

The Effect of Metacognitive Training for Writing on Attention to Detail of First Graders

by Kirsten Seibert

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Abstract

The purpose of this study was to examine the effectiveness of a metacognitive training method involving a writing checklist that was designed to help first graders become more attentive to detail in their writing assignments and focus more productively during their class work time. The intervention group ($n = 20$) and the control group ($n = 13$) came from a convenience sample. This study had a pretest/posttest design that used as its dependent variable a researcher-designed writing prompt and rubric that produced an Attention to Detail score. The pre-test was used to confirm that the two groups did not differ on Attention to Detail scores prior to the intervention. After the intervention group had explicit instruction and 15 days experience in using the checklist on daily writing assignments, the two groups were given the post-assessment. The mean Attention to Detail scores on the post-intervention writing test of the intervention group (Mean = 10.60, SD = 1.98) did not differ significantly from the mean Attention to Detail scores of the control group (Mean = 9.38, SD = 3.40) [$t(31) = -1.30, p > .05$]. Implications, limitations, and ideas for future research are discussed.

CHAPTER I

INTRODUCTION

Almost all teachers struggle with getting their students to focus and create quality work. Issues with attention are both developmental and biological. Early years in development are particularly difficult to manage in terms of focus, and problems with attention span can exist beyond what is developmentally common for young children. With this in mind, the need for intervention is high. Children with the most severe attention problems are sometimes diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD). However, children diagnosed with ADHD are not the only ones that create concerns for classroom teachers. “The National Association of School Psychologists recognizes that inattentive behaviors exist along a continuum from mild to severe and advocates for school psychologists to address a broad range of attention problems not solely those students diagnosed with ADHD.” (Peck, Kehle, Bray, & Theodore, 2005, p.415)

The Disabilities Sourcebook lists some indicators of inattention.

“[A person with inattention] may be easily distracted, miss details, forget things, and frequently switch from one activity to another, have difficulty focusing attention on organizing and completing a task or learning something new, have trouble completing or turning in homework assignments, often losing things (e.g., pencils, toys, assignments) needed to complete tasks or activities, and have difficulty processing information as quickly and accurately as struggle to follow instructions.” (Sutton, 2011)

For this reason, academic intervention is just as critical as behavioral intervention for students with ADHD. Because of their inattention problems, students do not turn in the best quality of writing due to careless errors and forgetfulness. They may have knowledge of the appropriate mechanics in written work but they fail to use them consistently because they forget them, are rushing because they dislike sustaining attention and effort to task, or they get distracted while

they are working on the assignment. Young children without ADHD often fail to provide sufficient attention to detail as well. It is important that all students develop this skill early because it will be important not only in their lives as students but also as adults in the workforce and managing family responsibilities.

It is not just the school psychologists and families that are dealing with attention problems. Classroom teachers are dealing with the repercussions of wandering minds, and behavior is only one symptom of attention difficulty. Classroom teachers are challenged to manage attention problems and rely on strategies of behavior modification and classroom interventions such as limiting distractions, preferential seating, and modifying assignments. Despite using a range of interventions, teachers continue to be frustrated by the attention problems of their students. This leads to the question; what academic tools might teachers be able to arm their students with to better focus on tasks at hand and improve the quality of their work?

Interventions for ADHD and attention problems have included medication, cognitive training, and psychotherapy. Metacognitive training could be a way of helping students in the regular classroom self-monitor their own focus, provide sufficient attention to detail so that they are able to demonstrate their available knowledge and skills, empower them to take ownership of their work and behavior, stay on task, and glean the most from their education. Metacognitive strategies that are simple enough to be used with an entire classroom on a regular basis are particularly helpful because not only will they help the children who suffer with attention problems, but they will help all children perform at their best in a non-stigmatizing manner.

Statement of Problem

The purpose of this study was to examine the effectiveness of a metacognitive training method framed to help first graders become more attentive to detail in their writing assignments when working independently. The independent variable in this study was whether or not students used the metacognitive training tool, a best writing practices checklist called the “SWAG” checklist (See Appendix A). The dependent variable was the “Attention to Detail” score based on performances from writing prompts.

Hypothesis

The null hypothesis is that the mean Attention to Detail scores on a writing prompt of the students receiving the metacognitive training intervention will not differ significantly from the mean Attention to Detail scores of the students not utilizing the metacognitive training tool.

Operational Definitions

Metacognitive Training: Metacognitive training is a type of routine-practice intervention where students are taught a specific strategy to use during relatable situations in order to support learning. For the purposes of this study, the metacognitive intervention is the use of the "SWAG" checklist. The SWAG checklist is a proof-reading checklist that relates to four aspects of writing that are considered best practices (i.e., Starts with a capital letter, Written neatly, A space between each word, Given punctuation -- SWAG). Students use the “SWAG” checklist as a self-monitoring device to guide them in checking their work for errors and revise as needed. The goal is, that after repeated practice, this self-monitoring strategy will instinctively become part of a regular writing routine without the use of a physical checklist or verbal reminder. This type of repeated practice transfer to automaticity has been shown to better support students who struggle to keep their focus directed on a task.

