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Strategies to Support Students with ADHD during Self-Selected Reading: An Evaluation of Token Economy and Self-Monitoring

by

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The student author, whose presentation of the scholarship herein was approved by the program of study committee, is solely responsible for the content of this dissertation. The College of Education will ensure this dissertation is globally accessible and will not permit alterations after a degree is conferred.

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ABSTRACT

Students with attention deficit/hyperactivity disorder (ADHD) often face challenges with attention and executive functioning, making it difficult to stay on task during self-selected reading (SSR). These difficulties can hinder academic progress. While research highlights the need for effective strategies to improve on-task behavior, limited studies have focused specifically on self-monitoring and token-economy interventions during SSR. This study investigated the impact of self-monitoring and token-economy strategies on the on-task behavior of students with ADHD during SSR. It aimed to answer the following questions: How do token economy systems and self-monitoring strategies impact on-task behavior for students with ADHD during self-selected reading? The study's sub-questions were: How does token economy impact on-task behavior for students with ADHD during SSR? How does self-monitoring impact on-task behavior for students with ADHD during SSR? Which strategy is most effective for students with ADHD to stay on-task during SSR? Using a single case design (A-B-A-C-A), four students with ADHD were observed to measure their on-task behavior during SSR under both intervention conditions. Results showed that both strategies effectively improved on-task behavior, though the degree of effectiveness varied by student. The findings show the importance of individualized approaches in supporting students with ADHD. While both interventions were beneficial, neither was universally more effective, reinforcing the need for tailored support based on student-specific needs. This study emphasizes the value of token economy and self-monitoring strategies in promoting on-task behavior during SSR. Future research should examine the long-term impact and external factors influencing the success of these interventions.

CHAPTER 1. INTRODUCTION

Attention deficit/hyperactivity disorder (ADHD) is a cognitive disorder that affects key cognitive processes (e.g., working memory, executive functioning, time management) essential for regulating behavior, organizing tasks, and maintaining focus in academic settings (Barkley, 2022; DuPaul & Stoner, 2014). These deficits in cognitive processes directly affect students' ability to stay on task, plan, and problem-solve, especially in complex or demanding tasks like reading comprehension and learning. In 2022, the prevalence of ADHD was approximately 11% in the United States student population. Within that population, 15% of all boys and 8% of all girls between the ages of 5 and 17 in schools were diagnosed with ADHD (Reuben & Elgaddal, 2024). Students between the ages of 5 and 11 are more likely to be diagnosed with ADHD when compared to students ages 12 to 17. The demographic breakdown of students with ADHD includes 13% of white students, 11% of Black students, and 9% of Hispanic students (Reuben & Elgaddal, 2024). Families with above-average income contain a lower number of students with ADHD.

Many students with ADHD have difficulty staying on task, especially during self-selected reading (SSR). Often students with ADHD will read a text and not remember what they read due to their lack of attention (McBride, 2024). In 2011, one third of all Grade 4 students in the United States read below grade level and only 8% read at an advanced level (Rasinski, 2013). In 2022, The Nation's Report Card (2024) reported that fourth- and eighth-grade students' reading scores dropped significantly. For students with ADHD, a concurrent diagnosis of a reading disability occurs around 40% of the time (McBride, 2024). Lawrence et al. (2021) reported that students with ADHD get 1 year behind in reading for every 3 years in school; by the end of fifth

grade, students with ADHD are 2 years behind in reading. Interventions must be set in place for students with ADHD to be successful during SSR.

Often referred to as "independent reading," SSR allows students to choose reading materials that interest them: Students read on their own for enjoyment for a sustained period of time. SSR promotes comprehension, vocabulary development, and reading rates (Rodgers, 2017). SSR is difficult for students with executive functioning deficits because they struggle with sustaining attention, managing time, and organizing their thoughts—which are all necessary for independent reading tasks (Barkley, 2022; DuPaul & Stoner, 2014). In this study, the researcher examined the effect of token economy (TE) and self-monitoring (SM) interventions on on-task behaviors during SSR for students diagnosed with ADHD. With TE, students earn tokens for desirable behaviors, which in turn can be exchanged for additional reinforcers (Heiniger et al., 2022). With SM, students must set goals and monitor themselves: self-recording, evaluating, planning, and reflecting on their learning (Korinek & deFur, 2016). Both interventions are designed to aid students with ADHD in staying on task during SSR.

Statement of the Problem

Students with ADHD frequently struggle with maintaining focus during SSR. Amato-Zech et al. (2006) discussed how strategies should be implemented to support students' on-task behaviors. The current study explored and evaluated whether using SM and TE improved on-task behaviors during SSR for students with ADHD. The overarching question of the study was: How do token economy systems and self-monitoring strategies impact on-task behavior for students with ADHD during self-selected reading? The study's sub questions were: How does token economy impact on-task behavior for students with ADHD during SSR? How does self-monitoring impact on-task behavior for students with ADHD during SSR? Which strategy is

most effective for students with ADHD to stay on task during SSR? The researcher hypothesized that both TE and SM strategies would lead to an increase in on-task behavior in students with ADHD during SSR.

Significance of the Study

Understanding the link between on-task behaviors and ADHD is essential in understanding how they affect students' reading on grade level. This study investigated if SM and TE would help keep students on task during SSR and contributes to prior research on strategies for assisting students with ADHD to stay on task during reading. Students with ADHD experience many learning difficulties, especially relating to reading. As Dong et al. (2023) noted, the "preschool years represent a critical time for ADHD children to develop their language skills and reading interest that they need to succeed in school" (p. 863). However, students with ADHD cannot sustain attention for long periods (Buttery, 2008) and lack executive functioning skills. These deficits make it difficult for students to sustain attention, organize their thoughts, and stay engaged with the task at hand during activities like SSR. DuPaul and Stoner (2014) estimated that students with ADHD are typically on-task around 75% of the time, whereas their typical peers are on-task around 90% of the time. Students must be taught interventions to offset these deficits. TE and SM are evidence-based strategies that aid students with staying on task during SSR. In TE, students set a specific goal, work to achieve the goal, and receive positive reinforcement once the goal is met (DuPaul & Weyandt, 2006; Heiniger et al., 2022; Soares et al., 2016). Korinek and deFur (2016) noted that with SM, students must take control of their learning and work toward a goal. Many students with ADHD have an individualized education program (IEP) or a Section 504 plan, both of which include accommodations needed by the student in the classroom.

Limitations of the Study

One of the limitations of this study was the small sample size. This study involved observing four students diagnosed with ADHD to monitor their ability to stay on task during SSR. A smaller sample size will yield fewer results than a larger one. Also, the length of time for this study was limited. The researcher planned to collect data over a period of 5 weeks and determine if the data had stabilized. A short time frame can create short-term effects because students may not master the interventions or may generalize the intervention process. Student attendance also has the potential to impact data collection and diverse demographics may complicate the data, as each student brings a different life experience and background. Further, this study focused on two strategies (i.e., TE, SM) for addressing on-task behaviors during SSR, not assessing the use or effects of other research-based strategies that could potentially be used in tandem. Typical activities associated with the school environment (e.g., fire alarms, other students, weather, other classroom distractions) may contribute to distractions during SSR and skew students' on-task behavior. Although the researcher reported information accurately, the researcher is also the classroom teacher which could lead to bias. The researcher and an observer both collected data based on observations.

Organization of the Study

Chapter 1 presents and discusses the background of the problem: Students with ADHD lack executive functioning skills and the ability to sustain attention for long periods, and exhibit difficulties with reading and staying on task during SSR. Teachers need to implement strategies to help them stay on task (Amato-Zech et al., 2006). This study investigated how SM and TE functioned to keep students on task during SSR (Ferrez et al., 2023; Heiniger, 2022). Chapter 1 also acknowledges limitations of the study and defines important terms.

Chapter 2 presents the research on ADHD, which established ADHD as a neurological and cognitive disorder where students lack executive functioning skills and on-task concentration (DuPaul & Stoner, 2014). The primary focus of the current study was to examine the cognitive challenges faced by students with ADHD, particularly those relating to attention, memory, and executive functioning. In Chapter 2, the researcher also discussed (a) how reading is a complex subject that involves many elements and how reading scores in the United States continue to drop (The Nation's Report Card, 2024), and (b) how interventions such as SM and TE aid students with ADHD in staying on task. Chapter 2 outlines the steps involved in implementing TE and SM and provides a clear guide for researchers to follow to carry out the processes effectively or implement in the classroom setting. Last, the researcher discusses the available literature about on-task behavior and how this study is supported by the theoretical frameworks of Skinner and Bandura (Bandura, 2005; O'Donohue & Ferguson, 2001).

Chapter 3 discusses the methods used to conduct this study. This study used a single-case study design of A-B-A-C-A. The A represents the baseline periods, B represents Intervention 1 (TE), and C represents Intervention 2 (SM). Four students with ADHD were selected for this experimental study. The study took place in one of the largest districts in the southeast, in a rural elementary school, and a classroom with 25 students. The researcher used a nonprobability purposive sampling method because students had to be diagnosed with ADHD and be in a fourth-grade reading class. This study was an experimental study with two independent variables (Cox & Root, 2021; Drew et al., 2008; Edmonds & Kennedy, 2017). Chapter 3 describes the methods used to collect, analyze, and interpret data. Chapter 4 presents the data analysis and interpretation, and Chapter 5 conclusions and implications for future research.

Definition of Terms

The following terms are defined as they are used in this study.

Attention deficit/hyperactivity disorder (ADHD) is when students display "deficits in working memory, emotional self-regulation, time management, self-motivation, planning, and problem-solving" (Barkley, 2022, p. 2). For the current study, a student with ADHD was one with a formal diagnosis of ADHD.

Executive function is an umbrella term for various cognitive processes that are central to goal-directed behavior, thoughts, and emotions. These processes are especially important in novel or demanding situations, which require a rapid and flexible adjustment of behavior to the changing demands of the environment. (Huizinga et al., 2018, p.5) In this study, executive function relates to a cognitive process where students with ADHD struggle with working memory, which makes it harder to retain and manipulate information over short periods of time (e.g., reading for 20 minutes during SSR). Cognitive struggles with working memory in students with ADHD are closely linked to on-task behaviors because working memory is essential for maintaining focus and processing information in real-time.

On-task behavior was defined as the student "actively or passively attending to instruction or assigned work and the absence of off-task behavior during the observed interval" (Amato-Zech et al., 2006, p. 213). For the current study, to demonstrate on-task behaviors students were reading their books silently, eyes on their books, staying seated, not moving around or fidgeting, turning pages appropriately, and looking engaged.

Self-monitoring (SM) is "a critical self-regulation process, as it affects both behavior and academic performance. Self-monitoring typically consists of self-assessment and self-recording" (Harris et al., 2005, p. 146). In this study, students monitored their own behaviors to

ensure they were on task during SSR: reading quietly, remaining seated with minimal movement, appearing engaged, and keeping their eyes on their book (see Appendix A). The researcher spent 2 days teaching students how to self-monitor; this was followed by a 1-week period during which students set a goal to stay on task for 20 minutes during SSR, used a timer to check every 2 minutes, and circled a happy or frowny face to indicate whether they were on task. The researcher simultaneously observed and recorded their behaviors.

Self-selected reading (SSR), involves how students "explore and read books independently at their own level. The goal of self-selected reading is to create an authentic opportunity for students to see themselves as competent and engaged readers" (Edmonton Regional Learning Consortium, 2016, p. 1). In the current study, during reading class, students read a book on their own every day for 20 minutes.

Token economy is a system in which tokens" earned for engaging in desired behavior can be exchanged for items or activities that are reinforcing for the student in order to change challenging behaviors into more prosocial or expected behaviors" (Heiniger et al., 2022, p. 151). In this study, TE was used as a strategy by the researcher to help keep students on task during SSR. Students earned tokens for staying on task during SSR, which they later could exchange for larger incentives. The researcher taught students how to use TE for 2 days, followed by a 5-day period that included 20 minutes of daily reading with observations every 2 minutes to check whether they were on task, rewarding on-task behavior with a token.

Summary

ADHD is a prevalent cognitive disorder that affects self-regulation and executive functioning skills (Barkley, 2022). One significant issue with ADHD is the difficulty students have in maintaining focus on a single task for extended periods (Buttery, 2008). Students need

executive functioning skills to focus during SSR. SM and TE are two attentional strategies students can be taught to assist with staying on task during SSR. TE rewards students for staying on task during SSR, and SM involves students monitoring their behaviors. This study is important because it is at an early age that children develop language skills and an interest in reading (Dong et al., 2023). If early development in reading is lacking, students are likely to face challenges throughout their academic journey.

This study focused on four participants with ADHD being observed during SSR. The researcher examined how TE and SM affected students' on-task behaviors and determined which strategy was most effective. Although many limitations existed (e.g., relatively small sample size), the current research contributes to the existing ADHD knowledge base. The researcher hypothesized that both TE and SM strategies would lead to an increase in on-task behavior in students with ADHD during SSR.

CHAPTER 2. LITERATURE REVIEW

Attention-deficit/hyperactivity disorder (ADHD) is a disorder with neurological, cognitive, and genetic aspects, in which students display issues staying on-task (DuPaul & Stoner, 2014). This study focused on the cognitive processes affected by ADHD, while also acknowledging the neurological aspects of the disorder. It examined how ADHD influences executive functioning (e.g., attention, memory, self-regulation), which is key to students' ability to stay on-task during activities like reading. Neurological scans of brains of those with ADHD or a reading disability show some of the same characteristics, even though they may differ slightly (Jagger-Rickels et al., 2018). Because students with ADHD fall further behind in reading than students without a disability (Lawrence et al., 2021), it is important to provide interventions to aid students with ADHD in reading.

Reading is a complex subject that covers many components: comprehension, fluency, vocabulary, phonics, and phonemic awareness (Read Naturally, 2024). Remaining on-task during reading leads to students continuing to develop comprehension skills. Development of reading skills is essential for all students, yet students with ADHD have difficulties staying on-task during reading (McBride, 2024). Self-selected reading (SSR) involves students picking out their books or reading materials and reading independently for enjoyment. SSR improves students' fluency, comprehension, self-efficacy, and communication with others (Edmonton Regional Learning Consortium, 2016; Merga, 2018; Rodgers, 2017). It can be hard for students with ADHD to stay on task during SSR. Token economy (TE) and self-monitoring (SM) are strategies that potentially can improve students' on-task behaviors during SSR.

Teachers can use TE to keep students on task during SSR. Students receive tokens if they are dedicated to achieving their targeted goals (DuPaul & Weyandt, 2006; Heiniger et al., 2022; Soares et al., 2016). Then, students can replace their earned tokens with larger reinforcers.

SM is another strategy often used in the classroom for students with ADHD. SM is an effective way for students with ADHD to monitor their on-task behaviors during reading. The goal is for students to take ownership of their learning and stay motivated to read. Students must set a goal, monitor it, and work toward it (Scheithauer & Kelley, 2017). Researchers and teachers must ensure that SM studies are ethical and reliable (Hoff & DuPaul, 1998). Students can utilize TE and SM, which assist with targeted behaviors such as on-task behavior.

It is essential for students to stay on-task during reading. Staying on-task helps students stay motivated and successful (Harris et al., 2005), although students may need to learn what their bodies should look like when staying focused or have a checklist to follow (Gill & Remedios, 2013), or have on-task behaviors modeled for them (Umstatter, 2024). On-task behaviors are vital for students to build their reading fluency. Theorists such as Bandura and Skinner laid the foundation for current approaches to teaching students how to self-monitor and condition themselves to stay on-task (Bandura, 2005; O'Donohue & Ferguson, 2001).

The theoretical frameworks used in this study were Skinner's operant conditioning and Bandura's self-regulation. Skinner changed the independent variables in a study to see how they would affect the dependent variable, which this study did with SM and TE (O'Donohue & Ferguson, 2001). Skinner's behavioral framework guided this study. The researcher applied TE and SM strategies to help students stay on-task during SSR. Lastly, Bandura's self-regulation theory involves students setting a goal and watching themselves to meet their goal (Bandura, 2005). A self-monitoring strategy was used in the current study to help students self-regulate and

track their on-task behavior during SSR. By recording their progress, students would become more aware of their behavior and take responsibility for staying focused on their reading tasks.

Attention-Deficit/Hyperactivity Disorder (ADHD)

ADHD is a common condition affecting many school aged children today, specifically affecting their ability to focus, control impulses, and regulate behavior in various settings, including the classroom (Barkley, 2022). *Attention* is the term used to describe a student's capacity to focus, direct, and sustain attention for long periods of time on a certain stimulus (Buttery, 2008). Students with ADHD tend to be distracted, fidget, lose items, be impulsive and inattentive, and have trouble listening, which can stem from a lack of executive functioning (Buttery, 2008). ADHD affects critical cognitive functions such as problem solving, self-regulation, working memory, planning, and time management (Barkley, 2022; DuPaul & Weyandt, 2006; Harris et al., 2005). ADHD is a disorder that has been researched since the 18th century and knowledge of the disorder continues to expand.

ADHD can be traced back to the 1770s, when people believed it was a reaction to a stimulus or occurred from bad parenting (Buttery, 2008). By the 1970s, people believed ADHD was caused by the environment or that some students were just hyperactive. ADHD significantly affects executive functioning and self-regulation, two key components of the brain's cognitive control system. While neurological tests may not directly measure executive functioning, numerous neuropsychological tests assess various aspects of it. One important characteristic of ADHD is that it can be genetic (Buttery, 2008). Some children with ADHD lack the neurotransmitters (or hormones) dopamine and serotonin (Buttery, 2008); use of stimulation medications has proved that poor parenting is not the issue, but that these children's brain cognitive management systems are dysregulated (Barkley, 2022). *Dysregulated* in this context

means students lack executive function skills. ADHD is currently defined as a neurological disorder that can be genetic, and new medications can help (Barkley, 2022). Although ADHD is a neurological and cognitive process, this study primarily focused on its cognitive aspects, particularly its impact on executive functioning and self-regulation.

In the United States, approximately 3 to 10% of children are diagnosed with ADHD; national surveys show that around 7% of K–12 students have ADHD (DuPaul & Stoner, 2014). Roughly one out of 20 students has an ADHD diagnosis. Boys outnumber girls with an ADHD diagnosis, at a 6:1 ratio (DuPaul & Stoner, 2014). Boys with ADHD tend to have more recognizable issues, while girls are under identified. Around 50% of students with ADHD receive psychotropic medicine to help manage symptoms, and 34% of students with ADHD receive special education or mental health services (DuPaul & Stoner, 2014). Most studies focus on white males with a middle-class socioeconomic status who have ADHD, although surveys of teachers and parents suggest that Black students are more likely to be underdiagnosed with ADHD compared to their White counterparts (DuPaul & Stoner, 2014). Students with health insurance also are identified more often than those without health insurance (DuPaul & Stoner, 2014). Students with ADHD often lack the resources to enhance their executive function skills (e.g. attention, self-regulation, working memory), which are essential for academic success. As a result, teachers must implement strategies that support the development of these cognitive processes and improve overall performance.

In the classroom, students who have issues with ADHD tend to have lower grades, lower academic performance, and short- and long-term memory issues (Buttery, 2008). Along with performance, social problems can arise with ADHD and students may isolate themselves or feel rejected (Buttery, 2008). Also, students with this diagnosis experience difficulties with

absenteeism, GPA, retention rates, and high school and college completion (Keilow et al., 2018). Half of students with learning disabilities are concurrently diagnosed with ADHD.

Students with ADHD tend to have problems staying on-task; “on average, students with ADHD are on task about 75% of the time in contrast with an average of 88% on-task behavior by typically developing classmates” (DuPaul & Stoner, 2014, p. 6). ADHD also affects how well students learn and retain information. Keilow et al. (2018) found that “children with ADHD also display lower cognitive achievements, lower test scores, and higher scholastic impairment, with especially attention problems predicting poorer math and reading achievement” (p. 3). Teachers need to understand strategies to support students with ADHD (Lee et al., 2019), and to be able to implement interventions to support these students to be successful in reading despite their deficits.

