

# Self-Regulation Interventions for Attention Deficit Hyperactivity Disorder in the Classroom

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**ABSTRACT:** Attention deficit hyperactivity disorder (ADHD) is a pervasive condition that can negatively affect student behavior and academic performance. The link between impairment of executive function in individuals with ADHD and the need for training in self-regulation could provide the solution for effective school-based interventions. This review addresses the effectiveness of self-monitoring, organization training, and self-management interventions on symptoms of ADHD in the classroom. The studies analyzed include students in various models of support in elementary, middle, and high school. All interventions showed some level of success, with the inclusion of goal setting and parent or teacher involvement being key factors in how well the interventions maintained over time and generalized to academic performance. Limitations of the current studies include small sample size and insufficient data on each intervention across grade levels. Current research findings are discussed, and a direction for future research is recommended.

**KEYWORDS:** ADHD, self-monitoring, self-regulation, self-management, goal setting, organization, school-based intervention

## **Self-Regulated School-Based Interventions for Attention Deficit Hyperactivity Disorder**

Managing Attention Deficit Hyperactivity Disorder (ADHD) in the classroom is a significant concern in education today. ADHD is one of the most prevalent conditions seen in schools, with an estimated 6.1 million children diagnosed (Centers for Disease Control and Prevention, 2016). This disorder carries with it a host of academic and behavioral impairments, including difficulty remaining on task and controlling impulsive behavior (Power et al. 2017). On-task behavior is especially affected during activities such as attending to instruction or working independently, which can often lead to a decline in academic performance (DuPaul 2006). There is a need for efficacious school-based interventions to assist with behavior and academic performance and improve the overall success of students with ADHD.

External supports such as prescribed medicine, accommodations, and consequence-based behavior plans are often used to manage ADHD symptoms in the classroom (Gaastra et al. 2016). Medication for ADHD can show positive impacts for some individuals but can also lead to adverse side effects (Spencer et al., 2002). Hesitance to pursue a medicinal route, difficulty finding a correct dose, and forgetting to take daily medicine are all factors that keep this from being a reliable treatment for all individuals with ADHD (Gaastra et al. 2016). The use of accommodations, such as reducing the length of assignments, extended time, and adult support of organizational materials can assist in on-task behavior and increased completion of work (DuPaul et al. 2011). Yet, once accommodations are removed, on-task behavior has been shown to immediately decrease (Harrison et al. 2020). Consequence behavior plans such as token economies or daily report cards can be effective, but they rely on teachers identifying and reinforcing appropriate student behavior (DuPaul et al. 2011). Students need to learn strategies to manage their symptoms that can be incorporated across educational settings. The need for effective, generalizable school-based interventions for students with ADHD is a significant problem in education that needs to be addressed.

## **ADHD, Executive Function, and Self-Regulation**

Determination of appropriate interventions can occur once the source of the academic and behavior problems is addressed. Executive functions, which play a role in success in the classroom, can be impaired in individuals with ADHD, causing difficulty with the management of daily tasks (Brown 2008). ADHD is related to problems with cognitive functions such as regulating emotions and actions, organization, and focus. ADHD can also affect the cognitive tasks of goal setting and problem-solving (Fuggetta 2006). Inability to effectively focus on tasks, manage time and materials, and set goals for performance often leads to frustration, which can be expressed as outbursts and disruptive behavior. This behavior can also negatively affect academic performance. Interventions that support executive functions in individuals with ADHD could help students learn to manage their own behavior, which could also lead to greater academic success.

One way to address executive function impairment in students with ADHD is through training on self-regulation skills such as goal setting, organization, and self-monitoring. Self-regulated learning theory is based on the foundation that an individual is in control of all aspects of their learning. It includes metacognitive, motivational, and behavioral components that ultimately lead to intellectual independence (Zimmerman 2000). A key component of the successful implementation of self-regulated learning interventions is the explicit teaching and modeling of skills (Zimmerman 2002). Not only are students trained in self-regulation skills, but teachers and parents are often trained so that they can adequately support the student. However, the ultimate goal of a self-regulated learning intervention is to help students manage their learning and behavior (Zimmerman 2002). Self-regulation can provide an effective intervention to improve the behavior and academic performance of students with ADHD.

