

Abstract

Title of dissertation: SELF-MONITORING OF ATTENTION VERSUS SELF-MONITORING OF PERFORMANCE WITH SECOND-GRADE JOURNAL WRITING: A COMPARISON OF TWO TECHNIQUES

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Students do not generally self-monitor when they write. This study examined the comparative effectiveness of self-monitoring of performance (SMP) and self-monitoring of attention (SMA) in the area of journal writing. Eight second-grade students with writing problems participated in this study. A multiple-baseline design was implemented to examine the differential effects of SMA and SMP. Observational data were collected by the experimenter and consisted of observing and recording each of the following behaviors during morning writing sessions: on-task behavior, number of words written, and number of minutes spent writing. Writing quality was also assessed. This study took place in two general education inclusive classrooms. Number of words written during both the SMA and SMP conditions exceeded the number of words written during baseline for all students. During SMA, time on-task increased for all 8 students. Although students in the SMP condition demonstrated gains, in time on-task, these were not as large as the gains for students in the time on-task SMA condition. Number of words written during both treatments exceeded the average number of words written during baseline. Generally, students increased the number of minutes spent writing in both SMA and SMP. However, 6 of the 8 students spent more time writing during the SMP condition than the SMA condition. Writing quality was improved over baseline

during the SMA condition for 7 out of 8 students. During the SMP condition, 5 out of 8 students improved their writing quality over baseline. No carry over effects were noted.

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PERFORMANCE WITH SECOND-GRADE JOURNAL WRITING: A COMPARISON
OF TWO TECHNIQUES

By

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DEDICATION

This project is dedicated to my family. Without their love and support, I would not have accomplished this task.

I would like to thank my husband and children whose support, encouragement, and love sustained me throughout this project. My husband, Ian, was a rock during the many hours of composing, revising, and editing. My daughter, Anne Marshall, was my inspiration and muse. Irene McKay brought new meaning to important. My mother, Winifred Young, provided many hours of listening support and encouragement. Every family member provided support, focus, and encouragement. Thank you all.

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CHAPTER 1

INTRODUCTION

Writing is an important task in school (Ballard & Glynn, 1975; Zimmerman & Risemberg, 1997). Students write to communicate, demonstrate their knowledge of skills and the curriculum, as well as express their beliefs (Graham, 1982). Written language enables children to communicate across both time and space (Swedlow, 1999). It is useful for studying and learning content material (Durst & Newell, 1989). Journal writing, poetry, stories and plays allow students to express their feelings and provide mechanisms for creative expression (Durst & Newell, 1989). Thus, writing is crucial for communication, learning, and expression, making it a critical component of modern education (Zimmerman & Risemberg, 1997).

The current study examined the effectiveness of two self-monitoring interventions for improving the writing of young children who experience difficulty with this skill. In setting the stage for this study, I first examine the characteristics of skilled writers, as well as writers who struggle with learning to write. Next, self-monitoring interventions for struggling writers are outlined. This is followed by the rationale for the current study.

Skilled Writers

Skilled writing is viewed as a cognitive process that requires a high level of self-regulation (Graham & Harris, 1994). In the influential model of writing developed by Hayes and Flower (1986), skilled writing is viewed as a goal-directed activity. Skilled writers direct the process by identifying and organizing goals and subgoals for what they want to say and do. They accomplish their intentions by deftly bringing into play a variety of cognitive processes. These include planning, translating plans into written text,

and reviewing to improve existing text. Planning, in turn, consists of three ingredients: setting goals, generating ideas, and organizing ideas into a writing plan, whereas reviewing only includes reading and editing text.

Hayes and Flower (1986) indicated that skilled writers coordinate these processes through the use of a control structure called the “monitor.” They noted “a great part of the skill in writing is the ability to monitor and direct one’s own composing process” (Flower and Hayes, 1980, p. 39). Skilled writers bring into play various processes and subprocesses for accomplishing their goals, as well as maintaining and completing the writing process. Furthermore, basic writing processes such as planning, sentence generation, and revising must be orchestrated so that writers can switch attention between these functions and a host of mechanical and substantive concerns (Scardamalia & Bereiter, 1986). To capture the self-regulatory nature of skilled writing, Flower and Hayes (1980) used the metaphor of a switchboard operator: “A writer caught in the act looks like a very busy switchboard operator trying to juggle a number of demands on her attention and constraints on what she can do” (p. 33).

Because writing is such a difficult task, skilled writers often employ self-regulatory mechanisms such as self-monitoring and goal-setting to help them manage their output, stay on-task, and persevere. Writers from Ernest Hemingway to John Irving have carefully monitored their writing output in order to ensure that they stayed focused and were productive (Harris & Graham, 1996). Thus, in addition to monitoring and orchestrating basic writing processes such as planning and revising, skilled writers also monitor and manage their writing behavior to help them stay on-task and achieve output goals.

One aspect of skilled writing that is particularly important to the current study concerns writers' ability to generate writing content (Graham & Harris, in press). Although skilled writers sometimes have difficulty getting started on a project or occasionally experience a writing block, they often generate more text or ideas than they actually need. For example, Joyce Carol Oates, the contemporary author, observed that she often produced 1,000 pages of notes for every 250 printed pages. Moreover, when skilled writers do not have the needed information at hand, they know how to get it (e.g., consulting an authoritative source, or interviewing others).

In summary, skilled writing is a highly complex self-directed activity that requires a considerable amount of self-regulation to both maintain production, as well as complete writing tasks. These writers are not only skilled in monitoring and managing the writing process, but are also able to generate the ideas and knowledge needed to write about specific topics.

Struggling Writers

In contrast to skilled writers, children who struggle with composing use an approach to writing that minimizes self-regulatory processes such as planning, monitoring, evaluating, and revising (Graham & Harris, 1984). Struggling writers compose by creating or drawing from memory a relevant idea, writing it down, and using each preceding phrase or sentence to stimulate the next idea (Graham, 1990; Thomas, Englert, & Gregg, 1987). This knowledge-telling approach is primarily dominated by a single process, the generation of writing content (Scardamalia & Bereiter, 1986). Information that is somewhat topic appropriate is created or garnered from memory and turned into sentences (Graham & Harris, in press). Struggling writers do little to evaluate

or rework these ideas or consider the constraints imposed by the topic, the needs of the audience, or the organization of text (McCutchen, 1988).

The primary advantage of the knowledge-telling approach for struggling writers is that it simplifies the task of composing. Unlike skilled writing, which is planful, reflective, and highly self-regulatory, the knowledge-telling approach operates as a relatively simple content generation program. Metacognitive processes such as self-monitoring and self-evaluation are sharply reduced or eliminated when students employ a knowledge-telling approach to writing.

In addition to using an approach to writing that minimizes self-regulatory control, many struggling writers also have difficulty with persistence when writing. For example, when 10-year-old to 12-year-old students who were struggling writers were asked to write an essay expressing their opinion on a specific topic, they averaged just 6 minutes of writing time (Graham, 1990). They only composed for one minute when asked to dictate their essays. Not only did these students not put much effort into their writing, but it also appeared that they stopped the composing process too soon. Their essays typically began with either a “no” or “yes,” followed by only one or two reasons, and abruptly ended without coming to a resolution. Other researchers have made similar observations (Thomas et al., 1987), indicating that struggling writers experience difficulty sustaining the writing process and their thinking processes about writing topics, as evidenced by their difficulty in generating multiple ideas about familiar subjects.

Even though struggling writers use an approach to composing dominated by the content generation process, they frequently have difficulty producing enough text or generating enough ideas when composing (Graham & Harris, in press; Scardamalia &

Bereiter, 1986). This difficulty with content generation impacts their written output. Consequently, their compositions are inordinately short and there is little elaboration in their writing (Graham & Harris, in press). Because struggling writers do not produce much text, their texts are often of poor quality and may lack coherence (Graham & Harris, in press; Zimmerman & Risemberg, 1997).