Writing Prompt: The pre-assessment prompt was “What is your favorite thing to do when you are not at school?” The post-assessment prompt was “What is your favorite thing to do at school?” Both prompts included a sentence starter. Students were asked to write three sentences beyond the one with the sentence starter and were given 15 minutes to complete the writing prompt. The scores of students who did not meet the requirement of three complete sentences were omitted.

Attention to Detail score: This is the score based on the students' responses on the writing prompt that is calculated according to a teacher-made rubric. Students receive points, ranging from 0 to 3, in each of the four categories on the SWAG for a total of 12 as a perfect Attention to Detail score.

CHAPTER II

REVIEW OF THE LITERATURE

In a high-speed, technologically advanced age where instantaneous gratification, entertainment, and a ‘right now’ mentality reigns king, a chronic issue with the attention span of our society has come to light. Attention problems of all different severities are becoming increasingly more pervasive in our schools, especially among our younger students who are now being diagnosed with attention issues as early as three or four years old. The ability to focus and complete a task well is an essential life skill. Regardless of background or station, students with Attention-Deficit-Hyperactivity-Disorder (ADHD) and every attention problem in between need to be supported by their families, communities, and schools. They need to be given the tools necessary to succeed in our fast paced, attention-demanding society. However, when dealing with the issues of focus and attention it is important to remember that a diagnosis only goes so far. “The National Association of School Psychologists recognizes that inattentive behaviors exist along a continuum from mild to severe and advocates for school psychologists to address a broad range of attention problems not solely those students diagnosed with ADHD.” (Peck, et al., 2005, p.415)

Many children today have attention problems. Some are not severe enough to be diagnosable but can still become chronic problems inside and outside of the classroom. Before any interventions can be implemented, it is important to know and understand the signs of common attention problems. Interventions that are designed to help children with ADHD can, in fact, be beneficial to whole class instruction and increase overall class focus.

Children with Attention Disorders

Tonge's 2013 article about managing ADHD shows how attention problems stem from a fusion of biological, environmental, and social factors. First, he references how attention problems can be passed down through generations. "Family heredity is common and associated with gene variants for specific dopamine and noradrenaline neuroreceptors and structural differences in brain areas such as the frontostriatal cortex. These brain regions are critical for attention, working memory, executive function, and the regulation of emotions and behavior." (p. 162). Naturally low levels of iron, zinc, and copper, essential variables for dopamine and norepinephrine production, have also been cited as having a possible link to attention problems (Kiddie, Weiss, Kitts, Levy-Milne, & Wasdell, 2009). Environmental factors that can contribute to attention disorders include the mother's consumption of alcohol during pregnancy, malnutrition, exposure to lead, and abuse in infancy. All of these actions have the potential of harming the brain and impairing attention and behavioral control. Tonge also highlights that later in life social aspects of varying levels of overly harsh or overly lax parenting styles and similar educational experiences can also contribute to patterns of inattention and hyperactivity.

The most common diagnosis of attention disorder is Attention-Deficit-Hyperactivity-Disorder, also known as ADHD. "ADHD is characterized by a persistent pattern of over activity, inattention, and impulsivity that is pervasive across situations." (Agarwal & Dhanasekaran, 2013, p. 1). According to the Disabilities Sourcebook, ADHD has three subtypes: predominantly hyperactive-impulsive, predominantly inattentive, and combined hyperactive-impulsive. Most children diagnosed with ADHD are combined hyperactive-impulsive. Interestingly, "In clinic populations ADHD is at least twice as common in boys but is more likely to persist in girls."

(Tonge, 2013, p.162). Additionally, ADHD is known to manifest alongside other psychological disorders such as oppositional defiant disorder or anxiety disorders.

In her 2012 study, *Attention Skills and Risk of Developing Learning Difficulties*, Commodari addresses six main variables that are included in the attentive process: reaction time, simple immediate span of attention, focused or selective attention, sustained attention, divided attention, and alternative attention/voluntary shifting. Reaction time has to do with the time that is needed to detect a given stimulus. For example, if a teacher raises her hand silently to ask the class to calm down, the time it takes for the class to recognize her signal would be the reaction time. The simple immediate span of attention is how much information can be grasped at once. This skill is increasingly important to understand complex tasks and multi-step instructions. Focused or selective attention is the capacity to highlight important information, with which many students who are diagnosed with attention problems often struggle. Selective attention is needed to draw a core meaning from a text and filter unimportant information. Sustained attention is what most people typically think of as ‘attention span’—how long one can maintain attention to a single activity. This is the most observable problem seen in students with attention problems. Divided attention is the ability to respond to more than one task at a time, such as taking notes and listening to a teacher lecture at the same time. In this way the student is responding to the teacher by taking notes, and still processing what he/she is saying. Alternative attention, also known as voluntary shifting, is best known as ‘multi-tasking’, juggling a multitude of different tasks and being able to seamlessly glide between the individual tasks. All of these skills factor into healthy cognitive growth for attention and the learning process. If a number of these variables are inconsistent or not present, it is a sign of an attention disorder.