Executive Functioning

Executive functioning includes the mental skills that help people to control their behavior, thoughts, and emotions to achieve goals. These skills are especially important when the situation is new or challenging and requires flexibility (Huizinga et al., 2018). For students with ADHD, executive function difficulties often involve problems with working memory, making it hard for them to hold and use information in their minds for short periods. This affects their ability to stay on-task during activities like reading because working memory is needed to focus and process information. On-task behavior in reading means staying focused on the material, understanding it, and avoiding distractions, which is different from just following instructions or completing a task without engaging with the content. Students with ADHD often struggle with staying on-task because they have difficulty managing the cognitive resources (e.g., working memory) needed for reading and learning (Barkley, 2022; DuPaul & Stoner, 2014).

Elements of Reading

Reading is a multifaceted academic skill, encompassing comprehension, fluency, vocabulary, phonics, and phonemic awareness (Read Naturally, 2024). *Phonemic awareness* is when students understand syllables and words. *Phonics* is the relationship between letters and sounds. *Fluency* is when students read with proper speed, accuracy, and expression. Vocabulary includes both what students are explicitly taught and words they learn through reading. *Comprehension* is when students understand what they read (Read Naturally, 2024). Reading is typically taught in a whole-group setting, in reading groups, and through one-on-one instruction. Allowing students to pick out their reading materials and read for enjoyment supports all the reading elements (Rodgers, 2017). Reading requires at least 90 minutes of uninterrupted classroom instruction; research indicates that the more students read, the more their reading skills improve (Gay et al., 2021).

The quality of teaching is an important element for students learning reading skills (Gay et al., 2021), as is the learning atmosphere: Teachers need to create a caring, structured, and encouraging environment. Gay et al. (2021) found that students from low-income homes who lack parental support need at least 2 hours of reading instruction daily. Their research also supports the idea that parental involvement is essential in students gaining reading skills. The amount of time students receive instruction in and outside the classroom improves their reading skills. Gay and colleagues noted that it was not just the amount of instruction that influenced children's reading skills such as reading comprehension and vocabulary. "Rather, greater amounts of instruction were associated with growth in children's reading skills if such instruction was provided in a high-quality classroom learning environment (e.g., organized classrooms with warm, responsive, and supportive teachers)" (Gay et al., 2021, p. 983).

ADHD and Reading

Reading is an area with which many students struggle. The Nation's Report Card (2024) demonstrated that fourth and eighth-grade students dropped 3 points from the national average in reading in 2022. In fourth grade, the score fell to its lowest level since 2005; in eighth grade, the 2022 scores were the lowest in reading since 1998. As a rule, literacy is a skill all students need and students with ADHD have a more difficult time staying focused during reading (McBride, 2024). Students who fall behind in primary grades tend to have trouble reading through the rest of their school years. McBride (2024) found that students who have ADHD and a reading disability (RD) overlap at around 40% and that "when examining reading achievement, a greater percentage of children with ADHD are delayed in the onset of language, with specific struggles in the areas of language comprehension and communication" (p. 8). Inattention and executive functioning difficulties can lead to long-term reading challenges; adolescents with poor reading achievement may have been labeled as "hyperactive" during preschool (McBride, 2024).

Neurobiological Contributors

Reading is a subject that presents a challenge to students with ADHD if they cannot stay on-task. Jagger-Rickels et al. (2018) researched the link between ADHD and reading RD, finding shared neurobiological correlates in the right caudate and superior frontal regions of the brain in both conditions. Their findings "support some prior volume-based work on the unique neurobiological contributors to RD and ADHD, along with providing potential shared neurobiological correlates for RD and ADHD" (Jagger-Rickels et al., 2018, p. 61). Students with RD, like those with ADHD, also tend to have issues with executive functioning. Students with ADHD and those with RD have much of the same brain chemistry, and researchers have examined many interventions for both groups (Jagger-Rickels et al., 2018).

Interventions

Many interventions have been identified to aid students with ADHD in building reading skills. Roberts et al.'s (2023) systematic review sought to identify the most effective interventions for students with RD and inattention. Students who have ADHD and RD tend to struggle emotionally, socially, and academically. The interventions used in one study reviewed by Roberts et al. (2023) and colleagues included reading instruction, self-monitoring, and social skills development. That study found that word reading instruction was "associated with improved word reading outcomes and self-monitoring and function-based interventions [with] improved student behavior" (p. 1). Another study with fourth through twelfth graders who had been diagnosed with ADHD or were considered at risk for ADHD focused on reading outcomes for reading interventions. Findings showed that the students used the self-regulation strategy for summarization and finding the main idea (Roberts et al., 2023).

McBride (2024) used fluency strategies—self-selected and brief experimental analysis (BEA; i.e., repeated reading, listening passage review, continuous reading)—for students with ADHD. Students were assessed to see which intervention worked best for them. Results indicated that students who received Listening Passage Preview intervention were most effective in increasing their oral fluency and comprehension. Patrick (2021) studied the effectiveness of the fluency interventions of repeated reading and listening passage previews, delivered virtually to students with ADHD. Results indicated both strategies were effective for fluency. Lawrence et al. (2021) compared the academic performance and academic trajectories of students with ADHD and students without a disorder. They used Young Minds Matter data (Australia) from around 6,000 subjects ages 4 through 17. Performance data was gathered from around 300 students with ADHD and approximately 4,000 students who did not have a disorder. Over an

eight-year period, survey data was gathered and integrated with national standardized literacy tests. Results demonstrated that students with ADHD were 1 year behind in reading and 9 months behind in writing, for every 3 years they were in school (Lawrence et al., 2021). Although these studies focused on specific academic intervention strategies for students with ADHD reported positive results, they did not impact issues related to executive functioning for this population. None of the studies explicitly measured executive functioning as a primary outcome.

Self-Monitoring and Executive Functioning

Gioia et al. (2023) focused on assessing reading, writing, and self-monitoring together. The students that participated in the study were 377 third, fourth, and fifth graders with reading and writing disabilities. Often assessments focus on reading or writing, but not both. The setting for the AWSM Reader assessment (created for the study) was one-to-one or group administration, two tests each 60 minutes apart. Results indicated that reading and writing are directly affected by each other and can be measured using the same text. Gioia et al. (2023) and colleagues also used SM to increase reading and writing skills; this study is essential because it involved students improving executive functioning, and teachers incorporating executive function tasks in their classrooms. Students used SM as an aid in reading, writing, and assessments. This study is relevant as it demonstrated how SM supports reading, writing, and executive functioning. It reinforces the importance of integrating executive function tasks to help students with ADHD stay on-task during SSR.

Sulu et al. (2023) discussed the importance of using SM to improve on-task behaviors of students with ADHD. Their research was collected for 16 weeks, across three different settings, but not during English language arts and painting. Three students were observed and their

teachers rated their behaviors (Sulu et al., 2023). Findings showed that the self-monitoring strategy aided students' on-task behaviors. After being taught SM, the three students' on-task behaviors also increased in ELA and painting (Sulu et al., 2023).

Small Groups

Reading in small groups is essential when teaching students fluency and comprehension. Kolness (2018) researched different reading strategies in a small group to improve first-grade students' reading fluency. Students were chosen based on their aimswebPlus fluency assessment. Four students were placed in a small reading group and taught fluency skills 4 days a week, for 20 minutes, for 5 weeks. The fluency practices were decoding, reading high-frequency words, repeated readings, poetry practice, and read-alouds. Four other students did not receive small-group instruction. Students who received direct instruction in reading groups increased their reading fluency by 10 to 18 points (Kolness, 2018). There is quite a bit of research on the effects of small-group reading and incorporating reading strategies. Foorman and Torgesen (2001) discussed how teachers should incorporate dependent reading, read-alouds, and collaborative discussions when teaching reading. Their work was based on the social-constructivist theory (students construct their knowledge through reading).

Children who have trouble reading in school need more intensive reading instruction. Some students need small-group instruction and others need one-on-one instruction (Foorman & Torgesen, 2001). Reading groups are essential for any reading classroom and two thirds of teachers meet with students several times a week in small reading groups (Conradi Smith et al., 2022). Small groups help teachers differentiate instruction, offer feedback, and promote social interactions. Small groups have to be managed and planned for, or they are not effective—and teachers have to decide what the rest of the class is doing while they meet with small groups.

Conradi Smith et al. (2022) demonstrated that differentiation of text is not an effective small-group reading strategy, as it leaves marginalized students at a disadvantage. Small-group reading helps teachers differentiate for students, especially in writing and word recognition. Conradi Smith (2022) and colleagues recommended "the ABCs of small-group instruction, drawing attention to Assessment, Basics & Books, and Clear directions & feedback" (p. 350). Small groups are most effective when teachers work on a targeted skill. During small-group instruction, students have to monitor their attention while reading.

Self-Selected Reading

With SSR, students pick out reading materials (i.e., books) in the classroom or from the school library and engage in reading. All students benefit from reading a book they enjoy (Edmonton Regional Learning Consortium, 2016). Benefits of SSR include building fluency, practicing reading skills, increasing receptive language, comprehension, expressive language, building confidence, and enjoying reading (Edmonton Regional Learning Consortium, 2016).

Self-selected reading enjoyment (SSRE) is also vital for all students; reading for fun helps build students' self-efficacy in the reading classroom (Rodgers, 2017). Students may struggle in college if they are unable to read for enjoyment, as they may lack the necessary comprehension skills (Rodgers, 2017). Students with great vocabulary and reading comprehension skills tend to read more often and become even better readers, whereas students with low self-efficacy are intimidated by more difficult texts. Rodgers (2017) used a mixed-methods approach to study 136 students at a community college to determine if SSRE was helpful in reading comprehension and self-efficacy. Students who engaged in SSRE made gains in reading achievement and overall academics. Students who read for enjoyment will increase the frequency of how often they read. Merga (2018) observed 47 students ages 8 through 11 to

see if they were able to share about what they were learning while reading. Sadly, not all students were able to share their learning after reading. Merga also found that some students might not be able to share about what they were learning while reading, but could later. Zac, age 11, was able to share jokes with his friends later in the day from one of their books. Also, Zac and his friends would read series together and recommend books to each other. So, although Zac was not able to talk with his classmates about what he read during SSR, he could still share his books throughout the day. Students involved in SSRE will share their learning with other students and, therefore, both students are learning.

Token Economy

A research-based, low-cost practice, TE is a method of intervention using Skinner's principles of reinforcement (O'Donohue & Ferguson, 2001). TE reinforces a student's targeted behavior by giving the student items, points, stickers, or coins (DuPaul & Weyandt, 2006; Heiniger et al., 2022; Soares et al., 2016). Students collect their items or tokens and exchange them for a larger reinforcer (i.e., incentive, activity, tangible). TE has a reputation for being an effective classroom management strategy, implemented with other positive interventions and frameworks. TE has been an effective system for students with behavioral and emotional issues, ADHD, learning and intellectual disabilities, and schizophrenia (Soares et al., 2016). TE has been implemented in classrooms, mental hospitals, prisons, colleges, and treatment centers (Soares et al., 2016). TE is effective, in part, because it provides immediate reinforcement. Soares and colleagues' meta-analysis (2016) analyzed findings from a host of studies on implementation of TE in public schools over a 20-year period (1980–2014). Their goals were to

> (a) evaluate the quality of the design, (b) calculate ESs and CIs, (c) stratify the results across quality, and (d) evaluate moderator variables of peer-reviewed literature, with a focus on both academic outcomes (e.g., task accuracy, task

> engagement) and behavioral outcomes (e.g., disruptive behavior, noncompliance). (p. 392)

Results indicated that TE was most effective for children ages 6 to 15 (Soares et al., 2016). The goal of TE is for students to take control of their learning (Heiniger et al., 2022). TE is a proven intervention to implement in the classroom.

DuPaul and Weyandt (2006), citing Barkley (1997) noted that a key contributor to behaviors exhibited by children with ADHD was "impaired, delayed responding to environmental events" and thus "immediate contingencies frequently are necessary to change behavior effectively" (p. 164). TE is productive because, in a busy classroom, the immediate reinforcement happens right away. The reinforcement is also nonverbal. When implementing TE, teachers "provide written quantitative ratings (e.g., 1 = 'did not meet goal' to 5 = 'met goal completely') for each goal that serve as the immediate contingencies" (DuPaul & Weyandt, 2006, p. 165). Students receive immediate feedback and incentives based on the student's mastered skills. TE has been known to improve both on-task behavior and academics of students with ADHD, and students being productive in their seats (DuPaul &Weyandt, 2006).

As mentioned, TE has been used in many settings, including the classroom. Incorporating TE into the classroom involves planning, evaluating, and monitoring progress (DuPaul & Weyandt, 2006; Heiniger et al., 2022; Soares et al., 2016). Heiniger et al. (2022) described TE as

> a three-term contingency [that] plays out in the following way. The antecedent (A) is a cue for the student to respond in a specific way. The behavior (B) is the prosocial behavior for the student to demonstrate that is made clear to both the student and the teacher or paraprofessional. The consequence (C) is the delivery of the token that acts as a reinforcer. (p. 152)

Heiniger et al. also outlined specific steps in implementing TE.

Identify the Target Behavior

As Morse and Skinner (1958) described, "When a response is reinforced in the presence of a stimulus, the stimulus (SD), the response (R), and the reinforcement (RFT) occur in close temporal proximity, as the result of certain arbitrary arrangements" (p 1). The target must be measurable, malleable, and specific. The goal is to replace one specific issue with a targeted strategy. Heiniger et al. (2022) gave an example of a student shouting out and replacing the issue with the student raising their hand.

Conduct a Preference Assessment

Teachers should always prioritize finding out what students want as a reward (see Appendix A). To conduct a preference assessment, teachers work with students to identify the tokens they want and how they want them delivered. Such assessments

> range from simple and informal to more complex and formal. Preference questionnaires [can] be helpful for students to express or select their likes and dislikes. These questionnaires allow the teacher to quickly determine an effective backup to the tokens that the student may not necessarily identify on their own. (Heiniger et al., 2022, p. 153)

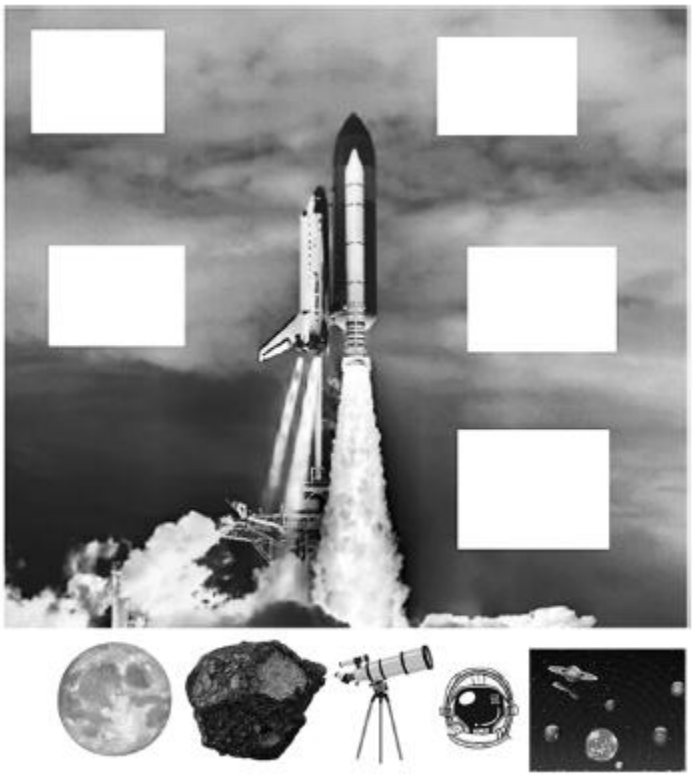
A token can be anything—a student's favorite character or picture. The backup reinforcer could be time with electronics or lunch with a friend. The token or reward needs to be student-centered; not identifying student preferences could result in ineffective contingencies (DuPaul & Weyandt, 2006; Heiniger et al., 2022; Soares et al., 2016). For example, in one study the teacher noticed that one of her students enjoyed playing with paperclips, and she and the student decided paperclips would be his token (Heiniger et al., 2022).

Just as a token can be anything, and so can a token board. The token board could be a sheet of paper that lists the student's goal at the top and a place for tokens at the bottom. Some teachers make a Velcro token board for students with small squares or circles printed or laminated before being attached to the board—providing a visual, tactile reinforcement for

students to work toward their goals (Heiniger et al., 2022; see Figure 2.1). Older students could use a sheet of paper with a checklist.

Figure 2.1

Sample Token Board



Note. A token board based on a student's interest in space. From "Classroom reinforcement systems: Using token economies to foster independence," by S. N. Heiniger et al., 2022, *Beyond Behavior, 31*(3), p. 153 (https://doi.org/10.1177/10742956221108359).

Define Reinforcement Schedule and Token Exchange Rate

The third step is to define the reinforcement schedule and token exchange rate. First, the teacher must describe for students the reinforcers and backup reinforcers so that they understand the tokens are the reinforcers (Heiniger et al., 2022) for targeted behaviors and that they will eventually receive back-up reinforcers. Students use their tokens to "buy" a backup reinforcer (e.g., extra recess or lunch with friends). Heinger et al. (2022) describe how a student used paper

clips as tokens and traded them in for playtime with paper clips to keep or lunch with the teacher. Tokens function as money in the classroom to secure access to highly desirable reinforcers.

Tokens should always be based on the student's goal and delivered with consistency. Students receive tokens after a certain amount of time or after their performed behavior (Heiniger et al., 2022). In the beginning, the distribution of both tokens and backup reinforcers should occur often. Every time the behavior is reinforced, students will receive a token. How often students receive tokens should be based on their baseline data. For example, if a student is shouting every 3 minutes, a token initially could be issued every 2 minutes and 30 seconds; in Heiniger at al.'s (2022) study, a student could receive a tokens every 10 minutes of not shouting. Once students make changes, teachers can modify the exchange rate.

Targeted behaviors should be defined for students. Students should understand that they will receive tokens if they stop the negative behavior or if they reduce an undesirable behavior (Heiniger et al., 2022). When implementing TE, it is important to decide how many tokens to give when behavior is met or reduced as well as when not to give a token, and to focus on one clear targeted goal. For example,

> if the target behavior is engaging in polite interactions with others, a student could receive one token for saying excuse me when someone is standing in their way, two tokens for greeting someone when they approach, and three tokens for allowing another student to go first in line. The level of reinforcement should match the response effort required to perform that behavior. (Heiniger et al., 2022, p. 155)

Teachers must decide as well how many tokens should be exchanged for the backup reinforcer, and whether students may be able to exchange daily or only once their token board is full (Heiniger et al., 2022). Again, both tokens and exchanges will be based on students' baselines. Teachers can create a backup reinforcer menu for students to save up their tokens or cash out early. Giving students too many tokens may create an environment in which students become

satiated with the process. Whatever schedule is created, Heiniger et al. (2022) stressed that both implementers and students must abide by them (Heiniger et al., 2022).

Share the Plan

It is important to thoroughly explain the plan or else students might not buy into it. Students need to be aware of what is going on and what they must accomplish. Teachers need to explain to students how they will earn tokens, when they can exchange them, when they may not earn tokens, and whether and under what circumstances tokens may be taken away (DuPaul & Weyandt, 2006; Heiniger et al., 2022; Soares et al., 2016). Then, the plan must be created based on the student's baseline data. Some limitations that need to be considered are to not reward nontargeted behaviors, to follow the schedule properly, and to ensure data is recorded accurately. Ideally, students' families should be included in the plan as a backup reinforcement.