In summary, struggling writers minimize the use of self-regulatory processes such as self-monitoring and self-evaluation, experience difficulty maintaining their writing efforts, and produce text with few ideas and little elaboration. Thus, there is a need to identify methods that enhance their output and quality of writing, on-task behavior, increases number of minutes spent writing, and use of self-regulatory mechanisms when writing.

Increasing Output, Quality and On-Task Behavior

One approach for enhancing the output and quality of struggling writers' compositions is to teach them specific strategies for writing (Graham, Harris, MacArthur, & Schwartz, 1991). A considerable body of research demonstrates that explicit instruction in planning and revising strategies can improve the length, structure, and quality of children's writing (Bereiter & Scardamalia, 1987; Graham & Harris, in press; Hayes & Flower, 1986; Zimmerman & Risemberg, 1997; Zimmerman & Risemberg, 1997). While effective, such procedures are time consuming and involve complex teaching routines.

Another approach that may also be effective in improving the writing of struggling writers is to teach them relatively simple procedures for monitoring either their on-task behavior or writing production. Such procedures may enhance not only the length

and quality of compositions, but incorporate an additional self-regulatory mechanism (i.e., self-monitoring) into children's writing.

Although the current database is meager, teaching students to self-monitor during writing has had a positive impact on: number of words written, on-task behavior, and writing quality (Graham & Harris, 1996; Graham, Schwartz, & MacArthur, 1993; Hallahan, Kauffman, & Lloyd, 1999; Harris et al. 1994; Schunk & Zimmerman, 1998; Zimmerman & Risemberg, 1997). Self-monitoring strategies may also help students compensate for difficulties they experience in sustaining the writing effort (Schunk & Zimmerman, 1998). Thus, self-monitoring instruction provides a promising technique for addressing some of the most serious problems faced by struggling writers.

Goal of Study

The goal of this study is to improve student's journal writing, helping them to become more skilled writers (Alexander, Graham, & Harris, 1998). It is anticipated that the self-monitoring strategies employed in this study will enable struggling writers to display more developmentally appropriate behavior, enabling them to be more task-directed and more effective in generating content (Pintrich & Zusho, 2001). This should help these students generate qualitatively better journal entries allowing them to more closely approximate the writing performance of their peers (Alexander, 2004; Alexander, et al. 1998).

Self-Monitoring

Self-monitoring is a component of self-regulated learning and is the focus of this study. Self-monitoring includes two components: self-assessment and self-recording (Nelson, 1977). Self-assessment refers to self-judgments about whether or not a target

behavior occurred. Self-recording involves recording the results of these judgments (Hallahan, Marshall, & Lloyd, 1981).

Two types of self-monitoring that have been investigated by educational research are self-monitoring of attention (SMA) and self-monitoring of performance (SMP). SMA procedures were created to improve the on-task behavior and production of students with learning disabilities (LD) who evidenced difficulty attending to academic tasks (Hallahan, Gajar, Cohen, & Tarver, 1978). SMP procedures were developed following the demonstrated success of SMA. The basic premise was that if self-monitoring of attention improved behavior, then self-monitoring of performance should also enhance active learning, resulting in an improvement in academic performance (Harris, 1986).

SMA involves students listening to random pre-recorded tones, judging or assessing if they were on- or off-task when the tone sounds, and recording behavior as on- or off-task on a piece of paper (Hallahan, et al. 1981). SMA has been successfully used to improve: on-task behavior, as well as mathematics and writing performance.

SMP involves students self-selecting academic goals for improvement, recording information on a target variable, (e.g., number of words written during story writing), graphing progress daily at the end of the work session, and then measuring progress against self-selected goal (Harris, Graham, Reid, McElroy, & Hamby, 1994). SMP has resulted in improved accuracy, on-task behavior, and production.

Researchers have also examined the comparative effectiveness of SMA and SMP. Both procedures improve on-task behavior and amount of work produced. However, variable effects occur for accuracy. For example, Harris et al. (1994) found that students produced more correct spelling practices using SMP versus SMA.

Self-Monitoring in Writing

Three studies have examined the effectiveness of self-monitoring with students' writing (Ballard & Glynn, 1975; Harris, et al., 1994; Rumsey & Ballard, 1985). The findings from these studies are summarized below.

Ballard and Glynn (1975) analyzed the effects of self-assessment and self-recording on the story writing of students in a general education third-grade classroom. At the end of the writing session, students counted and recorded the number of sentences written, as well as the number of action and describing words included in the story. When these self-monitoring of performance procedures were in effect, there was no incremental effect on students' on-task behavior or writing performance. However, when self-reinforcement was paired with self-monitoring and self-recording, there were corresponding improvements in on-task behavior, number of sentences, action words, describing words, and story quality.

Rumsey and Ballard (1985) evaluated self-monitoring procedures during story writing with primary school children in a general education classroom. Students attending this class ranged in age from 9 to 11. All 34 students were taught to assess if they were working (i.e., on-task) when a tone sounded. At the end of the story writing session, they recorded the number of times they were on-task. They also recorded the number of words they had written. Data were collected for seven students who had difficulty staying on-task during the 25-minute independent writing session. This combined self monitoring of attention and self-monitoring of performance procedure increased on-task behavior and writing output (i.e., number of words written) for five of the seven students. Off-task disruptive behavior decreased for these same students. The other two students'

performance was inconsistent, indicating that the self-monitoring procedure did not influence these children's writing or on-task behavior.

Harris et al. (1994) analyzed the effectiveness of SMA and SMP with students with LD during story writing. Four students in fifth and sixth grade attending a self-contained special education class for students with LD participated in this experiment. Prior to the start of the study, students were taught a strategy for planning and writing stories.

The SMA procedure used in the Harris et al. (1994) investigation involved: (a) an individual conference with students to discuss the importance and meaning of on-task behavior; (b) introduction, teaching, and modeling of the monitoring procedure; (c) random taped tones with headphones; and, (d) a self-recording sheet with a yes and no column for tallies to respond to the question "Was I paying attention?" The SMP procedure involved: (a) an initial conference to discuss the meaning and importance of writing longer stories; (b) introduction, teaching, and modeling of the monitoring procedure; (c) daily counting of the number of words written during story writing; and (d) graphing these results. Both treatments enabled students to produce longer and qualitatively better stories, and increased time on-task behavior. However, neither condition was clearly and consistently superior to the other. Carry over effects did not occur and were not anticipated due to the short duration of each treatment. During a choice condition, three of the students selected to use SMP, but two of them voiced a preference for SMA. The fourth student stated that he did not like either intervention.

These three studies yielded mixed results. Harris et al. (1994) found that SMA and SMP both had positive effects on children's story writing and on-task behavior,

whereas Ballard and Glynn (1975) reported that an SMP procedure by itself did not influence story writing performance or on-task behavior. Finally, Rumsey and Ballard (1985) found that a combined SMA and SMP approach improved story writing and on-task behavior. Additional research is needed to determine the relative effectiveness of SMA and SMP with writing, particularly with different populations and different writing tasks. Beginning findings suggest that students with attention challenges prefer SMA to SMP and that students with learning disabilities prefer SMP.

Study Rationale

The current study extended previous research on teaching students to self-monitor their writing behavior (Ballard & Glynn, 1975; Harris et al., 1994; Rumsey & Ballard, 1985). Students who struggle with writing typically struggle with managing their on-task behavior (Harris et al. 1994). Like previous studies, this study examined the effectiveness of SMP in the area of writing. Like the Harris et al. (1994) study, it also compared the effectiveness SMA and SMP.

This study extended previous research in three ways. First, the students involved in the current study were younger (i.e. at the second-grade level) than those included in previous studies (i.e. Ballard & Glynn, 1975; Harris et al., 1994; Rumsey & Ballard, 1985). Second, the study took place in a general education inclusive classroom. While a previous study by Glynn, Thomas, and Shee (1973) was conducted in such an environment, it involved reading and not writing. Third, the current study focused on journal writing and not story writing, as was the case in the other studies. Journal writing was a daily task that occurred naturally in the participating classrooms.