Attention disorders manifest themselves in many different ways. At the school level, they can be seen both on the social level and on the academic level. Some key signs of an attention disorder in social circles can include aggression, impulsivity, the inability to wait, inability to take turns, inability to delay gratification, over emotionality in the face of frustration, the inability to maintain friendships, and high risk behavior (Ozcan, Oflaz, Turkbay, & Freeman-Clevenger, 2013). In the academic realm, warning signs for attention problems are failure to finish assignments, being easily distracted in class, having difficulty listening to directions, problems concentrating and organizing work, and the need for supervision to accomplish their work (Peck, et al., 2005).

Current Interventions

Currently, the most common form of treatment for attention disorders are medical stimulants. The Disabilities Sourcebook notes that “stimulant medications come in different forms, such as a pill, capsule, liquid, or skin patch” (Sutton, 2011). These medications help to balance otherwise abnormal levels of certain chemicals in a person’s brain to aid focus and decrease impulsive behavior. These medical stimulants are uniquely designed and adjusted on an individual basis to cater to each person’s needs. While medical stimulants have been shown to be an effective method, it is not a long term solution, and has a wide array of adverse effects. Some of these side-effects include loss of appetite, nausea, headache, insomnia, anxiety, irritability, and an increase in blood pressure. Additionally, these effects are more likely to appear in children under seven years of age (Tonge, 2013). Stimulant treatment is a strong fix, but unfortunately is often not consistently used, which can also have an increasingly negative effect on the individual. While stimulants help control symptoms, they cannot teach children to look at

certain parts of curriculum or learn new things (Zentall, 2005). For this very reason, there has been a progressive movement towards psychotherapy interventions.

Psychotherapy has to do with modifying thinking and behavior. It helps the person to monitor actions and manage symptoms constructively. There are many different facets to psychotherapy: social skills training, behavior modification, active-learning, practice, and self-monitoring. Places offering psychotherapy as an avenue for dealing with an attention disorder use a combination of some, if not all, of these methods. Social skills training is described in the Disabilities Sourcebook as a time where “therapists may teach children social skills, such as how to wait their turn, share toys, ask for help, or respond to teasing. Learning to read facial expressions and the tone of voice in others, and how to respond appropriately can also be part of social skills training.” This kind of social skills training often happens at a class wide level in early levels of elementary school. Behavior modification is the most frequent form of psychotherapy present in our classrooms today. Positive reinforcement for desired behaviors is encouraged over negative reinforcement in order to help students feel they are doing well and can achieve goals (Zentall, 2005). Students can also be afforded allowances appropriate to their needs, such as breaks from long periods of sitting down, or the chunking of long tasks. Something small and simple such as structured breaks can provide just enough needed stimulation to refocus and function appropriately. Just as the medication is not a one size fits all, neither is behavioral intervention—each of these behavior modification plans must be constructed on an individual basis to fit individual needs. Active-learning also helps bolster levels of focus and are helpful on a class wide level. Giving all children in the classroom an opportunity to select a place and position that best suits their need to focus gives the individual the power over their own learning environment and can therefore increase their attention. For

example, if a student desires to sit on the floor in order to fill out his or her worksheet on a clipboard, and can effectively complete their work in this fashion, it is perfectly reasonable for them to do so. The teacher can also aid in a student's processing and sequencing of activities by habitually displaying an order in which to do things, or a visual cue for directions. For reading activities, the use of color, highlighting, or bolding main ideas and key concepts helps to draw attention and solidify these skills to memory. These suggestions are only a few examples of active-learning techniques derived from the available literature. In terms of practice and routine, Zentall (2005) succinctly summarizes three educational practices that have shown to help students with attention problems: highlighting essential details or important foci of tasks, focusing internal attention through questioning, and providing additional task practice to solidify routine. Zentall also draws attention to the use of the word practice, not drill. This distinction is incredibly important to remember as unique and new situations are essential stimulants for children with attention problems. If the same drill is used over and over, practice becomes boring and cannot provide the needed stimulus to sustain attention and foster the desired learning. Finally, and most importantly, self-monitoring must be taught in order to give students the tools for looking closer at their own meta-cognition thus enabling more independence and self-confidence. Students must learn to understand themselves and be involved in their own learning process. Students with attention problems, especially, must come to view themselves not in light of a diagnosis or a stigma. They must learn not to accept behaviors simply because of their diagnosis. Through learning to monitor their own work and fill their individual attention needs on a personal level, a sense of strength and functional independence can be gained. The Disabilities Sourcebook suggests that "clear rules, chore lists, and other structured routines can help a child control his or her behavior" (Sutton, 2011). These examples are ways to help

scaffold a child's self-monitoring. Eventually, lists and routines are things the student can work to develop for themselves thus supporting their own growth and functions.