Monitor Progress

Progress towards the goal should be monitored throughout the whole process, as this will help show if the behavior changes (DuPaul & Weyandt, 2006; Heiniger et al., 2022; Soares et al., 2016). Progress monitoring can be as simple as a chart with tally marks, but

> the number of tokens received per day or the number of times the student exchanged the tokens for the backup reinforcer should both be recorded and graphed daily. If the student is capable, they should participate in the recording process, which acts as a self-monitoring intervention to allow them to examine their progress as well. (Heiniger et al., 2022, p. 156).

Table 2.1 is an example of a progress monitoring sheet identifying maladaptive and replacement behaviors, goals, the exchange rate, and assessment of goal achievement.

Table 2.1

Token Economy Data Collection Form

Target Maladaptive Behavior:			
Target Replacement Behavior:			
Token Goal:		**Exchange Goal:**	
Backup Reinforcer:			
Date	**Tokens Earned**	**# Exchanges**	**Goal Met (Y / N)**

Note. A token economy progress monitoring sheet. From "Classroom reinforcement systems: Using token economies to foster independence," by S. N. Heiniger et al., 2022, *Beyond Behavior*, 31(3), p. 157 (https://doi.org/10.1177/10742956221108359).

Generalize Tokens

Generalization refers to using a new skill in a different place, with a different person, or using different materials. Tokens can differ from student to student, or all students could receive the same tokens (Heiniger et al., 2022). Students may respond primarily to their teacher when using the system, so it is important to limit who implements TE to ensure consistency. Rather than immediately taking away or stopping providing tokens as a student's behavior improves, it is recommended to "thin" the schedule. Thinning involves gradually reducing tokens or backup

reinforcers as the research progresses, and the thinning process may be different for each child (Heiniger et al., 2022).

Fade Tokens

Fading involves a stimulus being removed or changed once a behavior is changed. In TE, the token is not intended to be awarded indefinitely; it is meant to change behavior and eventually be removed (Heiniger et al., 2022). Eventually, the tokens have to fade and the students will be on the same level as their peers. Fading begins when the teacher believes the student is ready, and

> at a speed appropriate for that student. First, look at the data collected. Next, make decisions on fading after trends have been established (six to eight data points), setting goals for each new fading benchmark. Finally, communicate the fading plan clearly to the student and celebrate each success along the way. (Heiniger et al., 2022, p. 158)

Shift to Self-Monitoring

The goal of TE is to shift from an external reward to internal self-monitoring. Students who learn to self-monitor early in their education will have greater academic success in the future (Heiniger et al., 2022). TE is mainly used for skill development. When students are taught a skill and monitored, this will lead to students' self-monitoring (SM), a crucial skill that students can benefit from throughout their lives. "When students are taught to be more independent by monitoring and managing their behavior, the teacher and paraprofessionals can focus on instruction of new skills and managing the overall classroom setting rather than homing in on one student's behavior and reinforcement system" (Heiniger et al., 2022, p. 158). TE is an effective strategy for keeping students on task during SSR, but numerous barriers are associated with TE.

Sometimes, using external reinforcement can reinforce students' reinforcement dependence and not aid students' self-awareness. Students might not understand what they are

learning but comply simply to earn the token and reward. TE may be effective in the short term, but it might not have lasting effects. Students may put effort into learning new skills while rewards are in place, but they could lose those skills once the incentives are removed. Additionally, an inconsistent or misapplied token system can hinder student buy-in; students must be invested in the process. Heniger et al. (2022) suggested that students use a preference token sheet before starting TE. The token sheet listed options students can use as tokens (see Appendix A). Also, if students can max out of tokens per day for a behavior, they may resist the behavior closer to the end of the day (Heiniger et al., 2022). Some students may find it unfair if others are earning more tokens than them, leading to a competitive environment. Hulac (2011) related that some people believe that TE can lead to students being dependent on bribery or that they will turn to adults for motivation. Some teachers think they will not have enough time to give out tokens or prizes, given their already overwhelming workload. So, both teachers and students must buy into TE for it to be effective.

Self-Monitoring

SM is an important skill for students with ADHD. Being able to control oneself is an essential part of being a human. Harris et al. (2022) related how William Penn noted that no man is fit to command another who cannot command himself, emphasizing that SM is essential for self-regulation, "as it affects both behavior and academic performance" (Harris et al., 2005, p. 146). Korinek and deFur (2016) stated that self-regulation is recognized as helping students take control of their learning and behavior. SM is the first step of self-regulation, which involves students setting goals, meeting goals, receiving feedback, and monitoring to meet their goals. Elements of self-regulation include SM, self-evaluation, and recording (Korinek & deFur, 2016). At the same time, subcomponents of self-regulation are self-control, self-management, and self-

direction. Ideally, students self-record, evaluate, plan, and self-evaluate. Self-regulation helps students follow directions, organize, participate, manage behavior, and performance. Self-regulation can be a problem for students with disabilities, including students with ADHD (Korinek & deFur, 2016). Teachers who promote self-regulation use assessment, implementation, and evaluation. Likewise, teachers should use organization, checklists, student choice, routines, and set goals to help students self-regulate. Teachers may use progress monitoring to assess if they are accurately promoting self-monitoring. As always, some students will need more support than others.

Korinek and deFur's (2016) work offers examples of how to self-monitor and self-regulate, including detailed checklists for self-regulation with questions to prompt self-regulation such as "What needs to be done? What is your goal?" (p. 236). Their recommended best practices to support self-regulation include labeling "work areas, storage spaces, [and] materials with words and images" (p. 238). SM involves assessing and recording to meet a targeted behavior.

Self-Monitoring to Improve Academic Performance

Although self-regulation can improve a child's learning and performance outcomes (Harris et al., 2005), it can be lacking in some children, especially students with ADHD. Ben-Yehudah and Brann (2019) reported that high school students with ADHD can have issues with self-regulation learning. In the classroom, students are expected to complete their classwork and homework (Harris et al., 2005). Teaching students self-regulation can lead to them being on task more frequently and increase academic performance, but students need to be able monitor and assess themselves before they can self-regulate (Harris et al., 2005).

Ferrez et al. (2023) discussed the importance of self-regulated learning (SRL) in reading to increase students' academic performance and reading comprehension. Two instruments were used in their study: the Self-Monitoring for Reading Scale, which assesses the self-regulation of students and self-monitoring strategies, and the Self-Reactions for Reading Comprehension Scale, which assesses students adapting to difficult reading comprehension situations. Self-monitoring helps students adjust their strategies throughout the reading process. This study used a mixed-method approach, with three expert judges—each averaging 16 years of experience in primary education and specializing in self-regulated learning (SRL). Additionally, 16 middle school students (two boys and two girls from each participating school) took part in the research. The results underscored the importance of self-monitoring and self-regulation in improving reading performance, stressing their significance for both theoretical understanding and practical application.

Harris et al. (2005) found that SM strategies had a positive effect on students' on-task behavior and spelling study habits, with greater results for spelling than for attention. Again, Self-regulation plays a key role in enhancing children's learning and academic performance. However, some students, particularly those with ADHD, may struggle with this skill. Integrating self-regulation strategies into classroom instruction can help students stay focused and improve their overall academic success. This approach is especially valuable for students in special education (Harris et al., 2005).

There is limited research on SM for students with ADHD because early investigations suggested that the strategy was not effective (Harris et al., 2005), even though many researchers believed that it could be helpful for students with ADHD. The effectiveness of SM for children with ADHD has been addressed in only a few studies, and often as part of multicomponent

interventions, and no researchers have investigated whether self-monitoring attention (SMA) or self-monitoring performance (SMP) produces differential results for critical academic and behavioral outcomes (cf. DuPaul & Eckert, 1997, as cited in Harris et al., 2005, p. 146).

Harris et al. and colleagues (2005) conducted a meta-analysis of cognitive-behavioral approaches used to reduce aggression, hyperactivity, and impulsivity in teens and youth. While research supports SM in decreasing troublesome behaviors, better results have been demonstrated in a classroom environment rather than a setting outside of the school. The authors discussed how broad problem-solving methods were taught and that researchers need to be specific (Harris et al., 2005). SM should be taught explicitly and used in meaningful tasks, with frequent and ongoing feedback (Harris et al., 2005). Students also can use self-instruction to develop self-control. One study in the meta-analysis showed the usefulness of using SM for both attention and performance for four students with learning disabilities, focusing on spelling. Self-monitoring attention and self-monitoring performance increased students' on-task behaviors for spelling, but students preferred SMP (Harris et al., 2005).

Self-Monitoring of Performance and Attention

Elements of SM include students assessing themselves and self-recording, to monitor their academics and behavior; the approach is most effective when the outcome is something students desire (Harris et al., 2005). Research has focused on students with ADHD using SM to (a) improve performance (SMP; i.e., monitoring, assessing, and recording academic performance), (b) improve attention (SMA; i.e., evaluating, recording, and assessing attentional behavior and on-task behaviors), and strategy use (Davies &Witte, 2000; Hoff & DuPaul, 1998). Whereas using SMP suggests that as students develop academically, their on-task behaviors will

increase (Harris et al., 2005), SMA suggests the opposite: that on-task behaviors will lead to academic growth.

Self-Monitoring as Special Education Intervention

Davies and Witte (2000) followed four students with ADHD in a general education classroom and taught them SM, offering them support and peer feedback. Students were taught an SM strategy and the teacher monitored if they used the correct behavior. The self-monitoring attention (SMA) strategy decreased students' inappropriate behaviors (e.g., blurting). Hoff and DuPaul (1998) used an SM strategy to decrease disruptive behaviors and aggression of three students with ADHD. Initially, the teacher rated students' behaviors and included backup reinforcers. Students were taught to self-record and try to match the teacher's assessments. Results demonstrated that disruptive behavior decreased (Hoff & DuPaul, 1998). Harris et al. (1994) examined the effectiveness of SM on attention and academic performance of "fourth- and fifth-grade students with [learning disabilities] in two separate experiments" (Harris et al., 2005, p. 147). The first experiment paid close attention to the spelling study behaviors of students with learning disabilities, and the second emphasized two SM interventions when story writing. Self-monitoring performance (SMP) and SMA were both effective in improving students' on-task behaviors; SMP was more operative in aiding students with spelling (Harris et al., 2005). Reid and Harris (1993) "compared the effectiveness of attention and performance monitoring on spelling performance of 28 elementary students with LD" (as cited in Harris et al., 2005, p. 148). First, students were taught how to use a spelling strategy. Results indicated that students' on-task behaviors were the same for SMA and SMP. Practicing spelling words was higher when using SMA and spelling performance was higher when using SMP.

Implementing Self-Monitoring

Amato-Zech et al. (2006) focused on using self-monitoring behaviors to increase on-task behaviors among three students receiving special education services, to increase productivity, attention, and performance. Teachers identified students who were often off-task, and observations confirmed the students were off-task at least 55% of the time. Researchers used a MotivAider, a simple device that helps students keep track of their behaviors through vibrating reminders. There were three categories of off-task behaviors: off-task passive, off-task motor, and off-task verbal. Integrity was measured using a 5-point checklist for interventions. After the researchers collected baseline data, students were taught self-monitoring strategies in two learning sessions. One strategy was SLANT: "Sit up, Look at the person talking, Activate thinking, Note key information, and Track the talker" (Amato-Zech et al., 2006, p.214). Results showed an increase of on-task behavior from 55% to 90%. Berry (2015) examined the SLANT strategy in her study on students' on-task and off-task behaviors during instructional activities. She found that this strategy played a role in improving students' focus and engagement during lessons.

Setting Goals

With SM, students set a goal, monitor themselves, and work toward their goal (Scheithauer & Kelley, 2017). Scheithauer and Kelley (2017) studied its application to enhance classroom performance in 41 college students with ADHD. They divided participants into two groups, with one group receiving study skills instruction, goal setting, and SM instruction; the other group just received skills instruction and goal setting. Students set a goal and monitored themselves working towards the goal. The group that received SM instruction increased their GPAs and met their goals—demonstrating that self-monitoring is helpful to students with ADHD

across grade levels. In that study, participants' progress was tracked using School Success Checklist subcategory scores (Scheithauer & Kelley, 2017, p. 1036), including classroom behavior, reading comprehension, note-taking, test-taking, organization, and inattention.

According to Korinek and deFur (2016) self-regulation involves students setting goals, meeting goals, receiving feedback, and monitoring to meet their goals. SM and goal setting coupled together are essential when setting goals and working towards a target. Goal setting helps students problem-solve and work independently (Didion & Toste, 2022). Students must be motivated to practice a strategy such as SM. Teachers must keep students motivated through the process and get students to have buy-in.

Students also set goals and track their progress when using self-regulated learning, and the process of goal setting can increase positive outcomes (Bloom, 2013). Students' learning and motivation are interconnected and occur simultaneously. Students must have confidence in their goals and take active steps to manage and adjust them. Bloom (2013) cited a 1993 study by Lan et al. wherein "students who monitored their learning and level of self-efficacy performed better on the four regular course examinations" (p. 48). Self-monitoring encourages metacognitive thinking because students must self-reflect. Teachers may need to model what self-regulated learning looks like for students to be successful (Bloom, 2013).

Goal setting is a key component of SM, especially for students with ADHD, as it helps them focus on specific outcomes and track their progress. Students who engage in goal setting combined with SM demonstrate improved academic performance and increased motivation. By setting clear, achievable goals, students take ownership of their learning and develop problem-solving skills (Bloom, 2013; Didion & Toste, 2022; Scheithauer & Kelley, 2017; Wright, 2013). Teachers play a vital role by guiding students in defining goals and establishing observable

behaviors to track progress. With SM, students assess their behavior and make adjustments, fostering metacognitive thinking and independence. This process helps students with ADHD stay engaged, regulate their behavior, and ultimately succeed in academic tasks.

Assessing Self-Monitoring

There are two components to SM: measurement and evaluation. During the measurement phase, students measure and record their behavior. During evaluation, students compare their data to a predetermined standard (Wright, 2013). Students who engage in SM often adjust their behaviors to align with their goals. First, students need to understand the teacher's expectations for the goal. The teacher and student work together to define and orchestrate a goal. SM can include behaviors that need to decrease. For each goal, the teacher and student collaboratively create a clear, specific definition that provides for observable indicators to identify when the behavior is occurring. For instance, *on task* might be defined as "maintaining eye contact with the teacher or focusing on desk work" (Wright, 2013). Next, students and teachers come up with how students will self-record and a schedule for doing so. Although a written format will allow students to see a trend over time it does not have to be written down. There also should be a cue to trigger SM (e.g., a timer set to go off at different intervals). It may be helpful to establish a reward students earn when successfully using SM (Wright, 2013). The process needs to be checked for accuracy and eventually the goal is to fade the SM plan because students have mastered the skill.

Potential Barriers to Self-Monitoring

Although SM is an effective strategy for keeping students on-task, a few barriers exist. One potential barrier is that researchers want to make sure their studies are ethical and reliable. Researchers need to determine if the time limit for self-monitoring is important (Harris et al.,

2005). Hoff and DuPaul (1988) acknowledged a limitation where they did not evaluate integrity, even when some of the data represented showed a lack of integrity. They also acknowledged that time constraints and order effects were a problem and, although their interventions were effective for most students, the interventions will not work for everyone.

On-Task Behaviors

Several behaviors must be measured for students to be considered on task, such as having one's eyes focused on work or concentrating (Gill & Remedios, 2013). Regardless of the target behavior, researchers must create a checklist essential to their study to measure on-task behaviors. On-task behaviors in education are often the dependent variables in a study. Gill and Remedios (2013) assessed 25 on-task behaviors in four categories.: task-related, teacher-related, social, and miscellaneous. They recommended using "a checklist of behaviors that differ in degree of how necessary they are to include in research when using on-task behaviors as a dependent measure" (Gill & Remedios, 2013, p. 199). Many researchers look for some of the same on-task characteristics, such as eyes fixed on work. Student behaviors play a huge part in academic growth, and students must be motivated to stay on task in order to be successful. The term "on task" is often used in an education setting whereas "off task" is used in a clinical sense. The Classroom Observations of Conduct and Attention Deficit Disorder was developed in the 1980s to guide assessment of classroom behaviors of ADHD students taking medication (Gill & Remedios, 2013).

On-Task Behavior in Students with Learning Disabilities

Often students with language-based learning disability (LD) receive push-in services within the general education classroom (Berry, 2015). Students with LD need more strategies to help them stay on task and improve their reading. In Berry's (2015) study of increasing on-task

behaviors of students with LD, fourth-grade language arts teachers used tableau for students to act out parts of a story. Observational data was collected on three students with LD. The researchers used SM and self-management procedures to assess if students were on task, and the intervention included other components such as sensory techniques and academic modifications. In a fifth-grade setting, a bell chime reminded students to practice patience and then assess if they were on task or off task. Berry (2015) also demonstrated that students need the arts integrated into the reading curriculum to learn the content and "the value of Tableau for improving outcomes for students with LD," which she suggested could be used with students with other disabilities and "across additional content areas" (Berry, 2015, p. 211). SM is crucial in keeping students with LD on task. Students with LD are often off-task (e.g., talking, sleeping, playing), and teachers lose instructional time correcting off-task behaviors (Sulu, 2022). "Self-management strategies help individuals manage their own behaviors and decrease their reliance on adults and other external agents through the personal application of behavior strategies" (Sulu, 2022, p. 12). Teaching students SM transfers control of behaviors to students.

Promoting On-Task Behaviors

SMP suggests that if students develop academically, their on-task behaviors will increase. Harris et al. (2005) studied students with ADHD using SM to watch their attention and performance of on-task and spelling behaviors. The researchers' quantitative design included multiple baselines to monitor the performance and attention of students with ADHD. Harris et al. (2005) cited other research finding that teaching students SM strategies decreased inappropriate behavior and increased on-task behavior and performance. In their study, the researchers taught SM strategies to students with ADHD in a resource room setting. Students were receiving pharmacological treatment and had emotional and behavioral issues. Results indicated that

students improved their on-task behaviors when they were on medication and being taught SM strategies (Harris et al., 2005).

Shimabukuro et al.'s (1999) study also used SM to increase students' academic growth and on-task behaviors. The study consisted of three students with ADHD and LD in a small-group setting, all of whom improved their academic performance and on-task behavior. The results of DuPaul and Weyandt's meta-analysis (2006) suggested that SM strategies might be most successful for "children with milder ADHD symptoms who have been successful in externally managed systems (e.g., teacher-mediated token reinforcement" (p. 165). SM and behavioral strategies were successful in both large (e.g., 175 students with ADHD and 63 students without ADHD) and small (e.g., three middle-school students with emotional and behavioral disorders) studies. Students being engaged during reading is essential for their literacy and education, with benefits extending into adulthood (Reder, 2023).

Technology Aids

On-task behavior and self-monitoring need to be measured. Bedesem and Dieker (2014) used cell phone apps to help students monitor their on-task behaviors.

> Alarms on the daily calendar of the personal digital assistant (PDA) cued the student to determine whether he was on-task or off-task and record the answer using a drop-down menu on the mobile device. Results of the study supported the use of a handheld computer as an all-inclusive self-monitoring device. Self-monitoring increased the student's on-task behavior from 64% to 98%. (p. 247)

Another student used an iPod Touch to deliver video monitoring for self-monitoring. Both using the iPad Touch and cell phone were effective SM strategies to help keep students on-task (Bedesem & Dieker, 2014).

Keeping Students On-Task During Reading

Keeping students on task for reading is essential in getting students to *really* read. Kate Umstatter, a Responsive Classroom teacher, emphasized the importance of modeling on-task

reading behaviors (2024). Teachers must model how students should look, sound, and feel during reading (e.g., be quiet during reading and only whisper when necessary). Teachers must model what students' hands, feet, mouths, and eyes are doing during SSR, and teach students personal management strategies (e.g., when and how to ask to go to the bathroom during that time). At the beginning of the school year, students should be taught reading stamina and endurance. Reading stamina is the ability to maintain focus and engagement while reading for an extended period without distraction. Reading endurance refers to the persistence and resilience needed to continue reading despite challenges like difficult vocabulary or complex text. Also, teachers can teach students quieting strategies to get back on track, like inhaling and exhaling three times (Umstatter, 2024). Students also need reflection time to consider how they think they are doing during their SSR time.