Although I assumed that self-monitoring strategies would benefit children at the second grade level, and that these children could benefit from adults arranging the environment to facilitate the development of self-regulatory skills (Bronson, 2000), younger students are less capable than older children in self-regulating their learning (Pintrich and Zusho, 2001). Due to this maturational difference, the self-monitoring tools and procedures utilized in this study were piloted with second-grade students prior to implementation. Students successfully utilized the tools and commented on liking the procedures.

It is also important to note that fading is a critical step in teaching self-regulation skills, but it was not utilized in this study. Students demonstrate a sense of self and an inculcation of the self-monitoring strategies when prompts are faded. Due to the young age of the students and their developmental abilities (Pintrich & Zusho, 2002) I decided not to fade teacher help in using the target self-monitoring procedures in the current study. Therefore, students continued to use external prompts in the form of taped tones and graphs throughout the study. This was consistent with prior research (Hallahan, et al. 1981; Harris et al. 1994)

Journal writing in the second-grade classrooms participating in this study was defined as a daily task that consisted of students responding to a teacher selected prompt as part of their morning entry routine. It was an independent task in that students had 25 minutes in which to complete their activity, along with several other activities (i.e., unpack supplies, copy homework assignments, and complete an activity sheet). Topics for the daily journal were teacher selected (Appendix J). Sometimes the topics related to content being studied during literature, social studies, social skills, science, or

mathematics. Students had to write to inform, persuade, tell a story, and so forth.

Examples of topics include: Which type of measurement do you like best, why? What type of poems do you like to write, why? What does consideration mean? Give an example. Other times the topic was more open to facilitate expressive writing, like: What did you do this weekend?

Journal writing was important in the participating school, because it addressed a key objective of the Maryland State Learning Outcomes, the state in which the study was conducted, “It was expected that skilled second-grade writers produce informational, practical, persuasive and narrative writing that demonstrates an awareness of audience, purpose, and form using stages of the writing process as needed (i.e., pre-writing, drafting, revising, editing, and publishing)” (Maryland State Department of Education, 2003). Combining journal writing with self-monitoring was expected to have a positive impact on the following student behaviors: number of words written, on-task behavior, time spent writing, and writing quality (Graham & Harris, 1996; Graham et al. 1993; Hallahan et al. 1999; Harris et al, 1994; Schunk & Zimmerman, 1998; Zimmerman & Risemberg, 1997). As Schunk and Zimmerman (1998) noted, teaching students to use self-monitoring may be useful for a skill like formal writing, because it may help students compensate for difficulties they experience in sustaining the writing effort.

The research undertaken in this study is also consistent with the recommendations included in the recent No Child Left Behind Act (NCLB) enacted by the United States Congress (2001). According to Finding 3 of the NCLB, research needs to explore evidence based instructional strategies in general education settings, because all students are general education students first and students with special needs second. This was a

naturalistic study that bootstrapped self-monitoring procedures onto an established journal writing curriculum and routine in two general education classrooms.

Finding 2 of the NCLB also states that educators must address students' academic needs during the early years and not wait for them to fail. This was a developmental study designed to assess the benefits of self-monitoring strategies for second-grade students during their naturalistic journal writing sessions. This study was designed to meet the demonstrated needs of these younger students and to assess the benefits of strategies that have been successful with older students.

Finally, Finding 8 of the NCLB states the need to utilize scientific teaching methods/evidenced based practices. Self-monitoring of attention and self-monitoring of performance are evidenced based practices (Ballard & Glynn, 1975; Harris et al., 1994; Rumsey & Ballard, 1985).

The SMA and SMP Conditions in the Current Study

Self-monitoring can consist not only of monitoring a specific task, like writing output, but may also consist of a global or general monitoring of learning outcomes, such as: Does my writing make sense? Am I on-task? (Schunk & Zimmerman, 1998). During the SMA and SMP conditions in previous studies, students were taught each strategy one at a time during 20-minute sessions and then monitored throughout data collection (Ballard & Glynn, 1975; Harris et al., 1994; Rumsey & Ballard, 1985).

In this study, as in prior research (Ballard & Glynn, 1975; Harris et al., 1994; Rumsey & Ballard, 1985), students were prompted by tape recorded tones during the SMA condition to self-record their status as on- or off-task while they were writing. However, during the SMP condition, students operated on a more independent level,

counting, monitoring, and graphing their entries by themselves. Help was only provided at the request of the students. This help was not requested often. Thus, it is possible that different levels of self-control occurred for each of the self-monitoring conditions in this study, with SMP requiring more independent self-monitoring than SMA.

Research Questions and Expected Results

Research Question 1: Is SMA effective in improving the on-task behavior, writing output, time spent writing, and writing quality of struggling writers at the second-grade level during journal writing time? Based on previous research (Harris et al., 1994), I expect that SMA will be effective in improving on-task behavior, writing output, time spent writing, and writing quality.

Research Question 2: Is SMP effective in improving the on-task behavior, writing output, time spent writing, and writing quality of struggling writers at the second-grade level during journal writing time? Based on previous research (Harris et al., 1994), I expect that SMP will be effective in improving on-task behavior, writing output, time spent writing, and writing quality.

Research Question 3: Are SMA and SMP differentially effective in improving the on-task behavior, writing output, time spent writing, and writing quality of struggling writers at the second-grade level during journal writing time? Based on previous research (Harris et al., 1994; Roberts & Nelson, 1981; Rooney, Polloway, & Hallahan, 1985; Lloyd, Bateman, Landrum, & Hallahan, 1989; Reid & Harris, 1993; Maag, Reid, & DiGangi, 1993), I do not expect that there will be a differential effect for SMA or SMP on students' on-task behavior, writing output, time spent writing, or writing quality. I do expect that students will prefer SMP to SMA, as it is easier to implement and execute.

Definition of Terms

Attention is defined as the ability to focus on the task at hand and screen out distractions (Zimmerman, 1998).

Skilled writer is defined as a writer who demonstrates mastery of the following basic writing skills: a) produces enough words to respond to the demands of the assignment, b) meets initial criteria for completeness, c) produces coherent text; and d) presents text in an organized manner (Bereiter & Scardamalia, 1987).

On-task behavior is defined as being engaged in the journal writing process or self-recording process (e.g., writing in journal, reading journal text, erasing text, thinking without talking to peers, asking teacher for assistance, looking up the correct spelling of a word, or recording data on recording sheet). Maag, Reid, and DiGangi (1993) utilized similar criteria in their study.

Struggling writers are defined as writers who demonstrated difficulty producing text that: a) responds to the demands of the assignment, b) meets initial criteria for completeness, and c) and is coherent and organized. In addition, these students scored at or below the 25% on the standardized Test of Written Language 3 (TOWL-3) and were identified by their second-grade teachers as students who struggle with the writing task.

Self-regulated learning is a recursive and triadic process with: the student, behavior, and environment interacting, reacting and adapting in order to achieve personal goals (Kanfer, 1970, 1977; Zimmerman, 2000).

Self-monitoring consists of two components: self-assessment and self-recording (Nelson, 1977). Self-assessment is self-judgment about whether or not a target behavior

has occurred (Hallahan et al. 1981). Self-recording is recording the results of this judgement (Hallahan et al. 1981).

Self-Monitoring of Attention (SMA) is a cognitive behavior modification technique that utilizes self-monitoring and self-instruction to facilitate student success. Students are instructed to record on task behavior on charts when they hear pre-recorded signals.

Self-Monitoring of Performance (SMP) – means students self-monitor and record academic results and compare these to set criteria (Harris, Graham, Reid, McElroy, & Hamby, 1994).

Writing is defined as demonstrating any act of the composing process for example: brainstorming, writing, evaluating, editing or revising (Graham & Harris, in press).

Writing Difficulties are defined as processes and strategies that interfere with the production of coherent text (for example, lack of planning time, ineffective revising procedures, poor grammar, lack of use of strategies).