While the medicinal interventions are dealt with mostly between family and doctors, psychotherapy is dealt with largely by collaboration between the school, family, and the child themselves. This is a relationship that fosters the beginnings of independence and ultimately the self-confidence individuals need for success.

The Family, School, Child Connection

While Kiddie, et al.'s study (2009) does give evidence that children with ADHD can come from any type of demographic, most studies show overwhelmingly that children most likely at-risk for attention disabilities are those of low-socioeconomic status: "...single parenthood, minimal maternal education, and low socioeconomic status are all considered family risk factors that contribute cumulatively to outcomes such as children's problem behavior, poor mental health, and low academic performance." (Merritt, Wanless, Rimm-Kaufman & Cameron, 2012). More discouraging still is the isolation families with children who have severe attention disabilities often feel. "Families of children with ADHD often feel ineffective in supporting their children's education." (Mautone, Marshall, & Sharman, 2012). Current research shows that families need to be supported and collaborate with one another. There are many new intervention plans based on the idea of creating school and family community where parents of children with attention disorders can share knowledge with other parents of children with attention disorders. New programs spearheaded on the school level also help provide education about ADHD thus empowering parents with knowledge about the attention disorder (Mautone et al., 2012). However, what seems to be lacking is a program which trains parents in simple empirically proven interventions for managing ADHD behavior at home. The isolation and powerlessness

parents of children with attention disorders have is shared by their children diagnosed with ADHD. “Children with ADHD experience feelings of loneliness and isolation, low self esteem, shyness, misunderstandings, being different, frustrations and verbal arguments with parents and siblings, being left out of school activities, interpersonal difficulties with peers, and the stigma of having a disorder.” (Kamali & Yoosefi-Looyeh, 2013, p.307) If parents could attend behavior management training, just as teachers take during the course of their education, they could be helped with interactions at home and at school. Not only could parents help themselves by managing behavior, they could more effectively help their students in the psychotherapy process creating a harmonious relationship between parent and child. Moreover, studies have shown that, “multifocal treatment programs for children with ADHD may improve outcomes in a more robust manner than medication alone or behavior/cognitive management programs alone. Social skills training programs encourage problem-solving abilities and support cognitive behavioral skills.” (Ozcan, et al., 2013, p.245). This three pronged approach to coping with attention disorders is the ideal situation for successful psychotherapy. Sadly, these types of parent, school, and child collaborations are extremely difficult. An intervention of this scale requires investment from each party in order for the intervention to work fully. Many current studies that review interventions of this scale have shown that parent participation is low (Mautone et al., 2012). While the responsibility of learning to cope with symptoms of attention disorders should not fall completely on the school, or the individual, or the family alone it often does, which is why current research typically focuses on interventions dealing with one or two of the parties at a time. Additionally, class wide interventions are showing more and more to be a helpful solution to this communication breakdown and beneficial to all students, not only those diagnosed with an attention disorder (Zentall, 2005).

Summary

Attention disorders and overall focusing problems are widespread in our culture today. More and more people are being diagnosed with ADHD or being identified as having problems with attention. While medication is a common fix, it is not a long term solution to this growing problem. Individuals with attention disorders of all types, from mild to severe, need to be supported and given tools in order to function confidently and independently in society. The evolving world of psychotherapy is helping to give these individuals the techniques they need to cope with their symptoms and help themselves in the long run. More training and education in psychotherapy principles is needed for classroom teachers, parents, and individuals with attention problems. Most importantly, undiagnosed or minor attention problems are pervasive in a large part of our population. The research on this topic is significant even for classroom teachers who may not have any ADHD diagnosed students in their classrooms. Practices promoted by psychotherapy interventions for children with ADHD are cognitively beneficial for all children and should be examined closer as best practices for a healthy classroom environment. A classroom wide approach can also help remove the stigmatizing factors that have been connected with singling out children with ADHD. In this fashion, the classroom as a whole functions as a unit, learning and growing together as opposed to targeting, and possibly alienating, specific students giving them the “problem children” label. Because the ideal three pronged collaborative effort of the school, child, and family coming together to handle attention problems peacefully is rare, the responsibility will often fall on the classroom teachers who must arm themselves with knowledge to deal with these issues. Especially at the elementary level, interventions that are designed to help children with ADHD can, in fact, be beneficial to whole class instruction and increase overall class focus.

CHAPTER III

METHODS

Design

This study had a quasi-experimental design and drew data from two convenience sampled groups. The independent variable in this study was whether or not students used the metacognitive training tool, a best writing practices checklist called the “SWAG” checklist (See Appendix A). The dependent variable was the Attention to Detail score based on performances from writing prompts. The format of the study was pre-post test. Both groups were given a pre assessment to determine whether there were any significant differences between the groups on the dependent variable prior to the intervention. One group was given the intervention and the other was not. Finally, both groups were given the post-assessment to determine whether or not there was a significant difference in the Attention to Detail score between the groups.