Theoretical Frameworks

There are various theoretical frameworks using SM and TE to keep students with ADHD on task during SSR time. O'Donohue and Ferguson (2001) related how Skinner developed operant conditioning with his students, a recognition of the interrelationship between environment and behaviors. In an operant experiment, researchers manipulate independent variables to see how they change the dependent variables. Skinner emphasized that the dependent variable should be the rate or frequency of responses. As organisms learn the targeted goal, the rate of accomplishing the goal increases. In operant conditioning, the researcher changes one independent variable and then measures it to see if it changes the dependent variable or goal. All students are different, and researchers need to consider that.

Operant experiments often use ABAB designs, beginning with a baseline phase during which the independent variables have not yet been introduced. It is essential to establish a stable

baseline before experimenting in the next phase, the treatment phase. The following phase doubles back to baseline, and then reintroduces the independent variable (O'Donohue& Ferguson, 2001). Skinner relied on creating graphs to organize data and used visual inspection of data versus analysis of statistical data (O'Donohue& Ferguson, 2001). Skinner's principles are relevant to the current study where the researcher manipulated the independent variables of different strategies (i.e., TE, SM) to determine which were most effective in keeping students on task during SSR.

The practice engagement theory (PET) suggests that consistent and active engagement with reading, whether in professional or personal contexts, helps individuals build and maintain literacy skills. According to Reder (2023), this ongoing practice contributes to the development of fluency, comprehension, and critical thinking, which can transfer to other areas of learning and problem-solving.

Forman and Torgesen (2011) showed the benefits of small-group reading and the use of strategies like dependent reading, read-alouds, and collaborative discussions in reading instruction. These methods align with the social-constructivist theory, which emphasizes that students build their knowledge through interactive and shared reading experiences. This approach not only supports comprehension but also fosters deeper engagement with the text.

The current study incorporated Bandura's (2005) theory on self-regulation, which states that students must take control of their behaviors. Students must be motivated, practice using self-regulation skills, and pay attention to their performance to be successful, which will in turn enable them to set goals. Bandura noted that "success in self-regulation partly depends on the fidelity, consistency, and temporal proximity of self-monitoring" (p. 250). Self-observation is an important element of self-regulation because students need to set goals and evaluate while

working towards progress. The way that students guide their own self-regulation is based on their personal or social standards. Those lacking personal standards focus on modifying themselves to best fit each situation (Bandura, 1991). Self-regulation consists of many cognitive processes (i.e., self-monitoring, evaluative judgment, self-appraisal, standard setting, affective self-reaction; Bandura, 1991). The current study integrated self-regulation during the SM period as students took responsibility for their learning; the students and researcher collaboratively set goals together, and students worked toward achieving those goals. Students also reflected on their progress and made adjustments as necessary.

Summary

Students with ADHD struggle with their cognitive management system. ADHD can prevent students from organizing and getting started on tasks (Buttery, 2008). Because students with ADHD may fidget, get distracted, and have trouble completing assignments, teachers must be prepared to support students with ADHD in staying on task. One third of children have poor reading achievement levels in the elementary grades (McBride, 2024) and are at risk of falling behind in class and being retained if reading interventions are not implemented. SSR is crucial for all students in reading as it enhances fluency and comprehension (Rodgers, 2017).

Implementing behavior strategies can be helpful in assisting students with on-task behaviors during SSR. TE has been proven to be an effective system for students with behavioral and emotional issues, including ADHD, as it reinforces targeted behaviors (DuPaul & Weyandt, 2006; Heiniger et al., 2022; Soares et al., 2016). SM is another strategy that teachers can employ in the classroom to help students in reading, especially students with RD (Didion & Toste, 2022). With SM, students monitor themselves working toward a targeted behavior goal.

It is also essential to model on-task reading behaviors to students (Umstatter, 2024). Teachers should demonstrate to students what they should look like and how they should behave during SSR; these behaviors will lead to students building their literacy.

This study used Skinner's (O'Donohue & Ferguson, 2001) and Bandura's (1991) theoretical frameworks. According to Skinner's framework, an organizational environment and behaviors are directly connected (O'Donohue & Ferguson, 2001). Bandura focused on using self-regulation for students to manage their behaviors (Bandura, 2005). These frameworks provide a valuable framework for establishing whether SM and TE are effective strategies for helping students stay on task during SSR time.

CHAPTER 3. METHODOLOGY

This study aimed to determine which strategy was most effective for keeping participants with attention deficit/hyperactivity disorder (ADHD) on-task during self-selected reading (SSR), comparing token economy (TE) or self-monitoring (SM) strategies. The overarching research question was: How do token economy systems and self-monitoring strategies impact on-task behavior for students with ADHD during self-selected reading? The study's sub questions were: How does token economy impact on-task behavior for students with ADHD? How does self-monitoring impact on-task behavior for students with ADHD? Which strategy is most effective for students with ADHD to stay on task? The study utilized a single-case study A-B-A-C-A design (Edmonds & Kennedy, 2017). The study occurred in a rural elementary school in the southeastern region of the United States. Four participants with ADHD were selected for interventions (Cox & Root, 2021; Drew et al., 2008; Edmonds & Kennedy, 2017). Participants were selected from one reading classroom to observe on-task behavior during SSR.

Research Design

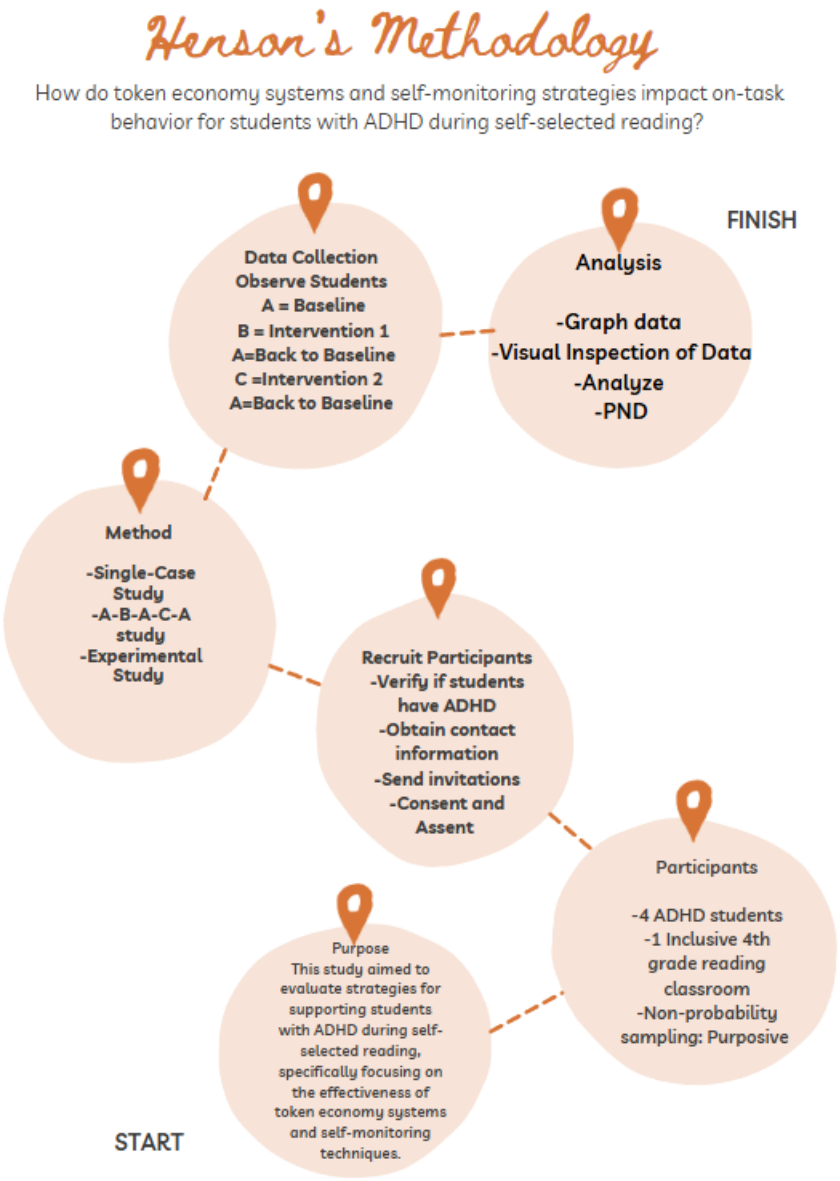
This study employed an A-B-A-C-A single-case experimental design to assess the effectiveness of SM and TE interventions in improving on-task behavior during SSR for four participants with ADHD. The dependent variable was the percentage of time participants remained on task during a 20-minute SSR period. In this study, interobserver agreement (IOA) data were gathered by having the researcher collaborate with another observer to reach a consensus on the participants' on-task behaviors.

The study began with Baseline A measuring on-task behavior during SSR. Intervention B introduced TE over 2 days, followed by 5 days of application. A return to Baseline A was conducted for 4 days before introducing Intervention C, SM over 2 days, with a week of

observation. The study concluded with a final return to Baseline A. The methodology map outlines this study (Figure 3.1).

Figure 3.1

Methodology Map



Data collection instruments included the on-task reading checklist for baseline measurements, the TE checklist for Intervention B, and the SM sheet for Intervention C (see

Appendix A). Data were recorded every 2 minutes, for 2 seconds, using a fixed-interval schedule. IOA was ensured through collaboration with an additional observer.

Grounded in a postpositivist framework (Creswell, 2009), this study used quantitative experimental methods to analyze the effects of TE and SM on on-task behavior. Postpositivism recognizes that while hypotheses can be tested, complete certainty about human behavior is unattainable. This is because human behavior is inherently unpredictable, with each individual displaying unique characteristics and responses, making it difficult to generalize or fully anticipate outcomes. The researcher tested whether TE and/or SM would improve on-task behaviors during SSR and evaluated reliability and validity to strengthen findings.

Participants were observed throughout the study, and baseline data helped identify which intervention worked best for students to stay on-task during SSR. The researcher determined if participants were on-task by using the established operational definition of on-task behaviors, which was that students had to be reading their books silently, eyes on their books, staying seated, not moving around or fidgeting, turning pages appropriately, and looking engaged. The study followed Creswell's (2009) guidelines to carefully test each strategy while considering possible biases. The results add to research on ADHD interventions and support the use of single-case studies for individuals with disabilities (Ledford et al., 2023). To ensure the results were trustworthy, the researcher focused on both external and internal validity (Ledford et al., 2023).

External validity concerns whether results can be applied to other situations, participants, or times. In this study, the researcher ensured external validity by having one independent observer record data alongside the researcher (IOA). If both the researcher and the observer

recorded similar data, it indicated that the data collection process was reliable and could be trusted.

Internal validity focuses on whether the results truly reflect the interventions and not other factors. To ensure the data were accurate, the researcher carefully reviewed the check sheets used to track on-task behavior, making sure they matched the established definitions. The researcher repeatedly went over these definitions and checked sheets to lessen errors and ensure data were recorded consistently. This process helped ensure the internal validity of the study, meaning the results can be confidently linked to the interventions.

Interobserver Agreement

In this study, IOA data was gathered by having the researcher collaborate with an observer to reach a consensus on participants' on-task behaviors. During the baseline periods, both the observer and the researcher monitored the participants and used the on-task behavior checklist and on-task reading checklist (see Appendix A) to determine if participants were on task, reaching a consensus on their observations.

During the TE intervention phase, the researcher and observer agreed on whether participants were on task during SSR. Every 2 minutes, when the timer went off, the researcher and observer recorded participants' behaviors using the token economy checklist and the on-task behavior checklist (see Appendix A). The IOA for the TE phase was calculated by comparing the observer's and researcher's agreements on the participants' on-task behaviors across the intervals.

During the SM intervention phase, the researcher and observer recorded whether participants were on task every 2 minutes using the self-monitoring sheet (see Appendix A). The

IOA for the SM phase was calculated by averaging the observer's and researcher's data. The IOA formula used was (Agreements ÷ (Agreements + Disagreements)) × 100.

Observer Training

The researcher provided training for the IOA observer. First, the researcher defined on-task behaviors using the on-task behavior checklist and definitions (see Appendix A). On-task behaviors included keeping their eyes on the book, reading silently, remaining seated, refraining from fidgeting, appearing engaged, and appropriately turning pages. The researcher and observer viewed participants for 2 seconds at each 2-minute interval. During the baseline periods, the observer and researcher used the on-task reading checklist (see Appendix A). Observations took place over 20 minutes, with participants being monitored every 2 minutes for 2 seconds.

Then, the researcher explained TE to the observer. The goal was for participants to increase their on-task behavior by 10 percentage points compared to their mean score during the baseline period. The goal was to notice a statistically significant change in their on-task behaviors. The observer sat with the researcher and participants selected for preference assessments (Heiniger et al., 2022). The four participants selected each received a Post-it note daily at their desks. Every time students met their goal; they received a checkmark on their Post-it note. Participants could have received 10 checkmarks a day. The observer and researcher both used the token economy checklist. Participants could exchange their Post-it notes for tokens. Eight tokens could be redeemed for a larger reward (e.g., lunch-buddy pass; Heiniger et al., 2022).

Next, the researcher trained the observer on SM. The goal was for students to stay on-task 80% of the time during SSR; students with ADHD are typically on task around 75% of the time (DuPaul & Stoner, 2014). The goal was for participants to stay on task eight out of 10

intervals. The researcher discussed the goal with participants to ensure buy-in and helped them understand how achieving the goal would benefit their learning. Participants earned a daily reward for maintaining on-task behavior at least 80% of the time. Participants also set their own goals and described how they planned to accomplish them (Bloom, 2013).

The observer and researcher used the self-monitoring sheet (see Appendix A) to track participants' on-task behavior. Participants recorded their progress using the student self-monitoring sheet (see Appendix A). The researcher set a timer to go off every 2 minutes (Wright, 2013) and observed participants for 2 seconds at each interval. The researcher showed participants and the observer how to use the self-monitoring sheet and explained the IOA formula.

Methods

Setting

The school setting was within a large district, with 52 elementary schools. The school is a rural community-based school located in a populated mountainous region. It is a mid-sized school for the county. The classroom contained 25 students. Five students in the classroom were diagnosed with ADHD.

District

The district in this study is one of the largest districts in the southeastern United States. District X contains 78,000 students and 12,000 employees. Of the 12,000 employees, half are teachers. The turnover rate for teachers is around 10%. The district has 76 languages represented in the student population and serves 85,000 meals daily (County X, 2024). The school board has 12 elected members and the district's PTA 19,000 members. The district covers 800 square miles and 106 facilities. It costs the district $57 per day per student, and the district budget for 2024

was $864 million (County X, 2024). Of the total student population, 56% are students in poverty, 16% are students with disabilities, 19% are multilingual learners, and 2% are homeless (County X, 2024). The district outperformed others in the state-on-state assessments in English language arts (ELA), math, and science for every grade level in the 2022–2023 academic year. The graduation rate is 85% and the district focuses on the safety and security of all students. In 2023–2024 school year, student demographic data included 22% Black, 2% Asian, 19% Hispanic, 7% other, and 49% White. The standard fourth-grade class size during the 2023–2024 school year was 26 students and 19% of students were in the gifted and talented program. Around 6,000 students in elementary school used student choice to pick their schools in the same year.

School

The rural school, on five acres, is a single building with 51 classrooms. The school has two administrators, 56 professional staff members, and 41 support staff members. The school has an accelerated reading program and uses Fountas & Pinnell, Houghton Mifflin Harcourt, and Amira (County X, 2024). The school accommodates grades PK–5 grade and in the 2022–2023 school year enrolled 801 students. That year, the school received a rating of excellent, with 68% of students meeting or exceeding state tests in ELA. The percentage of students scoring ready for kindergarten on the readiness assessment was 61%, 22% were approaching readiness, and 17% were emerging readiness. In the 2022–2023 school year, 53% of multilingual learner students met progress toward proficiency and 34% met English proficiency. On the state assessments, only 35% of students progressed during the 2022–2023 school year; students with disabilities progressed around 24%. This means that many students were not showing growth. Table 3.1 presents the school demographics during the 2023–2024 school year.

Table 3.1

School Demographics, 2023–2024

Ethnicity	Total	Male	Female
African American	17	12	5
Hispanic	62	36	26
White	668	368	300
Other	57	25	32
Total	804	441	363

From the 2023–2024 district survey, the school climate scored excellent (9.756/10). The school reported that 18% of students were chronically absent, 19% of students with disabilities were absent, 20% of the population had an active individualized education program (IEP; see Table 3.2), 1% were retained, and 20% were in the gifted and talented program (K. Dill, personal communication, July 1, 2024). Regarding student safety, 100% of students and parents felt like students were safe.

Table 3.2

Students with IEPs, 2021–2022 to 2023–2024

Years	2021–2022	2022–2023	2023–2024
Students with IEPs	135 (18.1%)	132 (16.5%)	157 (19.5%)

Note. IEP = individualized education program.

Participants

Participants were selected from one reading classroom, scheduled from 10:30 am to 11:45 am. Three fourth-grade teachers rotated among each other's classrooms, although students remained in the same classroom all day. This classroom contained 25 students (14 girls and 11 boys); see Table 3.3. To be selected for the study, participants had to have an ADHD diagnosis and be in the third period reading class.

Table 3.3

*Classroom Demographics, 2024–2025 (*N *= 25)*

Demographic	N
Girls	14
Boys	11
IEP/504	4
ESOL	2
ADHD	5
Reading disability	1
Black	2
White	21
Pacific Islander	2
Speech	0

Note. IEP/504 = students with an individualized education program or Section 504 plan; ESOL = English as a second language; ADHD = attention deficit hyperactivity disorder.

Four students on medication for ADHD were selected for the study, although medication status was not a requirement for participation in the study and the researcher did not track daily intake. Two participants had IEPs that specified they had ADHD; another participant's Section 504 plan indicated she had ADHD. The fourth participant had met with the teacher to discuss a 504 plan on the basis of ADHD.

Classroom Setting

The classroom had a flexible seating arrangement designed to support the diverse needs of students, particularly those with ADHD. The space included a large carpet area where students could gather comfortably, along with cozy options like a futon, bean bags, floor tables, and a spider chair. Various fidget toys were available to help manage the hyperactivity component of ADHD, ensuring students had the tools to release their energy. They could use a fidget toy if they chose. This setup created an environment that helped keep students engaged and on-task. The flexible seating allowed students to sit wherever they preferred during reading time. However, students had to have a book ready before the reading session began.

Potential barriers to implementation included external and internal distractions. Internal distractions included zoning out, sickness, or hunger. External distractions included noise in the classroom, students leaving their seats, or students playing during recess near the window.

Sampling

This study used a nonprobability purposive sampling method. *Purposive sampling* is when the researcher requires individuals with specific characteristics for their study (Privitera & Ahlgrim-Delzell, 2019). In this study, participants were chosen based on their ADHD diagnoses. This was a convenience sample, so participants were less likely to be selected from the classroom population. The chosen participants received additional experimental interventions.

Nonprobability purposive sampling is ideal for studying participants with specific characteristics (e.g., ADHD during SSR). The purpose of this study was to measure whether participants with ADHD remained on-task during SSR. In purposive sampling, participants are grouped based on specific criteria (Goodwill, 2015). This sampling method was ideal for the current research because participants had to be diagnosed with ADHD and be in a specific reading classroom. This approach allowed the researcher to simultaneously collect and analyze data during SSR.

Several limitations exist with purposive sampling and single-case studies. For the current study, the sample of participants was small, limiting generalization. The small sample size made it more difficult to connect findings to different settings, populations, and diverse groups. In addition, all participants in the study were on medication, but they did not take it daily, which could have skewed the data. There is also the possibility of researcher bias.

However, there are several strengths to using this sampling method. One strength of purposive sampling is that the study focuses on a specific group of participants, such as those

with ADHD. By concentrating on participants with ADHD, the researcher was able to gather more in-depth data, focus on collecting relevant information, and make adjustments as needed (Godwill, 2015).