Journal Writing as defined by the target school as students writing daily in response to a variety of teacher-selected topics. Each teacher required a minimum number (5 or 7) of sentences daily. Topics spanned various genres, (e.g. persuasive, narrative, and reflective).

CHAPTER 2

Self-regulation has been defined in many disciplines including clinical psychology (Endler & Kocovski, 2000), chronic illness (Creer, 2000), academic learning (Schunk & Ertmer, 2000), self-regulated learning (Randi & Corno, 2000), behavioral psychology (Belfiore & Hornyak, 1998), and social cognitive theory (Zimmerman, 2000). The current study focuses on operant theory and social cognitive theory.

In this chapter, I discuss the theoretical rationale for self-monitoring with students who struggle attending to academic tasks, especially writing tasks. First, self-regulated learning is examined from both an operant theory and a social cognitive perspective. Second, the recursive phases of self-regulation are presented. Third, self-monitoring is defined. Fourth, research investigating the effectiveness of self-monitoring of attention and self-monitoring of performance is reviewed. Fifth, information on self-regulated writing is presented. Sixth, research on struggling writers is examined. Seventh, the effects of self-monitoring with students who struggle with writing is presented.

Operant theorists view self-regulation as a tool through which students learn to demonstrate responsibility for focusing on the appropriate stimuli in the classroom (Belfiore & Hornyak, 1998). Teachers help students learn strategies that help them regulate their behavior and students receive reinforcement through their demonstrated success, encouraging students to repeat the successful behavior (Belfiore & Hornyak, 1998). Learning how to manage behavior and resist distractions allows students to experience success (Belfiore & Hornyak, 1998). Therefore, operant theory provides a partial framework for the current study.

Social cognitive theorists view students as active, not passive learners and has its foundations in memory, metacognitive, and personal control research (Bandura, 1997; Hallahan & Sapona, 1983; Kanfer, 1977). Active participation of students sets the social cognitive theory of self-regulated learning apart from behavioral approaches to human behavior and learning (Bandura, 1997; Kanfer, 1977). Self-regulated learners are characterized as learners who view learning as something they can do for themselves, not something that is done to them or for them (Schunk & Zimmerman, 1998). In addition, social cognitive instruction consists of teaching self-regulation strategies through social modeling, corrective feedback, and guided and independent practice (Zimmerman, 1998). Self-efficacy is also considered an important variable in self-regulated learning, as it acts as a catalyst for learning and using self-regulation strategies (Zimmerman, 1998). Social cognitive theory provides an additional framework for the perspective taken in the current study.

Students who self-regulate effectively utilize covert processes consistently to manage overt behaviors, (Kanfer, 1970, 1977; Zimmerman, 2000). Social cognitivists view students as able to utilize social and environmental resources to self-enhance forethought, performance or volitional control, as well as self-reflection (Zimmerman, 2000). These abilities enable students to set hierarchical proximal goals that assist them in realizing and achieving challenging distal goals (Zimmerman, 1998). Effective students utilize proximal goals to evaluate progress and are not dependent on external praise or reinforcement in order to continue to learn and attain these proximal goals (Zimmerman, 1998). Such successful management of overt behaviors improves self-

efficacy and this improvement fuels the continued use of self-regulation strategies (Zimmerman, 1998).

The second-grade students in the current study did not utilize all phases of self-regulation. Fading, an important phase of the self-regulation process, the step in which the self is truly apparent by the removal of prompts, was not included. This was due to the young age of the students and their consequent developmental abilities. Thus students utilized the self-monitoring strategies with prompts. However, both operant learning theory (Belfiore & Hornyak, 1998) and social cognitive theory support utilizing environmental cues and prompts in self-regulating behavior (Zimmerman, 2000).

Phases of Self-Regulation

Social cognitive researchers commonly define self-regulation as a recursive and triadic process in which student, behavior, and environment interact, react and adapt in order to achieve personal goals (Kanfer, 1977; Zimmerman, 2000). Self-regulation consists of three cyclical phases: forethought, performance or volitional control, and self-reflection processes (Schunk & Zimmerman, 1998; Zimmerman, 2000). These phases interconnect and are not linear (Kanfer, 1977; Schunk & Zimmerman, 1998; Zimmerman, 2000). Each phase is fluid and recursive in nature (Schunk & Zimmerman, 1998; Zimmerman, 2000). This fluidity allows students to move repeatedly between phases in response to personal, behavioral or environmental signals until a task or concept is learned or mastered (Schunk & Zimmerman, 1998). This view of learning as a multidimensional process consisting of the volitional interaction of cognitive, emotional, behavioral and contextual components is another way academic self-regulation aligns with social cognitive theory instead of behavior theory (Schunk & Zimmerman, 1998).

Maryland State Department of Education (2003) writing standards for second-grade students includes self-regulation components in its definition of the writing process. Second-grade students are expected to demonstrate pre-writing, drafting, revising, editing, and publishing while focusing on the purpose of the writing assignment, the audience and the correct form. Having students write, reflect, and revise allows for self-regulation of various components of writing (i.e. setting a goal to decrease spelling errors).

Forethought. Forethought processes are influential beliefs that impact learning by setting the stage for success (Schunk & Zimmerman, 1998). The five types of academic forethought are goal setting, strategic planning, self-efficacy, goal orientation, and intrinsic interest. They are categorized as either task analysis or self-motivational beliefs (Zimmerman, 2000). Task analysis procedures enable students to complete tasks by utilizing and following procedures (Zimmerman, 2000). Self-motivation beliefs empower students to initiate and complete tasks (Zimmerman, 2000).

Goal setting and strategic planning are classified as task analysis processes (Zimmerman, 2000). These task analysis processes help students organize learning by setting goals for achievement and by strategically adjusting methods and strategies as necessary to attain learning goals (Zimmerman, 2000). Goal setting also involves selecting specific outcomes for learning or performance (Zimmerman, 2000). Studying spelling words during homework time to achieve a self-selected grade on the weekly spelling test is one example of the use of goal setting for this purpose. Students are motivated by monitoring progress toward their goals once they are set (Zimmerman, 2000).

Strategic planning, the second type of task analysis, involves selecting and adjusting an appropriate strategy for each task or situation (Zimmerman, 2000). Using a calendar to break up long term assignments into manageable parts with intermediate deadlines to facilitate completion of a project provides an example of strategic planning. This strategy should be helpful since proximal goals are more effective than distal goals (Schunk & Zimmerman, 1998). These organization strategies help students complete assignments and attain learning goals.

Self-efficacy, goal orientation, and intrinsic interest are classified as self-motivational processes (Schunk & Zimmerman, 1998). These self-motivational processes assist students in learning by empowering them to regulate behaviors based on the belief that they can be successful in school (Zimmerman, 2000). Positive experiences that occur following such self-regulation, improve students' self-efficacy (Bandura, 1997) which in turn creates momentum for more academic effort (Zimmerman, 1998; Zimmerman, 2000).

Self-efficacy is defined as a key self-motivational belief about possessing the means to learn or perform a task successfully (Bandura, 1997; Zimmerman, 2000). Student's beliefs about competence play a central role in how tasks are approached. Students who do not feel capable often fail to persist and do not like to try new tasks (Meece, Wigfield, & Eccles, 1990; Bandura, 1997). In contrast, students who believe they are capable learners set higher goals and exert more effort to achieve those goals even in the face of obstacles (Zimmerman, 2000).

Goal orientation refers to the focus of student's goals. Effective students focus on learning goals whereas ineffective students focus on outcome or performance goals

(Schunk & Zimmerman, 1998; Zimmerman, 2000). Learning goals address general reasons for accomplishing a task (Pintrich, 2000; Zimmerman, 2000), such as increasing science knowledge in high school for the purpose of becoming a biology student in college. Outcome goals focus on a specific outcome the student is trying to accomplish, such as solving 90 out of 100 math problems correctly (Pintrich, 2000; Zimmerman, 2000). Learning goals focus on why students want to accomplish self-set goals and are generally more powerful than outcome goals (Pintrich, 2000; Zimmerman, 2000).

