy state suggests that the day may require fewer or smaller tasks, while a higher-energy state may support a more ambitious plan. The Mood page therefore supports energy-aware planning by making the user's daily state visible.

The Focus page supports users in setting up and running a focus session. Users can set an intention, choose an environment, select a duration, choose a focus mode, and then enter a timed session. During the session, the interface displays the remaining time and includes optional companion presence. The Focus page is designed to support the transition from planning into action.

The Me page provides a personal overview. It includes simple statistics such as streak, completed tasks, and focused minutes, as well as a mood history view and settings placeholders. This page is not central to the first prototype's support flow, but it provides a location for future personalization, notification settings, companion settings, and data privacy controls.



(a) Home (b) Task (c) Mood (d) Focus (e) Me

Figure 6.1: Main pages of the interactive prototype.

6.3 Core Interaction Model

The prototype is organized around a repeated support loop: noticing the user's current state, capturing what is on their mind, reducing difficult tasks into manageable steps, choosing a small plan for the day, and entering a focus session when appropriate. This loop reflects the project's design principle that productivity support should begin before action, not only after a task has already been clearly defined.

For this reason, the prototype does not treat the task list as the only central object. Tasks remain important, but the prototype also supports the moments before a task becomes actionable: vague thoughts, emotional resistance, uncertainty about where to begin, low energy, and difficulty switching into focus. The design therefore attempts to support the transition from cognitive or emotional friction toward a concrete next action.

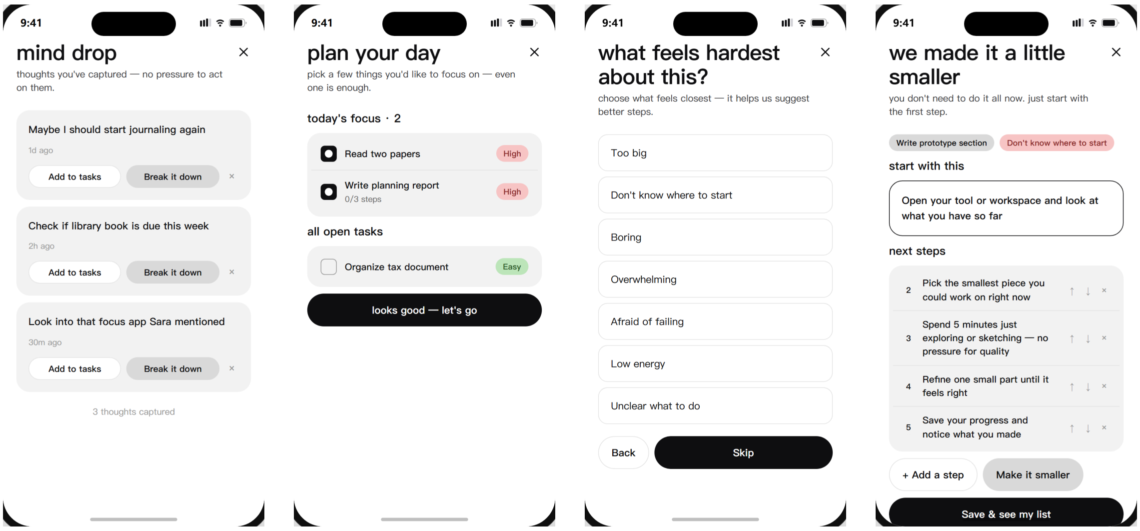
6.4 Task Page: Capture, Mind Drop, Planning, and Breakdown

The Task page contains several of the prototype's most important productivity support functions. At the top of the page, users can type what is on their mind. They can either save it as a Mind Drop item or send it directly into the Breakdown flow. This distinction is important because not every thought is ready to become a structured task. Some items may begin as vague reminders, worries, ideas, or obligations.

Mind Drop works as a low-pressure inbox for these unstructured thoughts. Items in Mind Drop can remain there until the user is ready to act on them. They can also be converted into tasks or broken down into smaller steps. This supports the design requirement of low-friction input: the user does not need to organize the thought before capturing it.