Four participants with ADHD (see Table 3.4) were recruited for this single-case study, the goal of which was to observe whether participants with ADHD stayed on-task during SSR. Participants could be on medication or not, and some may have had a reading disability. Resource teachers and school psychologists helped determine the ADHD diagnoses of the participants. By the beginning of fourth grade, students should be reading at a level P according to Fountas and Pinnell. Fountas and Pinnell is a one-on-one reading assessment system that measures students' reading levels through oral reading, fluency, and comprehension to inform instruction (Fountas & Pinnell, 2017). Level Q+ is considered above grade level, level O is approaching grade level, and below O is considered not on grade level for reading. State testing is divided into four categories for reading, math, and science tests. The first category, *does not meet*, indicates that the student is below grade level. The second category, *approaching*, means the student is near grade level. The third category, *met*, signifies that the student is performing at grade level. The fourth category, *exceeding*, indicates that the student is performing above grade level.

- Participant A was a 9-year-old white, English-speaking female from a middle-class background. She was diagnosed with ADHD and took medication. She did not have an individualized education program (IEP), read at level P, and met the standards for reading on the state test.
- Participant B was a white, English-speaking male from a middle-class background. He was 9 years old, diagnosed with ADHD, took medication, and received services

through an IEP. He had a reading disability and read at level M. He scored as approaching grade level on the third-grade state reading assessment.

- Participant C was a 9-year-old white, English-speaking female from a middle-class socioeconomic background. She was diagnosed with ADHD, took medication for ADHD, received services via a Section 504 plan, and read at level M. During the 2023–2024 school year, she scored as approaching grade level on the state reading assessment.
- Participant D was a 9-year-old white, English-speaking male from a middle-class socioeconomic status. He had an IEP and read at grade level, level Q. He had a diagnosis of ADHD and took medication. He scored exceeding grade-level expectations on the previous year's state test for reading, and was in the school's gifted and talented program.

Table 3.4

Participant Demographics

Student	Age	Gender	Ethnicity	Primary language	SES	Medication[a]	IEP/504[b]	Reading level[c]
A	9	F	W	English	Middle	Yes	No	P
B	9	M	W	English	Middle	Yes	Yes, RD	M
C	9	F	W	English	Middle	Yes	Yes	M
D	9	M	W	English	Middle	Yes	Yes	Q

Note. RD = reading disability.
[a]Student is medicated for attention deficit hyperactivity disorder.
[b]Student is on an individualized education program or Section 504 plan for reading disability.
[c]Per Fountas & Pinnell.

Procedures

Data Collection

The study was a single-case study using an A-B-A-C-A design (Cox & Root, 2021; Drew et al., 2008; Edmonds & Kennedy, 2017). The researcher began collecting data in January 2025 in one fourth-grade classroom. Data collection took approximately 5 weeks (see Table 3.5).

Table 3.5

Data Collection Timeline

Phase	Activity	Duration
Baseline	Collect baseline data of on-task reading behavior during SSR	8 days
Intervention 1	Introduce TE	2 days
	Observation	5 days
Back to baseline	Collect data of any changes to on-task reading behavior during SSR	4 days
Intervention 2	Introduce SM	2 days
	Observation	5 days
Return to baseline	Collect data of any changes to on-task reading behavior during SSR	4 days

Note. SSR = self-selected reading; TE = token economy; SM = self-monitoring.

This study used time sampling with a fixed interval to track participants' on-task behavior during SSR. Time sampling is a method of observing and recording behavior at set times, rather than continuously watching the participants (How to ABA, 2023a). For this study, the fixed interval was 2 minutes, meaning the researcher checked if participants were on-task every 2 minutes during the 20-minute reading period. The researcher observed each student for 2 seconds every 2 minutes. This method was helpful because it reduced the need for constant observation while still providing structured, consistent data on student behavior (Wright, 2013). The fixed-interval approach has been effective in previous studies with participants who had ADHD, as it allows researchers to see if participants are staying on-task and how well interventions are working (Scheithauer & Kelley, 2017). The fixed-interval method also allows gathering accurate data without overwhelming the observer.

The researcher observed participants for 2 seconds every 2 minutes (*momentary time sampling*; Taylor et al., 2012). The researcher watched for on-task behaviors every 2 minutes for 2 seconds during SSR. The behaviors were only monitored at the 2-second intervals. Momentary time sampling involves recording whether a target behavior occurs at specific moments, rather than continuously observing behavior. This method enables efficiently capturing data across multiple participants while minimizing observer fatigue and ensuring consistent data collection. This technique is especially beneficial in single-case designs, as it provides a clear picture of patterns over time, allowing for the analysis of intervention effects on participants. Further, momentary time sampling aligns well with the needs of classroom settings, as it is simple and can easily fit into the regular learning environment.

Baseline

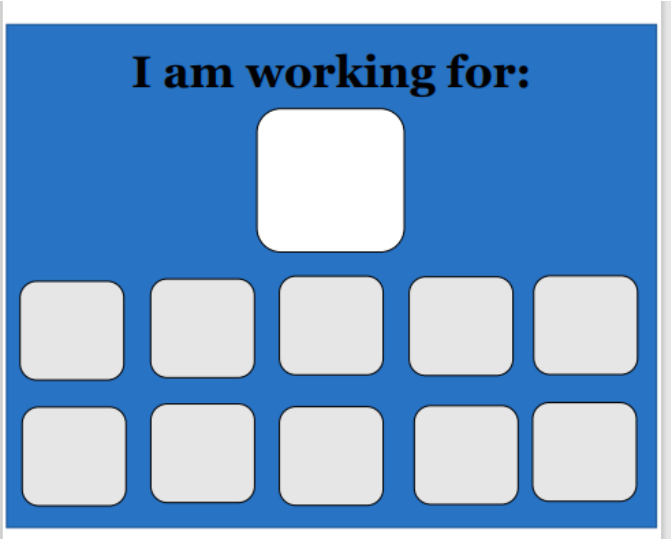
First, the researcher collected baseline data for participants with ADHD during SSR over the course of 8 days (Cox & Root, 2021; Drew et al., 2008; Edmonds & Kennedy, 2017). During SSR, participants were observed across a 20-minute period using a fixed-interval schedule of 2 minutes. The researcher used the on-task reading checklist (see Appendix A) to guide observation of participants. By the end of the 8 days, eight forms were filled out for each participant. To define on-task behavior, the on-task behavior checklist (see Appendix A) was referenced along with the operational definition. The goal was to determine the percentage of intervals participants were on-task or off-task during SSR. The data needed to be stable before the first intervention. The researcher reported on-task behavior as a percentage of the total intervals the student was observed to be on-task. For example, if the student was on task 8 out of 10 times, then the student was on task 80% of the time.

Intervention 1

The researcher then conducted a preconference interview using a preference sheet. The preference sheet (see Appendix A) helped participants identify items they would enjoy as tokens or rewards. Participants selected stickers as tokens; they could earn a larger reward (e.g., lunch buddy, extra recess) if they collected 8 stickers. Participants used the token board in Figure 3.2.

Figure 3.2

Token Economy Board



Note. Token-economy board used in the study. Adapted from from "Token Economy Board System for Children with ASD," by Inspired by Autism, 2021, TPT, (https://www.teacherspayteachers.com/Product/Token-Economy-Board-System-for-Children-with-ASD-5542908).

In the second week, the researcher collected data on participants using the TE strategy (Cox & Root, 2021; Drew et al., 2008; Edmonds & Kennedy, 2017). The researcher first taught the participants how to use TE over 2 days. Based on their preference assessments, participants selected their tokens (i.e., water bottle stickers) and then began reading for 20 minutes per day. The researcher established a goal for each participant to increase their on-task behavior by 10 percentage points from their baseline average. Although participants set their own goals, only the data recorded by the researcher was documented. During this period, the researcher observed

participants every 2 minutes to check if they were on-task. Each time a participant was on task for 2 minutes, they received a water bottle sticker (Heiniger et al., 2022). Participants also maintained a Post-it note on their desks, earning a check mark each time they met the on-task goal, with a maximum of 10 check marks per day. Both the researcher and observer used the token economy checklist (see Appendix A) to track progress. At the end of SSR, participants who accumulated eight check marks could redeem their Post-it note for stickers, which in turn could be exchanged for a larger reward. This process continued for 5 days of data collection per student, using the on-task behavior checklist (see Appendix A) to observe participants' on-task behavior during SSR. The data collected helped assess the effectiveness of TE in maintaining participants' on-task behavior during SSR.

Back to Baseline

Then, the study returned to Baseline 2 (Cox & Root, 2021; Drew et al., 2008; Edmonds & Kennedy, 2017). The researcher observed participants staying on-task during SSR for 4 days; no intervention was used during this period. The researcher used the on-task reading checklist (see Appendix A) to observe participants being on-task. The researcher made sure the data was stable before moving on.

Intervention 2

The researcher guided participants on how they would use SM and supported them in collaboratively setting individualized goals to remain on task during SSR, with an overall target of achieving 80% on-task behavior. Participants first reflected on their typical on-task behavior, and the researcher discussed what on-task behaviors during SSR looked like (see Appendix A). Because students with ADHD typically remain on task around 75% of the time (DuPaul & Stoner, 2014), the researcher helped participants set a realistic yet challenging goal such as

staying on task eight out of 10 times. Each student wrote down their personal goal and described the steps they planned to take to achieve it, fostering accountability and ownership (Bloom, 2013). Although participants set their own goals, only the data recorded by the researcher was documented. A daily reward was provided to participants who met their individual goals. During SSR, participants monitored their own on-task behavior by recording their progress every 2 minutes for 20 minutes using a student self-monitoring sheet (see Appendix A). At the same time, the researcher observed participants every 2 minutes for 2 seconds and tracked their on-task behavior. A timer was set to go off every 2 minutes, prompting participants to circle a happy or frowny face to represent their on-task status (Scheithauer & Kelley, 2017). This process took place over 5 days, with each student observed a total of five times. Researcher data were collected and analyzed, and student data were noted in the study.

Goal-Setting. As part of the self-monitoring and token economy process, students engaged in a structured goal-setting approach that promoted self-awareness and accountability. The process began with a baseline review, where students analyzed their personal on-task behavior data to build an understanding of their current habits. This reflection laid the foundation for goal setting, during which students responded to guiding questions like “Do you think you could improve your on-task behavior?” and “What is a realistic goal for yourself?” Using their baseline data, students then established individualized goals aimed at improving their on-task behavior. To support strategy implementation, they wrote both their baseline and target percentages on a Post-it note, serving as a constant visual reminder. Throughout the process, students engaged in progress tracking and reflection, asking themselves key questions such as “Am I meeting my goal?” and “Should I adjust or increase my goal based on progress?” This ongoing reflection helped them stay motivated and make necessary adjustments. Ultimately,

students developed a strong sense of ownership and support, taking pride in their improvement while receiving consistent encouragement to continue their growth.

Return to Baseline

The study concluded by returning to Baseline 3 (Cox & Root, 2021; Drew et al., 2008; Edmonds & Kennedy, 2017). For 4 days, the researcher used the on-task reading checklist (see Appendix A) to observe participants every 2 minutes during the 20-minute SSR time. The researcher ensured that the data were stable before concluding the study.

The researcher safeguarded participants' privacy throughout the entire process. The privacy of participants was essential in the study. All data were stored and protected with an encrypted password (Montclair State University, 2024). Identifier information was kept in a separate area with a different encrypted password. All participants received pseudonyms to protect their identities. Paper consent forms were kept in a file cabinet locked with a key. The researcher used a secure email system to share data.

Parental consent was collected prior to the start of the study. The researcher explained the benefits of the study for participants, including identifying effective strategies for students to stay on-task in reading. Teaching participants SM can help them gain control of performance, behavior, and time management (Hoff & DuPaul, 1998). The researcher also noted that the study would contribute to furthering research regarding students with ADHD staying on-task during SSR. Parents who were interested were provided with a consent form for them to sign and return. Then, the researcher met with the selected participants to discuss the study, and gave them an assent form. Participants could agree or disagree to join the study and also could quit at any point. The data collection timeline is above (see Table 3.5).

Analysis

This study was an experimental study using numerical data. Descriptive data were calculated for all data points. The study had two independent variables: using SM and TE during SSR to stay on-task. The dependent variable was whether students were on-task during SSR. The control variables were that students sat in the same classroom daily and read for 20 minutes daily during SSR. Control variables needed to be monitored carefully.

This was a single-case study where students were measured using reading strategies to stay on task during SSR for around 5 weeks. Descriptive statistics were used in this study. The data points measured were baseline, Intervention 1, baseline, Intervention 2, and back to baseline. The goal was to see which reading intervention, or if either intervention, was most effective during SSR to keep students with ADHD on-task. The research was conducted using direct observation and recorded on-task sheets (see Appendix A). The researcher created graphs using Excel and visually analyzed the data, looking for the frequency of being on-task during SSR. The researcher identified overlapping data, trends, significant patterns, or changes in data.

Instrumentation

The research question was: How did token economy systems and self-monitoring strategies impact on-task behavior for students with ADHD during self-selected reading? During SSR, participants were observed every 2 minutes for 2 seconds over a 20-minute reading period daily. The first instrument was a timer, and the researcher observed participants every 2 minutes during baselines and interventions (Cox & Root, 2021; Drew et al., 2008; Edmonds & Kennedy, 2017). The researcher and observer measured participants using the on-task reading checklist (see Appendix A) to track their on-task behaviors.

The next instruments were used in conjunction with TE. First, the researcher used the preference sheet (see Appendix A) to decide which tokens participants wanted to use during the study. Next, each participant was given a token board (see Figure 3.2). As soon as participants filled out the token board with 8 stickers, they received a larger incentive (Heiniger et al., 2022). Then, daily, the researcher filled out the token economy checklist (see Appendix A) to see if participants were on task during SSR. The researcher and observer used this form to collect IOA data and reach an agreement.

Lastly, participants monitored themselves using the student self-monitoring sheet, circled a smiley face or frowny face if they were on task during SSR (see Appendix A). At the same time, the researcher and observer used the self-monitoring sheet to observe participants on-task during SSR. By this time, participants had set a goal to improve their on-task reading averages. (Scheithauer & Kelley, 2017). Finally, the researcher returned to the baseline.

Summary

The essential question in this study was: How did token economy systems and self-monitoring strategies impact on-task behavior for students with ADHD during self-selected reading? Students with ADHD were observed staying on task during SSR. The study used a quantitative single-case study design of A-B-A-C-A, with steps including baseline, Intervention 1, back to baseline, Intervention 2, and concluding with baseline. IOA data was collected from the researcher and an observer, who computed data using the formula (Agreements ÷ (Agreements + Disagreements)) × 100. The study consisted of a postpositivist worldview.

CHAPTER 4. DATA ANALYSIS

Understanding the link between on-task behaviors and attention deficit/hyperactivity disorder (ADHD) is essential in understanding how they affect students' reading at grade level. The purpose of the study was to investigate if self-monitoring (SM) and token economy (TE) would help keep students on-task during self-selected reading (SSR). The over-arching question of this study was: How do token economy systems and self-monitoring strategies affect on-task behavior for students with ADHD during self-selected reading? The study's sub questions were: How does token economy impact on-task behavior for students with ADHD during SSR? How does self-monitoring impact on-task behavior for students with ADHD during SSR? Which strategy is most effective for students with ADHD to stay on-task during SSR? In this study, the researcher hypothesized that both TE and SM strategies would improve on-task behavior for students with ADHD during SSR. The study used a quantitative single-case design, specifically an A-B-A-C-A design. The results found within this study are organized by participant. An examination of these results is discussed in Chapter 5.

Findings

This chapter presents the analysis of the data collected throughout the study. Behavior analysts often emphasize the importance of "following the data" (Kennedy, 2005, p. 191). As Kennedy (2005) explained, data collection plans may evolve based on findings, as was the case in this study. A visual analysis approach was used to examine the data at each stage. The level of the data refers to the average within a given condition, focusing on the mean or median within different phases (Kennedy, 2005). Trends in the data were also analyzed, considering both the slope and magnitude of changes over time. Additionally, the researcher assessed variability, identifying points where data fluctuated in direction. The 20% stability criterion is commonly

used in single-case research to ensure that baseline data is stable enough before introducing an intervention (Mace et al., 1991).

The single-subject data analysis revealed clear patterns in participants' on-task behavior during SSR. Visual analysis showed overall improvement during the intervention phases, displaying the effectiveness of the strategies implemented. The TE intervention was particularly effective, with multiple participants achieving full on-task behavior, while SM also displayed positive results, with several participants demonstrating sustained on-task behavior during SSR. Data points consistently increased during intervention phases, indicating steady progress. The lowest data points were recorded during the initial baseline phase, while Baselines 2 and 3 showed higher levels of on-task behavior. The overall upward trend in the data supports the effectiveness of the interventions, aligning with previous research on SSR and reinforcing the value of visual analysis in identifying meaningful changes in on-task behavior.

Participants reflected on whether they met their personal goals based on their own data. Reinforcement was provided based on the researcher-collected data to ensure consistency and accuracy in determining whether the goal was officially met. Participant self-monitoring and token economy data was used for reflection purposes only and was not formally documented; only researcher-collected data was recorded. All participants met their goals except Participant D on Self-Monitoring Day 2.

Baseline Data

Baseline data for on-task behavior during SSR was collected over eight days and is displayed in Figures 4.1, 4.2, 4.3, and 4.4. Participants diagnosed with ADHD were observed for 20-minute sessions, during which their on-task behavior was recorded at two-minute intervals using a fixed interval (FI-2) schedule. To ensure consistency, an established operational

definition of on-task behavior was applied. Initially, participants were scheduled to be observed for on-task behavior during Baseline 1 for five days; however, three additional days were required to try achieve more stable data.

Baseline 1

All four participants started baseline at the same time. The baseline phase revealed distinct patterns of on-task behavior across participants. Participant A exhibited consistent performance, with recorded on-task percentages of 60%, 50%, 50%, 60%, 50%, 50%, 50%, and 50%. Participant B's data showed considerable fluctuation, with on-task behavior recorded at 0%, 20%, 80%, 80%, 0%, 70%, 40%, and 40%. Participant C maintained higher on-task behavior initially but experienced a gradual decline, with percentages of 80%, 80%, 60%, 60%, 40%, 80%, 60%, and 50%. Participant D demonstrated the highest overall rates of on-task behavior but also displayed a noticeable decrease over time, with scores of 90%, 80%, 90%, 60%, 60%, 80%, 50%, and 50% (see Figures 4.1, 4.2, 4.3, & 4.4).

The 20% stability criterion is commonly used in single-case research to ensure that baseline data is stable enough before introducing an intervention (Mace et al., 1991). During Baseline 1, Participant A's stability percentage resulted in 100% of the data points falling within the stable range (≥ 80%), the data set meets the 20% stability criterion. This means the baseline was stable, and an intervention should be introduced. Participant B, C, and D were considered unstable because their stability percentage was greater than 20%, although participants with ADHD fluctuate.

Given that the participants had ADHD, waiting for a perfectly stable baseline may not have been practical. ADHD-related behaviors often fluctuate due to difficulties with attention, impulsivity, and the possible lack of medication in this case. Their on-task behaviors varied

depending on factors such as interest in the reading material, environmental distractions, and the time of day. Participants became easily distracted by peers, noises, or internal thoughts, leading to inconsistent participation. Also, the baseline data were generally trending in the opposite direction from the desired results, making it clear that intervention was necessary. Moreover, finding a "just-right" book that matched their reading level and interests proved challenging, which contributed to a lack of on-task behavior. External distractions, such as frequent nose blowing, background noises, or the presence of fidget toys, further interrupted their concentration. Given these challenges, moving forward with the interventions was considered essential.