Students with intrinsic interest in a topic, lesson, or task continue to learn and perform even in the absence of external rewards (Schunk & Zimmerman, 1998; Zimmerman, 2000). Students need to be aware that extra effort to self-regulate may be required if intrinsic motivation is lacking (Hofer, Yu, & Pintrich, 1998). However, skillful students usually find learning intrinsically interesting and are therefore motivated by that interest (Zimmerman, 1998).

These five types of forethought processes allow students to successfully approach learning situations and tasks. Forethought intertwines with performance or volitional control, as well as self-reflection to allow students to monitor and adjust learning as indicated by personal, behavioral, or environmental cues (Schunk & Zimmerman, 1998).

Performance or volitional control. Self-control and self-observation are two types of performance or volitional control (Zimmerman, 2000). Attention focusing, self-instruction and imagery, and self-monitoring are processes utilized to facilitate performance or volitional control (Schunk & Zimmerman, 1998; Zimmerman, 2000). These processes help students focus on learning and enhance performance, enabling students to achieve goals (Zimmerman, 2000).

Self-control consists of three processes: attention focusing, self-instruction, and imagery (Zimmerman, 2000). First, attention focusing is a protective phase for screening out competing distractions while focusing on tasks (Schunk & Zimmerman, 1998). For example, if the classroom is noisy during writing time, the student can ignore noise and focus on the writing task. Second, self-instructions involve students telling themselves how to complete a learning task, cope with a task, or stay motivated to finish a task (Schunk & Zimmerman, 1998). Self-instructions are useful strategies for helping students monitor and direct their attention and progress when working on a task (Schunk & Zimmerman, 1998). Third, imagery involves creating mental pictures to improve student recall and enhance performance (Schunk & Zimmerman, 1998). Visualizing him or herself making a good grade on a test is an effective use of imagery. Each of these self-control processes assist students in monitoring progress and achieving goals (Zimmerman, 2000).

Self-observation includes tracking performance, monitoring learning conditions and monitoring the effects of learning (Zimmerman, 2000). Tracking is defined as students attending to specific aspects of performance, surrounding conditions, and effects of performance (Zimmerman, 2000). Tracking facilitates monitoring by allowing students to fine tune strategies and effort as needed in order to achieve learning goals (Zimmerman, 2000).

Self-monitoring is defined as a complex task utilized to inform students of their progress (Schunk & Zimmerman, 1998; Zimmerman, 2000). Students use information from self-monitoring to adjust strategies, behavior, and their environment as necessary for success (Schunk & Zimmerman, 1998; Zimmerman, 2000). Ineffective students do

not monitor their progress systematically, but rely instead on their general awareness of progress which is often an inaccurate measure of performance (Zimmerman, 1998). Self-monitoring is often combined with self-recording (Schunk & Zimmerman, 1998; Zimmerman, 2000) and will be explained in depth later in this chapter as it is of central issue to the current study.

Performance or volitional control processes enable students to be successful by focusing on appropriate tasks and procedures, thereby optimizing their performance and output (Schunk & Zimmerman, 1998). Less effective students often report being distracted by emotional and environmental conditions (Zimmerman, 1998). Focusing on overt performance or reactions allows students to detect the need for adjustments and helps them select the modification or strategy mostly likely to be helpful in learning situations (Zimmerman, 1998).

Self-reflection. Self-evaluation, attributions, self-reactions, and adaptations are four types of self-reflection (Schunk & Zimmerman, 1998). Self-evaluation can occur early in the learning process (Schunk & Zimmerman, 1998). For example, while working on a task students can compare their progress to a standard and judge the quality or success of their efforts (Schunk & Zimmerman, 1998). Adjustments are then made as necessary in order to achieve goals (Schunk & Zimmerman, 1998; Zimmerman, 2000).

At this point, students usually develop attributes about their learning and performance (Schunk & Zimmerman, 1998). Attributes are opinions of students' ability to succeed at a task or achieve a goal (Bandura, 1997; Schunk & Zimmerman, 1998). If students develop attributes that tie effort to success, they are motivated to try additional techniques and persist with tasks longer than if they base success on external factors such

as luck (Bandura, 1997; Schunk & Zimmerman, 1998). Positive attributes then lead students to possess positive self-reactions even in the face of difficult tasks (Schunk & Zimmerman, 1998). Focusing on strategies and techniques that produce successful learning situations is part of the adaptation phase of self-regulation (Schunk & Zimmerman, 1998). Self-regulation phases are not linear, they are cyclical, thus success in each phase can create momentum in the next phase, facilitating continued success (Schunk & Zimmerman, 1998).

In summary, students who effectively self-regulate their learning can control their learning experiences instead of being controlled by them (Graham, Harris, & Reid, 1992; Schunk & Zimmerman, 1998). Effective students control their environment by setting goals, self-monitoring success and difficulties, and utilizing strategic thinking (Graham, Harris, & Reid, 1992; Zimmerman, Bonner, & Kovach, 1996; Schunk & Zimmerman, 1998). These abilities set them apart from struggling students and enable them to modify their learning environment as needed (Graham, Harris, & Reid, 1992; Zimmerman, Bonner, & Kovach, 1996; Schunk & Zimmerman, 1998). Effective students use self-regulated learning as a recursive process that intertwines goal setting, self-monitoring, strategies, and self-adjusting (Graham, Harris, & Reid, 1992; Zimmerman, Bonner, & Kovach, 1996).

Self-Monitoring

This section addresses the general history of self-monitoring research followed by definitions of self-monitoring. Next, variables that influence self-monitoring are discussed. This is followed by a presentation of general implementation procedures for self-monitoring instruction. Finally two self-monitoring procedures, self-monitoring of

attention (SMA) and self-monitoring of performance (SMP) are defined and examined in detail.

Three areas of general research that provide support for using cognitive behavior modification with students are memory, metacognition, and personal control (Hallahan, Marshall, & Lloyd, 1981). Cognitive behavior modification has been defined as a theory that supports a reciprocal relationship between people, their environment, and behavior (Hallahan et al. 1981; Kanfer, 1977). Numerous researchers have studied students' abilities to control overt behavior through the manipulation of covert processes (Hallahan, et al. 1981; Kanfer, 1977). Procedures used to exercise such control are commonly called self-monitoring procedures (Hallahan & Sapona, 1983).

Because second-grade students are have limited experience with academic learning (Bronson, 2000), the teaching of self-monitoring procedures for resisting distraction and increasing production should initially occur at the overt level and be scaffolded until student mastery is demonstrated (Bronson, 2000). With this approach, it is assumed that self-monitoring procedures can meet the needs of young students (Bronson, 2000).

From the early 1970s until present, researchers have studied on-task behavior utilizing self-management techniques (Ballard & Glynn, 1975; Glynn, Thomas, & Shee, 1973; Rumsey & Ballard, 1985). Self-management techniques consist of self-control and self-monitoring procedures (Ballard & Glynn, 1975; Glynn, Thomas, & Shee, 1973; Hallahan & Sapona, 1983; Harris, 1986; Rumsey & Ballard, 1985). Self-management is mentioned here to provide a backdrop for the SMA and SMP studies that are reviewed later in this chapter.

Again, self-monitoring is a component of self-management and is often defined as the act of a person observing or assessing and then recording their own behavior systematically (Glynn, Thomas, & Shee, 1973; Graham, Harris, & Reid, 1992; Hallahan & Sapona, 1983; McFall, 1970, 1977; Nelson, 1977; Nelson & Hayes, 1981; Reid, 1996). Evaluating success in learning situations provides students with vital information that enables them to appropriately adjust performance without input from others (Glynn, et al. 1973; Hallahan & Sapona, 1983; Schunk & Zimmerman, 1998). These empowered students can control their own learning with less reliance on teachers (Hallahan & Sapona, 1983). Students that successfully self-monitor, help create a classroom environment that facilitates learning and teaching for all (Glynn et al. 1973). Thus, self-monitoring is a crucial performance control process that empowers students to be in control of their learning (Hallahan & Sapona, 1983; Kanfer, 1977; Schunk & Zimmerman, 1998).