The Planning flow helps users select a small number of tasks for the current day. Instead of treating productivity as a long list of obligations, it allows users to choose a limited daily focus. This supports energy-aware planning, especially for users who may need to adjust expectations based on their current state.

The Breakdown flow supports task decomposition. The user writes a difficult task and then selects what makes it hard at that moment, such as being too big, unclear, overwhelming, boring, connected to fear of failure, or affected by low energy. The prototype then generates a set of smaller steps. The result page highlights a first step, presents follow-up steps, and allows users to edit, add, delete, reorder, or further reduce steps. The result can be saved to the task list or used as the starting point for a focus session.



(a) Mind Drop (b) Planning (c) Friction picker (d) Breakdown result

Figure 6.2: Task capture, planning, and breakdown screens.

6.5 Mood Page: State Check-In and Reflection

The Mood page supports lightweight state check-ins. It asks users to select their current mood, energy level, and readiness to focus. These three pieces of information form a simple state model that can be shown on the Home page and used to help the user interpret what kind of productivity support may be appropriate for the day.

The energy selection is especially important for the project's energy-aware design direction. A low-energy day can suggest smaller tasks, fewer commitments, or a gentler plan. A higher-energy day may support a more demanding plan. The goal is not to judge the user's state, but to make daily variation visible and usable within the planning process.

The Mood page also includes a gentle reflection area that asks what feels heavy or is making it hard to start. This reflection is not a clinical assessment. Instead, it gives the user a small opportunity to notice barriers such as too many tasks, poor sleep, distraction, unclear instructions, or feeling stuck. The page also shows recent mood history, making it possible to reflect on patterns over time.

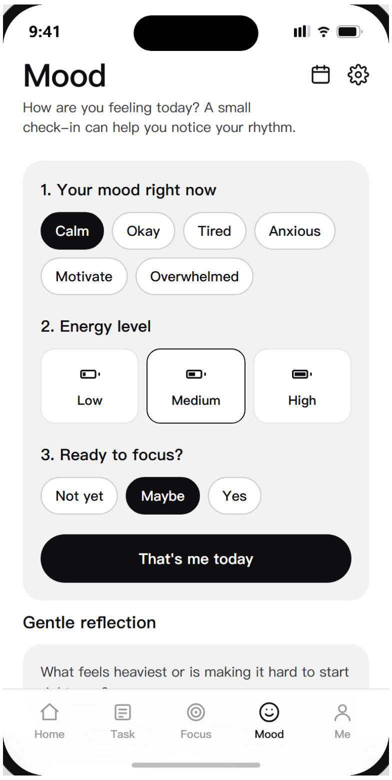


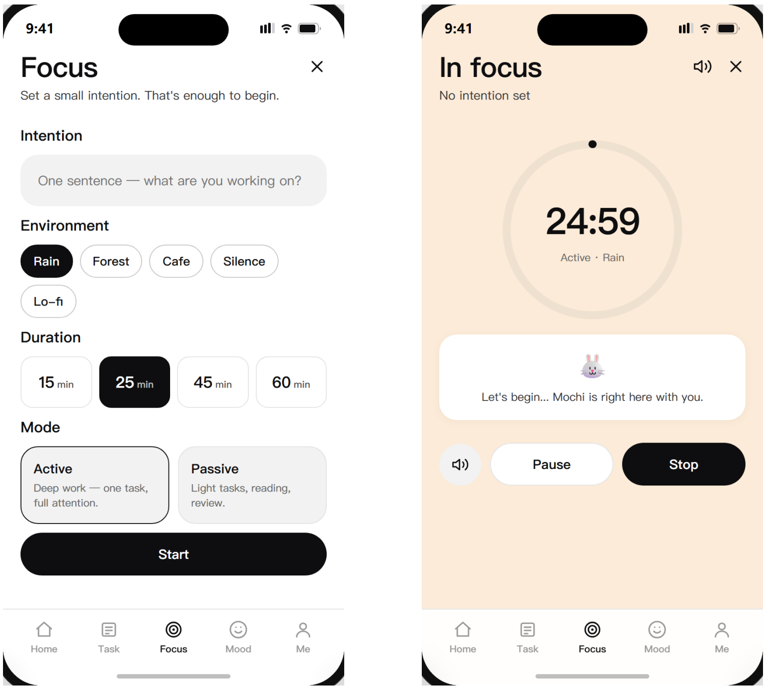
Figure 6.3: Mood check-in screen for recording mood, energy, focus readiness, and lightweight reflection.