Participants

The participants were two first grade classes from an elementary school in a lower-middle class suburb in the mid-Atlantic region. The student body consists of 479 students: 54% African American, 24% Asian, 15% White, and 7% Other. 30% of the school qualifies for free and reduced meals. There were a total of 47 first graders between the two classes. The class receiving the intervention had a total of 25 students: 14 female and 11 male. The class not receiving the intervention had a total of 22 students: 8 female and 11 male. However, the data from only 33 students proved usable for the study. Three students were ELL and could not complete the requirements of the pre- and post-assessment: their data was omitted from the results. At the time of the pretest three students were absent; their data was omitted from the results as well. Also, eight students did not meet the requirement of writing a minimum of three

sentences needed to grade the assessment; their data was omitted as well. Therefore, for the purposes of the study, there were 13 participants in the non-intervention group: 5 female and 8 male. In the intervention group there were 20 participants: 12 female and 8 male. One subject in each group was known to be diagnosed with ADHD. Each class was tiered into three homogeneous groups for reading and writing: scaffolding, enrichment, and acceleration. The classes received a mixture of full class instruction as a heterogeneous group and pull-out group instruction in homogeneous groups. The researcher selected these specific classes out of convenience because she was a student teacher in one of the classes. Prior to the study, neither class received routine explicit instruction to improve handwriting.

Instrument

The testing instrument was designed by the researcher. Both the pre and post assessments were writing prompts posing similar questions. The pre-assessment asked, “What do you love to do when you are not at school?” and the post assessment asked, “What is your favorite thing to do when you are at school?” Students were given a sentence starter and were expected to write a minimum of three sentences beyond the initial sentence. Students who did not meet the minimum requirement of three sentences were not included in the study. Each assessment was graded with a researcher made rubric containing the four categories of the SWAG checklist: Starts with a capital letter, Written neatly, A space if given between each word, and Given punctuation. Each category was graded on a 0 to 3 scale, 0 being the lowest score and 3 being the highest score. (See Appendix B). This researcher scored the samples from both classes and was not blind to group membership. The scores from each category were combined to produce an “Attention to Detail” score.

Procedure

The pre assessment was given in each class in order to ensure that the two groups did not have different dependent variables prior to the intervention. The pre-assessment posed the question “What do you love to do when you are not at school?” Each student was given a page with the directions and some picture and word clues to use for writing inspiration and spelling aid. The writing page included a sentence starter, “When I am not at school my favorite thing to do is...” The researcher demonstrated a model response and explained that the response had to be three complete sentences beyond the sentence starter. Students were told that the assessment was considered silent independent work and that they would have 15 minutes to complete their work. Students were also directed that if they completed their work early they were to continue writing and should not approach the teacher. The model was left on the board for students to reference, but students were told not to copy the model. The written responses were scored according to the rubric in order to produce an Attention to Detail score. The scores of the two groups were compared with an independent samples t-test. The intervention group (Mean = 9.00, SD = 2.22) did not score significantly different from the control group (Mean = 8.08, SD = 3.70) [$t(31) = -0.90, p \geq .05$]. Consequently, it was not necessary to control for pre-existing group differences when comparing writing performance after the intervention.

Next, the metacognitive training intervention was given to one class. In this class, each student received a personalized, miniature SWAG checklist which remained taped to their desk (See Appendix C). The SWAG methodology was introduced at the beginning of the year in both study classrooms as a tool, but never explicitly taught or referenced on a regular basis. In the intervention class, students were shown how to effectively use the checklist when revising their work after a writing assignment through consistent teacher modeling. The researcher was a

student teacher in the intervention classroom. Since the researcher and the mentor teacher in the intervention classroom alternated teaching time, both teachers used modeling to encourage the students to use the checklist. For example:

“Now that I am finished writing my paragraph comparing bats and bees, I need to go back and check my work! Let me look at my SWAG checklist, so that I can be a “SWAG Superhero”. Let’s see, have I started all of my sentences with a capital letter?”

[Teacher finger tracks her writing while narrating her thoughts]

“Whoops, this word is the beginning of my sentence, so it has to be capitalized! Let me fix that.” [Teacher erases, and rewrites her word]

The intervention was to take place between February 27th and March 26th for an original total of twenty days. However, during this time, there was a high frequency of inclement weather which closed schools for three days and caused late openings on two days. Since the late openings truncated reading time so severely, the class practiced with the intervention for a total of only fifteen days. For the first week students were given the aforementioned type of explicit modeling every time there was a writing assignment. While both classes follow Common Core Curriculum, the intervention class spent an extra week working specifically on how to construct a paragraph, which was outside of the reading and writing curriculum. Students were told to use the SWAG checklist as an essential step in their writing work. Students were allowed to check off the boxes of the checklist as they revised their work; then those who had checked with SWAG placed a check mark in the corner of their papers to let the teacher know they had completed the checklist.