## **Existing Reviews of the Literature**

Prior literature reviews have addressed the efficacy of interventions to support students with ADHD in the classroom. Self-monitoring interventions to improve on-task behavior of students with varying disabilities and behavior problems have been the subject of multiple reviews (Bruhn et al. 2015; Joseph & Eveleigh 2011; Webber, Scheuermann, McCall, & Coleman 1993). While students with ADHD have been present in some of these studies, the relation of self-monitoring specifically for students with ADHD was not the focus. Alsalamah (2017) reviewed research on the use of self-monitoring interventions for on-task behavior of students with ADHD. The results of this review showed improvements in on-task behavior and academic performance for students with ADHD, however, self-monitoring was the only self-regulation strategy to be addressed. Two reviews were found that explored the aspects of self-regulation interventions for students with ADHD in a more comprehensive manner, including research that focused on planning and goal setting as well as self-monitoring (Reddy et al. 2017; Reid et al. 2005). Both of these reviews found promising results of a self-regulation intervention on both the behavior and academic performance of students with ADHD. However, there is an opportunity for more recent research to be included in this analysis, as well as additional studies that were not included in prior reviews. A current literature review is needed to re-examine the effectiveness of school-based self-regulation interventions for students with ADHD, and to explore the function of goal setting on behavior and academic performance.

## **Purpose of Research**

The goal of this paper is to review the current research on school-based self-regulated interventions for students with ADHD to better understand the efficacy of the interventions. Specifically, skills training on self-monitoring of on-task behavior, organization, and self-management were examined. Table 1 defines the interventions analyzed in this review. The

research was driven by three main questions: First, how effective are self-regulated learning interventions for improving classroom behavior and academic performance of students with ADHD? Second, is the efficacy of the intervention affected by the components of self-regulation that are addressed? Finally, what is the relation between teacher and parent involvement and the efficacy of self-regulated learning interventions?

Table 1. Definitions of Interventions Studied

Intervention	Description
Self-Monitoring	Subset of self-management with focus on on-task behavior: student observes and monitors target behavior, tracking either with paper and pencil or on electronic device
Organization Training	Subset of self-management with explicit instruction in skills training for organizing materials/time-management
Self-Management	Initiated by planning stage in which goal intentions are set, combined with self-monitoring or organization training; often accompanied by self-evaluation/self-reinforcement

## Method

Searches for relevant articles were performed using the key terms *attention deficit hyperactivity disorder*, *self-regulated learning*, *self-regulation*, *self-management*, *self-monitoring*, *goal setting*, *planning*, *organization*, and *school-based intervention*. Citations found in articles that lead to relevant sources were also reviewed. Only peer-reviewed and published works available in a full-text format were considered. Articles were selected for review if the interventions were implemented in a school-based setting within the last 15 years, with students in elementary school through high school. Studies were analyzed concerning the intervention used, the age of the participants, the inclusion of teacher and parent support, and outcomes. Table 2 briefly describes each study included in this review.

Table 2. Summary of Research

Reference	Intervention	Details	Participants	Teacher or Parent Involvement	Results
Harris et al. (2005)	Self-management focusing on class preparation skills	Comparison of self-monitoring of attention and self-monitoring of academic performance	3 <sup>rd</sup> through 5 <sup>th</sup> graders with ADHD in inclusion model	Classroom teacher trained in intervention	Increase in on-task behavior. Meaningful increase in correct spelling of words with SMA/higher level of spelling of practice with SMA

Gureasko-Moore et al. (2006)	Self-management focusing on class preparation skills	Self-management training session done during homeroom Weekly goal setting, self-monitoring, self-reinforcement	7 <sup>th</sup> graders with ADHD in general education class	Teachers chose students for the study as well as the target academic area	Increase in class preparation behavior.  Skills were maintained after intervention was faded.
Gureasko-Moore et al. (2007)	Self-management with focus on classroom preparation skills and homework completion	Used in targeted academic classroom  Included self-evaluation	Middle schoolers with ADHD in general education class	Teachers chose participants and academic area of focus	Increase in classroom preparation skills and homework behaviors.  Participants performed as well as their classmates in class preparation and homework skills.
Langberg et al. (2008)	Organization training	8-week skill training on organization of materials and tasks	Middle schoolers with ADHD in general education class	Supported in classrooms by teachers  Parent sessions offered	Significant improvements in organization and homework maintenance skills/GPA  Gains maintained after 8 week follow up.
Lienemann and Reid (2008)	Self-management	Self-Regulation Strategy Development (SRSD)  Goal setting, self-monitoring, self-reinforcement	4 <sup>th</sup> and 5 <sup>th</sup> -grade students with ADHD in general education classroom	Not specified	Quality and length of essays increased.
Evans et al. (2009)	Self-management	Challenging Horizons Program-organization training with goal setting	Middle schoolers with ADHD in general education class	Not specified	Improvement in organization of academic materials and improvements in grades for majority of participants.
Graham-Day et al. (2010)	Self-monitoring	Audiotaped chimes and student checklist with self-reinforcement	High school students with ADHD in study hall for students with exceptionalities	Not specified	Increased on-task behavior.  No correlation between behavior and improved grades.

