The Science Behind Addie: Enhancing Productivity for Neurodivergent Minds

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Abstract

This document explores the science behind Addie, a productivity app designed for neurodivergent people. It examines the limitations of traditional productivity tools and explains how Addie applies cognitive science, behavioral psychology, and AI-driven technology to support focus, task initiation, and sustained productivity. Key topics include one-task-at-a-time productivity, time blindness, task breakdown, prioritization, routines, wellbeing, and AI-powered workplace tools. Supported by research and insights from over 75,000 users, this report demonstrates how Addie provides an evidence-based, user-driven approach to making productivity more accessible and effective for neurodivergent minds.

Introduction

At Addie, we are dedicated to helping neurodivergent people live a better life, and get stuff done. We have worked closely with the ADHD Foundation, as well as psychiatrists, psychologists, clinical experts, and occupational therapists, to ensure that our app is built on a deep understanding of neurodivergent needs.

Our approach is validated-by-experience and is grounded in both scientific research, clinical expertise, and via the lived experiences from people with neurodivergent conditions, making Addie a tool that truly supports its users. This document aims to explore the science behind Addie (the app), demonstrating how its features are designed to help neurodivergent people get stuff done.

The Limitations of Traditional Productivity Tools

Traditional productivity tools, such as to-do lists and calendars, often fail neurodivergent people. Whilst these tools take can be helpful in capturing and cataloging tasks to-be-done, they cannot, and do not, support with task prioritisation or task initiation, often leading to paralysis rather than progress.

Dr. Russell Barkley famously stated, *"ADHD is not a disorder of knowing what to do. It is a disorder of doing what you know."* For neurodivergent people, the real challenge isn't identifying tasks—it's initiating them. Knowing what needs to be done is only part of the equation; understanding where to start and finding the motivation to act is everything. Without highly-tailored support, prioritization can quickly become overwhelming, turning a simple task list into a source of stress and inaction.

For neurodivergent people, motivation is closely tied to dopamine production, and capturing tasks in a list does not trigger the dopamine release needed to drive action. Instead of motivating, the list contribute to decision paralysis, where prioritization itself becomes another overwhelming task. This creates a vicious cycle—the longer the list, the harder it becomes to start, reinforcing feelings of being stuck and unproductive.

How Addie Solves the Problem

Addie is different because it was built with and for the ND community. Through deep research, lived experience, and ongoing engagement, we've developed a solution that actually works.

With Addie, you don't have to fight against overwhelming task lists. Instead, we present you with one-task-at-a-time, helping you focus on what truly matters without stress or distraction. Addie makes it easier for you to take action, build momentum, and achieve your goals in a way that works for your brain.

With insight from over 75,000 users and over 10 million user interactions, we have a truly unique picture of what works for neurodivergent minds. These insights have shaped and refined our approach, ensuring that Addie provides real, evidence-backed solutions for productivity challenges.

This report explores the science behind the Addie app—the foundation that has inspired everything we have built and continue to improve. By integrating cognitive science, behavioral psychology, and AI-driven technology, we provide an evidence-backed solution tailored to the needs of neurodivergent people, ensuring they can take meaningful action and sustain productivity in a way that works for them.

One Task at a Time

Multitasking doesn't work. Despite the common belief that juggling multiple tasks increases efficiency, research has consistently shown the opposite. Studies have found that multitasking can reduce productivity by up to 40% (Rubinstein et al., 2001) due to the mental strain of switching between tasks. This constant cognitive shifting leads to decision fatigue, increased errors, and decreased efficiency.

In contrast, research in cognitive load theory (Sweller, 1988) suggests that our brains function best when focusing on a single task at a time. When we concentrate deeply, we experience improved retention, faster task completion, and reduced mental exhaustion. Studies on attention management (Gazzaley & Rosen, 2016) confirm that reducing task-switching enhances focus and overall cognitive performance.

At Addie, we designed our app around this science-backed principle. By structuring the user experience around one-task-at-a-time, we eliminate the mental overload caused by multitasking. This helps you stay focused, avoid cognitive fatigue, and complete tasks more effectively—without the stress of an overwhelming to-do list.

Timing Tasks

Time blindness—the inability to accurately perceive time—is a major challenge for neurodivergent people, particularly those with ADHD. This can make it difficult to judge how long a task will take, plan effectively, or even realize how much time has passed. As a result, productivity suffers, deadlines become stressful, and tasks often go unfinished.

Research has shown that time perception deficits are a core aspect of ADHD (Barkley, 1997), impacting an individual's ability to estimate, track, and manage time effectively. A study by Brown (2009) highlights that people with ADHD often rely on external structures to compensate for time blindness, such as alarms or reminders. Without these, they can struggle with

procrastination, missed deadlines, and difficulty transitioning between tasks.