The school in which the study was conducted follows a school wide incentive system called “Positive Behavior Intervention”. If students are “caught” following school rules, doing exemplary work, or giving intelligent answers they can earn tokens to use towards toys or

coupons for special privileges, such as extra recess, or lunch with a favorite teacher. Therefore, students who did a noticeably exemplary job revising their work and catching their mistakes, at the discretion of the mentor teacher and student teacher, were awarded the standard school positive behavior intervention token. Students would earn two tokens for using SWAG.

If students brought work to a teacher that obviously had not been revised, they were redirected by simply saying, “Are you sure you have checked this with SWAG?” Students grew accustomed to this prompt and were able to quickly readjust. Over the month long period, explicit teacher modeling progressively became a quick reminder to “Be a SWAG Superhero!” or “Don’t forget to write with SWAG!” Students were also prompted less often to check with SWAG and were expected to check on their own. At the end of the month long period both classes were given the post test, which was conducted in the same fashion as the pre-assessment, and data was collected a second time. Students were not prompted to use the SWAG checklist, which remained taped to their desks, however, the researcher observed several students using the checklist to revise their work during the time of post-test. The post-intervention Attention to Detail scores of the two groups were compared with an independent samples t-test.

During both the pre and post assessment, the researcher made informal narrative observations about the overall behavior of the class in terms of their independence and physical manifestation of focus. Behaviors informally observed included, extraneous talking, distracting physical behavior, and asking for direction or extra help.

CHAPTER IV

RESULTS

The performances of the two groups on a pre-intervention writing test were compared with an independent samples t-test. The intervention group (Mean = 9.00, SD = 2.22) did not score significantly different from the control group (Mean = 8.08, SD = 3.70) [$t(31) = -0.90$, $p > .05$] on the mean Attention to Detail scores. Consequently, it was not necessary to control for pre-existing group differences when comparing writing performance after the intervention.

The mean Attention to Detail scores on the post-intervention writing test of the intervention group (Mean = 10.60, SD = 1.98) did not differ significantly from the mean Attention to Detail scores of the control group (Mean = 9.38, SD = 3.40) [$t(31) = -1.30$, $p > .05$]. See Table 1. Therefore, the null hypothesis that the mean “Attention to Detail” scores on a writing prompt of the students receiving the metacognitive training intervention will not differ significantly from the mean “Attention to Detail” scores of the students not utilizing the metacognitive training tool failed to be rejected.

TABLE 1:
Means, Standard Deviations, and t-test Result for the Post-Intervention Writing Prompt

Group	N	Mean	Standard Deviation	T
Control	13	9.38	3.40	-1.30*
Intervention	20	10.60	1.98	

**Non-significant at $p < .05$*

CHAPTER V

DISCUSSION

The results of the study failed to reject the null hypothesis that the mean Attention to Detail scores on a writing prompt of the students receiving the metacognitive training intervention would not differ significantly from the mean Attention to Detail scores of the students not utilizing the metacognitive training tool.

Implications

Due to the lack of significant difference between the scores of the two groups, this intervention may not be sufficient in isolation to improve attention to detail on written language tasks. Without further research documenting the intervention's effectiveness over time, large scale implementation is not recommended. However, based on researcher observation, the intervention may improve student ability to work independently. The researcher observed an increased volume of independent work in the group who received the intervention. When the post-test was given, the intervention group worked entirely independently for the full fifteen minutes without the researcher having to remind the group of the directions, or prompt students in any way. In contrast, the non-intervention group had five students approach the researcher to ask questions or announce their completion of the task although they were expressly told not to do so. One student in the non-intervention group fell asleep, and two used their extra time to draw on the back of a blank page as opposed to edit their writing. However, the intervention group utilized their fifteen minutes to write and revise their work quietly and independently.

The researcher observed the effects of the SWAG intervention after the formal study was completed. Students were seen looking over their checklists and revising their work after writing even though the student teacher and mentor teacher no longer emphasized this practice explicitly.

These observations suggest that the routine practice is transferring to automaticity. Students' level of independent work appeared to have grown immensely. Thus, behavioral observations suggest that this strategy may be a method that children can master and eventually apply on their own without prompting.

Threats to the Validity

Many factors could have interfered with the validity of the study's results. One concern is that the intervention took place in a classroom of children with a range of attention abilities and language arts skills. Although the researcher was primarily interested in students with significant attention problems, the researcher was limited in the population of students expressly diagnosed with ADHD. For this reason, the study was pushed to include the element of focus and attention on a much wider scope. While interventions to increase attention are important at a class-wide level, it would have been ideal to have had a selective group of students of similar age diagnosed with ADHD with which to work since the intervention may have made more of a difference in a population with severe attention problems. The research population also included children who participate in an accelerated group for reading and writing. Most of these children scored very well on the pre-test, suggesting that they already had acquired the skills being taught through the metacognitive training. These factors created a ceiling effect for some students that significantly limited the ability of the post-test scores to be sensitive to the effects from the intervention. Although the study did not consider gain scores as a dependent variable, it was noted that many of the students in the intervention group that made gains were students in the scaffolding or enrichment groups.