Rafferty et al. (2011)	Self-monitoring	Task cards and taped tones used as cues	5 <sup>th</sup> grade students with ADHD in general education classroom	Teacher provided intervention	Increased time on task equivalent to level of peers.  Increased spelling accuracy.
Guderjahn et al. (2013)	Self-management	Volitional self-regulation technique	5 <sup>th</sup> through 10 <sup>th</sup> -grade students with ADHD at a school for children with ADHD.	Teacher provided intervention	Self-regulatory behaviors increased, with lasting effects resulting from the use of goal-intentions.
Morrison et al. (2014)	Self-monitoring	Self-assessment prompted by pager to remind students to check in	High schoolers with ADHD in general education class.	Teacher provided intervention	Increase in completion of independent work.  Increase in correctly completed work.
Wills and Mason (2014)	Self-monitoring	Student observes and records behavior on tablet application	ESE high school students with ADHD in inclusion model	Not specified	Positive improvements in on-task behavior.  On-task behavior decreased when app was removed.
Cirelli et al. (2016)	Organization	Activity schedule book to map out independent work	Elementary school students with ADHD in inclusion model.	Teacher provided intervention	Substantial increase in on-task and on-schedule behavior without the need for teacher prompts.
Evans et al. (2016)	Self-management	Challenging Horizons Program  Identify personal goals, focus on study skills and organization	Middle school students with ADHD in general education classrooms	Parent meetings  Teachers identified students of need	Meaningful benefits to organization, time management, homework, academic functions, inattentive symptoms.
Schramm et al. (2016)	Self-management	Organization training with goal setting and problem-solving	Middle school students with ADHD	Behavioral training for parents and teachers  Content of trainings chosen in collaboration with teachers	Significant reduction in ADHD symptoms and decreased internalization of problem behavior.

Vogelsang et al. (2016)	Self-monitoring	iPad application SCOREIT for students to monitor on-task behavior	5 <sup>th</sup> -grade students with ADHD in general education classroom	Teacher opinions of feasibility of program considered	Substantial increase in academic engagement.
Chaimaha et al. (2017)	Self-management	Planning, goal setting, monitoring, working memory training	Elementary school students with ADHD in inclusion model classroom	Parents and teachers trained as “supporters”	Significant improvement in working memory, planning, monitoring skills, school performance.
Ennis et al. (2018)	Self-monitoring	Focus on academic engagement, work completion	5 <sup>th</sup> -grade students with ADHD in resource classroom	Teachers provided intervention	Increase in academic and behavioral performance.
Sluiter et al. (2019)	Self-monitoring	Interval timer used to remind students to monitor on-task behavior	Students with ADHD in special needs primary school	Teacher provided intervention	Off-task behavior significantly reduced.
Harrison et al. (2020)	Self-management	Organization, note-taking instruction with goal setting and iPad application to record behavior	Middle school students with ADHD in general education classroom	Not specified	Meaningful gains in training skills.  Skills likely to be maintained after training.

## Results

### Self-Monitoring

Self-monitoring, a subset of self-management, focuses on the identification of a target behavior and student-based monitoring of that behavior during timed intervals (Bruhn et al. 2015). On-task behavior is defined, and students are responsible for reflecting on their adherence to that expectation for the duration of the intervention. The studies reviewed showed on-task behavior to improve with the use of self-monitoring, but there are inconsistent results regarding academic performance and generalization to other content areas.