Addie's Task Timer tackles time blindness head-on. It tracks how long tasks actually take, so next time, you'll have a realistic expectation of task duration—helping you plan better and avoid frustration. This timing data also powers Addie's task prioritization, ensuring you focus on achievable actions based on your available time and past behavior. By addressing time blindness directly, Addie helps you start, sustain, and complete tasks with confidence—without the stress of lost time.

Breaking Down Tasks into Small Chunks

Big tasks can feel impossible to start. Executive dysfunction makes it hard to break down, plan, and organize complex work (Barkley, 1997), leading to avoidance and procrastination. Research shows that breaking tasks into smaller steps— known as task chunking—boosts motivation and execution (Kliegel et al., 2008).

Addie Magic does this automatically, using AI to break tasks into smaller, actionable steps so you don't have to. By eliminating the stress of planning and making big tasks manageable, Addie helps you start, stay on track, and get things done—without the overwhelm.

Prioritisation Beyond Eisenhower

Traditional prioritisation methods, like the Eisenhower Matrix, categorize tasks by urgency and importance. While effective in theory, they fail to consider a key factor for neurodivergent people—fun.

At Addie, we have expanded this model by introducing a third variable: fun. Tasks are scored not just on urgency and importance, but also on how enjoyable they are (not fun, quite fun, very fun). This creates a 27-point weighting system compared to Eisenhower's 9, but more importantly, it taps into a fundamental truth about neurodivergent motivation—fun and interest drive dopamine production.

By integrating fun into our prioritisation engine, Addie helps users select tasks that align with both necessity and intrinsic motivation. Our AI learns from each user's behavior, weighting tasks dynamically to ensure that prioritisation isn't just logical—it's engaging. This approach helps break cycles of avoidance, making it easier to start, persist, and complete tasks in a way that feels natural and rewarding.

The Power of Routines

Routines are a key component of productivity, but for neurodivergent people, creating and sticking to them can be

particularly challenging. Research shows that executive dysfunction impacts the ability to form and sustain habits (Barkley, 2011), making consistency difficult. Additionally, studies indicate that ADHD is linked to irregular dopamine release, which can make it harder to maintain motivation for routine activities (Volkow et al., 2009). Without a structured yet flexible approach, routines often fall apart, leading to frustration and lost momentum.

At Addie, we recognize that traditional routine-building methods often fail because they demand too much upfront planning and rigid adherence. That's why we take a different approach. Addie uses classic routine functionality but integrates it with our one-task-at-a-time system, making it easier to get started and sustain routines without feeling overwhelmed.

By focusing on one step at a time, Addie helps reduce the mental load associated with routines, allowing users to build consistency in a way that works for their brain. Whether it's establishing a morning routine, improving work habits, or maintaining self-care practices, Addie ensures that routines are not just planned—but actually followed through, making long-term success more achievable.

Wellbeing and Mental Health

We know life isn't just about ticking of jobs to be done—it's about feeling safe, empowered and inspired. Neurodivergent people face higher rates of anxiety and depression (Kessler et al., 2006; Hollocks et al., 2019), making motivation and focus harder to sustain.

Wellbeing and productivity go hand in hand. Self-determination theory (Ryan & Deci, 2000) shows that motivation improves when people feel in control and supported. But for neurodivergent people, cycles of frustration and burnout often disrupt both productivity and mental health.

To help, Addie includes a Wellbeing Section that lets users track mood, manage stress, and build habits that support both productivity and mental health. Dopamine research in ADHD (Volkow et al., 2009) confirms that mood shifts affect motivation, so recognizing patterns and making small adjustments can help users work in a way that feels good.

At Addie, we don't separate wellbeing from productivity—we integrate them. Because feeling good is key to getting things done.

Workplace Productivity Tools

Modern workplaces demand efficiency, but for neurodivergent people, traditional tools often add stress rather than reduce it. Emails pile up, research tasks become

overwhelming, and understanding tone and sentiment in communication can be exhausting. Addie's AI-powered workplace tools remove these barriers, making professional tasks easier and more accessible.

For example, writing emails can be challenging, especially when struggling with wording, tone, or getting started. Research shows that decision paralysis is common in neurodivergent individuals, particularly in high-stakes communication (Brown, 2009). Addie's AI-powered Email Writer helps users craft clear, concise messages, reducing the cognitive load and making workplace interactions smoother.

Our Sentiment Analysis tool provides real-time feedback on the tone of messages, giving users confidence that their intent is accurately conveyed. Meanwhile, the AI Researcher streamlines information gathering by summarizing key points, organizing data, and cutting through noise—helping users find what they need without the usual overload.

By integrating these tools, Addie helps neurodivergent professionals communicate effectively, stay organized, and navigate work with greater ease and confidence.