Another limitation to this study was one of scope and length. The researcher only implemented the intervention for a total of fifteen days before issuing the post test. It is possible

that over a more extended period of time a greater difference might have been observed. In addition to the limitation of time was the effect of severe winter weather conditions on the number of consecutive days students spent in school practicing this method. Although students were expressly using the method for every writing assignment, school days missed could have had a significant effect on how deep the routine practice acquisition was.

It is also important to note that the dependent variable in this study was not designed to measure the behavioral changes observed that could be a result of the intervention. Since the measure focused solely on academic performance it could not reflect students' level of independence, and the time spent on-task when the post test was administered.

Another limitation was the relatively small sample size. Unfortunately, due to the ease of access, the researcher was limited in the number of participants able to take part in the study. The amount of usable data also had an impact on the statistical power of the sample. The study was therefore statistically underpowered causing it to be less likely to result in significant differences.

Finally, since the researcher was a teacher in the intervention classroom it is a limitation in terms of the bias of the study. Because the researcher was not blind to group membership it could have potentially had an unconscious impact on the results. Also, the comfort level between the students and researcher in the intervention class may have been higher than that in the non-intervention class. Routines and expectations in classes differ, which may account for the behavior of the students in the non-intervention class versus the behavior of the intervention class during the pre and post tests.

Connections to Previous Studies/Existing Literature

There is a limited amount of research regarding instruction based intervention to help students with attention related disabilities. Most research on attention disability deals with

behavior modification in hopes that it may also have a residual effect on academic achievement. The research that is emerging dealing with students on an academic level is interesting. The 2011 study by Hedin, Mason, Gaffney implemented a metacognitive training method, similar to this study, for two intermediate elementary students. Whereas this study was of a quasi-experimental design, the study done by Hedin, Mason, and Gaffney was a descriptive case study conducted over a period of about three months. They used a method for reading called TWA: Think Before Reading, While Reading, and After Reading. This methodology promoted self-regulation for questioning content where as the SWAG checklists promoted self-regulation for best writing practices and attention to detail. The two students in the study used checklists to support their routine practice as well. These students also received tutoring sessions outside of regular in-class practice. They took a pre and post assessment to measure achievement in comprehension. These tests were scored and compared to observe academic improvement after the intervention. While the post-test results revealed an initial gain in scoring prior to tutoring sessions, there was a slow decline as the tutoring sessions decreased. However, at the conclusion of the study, Hedin, et al. interviewed the two students about their experience using TWA and how they believed it helped them. Both students gave glowingly positive accounts of instances where they used the method to help support their reading practices. The results of the Hedin et al. study are consistent with the current study in that the academic test scores do not provide compelling evidence of the success of the intervention, but student behaviors suggest that they found the intervention helpful.

Zentall's research emphasizes that "the most effective cognitive behavioral strategies involve self-monitoring, self-reinforcement, and self-evaluation" (2005, p. 828) which is why the choice of the checklist is so critical. While there is no guarantee that students will truly check

their work appropriately every time, it puts the responsibility into their hands. This grants a sense of power and independence in the learning process. Cognitive behavioral strategies, also called metacognitive training methods, are essential tools to scaffold that independence and power which comes from having the tools of understanding to reason and work more efficiently. These tools are what students with ADHD and other attention problems desperately need. These students must be given an arsenal of skills for problem solving, not a list of excuses, which is what these academic interventions can offer more so than a medical prescription ever could, "...medication cannot selectively guide attention nor promote cognitive reorganization. That is, psychostimulants cannot teach children to look at certain parts of the curriculum" (Zentall, 2005, p. 828) which is precisely why these types of intervention are essential for the long-term success of children struggling with inattention. Although the current study did not indicate that the use of a checklist improves attention to detail on writing assignments, researcher observations suggested that children who had been trained to use SWAG were more independent in completing a written language assignment. This is consistent with Zentall's belief that metacognitive training methods increase student independence and work efficiency

Implications for Future Research

Because of the restrictions regarding the sampling group for this study, it would be interesting to conduct a study with a larger and more specific sampling group. For example, if the study could be run with a group of specifically ADHD or academically struggling students, the intervention could prove to be more effective because the effects of using the SWAG checklist are likely limited among students with strong attention and academic skill.

Future research could also provide better control for the impact of the researcher on the results. One strategy that could have eliminated potential bias from this study is keeping the

researcher blind to group membership when grading essays. In addition, in future research it would be helpful for a teacher to work with students under both conditions so that differences in teacher characteristics and student familiarity with the teacher do not impact results.