Baseline 2

After Intervention 1, the researcher returned to the baseline for four days to determine whether the intervention had a lasting effect or if the progress began to decline. Participant A's data was 90%, 80%, 70%, and 70%. Participant B's data points were 90%, 80%, 80% and 70%. Participant C's data points were 80%, 70%, 70%, and 60%. Participant D's data was 100%, 70%, 70%, and 70% (see Figures 4.1, 4.2, 4.3, & 4.4).

During Baseline 2, for Participant A, B, and C 100% of the data points fell within the stable range (≥ 80%), the dataset met the 20% stability criterion. Participant D's data remained within 75% of the time, falling short of the required 80%. As a result, the dataset does not meet the 20% stability criterion and is considered unstable. However, Participant D came very close to achieving the stability threshold.

Participants with ADHD often show heightened responses after interventions like TE, which can lead to temporary increases in their on-task behaviors. This carryover effect might

have caused the baseline data to appear less or more stable than usual, reflecting a natural adjustment period as participants transition out of the intervention phase.

Baseline 3

In Baseline 3, the data for each participant showed some variability. Participant A had data points of 100, 100, 90, and 90, indicating relatively high consistency with slight fluctuations. Participant B's data points were 70, 100, 70, and 90, showing more noticeable variability, particularly between the 70 and 100 values. Participant C displayed data points of 90, 70, 70, and 70, reflecting some variability. Participant C fluctuated but maintained a relatively consistent lower range. Lastly, Participant D had data points of 90, 90, 80, and 80, with less variability compared to the other participants. All participants showed some fluctuation (see Figures 4.1, 4.2, 4.3, & 4.4).

Baseline 3 was conducted for four days. Beginning with Participant A, only 75% of the data points fell within the stable range (less than the required 80%), the dataset did not meet the 20% stability criterion and was considered unstable. Although Participant A's data range was close to 80%. Participant B's variability percentage 21.6% was slightly above 20%, this baseline phase would be considered unstable according to the 20% stability criterion. Even though Participant B's variability was only 1% above the 20% criterion, the baseline data was close to the criterion. Participant C's variability percentage 26.67% is greater than 20%, this baseline phase was considered unstable according to the 20% stability criterion. Finally, for Participant D the variability percentage 11.76% was below 20%, and this baseline phase was considered stable according to the 20% stability criterion. Although there was some variability in the baseline data for participants, it is important to consider that fluctuations are common in participants with ADHD due to factors like attention and motivation.

Interventions

Both TE and SM were attentional strategies implemented to support students in maintaining on-task behavior during SSR. TE was implemented first during the Intervention 1 phase, while self-monitoring was introduced second during the Intervention 2 phase.

Token-Economy

During the intervention phases, participants focused on staying on-task during SSR using the operational definition and on-task behavior checklist (see Appendix A). Intervention 1 involved participants staying on-task during SSR using TE. The researcher, observer, and participants met for two days to discuss the steps of the TE. Each participant received a Post-it note at their desk, and they earned one tally mark for every instance they were on-task. Each tally mark represented one sticker, and participants could exchange stickers for larger rewards. The rewards, suggested by both the participants and the researcher, included options such as a lunch buddy pass, extra recess, a treasure box, hat day, pajama day, shared reading time, additional technology time, a special snack, free drawing time, and special seating. Class rewards were developed as a class at the beginning of the school year with the teacher.

The data for Intervention One: Token Economy over 5 days showed consistent improvements in on-task behavior across all participants. Participant A demonstrated on-task behavior at 90%, 100%, 90%,100, and 90 across five sessions, while Participant B maintained 100% on-task behavior in all five sessions. Participant C exhibited on-task behavior at 100%, 90%,100%, 90%, and 90%. Participant D consistently demonstrated 100% on-task behavior in all five sessions (see Figures 4.1, 4.2, 4.3, & 4.4).

Self-Monitoring

Intervention 2 consisted of participants monitoring themselves during reading. Participants were asked to circle a smiley or frowny face every time the alarm went off at the two-minute mark (see Appendix A). The researcher set a goal for participants to be on-task 80% of the time, while participants set their own goals based on their current baselines. Participants who met their daily goal of 80% received a prize from our class prize list. The rewards, suggested by both the participants and the researcher, included options such as a lunch buddy pass, extra recess, a treasure box, hat day, pajama day, shared reading time, additional technology time, a special snack, free drawing time, and special seating.

Participant A demonstrated on-task behavior at 100% across five sessions, while Participant B's data points were 90%, 100%, 100%, 100% and 90%. Participant C exhibited on-task behavior at 90%, 100%, 100%, 100%, and 100%. Participant D scored 100%, 60%, 100%, 100%, and 90%. Participant D's 60% score can be considered an outlier due to significant personal challenges, which impacted their on-task behavior (see Figures 4.1, 4.2, 4.3, & 4.4).

Level

Token-Economy

After the implementation of TE, all four participants showed a notable increase in on-task behavior, reflecting a positive response to the intervention. Participant A increased their mean on-task behavior by 41%, Participant B increased by 59%, Participant C increased by 30%, and Participant D increased by 30% (see Figures 4.1, 4.2, 4.3, & 4.4). These improvements began immediately after the TE intervention was introduced, indicating a strong initial effect. The intervention involved providing stickers for on-task behavior, which participants could exchange for preferred items or activities. The structure of the TE helped participants stay on-task by

offering consistent reinforcement for their behavior. During follow-up discussions, participants shared that the immediate availability of rewards and the clear structure of the intervention made it easy for them to stay on-task. They knew what was expected of them. They reported that the idea of earning tokens for specific behaviors became a motivating factor, enhancing their on-task behavior. The steady increase in on-task behavior across all sessions suggests that the TE intervention was an effective strategy for promoting on-task behavior during SSR. The immediate change in on-task behavior can be attributed to the participants receiving instant marks every two minutes. After 20 minutes of SSR time, participants could exchange stickers for larger incentives.

Self-Monitoring

After the implementation of the SM intervention, all four participants showed a notable increase in on-task behavior compared to Baseline 2, reflecting a positive response to the intervention. Participant A increased their mean on-task behavior by 22%, Participant B increased by 16%, Participant C increased by 28%, and Participant D increased by 12% (see Figures 4.1, 4.2, 4.3, & 4.4). These improvements were evident immediately after the SM intervention was introduced, suggesting an effective and prompt impact. The SM intervention was successful because it involved participants monitoring their own behavior every two minutes, setting personal goals, and earning rewards for meeting those goals. This structure encouraged self-regulation and accountability, leading to improved on-task behavior during SSR.

Trends

Token-Economy

During the TE intervention, the trends in the data for each participant show varying patterns. Participant A exhibited fluctuations between 90 and 100, with no clear upward or

downward trend, resulting in a neutral slope and low magnitude due to the repeated changes. Participant B and Participant D both showed consistent behavior at 100 throughout the entire intervention period, resulting in a flat line with a zero slope, indicating no change in behavior. Participant C followed a similar pattern to Participant A, alternating between 100 and 90, which also showed no clear trend but with a neutral slope and low magnitude due to the fluctuations (see Figures 4.1, 4.2, 4.3, & 4.4).

Overall, the data indicated that there was no significant upward or downward trend in behavior for most participants during the TE intervention. The changes in behavior were minimal, with low magnitude fluctuations observed in Participant A and Participant C, while Participant B and Participant D maintained consistent on-task behavior with no noticeable change.

Self-Monitoring

During the SM intervention, the data revealed varying trends across participants. Participant A exhibited a consistent score of 100 on all days, indicating no fluctuation in on-task behavior. This resulted in a flat line with a zero slope, signifying no change throughout the intervention. Participant B showed some variability, with scores fluctuating between 90 and 100. This gradual fluctuation suggested a neutral slope with low magnitude, as the changes were not rapid or extreme but rather gradual. Similarly, Participant C consistently recorded scores of 100, with an initial score of 90, demonstrating minimal variation and a neutral slope with low magnitude, indicating stable on-task behavior (see Figures 4.1, 4.2, 4.3, & 4.4).

In contrast, Participant D exhibited more noticeable fluctuations. Starting at 100, the score dropped to 60 on ISM2 (intervention self-monitoring 2) before returning to 100, then ending with a slight drop to 90. This shows a downward slope between ISM1 and ISM2 and a

slight decline toward the end of the intervention. The fluctuations in Participant D's data suggest moderate instability, with a downward trend and a moderate magnitude compared to the other participants. Overall, the SM intervention had a more consistent and stable effect on Participants A, B, and C, while Participant D's behavior fluctuated more, which was due to personal challenges that week.

Both the TE and SM interventions resulted in increased on-task behaviors during SSR for the participants. The TE intervention provided immediate rewards, such as marks and stickers, which motivated the participants to stay on-task and work toward earning larger prizes. This structured reinforcement system appeared to help participants maintain on-task behavior during SSR. Similarly, the SM intervention encouraged participants to monitor their own behavior, set personal goals, and track their progress every two minutes, which fostered a sense of responsibility and self-regulation. Both interventions contributed to enhanced on-task behavior by providing external and internal motivation, leading to better on-task behavior during SSR.

Effect

The researcher analyzed the data for each participant to determine the effect size. Given that both interventions showed 100% non-overlapping data, the effect size for Participant A can be considered highly effective based on the Percent Non-Overlapping Data (PND) of 100%. For Participant B, Intervention 1 had a 100% PND, indicating a highly effective intervention. The PND for Participant B during Intervention 2 is 60%, indicating that the intervention had a moderate effect on increasing on-task behavior. The PND for Participant C during Intervention 1 and 2 was 100%, indicating a highly effective intervention with no overlap in data. Participant D, Intervention 1 had a PND of 100%, indicating a highly effective intervention, while

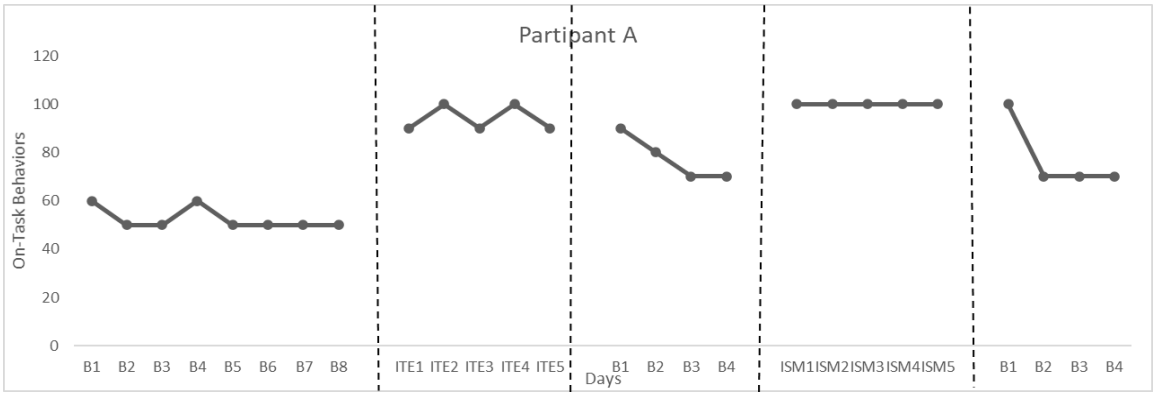
Intervention 2 had a PND of 60%, showing a moderate effect with some overlap in the data compared to Baseline 2.

Maintenance Data

The data reveals that after two interventions, the participants' on-task behavior during SSR varied. Participant A showed a significant drop in on-task behavior after the interventions, with their behavior dropping from 100% to around 70% in the subsequent days, indicating a lack of maintenance once the intervention ended. Similarly, Participant C also exhibited a decline in on-task behavior, from 90% to 70%, after the interventions were removed. However, Participants B and D displayed more consistent on-task behavior, with Participant B maintaining 100% throughout two days and Participant D showing stable behavior between 80-90%. This suggests that while some participants, like Participants A and C, experienced a regression after the intervention phase, others, like Participant B and Participant D, either showed little change or were able to sustain their on-task behavior even after the intervention ended.

Figure 4.1

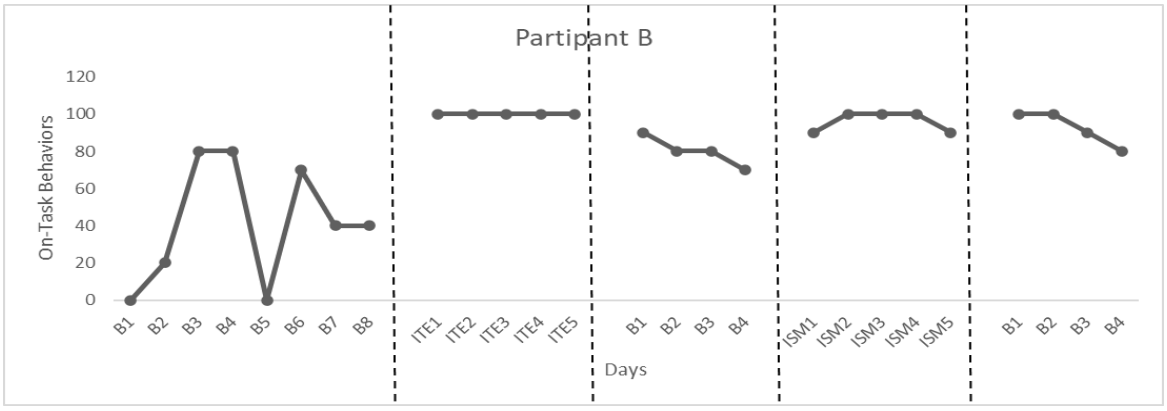
On-task Phases of Participant A



Note. Left to right: Baseline 1, Token Economy, Baseline 2, Self-Monitoring & Baseline 3

Figure 4.2

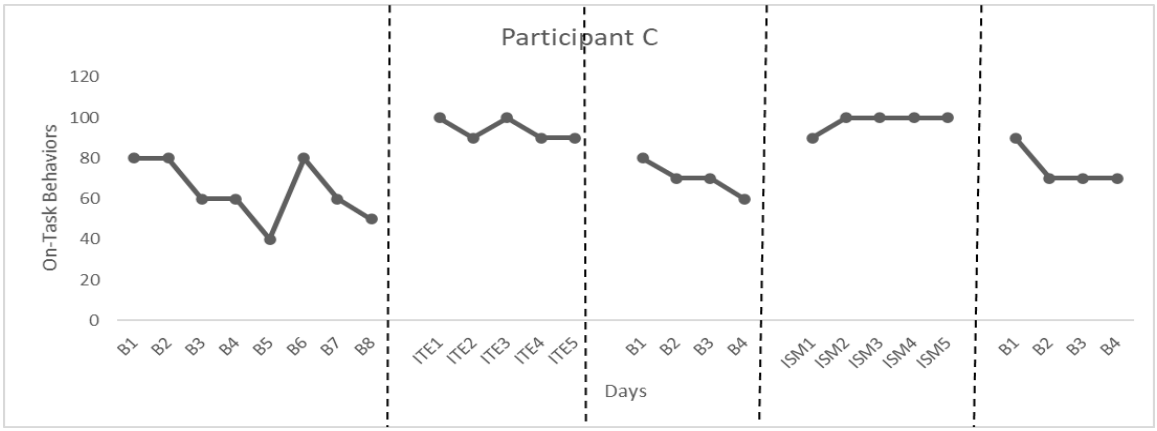
On-task Phases of Participant B



Note. Left to right: Baseline 1, Token Economy, Baseline 2, Self-Monitoring & Baseline 3

Figure 4.3

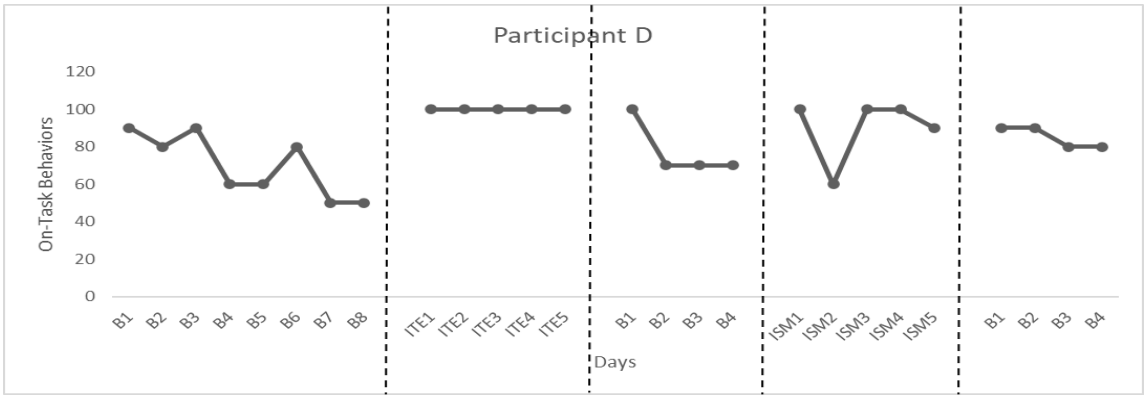
On-task Phases of Participant C



Note. Left to right: Baseline 1, Token Economy, Baseline 2, Self-Monitoring & Baseline 3

Figure 4.4

On-task Phases of Participant D



Note. Left to right: Baseline 1, Token Economy, Baseline 2, Self-Monitoring & Baseline 3

Social Validity Data

Participants were provided with a social validity questionnaire to assess their perceptions of the SSR interventions, TE and SM, after the study. The questions focused on evaluating the satisfaction and perceived usefulness of the interventions (see Appendix A). All participants discussed how having a reward to stay on-task during SSR was their motivator.

All participants found TE to be helpful, with the exception of Participant C, who described it as somewhat helpful. Participants A and D stated that learning TE was easy, while Participants B and C found it very easy. Everyone agreed that earning rewards made staying on-task during SSR enjoyable. Most participants felt that TE helped them stay more focused, except for Participant D, who said it was only somewhat helpful. Additionally, all participants, except for C, indicated they plan to continue using TE. Participant C mentioned they might use it in the future (see Appendix A).

The results for SM were mixed. Participants C and D found it somewhat helpful, while A and B considered it very helpful. Monitoring progress was easy for Participants A, C, and D, but Participant B found it somewhat difficult. Participants A and B felt that SM helped them stay on-

task during SSR, whereas Participant D said it helped only a little, and Participant C found it somewhat helpful. A and D enjoyed using SM to stay on-task during reading, while B and C enjoyed it only slightly for tracking their progress. A and D plan to use SM again, while B and C said they might use it in the future (see Appendix A).

Participant C enjoyed TE best, but the other participants stated they enjoyed TE and SM equally. Participant C wrote that they felt like the on-task strategies helped them stay on-task during SSR somewhat. The other participants were very satisfied with how well the interventions worked to keep them on-ask during SSR (see Appendix A).

Findings Organized by Participant

The results of this study are organized by participant, with a focus on data from each phase, and include findings from exit reflection questions along with the overall data. This structure allows for a comprehensive understanding of each participant's progress and the impact of the interventions across different phases.

Participant A

For Participant A, the data revealed a clear level change in on-task behavior across the phases. During Baseline 1, behavior fluctuated between 50% and 60%, with a mean of 52.5%, median of 50%, and mode of 50%. When TE Intervention was introduced, on-task behavior increased significantly, with scores mostly at 90% or 100%, yielding a mean of 94%, median of 90%, and mode of 90%. In Baseline 2, behavior ranged from 70% to 90%, showing a slight improvement, with a mean of 77.5%, median of 75%, and mode of 70%. During Intervention SM, on-task behavior remained at 100%, resulting in a mean, median, and mode of 100%. These changes indicate a marked increase in on-task behavior, especially during the intervention phases (see Figures 4.1, 4.2, 4.3, & 4.4).

Participant A took part in an exit interview about the interventions, and their responses were quite interesting. Participant A enjoyed both TE and SM equally and found both strategies easy to understand. Participant A liked earning rewards through both methods and expressed interest in using them again in the future. Participant A felt motivated by TE and appreciated the sense of responsibility that came with SM. Participant A believed both strategies were equally effective in helping them stay on-task. In the comment section, Participant A noted that their favorite part was earning rewards, while their least favorite was the uncertainty of when the timer would go off.