Our AI Engine Explained (inc. Patent)

Addie's AI engine is designed to personalize the user experience by determining the best conditions for task completion. Using a combination of user-generated data, third-party insights, and predictive modeling, Addie learns what works for each individual and adapts in real-time.

The underlying technology that powers Addie is patent-pending in the UK, US, and EU, reflecting our innovative approach to task prioritization and productivity for neurodivergent users. Let's explore how the app utilises AI technologies:

1. *One-task-at-a-time* - Instead of simply listing tasks, Addie analyzes each task's attributes, including difficulty, estimated duration, and past completion rates. The AI predicts the best time to schedule each task, ensuring users engage when they are most likely to succeed.
2. *Weighting engine* - Unlike traditional methods, Addie ranks tasks using the Vickers Matrix, which adds fun as a factor alongside urgency and importance. Since enjoyment increases dopamine production, fun tasks are more likely to be completed. By factoring this into task prioritisation, Addie ensures that users engage with tasks in a way that is both motivating and productive. For example, if the AI detects that a user struggles with long tasks in the afternoon but excels in

the morning, it schedules accordingly. This increases success rates and reduces frustration.

3. *Notification and reminders* - Reminders are tailored based on user interaction patterns. If someone regularly ignores morning notifications but engages in the evening, Addie adjusts the timing. The AI can also delay or reschedule tasks when data suggests a high likelihood of burnout or overload.

4. *Holistic data* - Every interaction helps train the AI further. By tracking task duration, user engagement, and completion rates, Addie continuously refines its scheduling model, improving accuracy over time.

5. *Biometric and environmental data* - Future iterations of Addie will integrate biometric and environmental data—such as heart rate, sleep patterns, and even weather conditions—to predict the best conditions for productivity. This could help users understand how external factors influence their focus and motivation.

By leveraging AI to remove decision fatigue and optimize task engagement, Addie ensures that neurodivergent users experience productivity in a way that is tailored to their unique needs, making getting things done feel more intuitive and less overwhelming.

Leveraging Addie Data for Scientific Research

With a goal of reaching 1 million neurodivergent users within the next 12 months, Addie will generate one of the most extensive datasets on neurodivergent productivity, motivation, and cognitive behavior ever collected. This data presents a unique opportunity to collaborate with leading researchers, pharmaceutical companies, and industry partners to drive meaningful scientific advancements. Here are ten specific ways this data could be leveraged:

1. *Dopamine and Task Engagement* – Partnering with neuroscience labs to study how different task types impact dopamine-driven motivation in neurodivergent individuals.

2. *Wellbeing and Mental Health Correlations* – Working with mental health organizations to examine the relationship between emotional state tracking and work efficiency.

3. *The Impact of Fun on Productivity* – Partnering with behavioral psychologists to validate how enjoyment influences neurodivergent task prioritisation.

4. *Optimising Workplace Tools* – Using sentiment analysis and email writing patterns to inform the development of neurodivergent-friendly communication tools.

5. *The Science of Habit Formation* – Researching how micro-habit structures within Addie improve long-term adherence to productivity routines.

6. *Personalised Medication* – Working with pharmaceutical companies to explore how productivity trends align with medication usage and therapeutic interventions.

7. *Biomarker-Based ADHD Diagnosis* – Partnering with biotech researchers to explore whether menstrual blood samples from Addie users could reveal biomarkers for ADHD and related conditions, offering a potential new diagnostic route.

8. *Digital Cognitive Assessments* – Using Addie's data to test the effectiveness of AI-driven cognitive screening tools, providing new, non-intrusive ways to identify neurodivergent traits.

9. *Longitudinal Studies on Neurodiversity and Productivity* – Collaborating with academia to track productivity patterns over time, helping define more effective work and study strategies for neurodivergent individuals.

10. *Wearable Integration for ADHD Management* – Exploring how Addie's task timing data could integrate with biometric tracking devices to provide real-time focus and engagement insights, improving ADHD self-management.

By leveraging Addie's growing dataset, we can contribute to groundbreaking research that reshapes how neurodivergent people are supported in education, workplaces, and daily life.

Closing Thoughts

At Addie, we believe productivity should be accessible, supportive, and built for the way neurodivergent minds work. Our approach combines scientific research, behavioral psychology, and real-world experience to create a tool that truly supports its users.

By focusing on one-task-at-a-time productivity, structured time management, AI-powered task breakdowns, and emotional well-being, Addie removes common barriers that make productivity feel overwhelming. We've designed Addie to be adaptive and intuitive, ensuring it meets the needs of every user in a way that works for their brain. Our goal isn't just to help people get more done—but to make productivity easier, more sustainable, and less stressful for neurodivergent people everywhere.