6.6 Focus Page: Session Setup and Companion Support

The Focus page supports users in moving from planning into action. Before starting a session, users can set an intention, choose an environment, select a duration, and choose a mode. These options help users define the focus context without requiring complex setup.

During the session, the interface displays a countdown timer and an optional companion presence. The companion is designed as a gentle form of accountability rather than performance monitoring. The prototype also includes small companion events that can appear during the session. These moments are intended to make focus feel less isolating while still keeping the session calm and low-interruption.

The Focus flow ends with a summary screen that records the session duration and related session information. This supports reflection without framing early stopping as failure. Because companion features can introduce risks around distraction, dependency, tone, and emotional triggers, this support should remain optional and easy to mute or ignore in future iterations.



(a) Focus setup (b) Focus session

Figure 6.4: Focus session setup and running-state screens.

6.7 Me Page and Personal Overview

The Me page provides a simple personal overview. It includes information such as current streak, completed tasks, focused minutes, and mood history. It also includes settings placeholders for notifications, appearance, companion settings, data privacy, and app information.

In the current prototype, this page is not the main focus of the support model. However, it provides a useful location for future personalization and control. For an ADHD-friendly productivity tool, settings and personal data controls are important because reminders, companion features, and stored state information may need to be adapted to individual preferences.

6.8 Visual and Content Design

The visual design uses neutral surfaces, rounded cards, clear hierarchy, and restrained color. Color is used mainly to communicate task states, priority, energy, or progress rather than to create strong stimulation. This supports the design principle of a calm interface and helps reduce sensory and cognitive load.

The content design follows the anti-guilt principle. The prototype avoids harsh overdue states, failure language, and pressure-heavy reminders. Instead, it uses gentle and permissive language, such as encouraging the user to find one doable next step or reminding them that they do not need to complete everything at once.

This tone is important because the survey findings showed that guilt and stress from missed tasks were common frustrations with existing productivity tools.

6.9 Implementation Boundaries

The prototype uses local browser state to store tasks, subtasks, mind drops, mood history, and focus session records during use. This implementation choice kept the prototype lightweight and allowed the main interaction flows to be tested without introducing account systems, backend infrastructure, cloud synchronization, or privacy-sensitive storage.

The prototype also uses simulated AI for task breakdown rather than a live AI service. This decision reduced technical complexity and avoided privacy and reliability issues during early-stage testing. However, it also means that the prototype cannot yet evaluate the quality, safety, or personalization of real AI-generated breakdowns.

The current implementation does not include secure accounts, real notifications, long-term personalization, clinical safety mechanisms, or deployment-ready data handling. These limitations are acceptable for the current stage because the prototype is intended to evaluate the design direction and interaction model, not to function as a finished product.

6.10 Summary

This chapter described the interactive prototype developed from the project's research findings and design requirements. The prototype is structured around five main pages: Home, Task, Mood, Focus, and Me. Together, these pages support messy thought capture, task management, task breakdown, energy-aware planning, mood and focus check-ins, focus sessions, and personal overview.

The prototype explores how productivity support can begin before a task is fully defined. Instead of only storing tasks, it supports the moments when users feel stuck, unclear, low in energy, or unsure how to begin. It also demonstrates how non-judgmental language, restrained visual design, and optional companion support can be combined into a coherent ADHD-friendly productivity support experience. The next chapter describes the evaluation approach used to examine the prototype through user testing.

7

Prototype Evaluation

7.1 Evaluation Aim and Questions

This chapter presents the exploratory user evaluation of the interactive *Poco* prototype. The purpose of the evaluation was not to validate *Poco* as a finished product or clinical intervention, but to examine whether the prototype's main interaction flows were understandable, usable, and perceived as supportive by potential users.