### *Elementary School*

Self-monitoring interventions that were implemented by classroom teachers for elementary students with ADHD showed improvements in on-task behavior as well as academic performance. In a fifth-grade resource classroom for students with exceptionalities, students using a self-monitoring checklist with a tactile cueing system showed improvement in behavior and academic performance (Ennis et al. 2018). Teachers were involved in planning the intervention before implementation. The use of task cards and tape-recorded tones to remind students to reflect on behavior resulted in increased time on task as well as increased spelling accuracy during a spelling lesson in a general education fifth-grade class (Cirelli et al. 2016). Substantial increases in academic engagement were recorded when teachers assisted in developing and implementing an intervention in which an application called SCOREIT assisted the self-monitoring of fifth grade students in a general education class

(Vogelsang et al. 2016). In a primary school for students with exceptionalities, a class of nine through 12-year-old students used an interval timer to assist with self-monitoring on-task behavior (Rafferty et al. 2011). Classroom teachers implemented this intervention during the math block, and off-task behavior reduced significantly. Self-monitoring of attention was compared with self-monitoring of academic performance in an inclusion setting for elementary students, resulting in improvement in on-task behavior for both interventions (Harris et al. 2005). Work accuracy also increased as a result of attention self-monitoring. Self-monitoring interventions for elementary students were implemented across a spectrum of support for students that ranged from pull-out services to an inclusion model that supported students with exceptionalities in the general education classroom. Regardless of educational setting, there were significant improvements in behavior and/or academic performance. All studies conducted included the classroom teacher in planning and/or implementation of the intervention. Self-monitoring interventions for elementary school students that include an active role of the classroom teacher can be beneficial for improving academic performance and behavior in the classroom.

### ***High School***

Self-monitoring interventions along with an auditory, tactile, or technology-based prompting system were successful for high school students with ADHD in various academic settings. The use of a pager to prompt students to record on-task behavior showed encouraging results for high school students in a general education biology class (Morrison et al. 2014). A trained classroom teacher provided the intervention, and self-monitoring positively affected both on-task behavior and correctly completed independent work (Morrison et al. 2014). In an inclusion model described as general education classroom support for students with exceptionalities, students using an application on a handheld tablet to monitor on-task behavior showed improvements in the targeted on-task behavior (Wills & Mason 2014). However, when the application was taken away, the students' on-task behavior decreased. The use of a student checklist prompted by audiotaped chimes to observe and record conduct resulted in increased on-task behavior for high school students in a study hall for students with exceptionalities (Graham-Day et al. 2010). However, while on-task behavior improved, there was no correlation between this behavior and improved grades. In all cases, the use of a self-monitoring strategy did appear to lead to an increase in on-task behavior for the duration of the intervention, however the effects may be limited. While results are promising for high school students using a self-monitoring strategy exclusively, there is not enough information to determine if the intervention would generalize to other settings or subject areas.

### **Organization Training**

Organization training that includes opportunities for parent and teacher support can lead to significant improvement in student behavior in elementary school and middle school students with ADHD. Organization training involves explicitly teaching and modeling skills to help students organize materials or independent tasks. The use of an activity schedule book to help elementary school students focus on the organization of tasks and time-management led to a substantial increase in on-task and on-schedule behavior in the absence of teacher prompts (Cirelli et al. 2016). Before implementation, researchers surveyed teachers' concerns and incorporated them into the intervention. Students showed significant improvement in organization skills and homework maintenance after attending an eight week after-school organization skills training which was supported in the general education classroom (Langberg et al., 2008). Parent sessions were also offered to increase home support. Teacher ratings of academic impairment improved, and gains were maintained by students at an eight week follow up (Langberg et al 2008). Significant gains in behavior resulted from

interventions that focused strictly on organization training with the inclusion of teachers and/or parent support (Cirelli et al. 2016; Langberg et al. 2008). Giving the classroom teacher the opportunity to choose an area of focus could account for the success of organization training in the classroom. Building a support system beyond the classroom by offering parent sessions could factor into the lasting effects of the skills training. Parent and teacher supported organization training can potentially lead to academic improvement for elementary and middle school students, as well as maintenance of skills beyond the scope of the intervention.

## **Self-Management**

Self-management interventions spanning grade levels and settings have shown encouraging results with on-task behavior and academic performance. Self-management interventions included in this review incorporate a planning, or goal setting component prior to self-monitoring or organization training. Self-evaluation as well as self-reinforcement are also evident in some uses of self-management interventions. Most of the literature on self-management interventions is focused on middle school students with ADHD, but there have been significant effects recorded for high school and elementary school students, both regarding on-task behavior and improved academic performance.