Self-monitoring has been further examined by comparing effective students to ineffective students (Graham, Harris, & Reid, 1992; McFall, 1977; Schunk & Zimmerman, 1998). Effective students utilize self-monitoring procedures to evaluate their performance as needed in order to attain learning goals (Graham et al. 1992; McFall, 1977; Schunk & Zimmerman, 1998). They also seek out instead of avoid opportunities to self-evaluate their learning (Zimmerman, 1998). Using information gained by comparing current to past performance, effective students adjust performance and strategies as needed in order to attain goals without the need for external feedback (Zimmerman, 1998). In addition, effective students set proximal and attainable goals to facilitate success in achieving distal learning goals (Schunk & Zimmerman, 1998). Effective self-

monitoring and goal-setting processes tie directly into favorable self-evaluations, and these positive self-evaluations enhance students' motivation to learn and set new goals (Bandura, 1997; Schunk & Zimmerman, 1998).

Variables That Influence Self-Monitoring

Ability. Social cognitive theory defines ability as an attribute that students can control and change (Bandura, 1997). Students must be able to complete a task or possess the ability to perform a task, in order for self-monitoring to be effective (Gickling & Armstrong, 1978; Hallahan & Sapona, 1983). Self-monitoring procedures may also address individual students' ability levels in order to empower them and facilitate independent management of their learning (Graham et al. 1992). For example, teaching a second-grade student how to monitor on-task behavior during independent math work will only be a successful intervention if the student can solve the math problems assigned (Graham et al. 1992; Hallahan & Sapona, 1983). Students can learn to self-monitor on-task behavior in group settings even if the work is done on an individualized basis (Hallahan & Sapona, 1983). When students have the skills to do the task, self-monitoring of attention leads to increased time on-task behavior and improved academic production (Hallahan & Sapona, 1983).

Accuracy. A common question about self-monitoring (McFall, 1977) is: Do self-monitoring and recording need to be accurate? Accuracy of self-monitoring and recording have been analyzed repeatedly (Hallahan & Sapona, 1983; Kanfer, 1977; Schunk & Zimmerman, 1998). For treatment or intervention studies this is not a limitation, because numerous researchers have shown that the act of self-monitoring changes behavior whether or not the behavior is accurately self-monitored or self-

recorded (Lloyd, Hallahan, Kosiewicz, & Kneedler, 1982; McFall, 1977; Schunk & Zimmerman, 1998). Currently, accuracy of self-monitoring and self-recording are not believed to be causal factors in improved time on-task or improved academic performance (Hallahan & Sapona, 1983; Kauffman, 1997). Heightening awareness of a target behavior by self-monitoring usually produces desired change in that behavior (Hallahan & Sapona, 1983; Kauffman, 1997; McFall, 1977). This reactivity was perceived as a limitation (McFall, 1977) previously, however, currently it is viewed as a strength of self-monitoring interventions (Hallahan & Sapona, 1983; Kauffman, 1997).

Attributions. Attributions involves assessing performance and determining what factors (such as, ability or effort) are responsible for changes in performance (Bandura, 1997; Kanfer, 1977; Zimmerman, 1998). Students who attribute poor performance to lack of ability react negatively and do not try to improve their performance (Bandura, 1997; Zimmerman, 1998). Concurrently, effective students perceive learning opportunities as chances for change (Kanfer, 1977). Effort, performance, and attributions are inter-related and impact behavior (Bandura, 1997; Kanfer, 1977). Effective students increase effort when they perceive that lack of effort, not ability, is the source for their low performance (Bandura, 1997). Attributions are affirmed when students evaluate their successes and determine that ability with increased effort will enable them to attain their goals (Bandura, 1997; Kanfer, 1977). These internal self-evaluations are critical to student success (Bandura, 1997; Kanfer, 1977; Zimmerman, 1998).

Cueing. Studies that evaluate on-task behavior usually involve a cueing system (Belfiore & Hornyak, 1998; Hallahan & Sapona, 1983; Kanfer, 1977; Maag, Reid & DiGangi, 1993; Reid & Harris, 1993; Schunk & Zimmerman, 1998). Cueing is utilized to

facilitate students' attention to on-task behavior, and prompts students to record their evaluation of the target behavior (Belfiore & Hornyak, 1998). A pre-recorded tape with a variable cueing pattern is often utilized to ensure that students maintain time on-task behavior instead of time anticipating the cueing tone (Belfiore & Hornyak, 1998).

Motivation. Modeling successes and failures along with coping strategies improve students' motivation during self-monitoring tasks (Bandura, 1997). Effective students find success motivating and utilize this motivation as they continue to self-monitor (Bandura, 1997; Kanfer, 1977; McFall, 1977; Schunk & Zimmerman, 1998).

Recording. Narrative reports, frequency counts, time duration, and time sampling have been utilized to record self-monitoring behavior (Belfiore & Hornyak, 1998). Recording methods, wrist counters (Hallahan, Marshall & Lloyd, 1981; Hallahan & Sapona, 1983), and paper charts have been used effectively with students during self-monitoring of on-task behavior (Kanfer, 1977; Schunk & Zimmerman, 1998). Belfiore and Hornyak (1998) reported that frequency counts are the most commonly and easily used method for recording behavior and are often paired with time sampling techniques.

Reinforcement. Self-recording combined with praise produced improved behavior and increased performance in numerous studies (Hopman & Glynn, 1989; Hutchinson, Murdock, Williamson, & Cronin, 2000). Self-monitoring combined with positive reinforcement also improved both time on-task and writing output (Ballard & Glynn, 1975). In addition, Glynn et al. (1973) found that second-grade students' on-task behavior improved when self-monitoring procedures were paired with reinforcers. Additional reinforcement is not always utilized in self-monitoring studies, however (Belfiore & Hornyak, 1998).

Target behaviors. Target behaviors have differed from study to study and included: on-task behavior during seatwork, on-task behavior during small group activities, rate of performance, and number of items correct in a given period of time, (Graham, Harris, & Reid, 1992; Hallahan & Sapona, 1983; Kanfer, 1977; McFall, 1977). Self-monitoring strategies have also been studied with handwriting, story composition, and homework completion tasks (Belfiore & Hornyak, 1998). Self-monitoring has produced improvement in the target behaviors mentioned above (Belfiore & Hornyak, 1998).

Timing. Target behavior improves faster if monitoring occurs soon after target the behavior is demonstrated (McFall, 1977). Students are more tuned in to the target behavior and make more accurate assessments if monitoring and recording occur as concurrently with target behavior as possible (McFall, 1977).

Training. Following training and supported practice, students demonstrate mastery of self-monitoring procedures and target behaviors through independent practice (Kanfer, 1977; McFall, 1977; Reid & Harris, 1993). Students usually demonstrate mastery of self-monitoring procedures following just one training session (Lloyd, Bateman, Landrum, & Hallahan, 1989; Reid & Harris, 1993).

Valence. Students utilize strategies they perceive as helpful (Kanfer, 1977; McFall, 1977). If students do not understand or view the strategy positively, they are less likely to apply it and behavior is unlikely to change (Kanfer, 1977). Consequently, an initial step in self-monitoring training is conferencing with students about the importance of the behavior to be monitored and the self-monitoring procedures to be utilized (Reid &

Harris, 1993; Reid, 1996). Researchers need to consider the twelve variables above when designing a study to evaluate self-monitoring (Kanfer, 1977; McFall, 1977).