The evaluation focused on three representative tasks selected from the prototype described in Chapter 6: completing a mood check-in, breaking down an overwhelming task, and starting a focus session. These tasks were chosen because they correspond to three central design requirements developed earlier in the thesis: supporting self-awareness and energy-aware planning, reducing task initiation friction through task breakdown, and helping users move from planning into action through focus support.

The evaluation was guided by four questions:

1. Can participants complete the selected prototype tasks with little or no assistance?
2. Which parts of the prototype create observable friction during use?
3. How do participants rate the prototype in terms of usability, clarity, learnability, emotional support, and perceived confidence?
4. What kinds of design changes are suggested by the observed task performance, subjective ratings, and open feedback?

7.2 Participants

A total of 15 participants took part in the user evaluation. Participants were recruited through social media platforms and snowball sampling via personal and professional networks. The recruitment materials described the study as an evaluation of an interactive productivity prototype for adults who experience focus and organization difficulties. A formal ADHD diagnosis was not required. Instead, the inclusion criteria focused on self-reported difficulties with attention, task initiation, or daily organization in work and study contexts.

The sample was appropriate for an exploratory prototype evaluation because the thesis focuses on user-centered design rather than clinical assessment. The participant group consisted mainly of adults in higher education or early career stages, which aligns with the project's focus on work and study productivity barriers.

Table 7.1: Participant demographics.

Dimension	**Count**
Age	
18–24 years	13
25–34 years	2
Gender	
Female	9
Male	6

All participants completed the structured test session and the post-session questionnaire in a single sitting.

7.3 Study Design and Procedure

The evaluation used a within-subjects design. Each participant completed the same three tasks in the same order, followed by a post-session questionnaire. Each session lasted approximately 15 to 25 minutes.

Before the task session began, participants received a short orientation explaining that the study aimed to evaluate the prototype rather than the participant's personal ability. This framing was important because the project specifically aims to avoid guilt, shame, or performance pressure in productivity support.

Task 1: Mood check-in.
Participants were asked to complete a daily mood check-in. They opened the Mood page, selected their current mood, energy level, and focus readiness, and completed the reflection prompt. This task evaluated whether the state check-in flow was understandable and whether participants could complete it without additional instruction.

Task 2: Task Breakdown.
Participants were given a large, unstructured task: "Write a 2000-word literature review for a course assignment." They were asked to enter the task, use the breakdown flow, respond to the friction picker, review the generated steps, and accept at least one sub-step. This task evaluated whether the prototype could support the transition from an overwhelming task to smaller actionable steps.

Task 3: Focus session.
Participants were asked to start a focus session. They set a duration, optionally

selected a focus environment, and started the timer. This task evaluated whether participants could move from setup into an active focus state and whether the focus flow was easy to understand.

Task order was fixed to maintain procedural consistency across participants. This decision made sessions easier to compare, although it also introduced a limitation because order effects could not be ruled out.

7.4 Measures

The evaluation combined behavioural observation, completion-time measurement, subjective ratings, workload ratings, and open feedback.

Task outcome was recorded as *Full Success*, *Success with Hint*, or *Fail*. Full Success meant that the participant completed the task without researcher assistance. Success with Hint meant that the participant completed the task after receiving a verbal or gestural hint. Fail meant that the participant did not complete the task. Completion time was measured in seconds from the task instruction to task completion.

To make the results transparent, task performance is reported in two ways: the number of Full Success, Success with Hint, and Fail outcomes, and a weighted success score. The weighted score gives one point for Full Success, half a point for Success with Hint, and zero points for Fail. This score should not be interpreted as a simple usability success rate; it is used only as a compact way to compare the three tasks.

Participants also completed a post-session questionnaire using a 5-point Likert scale, where 1 represented *Strongly Disagree* and 5 represented *Strongly Agree*. The questionnaire measured ease of use, clarity, learnability, ability to use the prototype without instructions, usefulness of prompts, sense of accomplishment, reduced procrastination, visual clarity, and confidence in managing focus and tasks.