Participant B

For Participant B, during Baseline 1, the on-task behavior varied from 0% to 80%. The mean of Baseline 1 was 42.5%. The median was 40% and the mode was 0, 40, and 80. During Intervention 1, Participant B's on-task behavior consistently increased to 100% for all data points, resulting in a mean of 100%, a median of 100%, and a mode of 100%. In Baseline 2, on-task behavior ranged from 70% to 90%, with the mean at 80%, the median at 80%, and the mode at 80%. Finally, during Intervention 2, Participant B maintained high levels of on-task behavior, ranging from 90% to 100%. The mean was 96%, the median was 100%, and the mode was 100%. This shows a clear and consistent improvement in Participant B's on-task behavior across interventions (see Figures 4.1, 4.2, 4.3, & 4.4).

Participant B took part in an exit interview about the interventions, and the results were quite interesting. Participant B found both TE and SM very helpful. They found TE easy to use but considered SM more challenging. Participant B enjoyed earning rewards and felt that both TE and SM were beneficial strategies. However, they found self-monitoring difficult and did not enjoy tracking their progress. They stated they would use TE in the future and might use SM.

Overall, they felt that TE was the best strategy for them. In the comment section, Participant B mentioned that they enjoyed both strategies because they were fun but did not like monitoring their own behavior.

Participant C

Participant C demonstrated a variety of on-task behaviors across different phases of the study. In Baseline 1, the participant's on-task percentages had a mean of 64%, a median of 60, and a mode of 80 and 60, indicating some fluctuations in staying focused. During Intervention 1, the on-task behavior improved, with a mean of 94%, a median of 90, and a mode of 90, showing the effectiveness of the intervention in maintaining on-task behavior. In Baseline 2, the on-task percentage slightly decreased to a mean of 70%, a median of 70, and a mode of 70, suggesting some challenges in consistency. However, Intervention 2 showed a notable improvement, with a mean of 98%, a median of 100, and a mode of 100, displaying the positive impact of this intervention in promoting sustained attention. Overall, Participant C's results suggest a significant increase in on-task behavior during the intervention phases compared to the baseline phases (see Figures 4.1, 4.2, 4.3, & 4.4).

Participant C participated in an exit interview regarding the interventions. Participant C found both TE and SM somewhat helpful in staying on-task during SSR. They reported that TE was easy to understand, but using SM was more challenging. Participant C enjoyed receiving rewards and felt that TE motivated them. They believed that SM somewhat helped them stay on-task during SSR and felt it was somewhat beneficial in promoting responsibility for their own on-task behavior. Participant C mentioned that they might consider using both strategies in the future, especially TE. In the comment section, Participant C stated that while both strategies were fun, they found SM to be challenging.

Participant D

In summary, Participant D had a mean of 70, a median of 70, and modes of 80 and 50 during Baseline 1. During Intervention 1, the mean, median, and mode were all 100, indicating consistency in performance. For Baseline 2, the mean was 77.5, the median was 70, and the mode was 70. Finally, during Intervention 2, the mean was 90, the median was 100, and the mode was 100. In summary, the data indicated that Intervention 1 had a strong positive impact on Participant D's on-task behavior. Baseline 1 and Baseline 2 showed lower and more variable on-task behavior, suggesting that the interventions were effective in improving on-task behavior. Intervention 2 maintained a relatively high level of on-task behavior, though with a bit more variation compared to the first intervention (see Figures 4.1, 4.2, 4.3, & 4.4).

Participant D participated in an exit interview regarding the interventions, and the results were quite insightful. Participant D found TE to be very helpful and SM somewhat helpful, with both strategies being easy to use. They enjoyed receiving rewards, and TE was particularly motivating. Participant D felt that SM helped them stay on-task to some extent but really enjoyed the process of SM. They plan to continue using both strategies in the future and expressed enjoyment with both. Their favorite part was collecting prizes, and they provided no negative feedback.

Interobserver Agreement

During all phases, both the researcher and the independent observer monitored the participants' on-task behavior during SSR using the on-task behavior checklist and the on-task reading checklist (see Appendix A). These checklists allowed the observer and researcher to determine if the participants were on-task by marking specific behaviors relevant to the operational definition of on-task. After each observation, the observer and researcher discussed

their findings and reached a consensus on whether the participant was on-task. This process of comparing and agreeing on observations helped ensure the accuracy of the data collected.

The interobserver agreement (IOA) data indicated consistently high reliability across all phases. During Baseline 1, the agreement was strong for all participants, with each showing a high level of consistency. The introduction of the TE intervention further maintained this strong agreement, with all participants demonstrating dependable IOA throughout the intervention. In Baseline 2, the agreement remained high for all participants, reflecting the continued accuracy of the recorded data. During the SM phase, the IOA remained excellent, with participants maintaining solid agreement throughout. Overall, the IOA data showed that the observer and researcher were highly consistent in recording on-task behavior, ensuring the reliability of the study's findings (see Table 4.1).

Table 4.1

Mean Interobserver Percent Agreement by Participant and Phase

Mean in Phases for IOA	Participant A	Participant B	Participant C	Participant D
B1	91	94	91	99
TE	98	100	96	100
B2	98	100	96	98
SM	100	98	100	96
B3	98	100	88	100

Note: B1=Baseline 1, TE=Token Economy, B2=Baseline 2, SM=Self-Monitoring, & B3=Baseline 3.

Research Questions

Sub-Question One

Sub-question one asks: How does token economy impact on-task behavior for students with ADHD during SSR? Results indicated that TE was an effective strategy for keeping participants on-task during SSR. See Figures 4.1, 4.2, 4.3, and 4.4 above for a comparison of

on-task behavior during TE. Participant A showed slight fluctuations but remained highly on-task throughout the sessions. Participant B maintained full on-task behavior consistently, demonstrating a strong positive response to the intervention. Participant C displayed a pattern similar to Participant A, alternating between full engagement and slightly lower levels. Participant D remained fully on-task in all sessions, indicating that the intervention was highly effective in supporting their on-task behaviors during SSR. This suggests that TE was effective. Additionally, Baseline 2 showed higher on-task behavior after Intervention 1 possibly because the participants were still focused on the TE or the rewards from it. This suggests that the effects of the TE continued to influence the participants, even after the intervention changed back to Baseline 2. All participants showed a higher frequency of consistent data points during TE.

Sub-Question Two

Sub question two asks: How does self-monitoring impact on-task behavior four students with ADHD during SSR? Results indicated that participants were more on-task during the SM intervention than the baseline periods. See Figures 4.1, 4.2, 4.3, and 4.4 above of a comparison of SM to the baseline periods. Intervention 2 was highly successful in improving on-task behavior across all participants. Participant A demonstrated full engagement throughout, indicating a strong and stable response to the intervention. Participants B and C also showed significant improvements, maintaining high levels of on-task behavior with only minor differences. While Participant D exhibited some instability, overall, on-task behavior remained much higher compared to baseline levels. The data suggests that the intervention effectively increased and sustained on-task behavior for all participants during SSR.

Sub-Question Three

Question three examines which strategy was most effective in helping students with ADHD stay on-task during SSR. The data indicates that both strategies, SM and TE, led to high levels of on-task behavior during SSR, but effectiveness varied by participant. Participant A maintained full focus during SM, suggesting it provided the most structure and support for their attention. However, during TE, Participant A showed some fluctuation in on-task behavior, alternating between 90% and 100%, indicating that TE was less consistent for this participant. Participant B demonstrated more consistent on-task behavior with TE, showing 100% focus during all sessions, highlighting its impact on their ability to stay on-task during SSR. In contrast, during SM, Participant B exhibited some variation, suggesting that TE was more effective for them. Participant C showed a steady increase in focus after an initial drop in SM, with the first session showing 90% on-task behavior but then maintaining 100% for the rest of the sessions, suggesting that once they adjusted, they were able to stay on-task effectively. In TE, Participant C had more fluctuation, indicating that SM was more beneficial for them. Finally, Participant D experienced some fluctuation, with one session in SM showing a significant decrease due to external factors. However, in TE, Participant D stayed fully on-task, indicating that TE was the more effective strategy for this participant (see Figures 4.1, 4.2, 4.3, & 4.4).

Overall, while both strategies were successful in improving on-task behavior, individual differences influenced which approach was most effective. TE was particularly successful for Participants B and D, while SM worked better for Participant A, and Participant C showed improvement in SM after an adjustment period.

Primary Research Question

This study analyzed how token economy systems and self-monitoring strategies affect on-task behavior for students with ADHD during self-selected reading? TE and SM strategies both positively affected on-task behavior for participants with ADHD during SSR, but their effectiveness varied depending on the individual participant. TE, which involves reinforcing desired behaviors with tokens that can be exchanged for rewards, was particularly effective in maintaining consistent focus for some participants. For example, Participant B showed 100% on-task behavior throughout all sessions using TE, indicating that the structure and rewards provided by the TE helped them stay fully on-task. Likewise, Participant D demonstrated high levels of on-task behavior during TE (see Figures 4.1, 4.2, 4.3, & 4.4).

On the other hand, SM, which encourages participants to track their own on-task behaviors was also effective but showed more variability. Participant A was more on-task during SM sessions, maintaining full focus across the sessions, while Participant C experienced a drop in focus at first but showed improvement and sustained on-task behavior after adjusting to the SM strategy. This suggests that SM may require an initial adjustment period but can lead to better long-term on-task behaviors once participants become adjusted to tracking their own behavior (see Figures 4.1, 4.2, 4.3, & 4.4).

Overall, both strategies had a positive impact on on-task behavior, but the effectiveness of each strategy depended on the individual needs and adjustments of the participants. TE seemed to work particularly well for maintaining consistent on-task behaviors, while SM supported participants in improving their on-task behaviors over time, especially once they adapted to the strategy.

Barriers

Barriers in the classroom included both external and internal distractions. Internal distractions included daydreaming, blowing noses, and zoning out. External distractions included classmates distracting one another, general classroom noise, participants retrieving books from the classroom library, classroom fidgets, and, at one point, the classroom futon unexpectedly popping open and collapsing.

Conclusion

In conclusion, this study supported the hypothesis that both TE and SM strategies improved on-task behavior in students with ADHD during SSR. The findings demonstrated that while both strategies were effective, their success varied depending on the individual participant. TE proved particularly beneficial for participants like Participant B and Participant D, who showed consistent on-task behavior, while SM had positive effects for Participant A and Participant C. These results highlighted the importance of individualized interventions and suggested that a combination of strategies might have been most effective in supporting participants with ADHD. The high IOA data confirmed that the observations and data gathered by both the researcher and the observer were consistent and reliable throughout the study. The reflection assessment conducted after all phases showed that all participants were motivated by the rewards to remain on-task during SSR.

CHAPTER 5. CONCLUSION AND IMPLICATIONS

The study looked at how token economy (TE) and self-monitoring (SM) strategies affect students with attention deficit hyperactivity disorder (ADHD) during self-selected reading (SSR). The over-arching research question asked: How do token economy systems and self-monitoring strategies affect on-task behavior for students with ADHD during self-selected reading? The study's sub-questions were: How does token economy impact on-task behavior for students with ADHD during SSR? How does self-monitoring impact on-task behavior for students with ADHD during SSR? Which strategy is most effective for students with ADHD to stay on-task during SSR? In this study, the researcher hypothesized that both TE and SM strategies would improve on-task behavior in students with ADHD during SSR. This study primarily focused on the cognitive aspects of ADHD, particularly its impact on executive functioning and self-regulation. ADHD is a common disorder that makes it hard for students to focus and regulate their behavior, which is essential for tasks like reading (Barkley, 2022; Buttery, 2008). Developing reading skills is crucial for all students, but students with ADHD often face challenges staying on-task during reading activities (McBride, 2024). Students with ADHD need executive functioning skills to stay focused during SSR, and both TE and SM strategies are designed to help with this. TE rewards students for staying on-task during SSR, while SM involves students setting goals and tracking their own behaviors.

This study is important because all children need to develop strong reading skills early on to succeed in school (Dong et al., 2023). Typically, 34% of students with ADHD receive special education or mental health services (DuPaul & Stoner, 2014). In this study, 75% of the participants received either an IEP (Individualized Education Program) or a 504 Plan, meaning they had documented disabilities that required accommodations or special education services to

support their learning. By looking at how TE and SM helped four participants with ADHD stay on-task during SSR, this study aimed to find out which method worked best. Although there were limitations, such as having only a small number of participants, the results still added valuable information to the existing research on ADHD.

Findings

The mean on-task behavior across all phases demonstrated a clear improvement in participant on-task behavior during both intervention strategies compared to baseline phases. During the initial Baseline 1 on-task behavior was the lowest, with the mean ranging from 41.25% for Participant B to 70% for Participant D, indicating difficulties in maintaining focus without support. With the implementation of TE, all participants showed a significant increase in on-task behavior, with Participants B and D achieving 100%, while Participants A and C reached 94%, showing TE's immediate impact. Following TE, Baseline 2 showed improved on-task behavior compared to Baseline 1, suggesting some retention of on-task behavior, though slight declines were observed. During SM, on-task behavior remained high across participants, with Participants A, B, and C maintaining on-task behavior above 96%, while Participant D showed a slightly lower mean of 90%. The final Baseline 3 showed further improvements compared to Baseline 1 and Baseline 2, with means ranging from 75% for Participant C to 92.5% for Participant B indicating that both interventions contributed to continued improvements of on-task behavior during SSR. Overall, the data suggests that while both TE and SM were effective in increasing on-task behavior, their impact varied by participants, and some gains were maintained even after the interventions ended.

Sub-Question One

The first research question asked how does token economy impact on-task behavior for students with ADHD during SSR? The findings of this study demonstrate that TE was an effective intervention for increasing on-task behavior during SSR for participants with ADHD. Participants B and D consistently remained fully on-task, indicating a strong positive response to TE. Participants A and C exhibited slight fluctuations but still showed improved on-task behavior during SSR. Additionally, on-task behavior remained higher during Baseline 2 compared to the initial baseline, suggesting that the effects of TE persisted even after the intervention was removed. The data indicated a higher frequency of consistent on-task behavior during TE, reinforcing its effectiveness in promoting on-task behavior during SSR.

Sub-Question Two

The second question asked how does self-monitoring impact on-task behavior for students with ADHD during SSR? The increase in on-task behavior during SM may have been influenced by the prior intervention of TE. The findings suggested that SM effectively improved on-task behavior for participants with ADHD during SSR. Participants demonstrated higher levels of on-task behavior during the SM intervention compared to baseline periods. Participant A remained fully engaged, showing a strong and stable response, while Participants B and C displayed significant improvements with minimal fluctuations. Although Participant D exhibited some inconsistency, overall, on-task behavior was noticeably higher than baseline levels. These results indicated that SM was successful in increasing and maintaining on-task behaviors across all participants during SSR.

Sub-Question Three

The third question asked which strategy is most effective for students with ADHD to stay on-task during SSR? In addressing the effectiveness of each strategy in keeping participants with ADHD on-task during SSR, the findings indicate that both SM and TE led to high levels of on-task behavior, though their effectiveness varied by individual. Participant A demonstrated sustained on-task behavior with SM, suggesting it provided the necessary structure for their attention, while TE resulted in slight fluctuations in on-task behavior. Then, Participant B exhibited complete on-task behavior during TE but showed some inconsistency with SM, indicating that TE was the more effective approach for them. Participant C initially showed a decline in on-task behavior with SM but quickly adapted, maintaining full on-task behavior in later sessions, whereas their on-task behavior fluctuated more with TE, suggesting SM was ultimately more beneficial. Participant D experienced some inconsistency with SM due to external factors but remained fully engaged during TE, making TE the more effective strategy in their case. Overall, while both interventions contributed to improved on-task behavior, individual differences played a crucial role in determining which strategy was most effective for each participant (see Figures 4.1, 4.2, 4.3, & 4.4).

Primary Research Question

This study examined the impact of TE and SM strategies on on-task behavior for participants with ADHD during SSR. Both TE and SM positively influenced on-task behavior, though their effectiveness varied among participants. TE, which uses tokens as rewards to reinforce desired behaviors, was especially effective for maintaining consistent on-task behavior for some participants. For instance, Participant B remained 100% on-task throughout all TE sessions, suggesting that the structure and rewards of TE helped sustain their on-task behavior.

Participant D also showed high levels of on-task behavior during TE. In contrast, SM, which encourages participants to track their on-task behaviors, was effective but showed more variation. Participant A stayed fully on-task throughout SM sessions, while Participant C initially struggled but showed improvement and sustained on-task behavior after becoming accustomed to the strategy. This indicates that while SM may require an adjustment period, it can lead to better long-term on-task behavior. Overall, both strategies had a positive impact, with TE being more effective for maintaining consistent on-task behavior and SM supporting long-term improvement once participants adapted to the strategy.

Hypothesis

In this study, the researcher hypothesized that both TE and SM strategies would improve on-task behavior in participants with ADHD during SSR. The data supports this hypothesis, as both strategies led to increased levels of on-task behavior, although their effectiveness varied by participant. For some participants, TE proved to be the more effective strategy, as evidenced by consistent 100% on-task behavior, particularly for Participant B and Participant D. These participants showed high on-task behavior when using TE, suggesting that the structured rewards system helped them maintain on-task behaviors. On the other hand, SM also showed positive results, with Participant A and Participant C demonstrating improvements in their on-task behavior. Participant C, in particular, showed an early dip in focus but sustained on-task behavior once they became accustomed to SM.

The findings indicated that while both strategies had a positive impact on on-task behavior, their success was influenced by individual differences among the participants. For some, the support system of TE helped maintain consistent on-task behaviors, while others benefited from the reflective practice and self-regulation of SM. Therefore, the hypothesis that

both TE and SM would improve on-task behavior can be accepted, but the strategies' effectiveness is shaped by the unique needs of each participant.

Comparison of Findings with Existing Literature

TE played a crucial role in enhancing participants' on-task behaviors during this study. DuPaul and Weyandt (2006) demonstrated that TE strategies can significantly improve participants ' productivity while seated, a result that was mirrored in the current study as participants exhibited greater on-task behavior during SSR. The active participation of participants in the TE process is essential for its success (DuPaul & Weyandt, 2006; Heiniger et al., 2022; Soares et al., 2016). These studies emphasized that when participants are directly engaged with TE strategies, they are more likely to sustain attention and stay on-task during reading.

Heiniger et al. (2022) further stated that the final step of TE involves transitioning participants to independent SM, a process that was reflected in the current study. As participants progressed through the TE phase, they demonstrated increased independence in monitoring their own behaviors, resulting in consistently high on-task behaviors even after the TE intervention ended. This progression focuses on how TE and SM work together, with TE providing support to help develop on-task behaviors during SSR.

This study investigated the findings of Roberts et al. (2023) who investigated effective interventions for students with both reading disabilities and ADHD. One of the key interventions in their study was SM, which was shown to improve participant behavior during reading instruction. Their findings showed the effectiveness of self-regulation strategies in enhancing comprehension scores. The results of the present study confirmed the role of SM in increasing participants' on-task behavior during SSR. All participants demonstrated high levels of on-task

behavior when using SM. The ultimate goal of maintaining focus during SSR is to foster overall improvements in reading skills. Results from McBride's (2024) study showed that researcher selected interventions were most effective in improving students' oral fluency and comprehension. Similarly, the present study found that the researcher-selected interventions, SM and TE, were effective in keeping participants on-task during SSR. Gioia et al. (2023) examined the relationship between reading, writing, and SM. Their findings indicated that SM can enhance students' reading and writing scores while also supporting the development of executive functioning skills. The present study incorporated SM as a strategy for improving participants' on-task reading behaviors during SSR, which may also contribute to strengthening their executive functioning skills.