It would also be interesting to conduct this study over a longer span of time. Since this study had the unfortunate restriction of losing time due to snow days, it was a serious limitation to the validity of the results. It is possible that over a longer period of time, giving the students extra time using the tool, there may have been a noticeable change in the intervention group. Metacognitive training requires repeated practice over time in order for the routine to be internalized to automaticity. Fifteen days may not have been long enough—but a semester long study might bring interesting results to light.

Focus and attention manifest both in behaviors during a task and in the quality of work produced. While this study focused on the academic side, the quality of work as a result of the metacognitive training method, the behavioral results could have been measured as well. For example, in this study, the attention to detail scores did not show a significant difference between groups but the anecdotal reflections on the intervention group suggested an overall increase of independence in contrast to the non-intervention group. A future study could assess behavioral effects of the intervention by using tools such as tally sheets to record behaviors of interest such as time on task or teacher rating scales.


Conclusions

This study examined the effectiveness of a metacognitive tool, the SWAG writing checklist, in helping first graders become more attentive to detail in their writing assignments and focus more productively during their class work time. The students who received the SWAG checklist intervention did not demonstrate greater attention to detail on a writing assignment

post-test than students that did not receive the intervention. However, researcher observations suggest that the students who were trained in the intervention method became more independent in completing assignments. Further research is necessary to assess the extent to which the SWAG checklist metacognitive strategy improves student learning behaviors such as independence in completing assignments and on-task behaviors. If further research proves it to be effective, it would be a valuable and inexpensive tool that teachers could use to improve the learning behaviors of their students that struggle with attention problems.

Appendix

Appendix A: SWAG Checklist

 **SWAG Checklist**

Directions: Check to see if your sentences have SWAG.

Starts with a capital letter.

Written neatly.

A space is used between each word.

Given punctuation at the end.

Appendix B: SWAG Grading Rubric

WRITING ASSIGNMENTS
SWAG GRADING RUBRIC

Total Points Possible: 12

Score:

Starts with a capital letter:

0	None of the sentences begin with a capital.
1	One of the sentences begins with a capital.
2	Two of the sentences begin with a capital.
3	All three of the sentences begin with a capital.

A space is used between each word:

0	No spacing is used.
1	Some spacing/inconsistent spacing.
2	Spacing is used, but is too small or too large.
3	Each word is separated evenly.

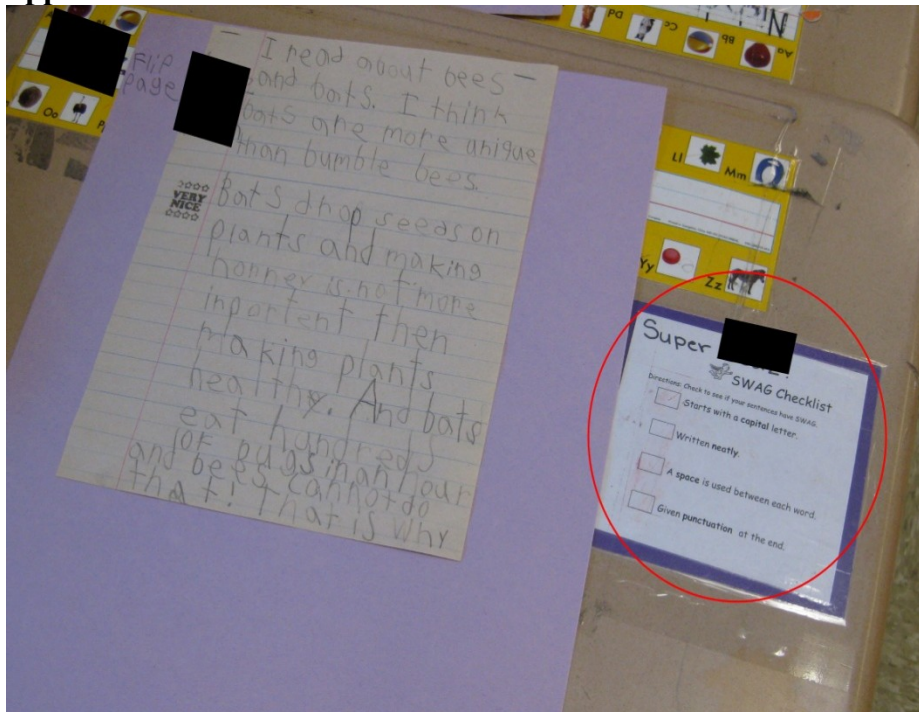
Written neatly:

0	Completely illegible, cannot read sentences.
1	Poorly written, letters are outside of the lines, difficult to decipher text.
2	Letters are sometimes outside of the lines, somewhat difficult to decipher.
3	Beautifully written, even letters, easy to understand.

Given punctuation at the end:

0	No punctuation is used.
1	One sentence is ended with punctuation.
2	Two sentences are ended with punctuation.
3	Three sentences are ended with punctuation.

Appendix C: Checklist on Desk



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