Cognitive workload was assessed using the raw NASA Task Load Index (NASA-TLX) subscales: Mental Demand, Physical Demand, Temporal Demand, Effort, Frustration, and Performance [15]. Each subscale was rated on a 5-point scale. Raw subscale scores are reported rather than weighted NASA-TLX scores.

7.5 Task Performance

Task performance results are summarized in Table 7.2.

The Mood check-in and Focus session tasks were completed relatively smoothly. In Task 1, 13 participants completed the task without assistance and two completed it with hints. In Task 3, 12 participants completed the task without assistance and three completed it with hints. These results suggest that the Mood and Focus flows were generally understandable within the short test session.

Task 2, the Task Breakdown flow, created the most difficulty. Only six participants completed the task without assistance, while eight required a hint and one failed

Table 7.2: Task performance results ($N = 15$). Weighted Score = (Full + 0.5 $\times$ Hint)/$N \times 100\%$.

Task	Evaluated Flow	Full	Hint	Fail	Score	Mean	SD	Median	Range
Task 1	Mood check-in	13	2	0	93.3%	61 s	51 s	45 s	10–180 s
Task 2	Task Breakdown	6	8	1	66.7%	205 s	116 s	210 s	50–480 s
Task 3	Focus session	12	3	0	90.0%	75 s	88 s	40 s	5–300 s

to complete the task. It also took substantially longer than the other two tasks, with a mean completion time of 205 seconds compared with 61 seconds for Mood check-in and 75 seconds for Focus session. This indicates that the breakdown concept had potential value, but the entry point, interaction sequence, or interface clarity required improvement.

7.6 Subjective Ratings

Subjective ratings were generally positive, but they also revealed areas of confusion. The results are shown in Table 7.3.

Table 7.3: Subjective ratings by dimension (5-point Likert scale, $N = 15$).

Dimension	Mean	SD	Min	Max
Ease of Use	4.00	0.76	2	5
Clarity	3.67	0.82	2	5
Learnability	3.93	0.88	2	5
No Instructions Needed	4.13	0.64	3	5
Prompts Help Return	3.80	1.01	2	5
Accomplishment	4.27	0.70	3	5
Reduced Procrastination	3.93	0.70	3	5
Visual Clarity	4.07	0.88	2	5
Confidence	4.40	0.74	3	5

The highest-rated dimension was Confidence, with a mean score of 4.40. This suggests that participants generally felt more capable of managing focus and tasks after using the prototype. Accomplishment was also rated highly, with a mean score of 4.27, indicating that the prototype may have provided a sense of progress or completion during the session.

The lowest-rated dimension was Clarity, with a mean score of 3.67. This result aligns with the observed friction in Task 2, where several participants struggled to locate or understand the breakdown flow. The combination of positive confidence ratings and lower clarity ratings suggests an important design implication: the support concept was valued, but parts of the interface still made that support harder to access than intended.

7.7 NASA-TLX Workload Results

NASA-TLX raw subscale scores are summarized in Table 7.4.

Table 7.4: NASA-TLX raw subscale scores (1–5 scale, $N = 15$).

Subscale	**Mean**	**SD**	**Min**	**Max**
Mental Demand	2.60	1.06	1	4
Physical Demand	1.87	0.83	1	4
Temporal Demand	2.53	1.51	1	5
Effort	2.47	1.06	1	4
Frustration	2.33	1.11	1	4
Performance	2.40	1.30	1	5

The workload scores were generally low to moderate. Physical Demand was the lowest-rated subscale, which is expected for a mobile interface evaluation. Mental Demand and Temporal Demand were the highest-rated subscales, suggesting that participants experienced some cognitive effort and time pressure during the test. This is consistent with the friction observed in the Task Breakdown flow.

Frustration remained below the midpoint of the scale, with a mean score of 2.33. This suggests that the prototype did not produce high frustration overall, although some participants still encountered meaningful moments of confusion.