Implementation

General implementation procedures for self-monitoring consist of the following:

a) defining and teaching self-monitoring strategies; b) presenting clear definitions of target behaviors; c) providing modeling of correct and incorrect behavior; d) modeling of correct use of procedures, e) providing graphic or written instructions of procedures, and f) providing supported and independent practice until student mastery is demonstrated (Ballard & Glynn, 1975; Belfiore & Hornyak, 1998; Glynn, Thomas, & Shee, 1973; Hallahan, Lloyd, Kauffman, & Loper, 1983; Harris, 1986; Rumsey & Ballard, 1985). Once students master self-monitoring strategies, they take control of the monitoring procedures (Belfiore & Hornyak, 1998). Self-instructions facilitate self monitoring by allowing students to problem-solve unexpected difficulties, increase target behavior, and by using self-prompted recording (Belfiore & Hornyak, 1998). Additional reinforcement is not usually required for students to demonstrate success with self-monitoring procedures (Belfiore & Hornyak, 1998). More specific implementation procedures follow for SMA and SMP.

Self-Monitoring Procedures

Self-monitoring of attention (SMA) and self-monitoring of performance (SMP) are two self-monitoring procedures utilized with students of various ages to evaluate on-task behavior and performance on numerous academic tasks (Ballard & Glynn, 1975; Hallahan & Sapona, 1983; Harris, 1986; Lloyd, Hallahan, Kosiewicz, & Kneedler, 1982;

Reid, 1996; Reid & Harris, 1993; Rumsey & Ballard, 1985). This section provides background information for both SMA and SMP.

SMA. The SMA procedures utilized by Hallahan and colleagues consisted of students listening to random pre-recorded tones, judging or assessing if they were on- or off-task, and recording behavior as on- or off-task on a piece of paper (Lloyd, et al., 1982). These SMA procedures are commonly used today (Reid, 1996). SMA procedures have proven beneficial for students with and without learning disabilities (Lloyd, et al. 1982). Studies show that students who have difficulty staying on-task and difficulty with academic tasks can benefit from specific training to improve target behaviors through SMA procedures (Ballard & Glynn, 1975; Harris, 1986; Lloyd, et al. 1982; Reid, 1996; Reid & Harris, 1993; Rumsey & Ballard, 1985).

Students have successfully monitored their own on-task behavior, writing processes, mathematics work, and other academic tasks (Ballard & Glynn, 1975; Harris, 1986; Lloyd, et al. 1982; Hallahan & Sapona, 1983; Rumsey & Ballard, 1985; Reid & Harris, 1993; Reid, 1996). Teaching SMA procedures to elementary students enabled them to observe, assess, record and reinforce their own responses to learning while reducing demands on teachers and providing students with valuable monitoring skills (Ballard & Glynn, 1975; Glynn, Thomas & Shee, 1973; Hallahan & Sapona, 1983; Reid, 1996; Rumsey & Ballard, 1985). Self-monitoring has proven beneficial to students because by helping them improve their time on-task and increasing academic output (Ballard & Glynn, 1975; Harris, 1986; Lloyd, et al., 1982; Reid & Harris, 1993; Reid, 1996; Rumsey & Ballard, 1985).

In summary, common components of SMA studies are conferencing, modeling, self-assessment, self-recording, and recorded tones (Ballard & Glynn, 1975; Belfiore & Hornyak, 1998; Glynn, Thomas, & Shee, 1973; Hallahan, Lloyd, Kauffman, & Loper, 1983; Harris, 1986; Rumsey & Ballard, 1985). Some studies also included reinforcement (Glynn, Thomas, & Shee, 1973), visual prompts, and fading of procedures (Prater, Joy, Chilman, Temple, and Miller, 1991). Other studies incorporated graphing of target behaviors (Harris, et al., 1994; Reid & Harris, 1993).

SMP. Researchers hypothesized that improving time on-task would improve student performance as well (Harris, 1986; Lloyd, et al., 1982). Studies showed that increased time on-task did not necessarily improve performance, however (Lloyd, et al., 1982). Harris (1986) hypothesized that SMP would result in a greater increase in academic performance than SMA. SMP consists of students self-selecting goals for improvement in targeted academic areas, recording, and graphing progress daily at the end of the work period, and measuring progress against goal criteria. SMP differs from SMA by adding the graphing procedures, monitoring progress after not during work, and does not require taped tones (Harris, 1986).

SMA and SMP. One of the primary uses of self-monitoring with children has been to increase time on-task behavior during independent work time (Hallahan, Marshall, & Lloyd, 1981; Hallahan & Sapona, 1983). As stated earlier, SMA and SMP enabled students to focus their attention as they actively monitored progress toward learning goals rather than responding as passive receivers of knowledge (Ballard & Glynn, 1975; Hallahan, et al., 1981; Harris, 1986; Lloyd, et al., 1982; Reid & Harris, 1993; Rumsey & Ballard, 1985).

Essential components of both SMA and SMP involved identifying and monitoring on-task behavior (Glynn, et al., 1973; Reid, 1996; Rumsey & Ballard, 1985). Modeling of on- and off-task behavior and conferencing with students about target behaviors facilitated students identifying on-task behavior in numerous studies (Hallahan & Sapona, 1983; Lloyd, et al. 1982; Reid & Harris, 1993). Modeling allowed students to see, not just hear what behaviors needed to be recorded. When students demonstrated mastery of self-monitoring and recording procedures, treatment was implemented. Identifying and monitoring on-task behavior continued recursively throughout the self-monitoring process in each study (Lloyd, et al. 1982; Hallahan & Sapona, 1983; Reid, 1996; Reid & Harris, 1993).

Another way to teach students how to improve on-task behavior is through the use of self-statements (Belfiore & Hornyak, 1998; Lloyd, et al., 1982; Rumsey & Ballard, 1985). Self-statements have been used in various studies to facilitate on-task behavior and increase written output (Lloyd, Hallahan, Kosiewicz, Dailey Kneedler, 1982; Rumsey & Ballard, 1985). The researcher talking out loud while modeling on-task and off-task behavior is an example of self-statements. A specific strategy that teaches students how to use self-statements is the say-do strategy (Rumsey & Ballard, 1985). With the say-do study, students were taught to identify a target behavior (on-task behavior), using the following: predictable training sessions, guidance in selecting self-statements, and feedback for assessment and evaluation (Rumsey & Ballard, 1985). During training students were instructed to utilize the say-do strategy during work time (Rumsey & Ballard, 1985).

Review of SMA and SMP Literature

Following is a review of the literature for studies evaluating the effectiveness of SMA and SMP. First the literature on SMA is evaluated. SMA is defined as a system of self-assessment in which students are instructed to self-record attention to task information upon hearing a cue (Reid, 1996). The cue is usually a random and pre-recorded taped sound (Reid, 1996). Hallahan and colleagues developed procedures for examining the effectiveness of SMA (Reid, 1996). SMP is the second self-monitoring procedure discussed. When using SMP, students are taught to self-assess a specific component of their academic performance and then to record and graph the results (Harris, et al., 1994; Reid, 1993; Reid, 1996; Reid & Harris, 1989).

Researchers have examined SMA and SMP separately as well as comparatively in order to determine which approach is more effective for students and under what conditions. This review focuses on studies that evaluated SMA only, SMP only, and studies that compare SMA versus SMP. Three sources were utilized in collecting articles for this review: (a) an electronic search using the Ebsco host search engine with the key words self-monitoring, self-regulation, and self-regulated learning; (b) studies recommended by experts in the field; and (c) an ancestor search of the references in the studies located.

SMA

Glynn et al. (1973) evaluated the effects of behavioral self-control techniques with students 6 to 7 years of age in elementary school during reading groups. This study was conducted in a general education class, and the research design was a multiple baseline design with ten treatment phases.

On-task behavior was the dependent variable. On-task behavior was defined as the percentage of 10-second observation intervals in which a student's behavior could be described as on-task. The behaviors varied slightly depending on whether the target student was in the teacher directed reading group or engaged in independent seatwork. Two independent observers watched eight students and scored their behavior in the following manner. Each observer evaluated the students according to a printed list. Student names were listed identically on each list. Ten second intervals of observation were followed by five second scoring intervals. Students were scored as A, on-task or O, off-task. On-task criterion was working for 7 out of the 10-second interval. Each student was observed at least ten times during each reading lesson. The rank order of students names for observations were randomly varied daily.