### ***Elementary School***

Self-management interventions for elementary students with ADHD have resulted in significant improvements in classroom behavior and academic performance. Self-Regulation Strategy Development (SRSD) is an intervention that specifically teaches students how to set goals, self-monitor performance, and self-reinforce using a scaffolded approach (Lienemann & Reid 2008). Researchers explicitly taught and modeled targeted strategies in an SRSD model, until students could autonomously execute them during expository writing instruction in a general education classroom. The quality and length of the essays produced during the course of the intervention increased for all students (Lienemann & Reid 2008). When students, parents, and teachers were all exposed to a self-management training in which planning with goal setting and self-monitoring were addressed, the intervention resulted in significant improvement in school performance as well as targeted skills (Chaimaha et al. 2017). While self-monitoring alone has shown improvement in behavior and academic performance for elementary school students, the addition of goal setting and self-reflection along with the explicit teaching of self-management strategies also exhibited favorable results. The use of a support system of parents and teachers may also be an important factor in the success of self-management interventions. In general, elementary school students responded well to the use of self-management interventions and showed positive improvements in behavior and quality of work.

### ***Middle School***

Middle school students with ADHD trained in self-management strategies have shown improvements in behavior and classroom performance. A training program focused on self-management, organization, and note taking along with the use of an iPad application to track behavior resulted in meaningful gains in training skills (Harrison et al. 2020). Data trends also pointed toward the likeliness of skills being maintained after training. A self-management intervention combined with parent and teacher training to develop a support system for students resulted in a significant decrease in ADHD symptoms along with a decrease in the internalization of problem behaviors (Schramm et al. 2016). A training program that focused on study skills such as organization and time management, along with identification of personal goals showed meaningful benefits in all areas addressed (Evans et al. 2016). The

Challenge Horizons Program (CHP) explicitly teaches study skills along with identification and tracking of personal goals in an after-school program, with reinforcements built-in for the classroom and home. The benefits of CHP have also generalized to improved grades for many students involved in the intervention, dependent upon the addressed subject (Evans et al. 2009). Middle school students responded well to the use of self-management strategies, and the use of goal setting may lead to maintenance of the skills taught beyond the duration of the intervention. Core skills taught also have the potential to generalize to other aspects of the students' lives. The incorporation of goal setting with organization and self-monitoring as well as the creation of a supportive classroom and home environment have shown positive effects on behavior and academics for middle schoolers with ADHD.

Autonomy for teachers to choose participants, as well as the targeted content areas, may contribute to the success of self-management interventions with middle school students (Gureasko-Moore et al., 2006; Gureasko-Moore et al., 2007). When teachers chose students to be trained in self-management procedures including goal setting and self-evaluation, significant increases in the addressed behaviors were observed, and students in the intervention performed as well as their peers in the target areas of class preparation and homework completion (Gureasko-Moore et al. 2006; Gureasko-Moore et al. 2007). Academic areas of need have also shown improvement with teacher-directed self-management, along with the maintenance of skills after the intervention was faded (Gureasko-Moore et al. 2006). Teacher autonomy in planning and supporting the targeted intervention could strengthen the effects due to teachers taking ownership of implementing and supporting the intervention. The teacher's role in self-management interventions could lead to improvements in behavior and academic performance for middle school students, with the potential to continue beyond the duration of the intervention.

### ***Elementary School through High School***

While not comprehensive, the research on self-management interventions for high school students with ADHD is promising. The incorporation of goal setting and self-monitoring was successful for special needs students in fifth through tenth grade at a school designed for students with ADHD (Guderjahn et al. 2013). Teachers trained to implement a volitional self-regulation technique in which goal intentions were set, if-then statements developed, and self-monitoring interventions implemented reported improvements in self-regulatory behaviors among their students. All components of the intervention had a positive effect on student behavior, but lasting effects of the intervention were seen when students began with goal setting alone. The implications of this research on self-management suggest the importance of goal setting and teacher involvement in an effective classroom intervention for students with ADHD.

### **Discussion**

Self-monitoring interventions and organization training for students with ADHD are beneficial for managing symptoms for students across grade levels and classroom support models. Self-monitoring increased on-task behavior for the duration of the intervention in all instances, and improved academic performance in conditions when the classroom teacher was either responsible for assisting with planning the intervention, or implementing the intervention (Ennis et al. 2018; Morrison et al. 2014; Rafferty et al. 2011; Sluiter et al. 2019; Vogelsang et al. 2016). Teacher input regarding the students chosen for the intervention, targeted behavior, and academic area of need could make a difference in the efficacy of a self-monitoring intervention. Students may also be more successful using an intervention that is executed by their classroom teacher. Conditions in which the role of the teacher in the intervention was not specified either showed no correlation between improved academic performance and on-task behavior (Graham-Day et al. 2010), or experienced a decrease in on-task behavior immediately following the removal of the self-

monitoring tool (Wills & Mason 2014). Organization training showed substantial improvements in on-task behavior of elementary school students in which teachers applied the intervention (Cirelli et al. 2016), and generalized to increased academic success for middle school students in which parents and teachers were offered training as well (Langberg et al. 2008). Both self-monitoring and organization training independent from planning or self-reflection showed improvement in behavior and the potential to improve academic performance when supported by parents and teachers.