7.8 Observed Friction Points

Observed friction points were concentrated mainly in Task 2, as shown in Table 7.5.

Table 7.5: Observed friction points during task sessions.

Friction Point	**Frequency**	**Task**
Difficulty locating the Task Breakdown entry point	3	Task 2
Unclear button affordances for the breakdown action	2	Task 2
Navigation and orientation confusion	2	Task 2
Missing the “Break down” button entirely	1	Task 2
Unintended deletion of parent task	1	Task 2
Insufficient task interface instructions	1	Task 2
Choice overload	1	Task 2
Audio adjustment friction	1	Task 3
Missed reflection prompt	1	Task 1

The most frequent issue was difficulty locating the Task Breakdown entry point. This suggests that the connection between task capture and task breakdown was not visible enough. Two participants also failed to recognize the breakdown button as interactive, indicating that the button affordance and visual hierarchy should be strengthened.

One participant failed Task 2 after missing the Break down button entirely. This case is important because it shows how a relatively small discoverability issue can lead to complete task abandonment. For a tool designed for users with focus and organization difficulties, such issues are especially important because unclear interaction paths may increase cognitive load and reduce the likelihood of starting.

At the same time, the qualitative feedback indicated that the breakdown flow had emotional value when participants were able to access it. One participant noted that the breakdown visual helped reduce anxiety. This suggests that the core concept of task breakdown remains promising, even though the current implementation needs clearer interaction design.

7.9 Open Feedback Themes

Four participants provided open-text feedback. Three themes emerged from these comments.

First, participants suggested feature enhancements for focus sessions. Two participants requested audio companions or focus music. Another participant suggested more environment options and data visualisation for daily or weekly focus statistics. These comments suggest that the Focus flow was understandable but could become more supportive through richer optional settings.

Second, one participant commented that there was still too much information on the screen to process. This supports the lower Clarity rating and reinforces the importance of the Calm Interface principle. Future iterations should reduce unnecessary density, especially in task-related flows where users may already feel overwhelmed.

Third, feedback suggested emotional support value in the Task Breakdown flow. The comment that the breakdown visual reduced anxiety is important because the project's design goal is not only functional task management, but also emotionally safer productivity support. This finding suggests that reducing task ambiguity may also reduce emotional pressure.

7.10 Summary of Evaluation Findings

The evaluation produced three main findings.

First, the Mood check-in and Focus session flows were completed with relatively little friction. This suggests that these flows were understandable enough for short-session prototype testing and could serve as stable parts of the next iteration.

Second, the Task Breakdown flow showed the strongest potential but also the most significant usability problems. Participants needed more help, took longer, and encountered more confusion in this task than in the other two tasks. The main issue was not the breakdown concept itself, but access to the flow, button affordance, navigation, and interface clarity.

Third, the subjective ratings suggest that participants perceived emotional and motivational value in the prototype. Confidence and Accomplishment were the highest-rated dimensions, while Clarity was the lowest. This pattern indicates that the prototype's support model was promising, but the interface needs to make that support easier to find and use.

7.11 Limitations

Several limitations should be considered when interpreting these results. First, the evaluation used a small convenience sample of 15 participants, recruited through social media and personal networks. The findings should therefore be treated as exploratory and cannot be generalized to all adults with ADHD or focus difficulties.

Second, the study was conducted in a single session. This means it could evaluate first-use usability and immediate impressions, but not long-term adoption, habit formation, notification fatigue, or sustained emotional support.

Third, the task order was fixed for all participants. This improved procedural consistency but may have introduced order effects. Participants may have become more familiar with the prototype over time, which could have influenced later tasks.

Fourth, researcher hints were included in the weighted success score. This made it possible to capture learnability, but it also means the weighted score should not be read as a pure independent success rate.

Finally, the evaluation focused on three selected flows and did not fully test every part of the prototype. Features such as Mind Drop, energy-aware planning, the Home page recommendations, and the Me page were not evaluated as independent tasks. These areas should be examined in future testing.