In this study, participants enhanced their on-task behaviors during SSR through SM. Likewise, Sulu et al. (2023) investigated the use of SM to improve participants' on-task behaviors across various subjects, excluding reading and painting. Their findings showed that students initially demonstrated increased on-task behavior in the targeted subjects, and over time, their on-task behaviors also improved in reading and painting. Therefore, the on-task behaviors in the current study also could have a carryover into other areas. Also, in this study, participants exhibited a carryover effect, with their on-task behaviors improving progressively after each intervention.

Numerous studies have confirmed the role of SM in reducing off-task and disruptive behaviors. Davies and Witte (2000) found that SM interventions significantly decreased inattentive and problematic behaviors among students, a finding supported by Harris et al. (2005) and Hoff and DuPaul (1998), who reported similar improvements in classroom behavior. The current study aligns with these findings, as the implementation of SM strategies led to notable

improvements in participants' ability to stay on-task during SSR sessions. Furthermore, Amato-Zech et al. (2006) demonstrated that SM interventions increased on-task behaviors. The on-task behaviors observed in this study, as well as in Amato-Zech et al. (2006), included participants reading their books silently, keeping their eyes on the text, remaining seated, refraining from excessive movement or fidgeting, turning pages appropriately, and displaying engagement.

Scheithauer and Kelley (2017) extended the positive outcomes of SM to higher education, showing that SM combined with goal setting resulted in increased grade point averages among college students. These findings matched the growth in on-task behaviors observed in the current study, suggesting that the benefits of SM are applicable across different age groups and educational settings. Similarly, Shimabukuro et al. (1999) found that SM interventions improved on-task behaviors in students with ADHD, further confirming the effectiveness of these strategies in supporting students with diverse learning needs. The likeness between these studies and the current findings reinforces the value of SM as a multipurpose and inclusive approach to improving on-task behaviors.

Foorman and Torgesen (2001) emphasized the importance of incorporating guided reading, read-alouds, and students reading on their own. This approach aligns with the social-constructivist theory, which suggests that students construct knowledge through reading (Foorman & Torgesen, 2001). Likewise, the present study demonstrated that teaching participants TE and SM enhanced their on-task behaviors during SSR. SSR is a crucial component of the classroom, providing participants with opportunities to independently build knowledge through reading.

All students benefit from reading a book they enjoy (Edmonton Regional Learning Consortium, 2016). SSR offers several advantages, including improved fluency, practice of

reading skills, enhanced receptive and expressive language, increased comprehension, greater confidence, and a deeper enjoyment of reading (Edmonton Regional Learning Consortium, 2016). This study focused on participants reading for enjoyment while maintaining on-task behavior, ultimately contributing to the development of these skills. Rodgers (2017) conducted a mixed-methods study with 136 community college students and found that self-selected reading enjoyment (SSRE) improved reading comprehension, self-efficacy, and overall academic performance. The present study focused on helping participants stay on-task during SSR, with the hope that fostering engagement in reading will lead to long-term enjoyment and academic success. Conradi Smith et al. (2022) suggested that small groups are most effective when teachers focus on a specific skill. During small group instruction, students must regulate their attention while reading. This study demonstrated this by closely observing four participants and teaching them strategies to remain on-task during SSR.

Overall, the findings of this study align with a strong body of literature indicating that both SM and TE are effective strategies for enhancing participants' on-task behaviors during SSR. TE and SM work in tandem. The end goal of TE is for students to eventually monitor themselves. The integration of these interventions not only improves immediate on-task behavior during SSR but also creates essential self-regulation skills that could support long-term academic success.

Theoretical Frameworks

The use of TE and SM strategies in this study aligned with key psychological theories, particularly Skinner's operant conditioning and Bandura's self-regulation theory. These theories provided a foundation for understanding how TE and SM processes influenced participant on-task behavior, particularly for participants with ADHD during SSR.

Skinner's framework emphasized the role of reinforcement in shaping behavior, showing how environmental factors influenced an individual's actions and responses (O'Donohue & Ferguson, 2001). In this study, TE served as a structured reinforcement system, providing participants with tangible rewards when they remained on-task during SSR. By recognizing and reinforcing desirable behaviors, participants became more engaged, leading to an increase in on-task behavior compared to baseline periods when no interventions were in place.

A key principle of Skinner's operant conditioning was the manipulation of independent variables to observe changes in dependent variables. Skinner asserted that the dependent variable should be measured in terms of response rate or frequency. In this study, the independent variables of TE and SM were systematically introduced within an A-B-A-C-A single-case experimental design to assess their effects on students' ability to stay on-task. As participants received reinforcement, their on-task behavior increased, aligning with Skinner's principle that behavior is strengthened when systematically reinforced.

Skinner also emphasized establishing a stable baseline before implementing interventions. However, due to the participants' ADHD diagnoses, achieving a fully stable baseline was not feasible. Nevertheless, the study followed a structured A-B-A-C-A design, beginning with a baseline phase (A) where no interventions were applied, followed by the application of TE (B), a return to baseline (A), the application of SM (C), and a final return to baseline (A). This structured approach allowed for a clear analysis of how each strategy influenced behavior while accounting for individual variability among participants with ADHD.

Bandura's framework of self-regulation was highly relevant to the implementation of SM strategies in this study. According to Bandura (1991), self-regulation involved three key

components: self-observation, self-judgment, and self-reaction. These elements were thoroughly incorporated into the intervention to enhance participants' ability to remain on-task during SSR.

Self-observation involved individuals tracking their own behaviors to gain awareness of their actions and identify areas for improvement (Bandura, 1991). In this study, participants engaged in self-observation by monitoring their on-task behavior every two minutes for a duration of twenty minutes. Using a self-monitoring sheet, they recorded their on-task status by circling a happy or frowny face, fostering metacognitive awareness of their behavior. This aligned with Bandura's assertion that self-observation was the first step toward behavior change, as it enabled individuals to recognize patterns in their actions and make informed adjustments (see Appendix A).

Self-judgment refers to the process of comparing one's behavior against a set standard or goal. Participants were encouraged to set their own individualized goals. Once they met their initial target, they established new, progressively challenging goals to continue improving their on-task behavior. By reflecting on their progress and adjusting their expectations, participants created a personal benchmark for evaluating their performance. This process aligned with Bandura's concept of goal-setting as a means of fostering intrinsic motivation and encouraging self-improvement (Bandura, 1991).

Self-reaction involved responding to self-judgment through reinforcement or corrective action. In this study, participants who met their self-determined goals received daily rewards, reinforcing positive behavior and strengthening their motivation to stay on task. External reinforcement acted as a link to internal self-regulation, helping students associate staying on-task with positive outcomes. Additionally, by actively engaging in self-monitoring and adjusting their behavior based on observations, participants developed a sense of ownership and

accountability. Over time, this process encouraged them to rely less on external rewards and experience intrinsic satisfaction from achieving their goals (Bandura, 1991).

Bandura's theory also emphasized the role of acknowledgment in behavior regulation. This study incorporated two forms of acknowledgment: external reinforcement through rewards and internal reinforcement through self-awareness (SM). Researcher encouragement served as an external reinforcement, providing motivation and reinforcing positive behavior. Meanwhile, SM allowed participants to internalize their progress and develop self-efficacy, leading to more sustainable on-task behavior changes. The integration of both reinforcement strategies supported participants in gradually transitioning from extrinsic to intrinsic motivation, fostering long-term self-regulation skills (Bandura, 1991).

In addition to behavioral theories, research on literacy and engagement suggested that participants benefited from consistent and structured opportunities to practice reading. The Practice Engagement Theory (PET) (Reder, 2023) supported the idea that sustained and meaningful engagement in reading activities contributed to the development of literacy skills such as fluency, comprehension, and critical thinking. TE and SM provided students with structured methods for remaining on-task during SSR, reinforcing the idea that regular and intentional participation in reading activities could led to improved academic outcomes.

Beyond behavioral and engagement frameworks, the social-constructivist perspective emphasized that learning was most effective in interactive and collaborative environments. Studies such as those by Foorman and Torgesen (2011) demonstrated that strategies like dependent reading, read-alouds, and guided discussions helped students construct knowledge through shared experiences. By incorporating self-regulation techniques, this study encouraged participants to take an active role in their learning. Goal-setting and reflection played a crucial

role in helping participants recognize their progress and make necessary adjustments to improve their focus and on-task behavior.

Ultimately, the findings of this study indicated that both TE and SM were effective in improving on-task behavior during SSR. The TE strategy implemented in this study was based on Skinner's reinforcement theory. TE provided participants with immediate recognition and external rewards for staying on-task, while Bandura's self-regulation theory during SM encouraged participants to develop self-awareness and take personal responsibility for their on-task behavior during SSR. When combined, these strategies created a structured approach to supporting students with ADHD to stay on-task during SSR. The study displays the importance of implementing evidence-based interventions, ensuring that students with ADHD receive the necessary support to develop on-task behaviors during SSR.

Limitations

First, the small sample size limits the generalizability of the findings. Additionally, the participants also had varying levels of ADHD, and while they all took medication, they did not always take it daily, which could have influenced the results. The study focused on a one-week duration of TE and SM, so the observed effects may have been short-term. SM required participants to set goals, work toward them, and maintain honesty throughout the process. If any participant was dishonest, it could have skewed the study's outcomes. Furthermore, participants faced both internal and external challenges, such as home issues and difficulties with flexible seating.

Future Implications

The findings of this study suggested several important implications for future research. First, the positive impact of both TE and SM on on-task behavior displayed the potential for

these interventions to be used more widely in classrooms with students with ADHD. Future studies should explore the long-term effectiveness of these strategies. Additionally, research could expand the sample size and include a more diverse group of participants to better understand how individual differences influence the success of these interventions. Further investigation into how external factors may interact with these strategies would also be valuable. Furthermore, combining both TE and SM in future studies could provide insight into whether these interventions work better together or separately. Future studies should explore how to adjust these strategies for different grades or subjects to make them more useful and effective in various classrooms.

The findings of this study suggested that future research should focus on adapting interventions like TE and SM to individual participants' needs, as different strategies may work better for different participants with ADHD. Incorporating SM could also help participants with ADHD develop long-term self-regulation skills, which could extend beyond SSR to other areas of learning. Additionally, future studies could examine how classroom factors influence the effectiveness of these strategies, helping educators create more supportive learning environments. Ultimately, ongoing evaluation and modification of these strategies should be pursued to increase participants on-task behaviors.

Conclusion

This study examined the effects of TE and SM strategies on improving on-task behavior in students with ADHD during SSR. The research supported the hypothesis that both TE and SM can enhance on-task behavior, though their effectiveness varied across participants. TE proved highly effective for maintaining consistent on-task behavior, particularly for Participants B and D, who showed continued on-task behavior during the intervention. SM also had positive effects,

with Participant A remaining fully on-task, while Participant C showed gradual improvement, particularly after an initial adjustment period. These results contributed to the growing body of research on ADHD interventions and stresses the potential of TE and SM as practical strategies for supporting participants with ADHD. Although both interventions were effective, their success depended on individual factors, suggesting the need for adapted approaches in educational settings. The study showed the need to explore the long-term effects of these strategies and understand how outside factors affected their success. The results demonstrated that TE and SM are useful for keeping participants on-task during SSR and suggest that future research could improve and expand these strategies in different classrooms and for different participants.

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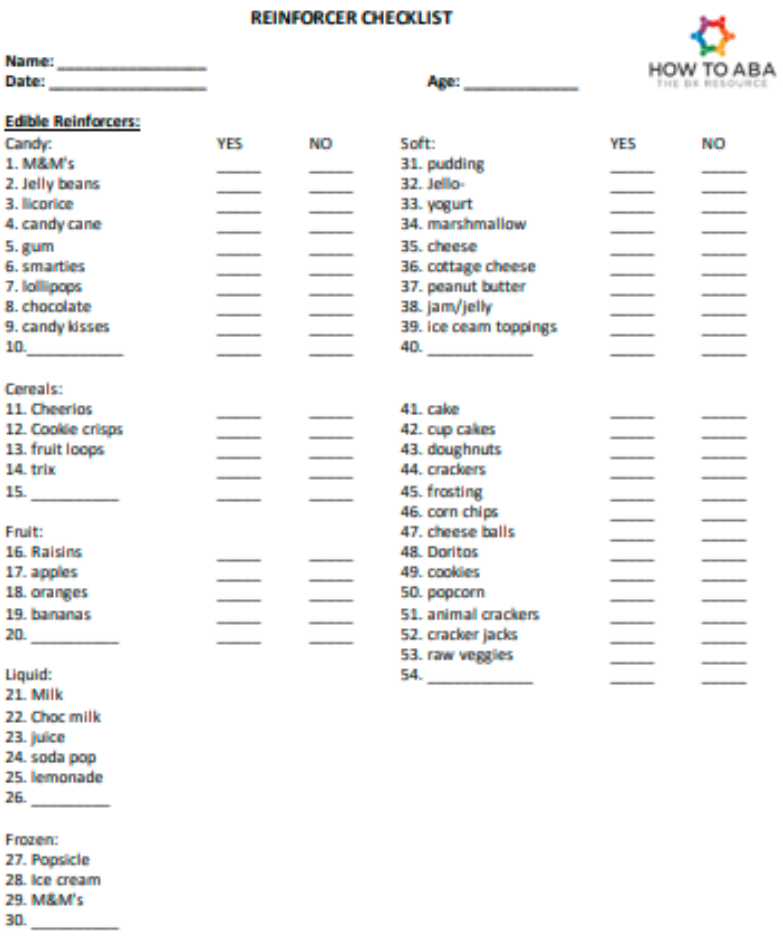
APPENDICES

APPENDIX A

DATA COLLECTION TOOLS

Figure A1

Preference Checklist



REINFORCER CHECKLIST

Name: _____
Date: _____ **Age:** _____

HOW TO ABA
THE RX RESOURCE

Edible Reinforcers:

Candy:	YES	NO	Soft:	YES	NO
1. M&M's	____	____	31. pudding	____	____
2. Jelly beans	____	____	32. Jello-	____	____
3. licorice	____	____	33. yogurt	____	____
4. candy cane	____	____	34. marshmallow	____	____
5. gum	____	____	35. cheese	____	____
6. smarties	____	____	36. cottage cheese	____	____
7. lollipops	____	____	37. peanut butter	____	____
8. chocolate	____	____	38. jam/jelly	____	____
9. candy kisses	____	____	39. ice cream toppings	____	____
10._____	____	____	40. _____	____	____
Cereals:					
11. Cheerios	____	____	41. cake	____	____
12. Cookie crisps	____	____	42. cup cakes	____	____
13. fruit loops	____	____	43. doughnuts	____	____
14. trix	____	____	44. crackers	____	____
15. _____	____	____	45. frosting	____	____
			46. corn chips	____	____
Fruit:			47. cheese balls	____	____
16. Raisins	____	____	48. Doritos	____	____
17. apples	____	____	49. cookies	____	____
18. oranges	____	____	50. popcorn	____	____
19. bananas	____	____	51. animal crackers	____	____
20. _____	____	____	52. cracker jacks	____	____
			53. raw veggies	____	____
Liquid:			54. _____	____	____
21. Milk					
22. Choc milk					
23. juice					
24. soda pop					
25. lemonade					
26. _____					
Frozen:					
27. Popsicle					
28. Ice cream					
29. M&M's					
30. _____					

Note. Token-economy pre-conference checklist. From "*What Are Preference Assessments in ABA*?", by How to ABA, 2023, (https://howtoaba.com/preference-assessments/).

Table A1

On-Task Behavior Checklist

Students	Eyes in Book	Reading Silently	Staying Seated	Not Fidgeting	Turning Pages Appropriately	Looking Engaged
Student A						
Student B						
Student C						
Student D						

Note. This is the checklist that will be used to see if students are on-task during SSR.

Table A2

On-Task Reading Checklist

Time Internal Minutes	On-Task (Y/N)	Off-Task (Y/N)
0-2		
2-4		
4-6		
6-8		
8-10		
10-12		
12-14		
14-16		
16-18		
18-20		

Table A3

Token Economy Checklist

Time Internal Minutes	On-Task (Y/N)	Was a reward earned? (Y/N)	Total Tokens Earned
0-2			
2-4			
4-6			
6-8			
8-10			
10-12			
12-14			
14-16			
16-18			
18-20			
Total:			

Table A4

Student Self-Monitoring Sheet

Time Internal Minutes	Happy Face	Sad Face
0-2		
2-4		
4-6		
6-8		
8-10		
10-12		
12-14		
14-16		
16-18		
18-20		

Table A5

Self-Monitoring Sheet

Time Internal Minutes	On-Task (Y/N)	Off-Task (Y/N)	Students SM Sheet
0-2			
2-4			
4-6			
6-8			
8-10			
10-12			
12-14			
14-16			
16-18			
18-20			

Reflection Questions

Token Economy (TE) Intervention

1. **Did you find the token rewards (stickers/prizes) helpful in staying on-task during SSR?**
   ◯ Not helpful at all
   ◯ Somewhat helpful
   ◯ Very helpful
2. **How easy was it for you to understand the rules of the Token Economy (how to earn stickers and exchange them for prizes)?**
   ◯ Very difficult
   ◯ Somewhat difficult
   ◯ Easy
   ◯ Very easy
3. **Did you enjoy earning rewards for staying on-task?**
   ◯ Not at all
   ◯ A little
   ◯ Somewhat
   ◯ Very much
4. **Did the Token Economy make you feel more motivated to stay on-task?**
   ◯ Not at all
   ◯ A little
   ◯ Somewhat
   ◯ Very much
5. **Would you like to continue using the Token Economy system during SSR in the future?**
   ◯ Not at all
   ◯ Maybe
   ◯ Yes, I would

Self-Monitoring (SM) Intervention

6. **Did you find the self-monitoring process (checking every two minutes) helpful in staying on-task?**
   ◯ Not helpful at all
   ◯ Somewhat helpful
   ◯ Very helpful
7. **How easy was it for you to-track your progress and stay on task using self-monitoring?**
   ◯ Very difficult
   ◯ Somewhat difficult
   ◯ Easy
   ◯ Very easy

8. **Did the self-monitoring help you focus more on your book during SSR?**
   ◯ Not at all
   ◯ A little
   ◯ Somewhat
   ◯ Very much
9. **Did you enjoy being responsible for monitoring your own progress?**
   ◯ Not at all
   ◯ A little
   ◯ Somewhat
   ◯ Very much
10. **Would you like to continue using self-monitoring as a way to stay on-task during SSR?**
    ◯ Not at all
    ◯ Maybe
    ◯ Yes, I would

General Questions

11. **Which intervention did you prefer for staying on-task during SSR?**
    ◯ Token Economy (TE)
    ◯ Self-Monitoring (SM)
    ◯ I liked both equally
    ◯ Neither
12. **Which intervention helped you stay on-task the most?**
    ◯ Token Economy (TE)
    ◯ Self-Monitoring (SM)
    ◯ Both equally
    ◯ Neither
13. **Overall, how satisfied were you with the SSR interventions?**
    ◯ Not satisfied at all
    ◯ Somewhat satisfied
    ◯ Satisfied
    ◯ Very satisfied

Additional Comments

14. **What did you like most/least about the interventions?**

APPENDIX B. APPROVAL FOR RESEARCH (IRB)

Human Subjects Committee (HSC)
Institutional Review Board (IRB)

Dear Tora Henson,

Proposal Title: Strategies to Support Students with ADHD during Self-Selected Reading: An Evaluation of Token Economy and Self-Monitoring

Submission date: Friday, December 6, 2024, 1:02 PM

The Human Subjects Committee (HSC) has received and reviewed the submitted above-titled research proposal. I am happy to inform you that AU's IRB has voted to **APPROVE** your proposal as submitted. Your approval number is **AU047IRB2425.**

Please be reminded that if at any point during the research, the risk level to any human subjects involved changes, either physical harm or loss of anonymity, or should you find it necessary to make any adjustments to the study as approved, please contact the HSC/IRB Chair in advance of implementing such changes. This may require that you submit an IRB Modification form.

We wish you well in your research.