Self-management interventions demonstrated positive outcomes in all grade levels and classroom models of implementation. The incorporation of a goal setting aspect is a common thread in all of the self-management interventions reviewed, which is incorporated in a planning stage prior to self-monitoring or organization training. Some interventions showed additional benefits along with an increase in on-task behavior, such as maintenance of skills after fading of the intervention (Gureasko-Moore et al. 2006) and improved academic performance (Evans et al. 2009; Harris et al., 2005; Lieneman & Reid 2008). Teacher inclusion in intervention development or initial implementation was evident in all but three studies (Evans et al. 2009; Gureasko-Moore et al. 2006; Harrison et al. 2020), with positive effects of the intervention still apparent. If-then statements added to goal-intentions were especially effective with students in elementary school through high school in boosting self-regulatory behaviors, but goal setting was found to have the greatest impact on the lasting effect of the intervention (Guderjahn et al. 2013). Based on the studies reviewed, self-management interventions were the most likely to lead to improved academic success and extension of skills beyond the duration of the interventions.

Self-monitoring, organization training, and self-management are beneficial in increasing on-task behavior for students with ADHD and have the potential to improve academic performance. Each of these interventions gives students the responsibility of tracking their behavior, and often gives students opportunities to set their own goals, reflect on their performance and self-reinforce based upon outcomes. The incorporation of a goal setting component along with specific skill training may make a difference in the lasting effects of the intervention as well as the influence on academic performance. Parent and teacher support of the intervention may also affect how well the intervention generalizes to academic areas. Self-management appeared to have the most positive and lasting effects on behavior and academic performance, however, self-monitoring and organization training were effective as well, especially when teachers were involved in planning and implementing the intervention. A support system for students with ADHD along with opportunities to set goal intentions could be the key to providing efficacious school-based self-regulation interventions.

The research on the efficacy of self-regulation to manage students' ADHD symptoms indicates the need to further explore its use in the classroom. The valuable, lasting effects of self-management specifically could underscore the need to incorporate self-regulation strategies in instructional planning, bring the focus back to the process of learning itself, and empower students to take responsibility for their behavior and academic performance. Proper support training of parents and teachers could result in amplifying the benefits of self-regulation interventions. The findings of further research could potentially lead to developments in instructional design, behavior management, and teacher education. The implications of the positive outcomes of self-regulation to manage ADHD in the classroom could significantly affect many aspects of education for teachers and families.

## **Limitations**

Self-monitoring, organization training, and self-management have shown positive results on the behavior and academic performance of students with ADHD in multiple grade levels, but some evidence is lacking. Reports on the use of self-management with high school students

are sparse, with the majority of interventions for high schoolers focused solely on self-monitoring of on-task behavior. Studies on self-management with elementary students focused on students in third through fifth grade. The diagnosis of younger children with ADHD is a current focus (Centers for Disease Control and Prevention, 2016) pointing to a need for data on self-regulation interventions for younger students who exhibit ADHD related symptoms. The use of a relatively small sample size in some of the studies, which consisted of no more than seven participants, could lead to questions of validity (Cirelli et al. 2016; Ennis et al. 2018; Evans et al. 2009; Graham-Day et al. 2010; Gureasko-Moore et al. 2006; Harris et al. 2005; Rafferty et al. 2011; Sluiter et al. 2019). There is a need for data on larger samples and a greater diversity of student grade levels for more conclusive results.

## Recommendations

Further research is needed to examine the efficacy of self-regulated interventions for students with ADHD. More in-depth research on how self-management interventions support students in high school and elementary school would clarify the effects of the intervention on students across grade levels. Organization training also needs to be examined more closely concerning how it affects students in high school, and if specific areas of focus influence the efficacy of the training. The importance of goal setting along with individual components of self-management should be explored in greater detail, as well as the role of parents and teachers in the effectiveness of classroom interventions. Finally, future studies should address the use of the intervention with larger sample sizes to better determine the effect of each intervention on students with different abilities and areas of need. The evidence on self-regulation as an intervention for students with ADHD is hopeful, but more research is needed to determine if these interventions are viable options for use in the classroom.

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