8

Discussion

8.1 Key Findings

This thesis combined survey research, design synthesis, prototype development, and user evaluation to investigate how digital productivity support can better respond to work and study barriers experienced by adults with ADHD or frequent focus and organization difficulties.

The survey findings showed that participants had often already tried productivity tools, but still experienced difficulties with rigidity, setup effort, guilt-inducing feedback, and lack of adaptation to daily energy. These findings shaped the design requirements for *Poco*, particularly around messy input capture, task breakdown, energy-aware planning, non-judgmental feedback, and optional focus support.

The prototype evaluation added a second perspective. The mood check-in and focus session tasks were completed with relatively little friction, while the Task Breakdown flow created more confusion around discoverability and interaction clarity. At the same time, participant feedback suggested that breaking down a task could reduce anxiety when the flow was successfully used.

8.2 Starting, Not Output

A central implication of this project is that ADHD-friendly productivity support should not only focus on task completion or output. Many productivity tools assume that users can already define, prioritize, and organize their tasks. However, the survey findings suggest that the difficult moment often happens earlier: before a task is clear enough to begin.

For this reason, *Poco* was designed around the transition from intention to first action. Mind Drop allows users to capture thoughts before organizing them. Task Breakdown helps transform large or vague tasks into smaller steps. Mood and energy check-ins make the user's current state visible. Focus sessions support the move from planning into action.

The evaluation results support this direction cautiously. High ratings for Confidence and Accomplishment suggest that participants perceived value in the prototype. However, the lower Clarity score shows that supportive concepts must be made easy to find and use. For users who already experience cognitive overload, the path to support should be as simple as possible.

8.3 Breakdown Friction

Task Breakdown was one of the most important but also most problematic parts of the prototype. It directly responded to the survey finding that participants wanted a brain dump area that could organize messy thoughts into step-by-step plans. It also aligned with the design goal of lowering the threshold for starting difficult tasks.

In the evaluation, however, Task Breakdown had the lowest independent success rate and the longest completion time. Most observed friction points were concentrated in this flow, including difficulty locating the entry point, unclear button affordances, and navigation confusion. These results suggest that the concept was relevant, but the interaction design made it harder to access than intended.

This is especially important because Task Breakdown is meant to support users when they may already feel overwhelmed. The interface should therefore reduce interpretation and decision-making rather than add to it. Future iterations should make the breakdown action more visible, simplify the flow, and create clearer continuity between task input, friction selection, generated steps, and saving or starting.

8.4 Emotional Safety

The survey showed that many participants felt guilt or stress when existing tools emphasized missed tasks, broken streaks, or rigid routines. This supports the decision to treat emotional safety as a core design concern rather than a secondary tone-of-voice issue.

Poco attempted to respond through gentle language, calm visual hierarchy, low-pressure check-ins, and feedback that avoids framing missed tasks as failure. The evaluation did not test emotional tone as a separate variable, but the relatively low Frustration score and high Confidence and Accomplishment ratings suggest that the prototype did not create strong negative pressure during first use.

For ADHD-friendly productivity tools, non-judgmental interaction is important because productivity difficulties are often already connected to shame, avoidance, and self-criticism. A tool that increases pressure may be abandoned even if its features are useful. In this project, missed tasks and low-energy states are treated as information for adaptation rather than as failure.

8.5 Daily Energy

Another important implication concerns daily variation. Survey participants reported frustration with tools that did not adapt to changing energy levels. *Poco* responds to this through mood and energy check-ins and through the broader design idea of energy-aware planning.

The evaluation showed that participants could complete the mood check-in flow relatively easily. However, the study did not fully evaluate whether energy information improved daily planning over time. Therefore, the current results support the usability of state check-ins, but not yet the long-term effectiveness of energy-aware planning.

Future work should examine whether mood and energy data can help users choose more realistic daily tasks without creating another tracking burden. Energy-aware planning is promising, but it needs longitudinal evaluation to understand whether it supports sustained use.

8.6 Limitations

This thesis has several limitations. The survey relied on self-reported data and should not be interpreted as clinical evidence about ADHD. The sample included formally diagnosed participants, self-diagnosed or suspected participants, and participants without diagnosis but with frequent focus and organization difficulties. This was appropriate for exploratory design research, but it does not represent a clinical ADHD sample.

The prototype evaluation also had limitations. It involved 15 participants and was conducted in a single session. This allowed first-use usability to be examined, but it did not capture long-term use, habit formation, tool abandonment, or notification fatigue. The task order was fixed, and researcher hints were used during testing, which may have influenced task performance.

In addition, not all prototype flows were evaluated equally. Mind Drop, energy-aware planning, Home page recommendations, and the Me page were not tested as independent tasks. The evaluation therefore provides insight into selected representative flows rather than the complete prototype experience.

8.7 Future Work

Future work should first refine the Task Breakdown flow. The entry point should be more visible, the button affordance should be clearer, and the number of decisions presented at one time should be reduced.

Second, energy-aware planning should be evaluated over a longer period. A diary study or deployment study could examine whether mood and energy check-ins help users plan more realistically and reduce guilt on low-energy days.

Third, future versions should test real AI-generated task breakdowns. The current prototype uses simulated AI logic, which is appropriate for early-stage testing but cannot fully evaluate the quality, safety, or personalization of real AI support.

Finally, reminder and companion features should be studied carefully. These features may provide support and accountability, but they may also become distracting or emotionally pressuring if they are too intrusive.

9 Conclusion

9.1 Conclusion

This thesis investigated how adults with ADHD or frequent focus and organization difficulties experience work and study productivity barriers, and how these findings can inform the design of a targeted digital productivity support tool. The project began from the observation that many productivity tools already exist, but that existing tools often fail to fit the cognitive, emotional, and daily-life realities of ADHD users.

Through literature review, survey research, design synthesis, prototyping, and user evaluation, the thesis developed *Poco* as a research-informed interactive prototype. *Poco* explores how digital productivity support can help users capture messy thoughts, break down difficult tasks, plan with daily state in mind, and move from intention toward action.

9.2 Answering the Research Questions

The first research question asked what work and study-related productivity challenges are experienced by adults with ADHD or frequent focus and organization difficulties. The survey showed that participants experienced barriers including communication paralysis, hyperfocus and difficulty switching, activation paralysis, emotional dysregulation, working memory gaps, rejection sensitivity, and sensory overload.

The second research question asked what limitations users encounter in existing productivity and ADHD-friendly tools. Participants reported that existing tools were often too rigid, difficult to maintain, guilt-inducing, setup-heavy, or overwhelming in their use of notifications.

The third research question asked how these findings could be translated into design requirements. The project translated the findings into requirements such as supporting messy input, breaking down overwhelming tasks, adapting planning to daily energy, avoiding shame-based feedback, reducing setup effort, and providing optional support.

The fourth research question asked how *Poco* could be designed as an interactive prototype. The prototype materialized these requirements through Mind Drop, Task Breakdown, mood and energy check-ins, planning support, focus sessions, gentle feedback, and optional companion presence.

The fifth research question asked how the prototype could be evaluated. The exploratory evaluation with 15 participants suggested that the mood check-in and focus session flows were relatively easy to complete, while Task Breakdown showed both usability problems and perceived emotional value.

9.3 Contributions

This thesis contributes an empirical understanding of ADHD-related productivity barriers, a design process for translating those barriers into product requirements, and a prototype that demonstrates one possible direction for ADHD-friendly productivity support.

The main contribution is not the claim that *Poco* solves ADHD-related productivity difficulties. Instead, the thesis shows how user-centered design can reframe productivity support around reducing task initiation friction, lowering emotional pressure, and supporting users before a task is fully organized.

9.4 Final Reflection

ADHD-friendly productivity tools should not only help users manage tasks after they are already clear. They should also support the earlier moment when a task feels vague, heavy, or difficult to approach.

Poco offers one design response to that moment. It suggests that productivity support can be more useful when it helps users find one possible next step, adapts to daily state, and avoids turning unfinished work into failure. This direction does not solve every problem, but it offers a more supportive foundation for future ADHD-friendly productivity tools.

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