Self-control consisted of four components: self-assessment, self-recording, self-determination of reinforcement, and self-administration of reinforcement. A token reinforcement system was already in place before the study began.

This study consisted of ten different phases. Three baseline conditions, three class contingency conditions with reinforcement for the entire class demonstrating on-task behavior, one group contingency, and three behavioral self-control phases. The baseline conditions occurred as the initial phase of the study, after the second class contingency phase and after the second behavioral self-control phase. Following baseline 2, class contingency 3 was reintroduced as it had been during class contingency 2. And following baseline 3, behavioral self-control phase 3 was reintroduced just as it had been in the behavioral self-control 2 condition.

The class contingency phases consisted of intermittent reinforcement, extra free time, and additional reinforcers, use of special games and toys. The amount of free time earned was calculated by one extra minute of free time per tally mark. Tallies were awarded if the class was observed as on task during the ten-second observation interval. The group contingency phase differed from the class contingency phase only by the introduction of taped signals. This phase was used to evaluate whether or not the taped signals would impact on-task behavior without the introduction of the self-control techniques.

The behavioral self-control conditions included students marking individual charts with tally marks when they heard the tape-recorded beep. During this phase the students again earned free time with one tally equaling one minute up to 10 total minutes of free time per day. Students self-selected and administered reinforcers from a teacher supplied selection of toys and games. All three behavioral self-control conditions were the same. The first self-control condition lasted ten days. Condition 2 occurred after four weeks of no formal data collection due to the unavailability of observers and lasted one week. Condition 3 occurred after a weeklong baseline condition and also lasted for one week. Students demonstrated successful use of the self-control techniques.

Possible limitations of this study were the two blocks of unobserved time. During the first block, following the class contingency 3, the teacher modified the experimental conditions. This block lasted one week. At this time the teacher instructed a student to record tally marks on the board in 5-minute intervals to indicate which reading group was earning how many free time minutes. These modifications could have impacted the obtained data. Another possible limitation of this study could be the length of time of the

self-control conditions. Of the 85 days during which this study took place, the three self-control conditions were in place for a total of just 20 days. This seems brief compared to the time without data collection and the time spent in the other conditions, especially when the stated purpose of the experiment was to examine the effects of self-control techniques with on-task behavior.

The Glynn, Thomas, and Shee (1973) study provided evidence that self-control techniques improve time on-task behavior. The students in this study demonstrated improvement in time on-task behaviors when self-control techniques were paired with externally administered reinforcers. These young students utilized the monitoring and recording techniques successfully. The researchers found that second-grade students could successfully utilize self-control procedures in a general education classroom without teacher assistance.

Hallahan, Marshall, and Lloyd (1981) studied the effects of self-recording attention to task during small group instruction with elementary age students with LD attending a special education classroom. This reversal design study assessed the value of SMA in improving students' time on-task during combined oral tasks and written seatwork activities. During this ABABCD study, phase changes occurred for all students simultaneously.

Condition A was baseline, B was self-monitoring, and conditions C and D were fading conditions. A total of 43 observations occurred over a 6-month period. When the observer was not present, the students and educator continued with the self-monitoring procedures. Following baseline, a modeling session was used to teach students the self-monitoring procedures. Then students demonstrated mastery of self-monitoring

procedures. As students heard tones, they pressed a button on a wrist counter if they were paying attention, and then continued on with the lesson. Self-monitoring procedures were reviewed daily before each session.

Students' on-task behavior improved during self-recording of attention to task conditions. This study provided further support that self-monitoring can improve students' on-task behavior during oral small group instruction. However, some possible limitations occurred in this study: data were collected over many days without the researcher present, and the operational definition of on-task was too narrow to account for all of students' on-task behavior in this setting. These factors may have impacted the findings noted by the researchers.

Lloyd, Hallahan, Kosiewicz, and Kneedler (1982) evaluated self-assessment and self-recording to examine their effects on on-task behavior and academic production during math assignments. Two experiments were conducted. The student in Experiment 1 was a nine year old male with LD enrolled in a self-contained special education class. Three students nine to ten years of age attending a self-contained special education classroom for students with LD participated in Experiment 2.

Experiment 1 consisted of an alternating treatment design with a reversal condition. During each session, the student participated in a baseline condition and two treatment conditions. For a third of the treatment time each day, the student alternated between only assessing his behavior, assessing and recording, or neither assessing nor recording behavior. Treatment order was counter balanced each day in order to avoid order effects. On-task behavior was measured throughout each session but production

was only measured for the first two thirds of each session. The treatment phase of this study lasted eleven days.

During the reversal phase of Experiment 1, all equipment, prompts and requirements to assess and record were withdrawn. Again, on-task behavior was measured throughout each session but production was only measured for the first two thirds of each session. The reversal phase lasted nine days.

Experiment 1 resulted in both increased time on-task and academic production for the student. Neither procedure proved more effective than the other, however. Academic production was measured by rate per minute of movements made in answering math problems.

Some possible limitations in Experiment 1 follow. One possible limitation was the administration of all 3 conditions each day during the treatment phase of the experiment. This could have confused the student, influencing the results. Utilizing all three conditions during each session could also have produced confounding effects on behavior and recording. Another possible limitation was that production was only measured for the first two thirds of each session. It was unclear why this decision was made and valuable data could have been lost due to this decision. Measuring movements made while answering math problems was also an interesting choice of dependent measures. Perhaps counting the number of problems answered correctly would have provided more useful information.

A multiple-baseline across subjects design was utilized in Experiment 2 to control for the multiple treatment effects found in Experiment 1. Time sampling was used to measure on-task behavior across the three participating students. On-task behavior was

defined the same as in Experiment 1. Again, academic production was measured by rate per minute of movements made in answering math problems.

Three phases were used in Experiment 2, baseline, self-assessment and self-recording. Self-assessment was introduced to all students simultaneously. Self-recording was introduced with a multiple-baseline design.

Surprisingly, the self-assessment phase did not produce positive effects in terms of students' attention to-task behavior. Two students responded well to the self-recording intervention, however. One student experienced extended absences and was dropped from the study. Neither procedure produced consistent or improved benefits in academic production. Overall, self-recording appeared to be more effective for improving time on-task than self-assessment. It is still unclear which conditions produce improvements in academic production based on this study.

A possible limitation in this second experiment was that the self-assessment phase did not produce positive effects with attention to-task behavior. These results are in contrast to the results in Experiment 1. The cause of this inconsistency is unclear.

Rooney, Hallahan, and Lloyd (1984) studied second-grade students with learning disabilities attending a general education classroom in order to assess the validity of the SMA procedures with large groups of students. The researchers utilized an ABABCBC design to test the effects of the self-monitoring intervention (B) compared to baseline (A) and to assess the effects of combining reinforcement with self-monitoring procedures (C).

All students were taught self-monitoring procedures. However, data was collected for four students with learning disabilities during language arts seatwork time. The researchers found students were on-task more during the self-monitoring phases than

baseline. Also, the self-monitoring combined with reinforcement produced even higher results than self-monitoring alone.

Possible limitations of this study involved a low rate of interobserver agreement concerning on-task and off-task behavior. Another limitation is the researchers did not measure academic production. Also the academic tasks students self-assessed during the course of this study were not comparable from day to day which interfered with measuring task completion. On some days students were assigned familiar math problems and on other days, new work was introduced. On-task behavior for different kinds of learning tasks might not appear similar. Also, a possible order effect may explain the higher results in the combined self-monitoring and reinforcement condition. Future research should address these issues.

Prater et al. (1991) evaluated the effects of SMA with on-task behavior of adolescents with learning disabilities. Using five single-subject design studies, the researchers examined individualized self-monitoring programs for students in junior and senior high school. Settings included mainstreamed classrooms, self-contained classrooms, or resource classrooms with direct instruction services from a special educator. The individualization of each case study required separate designs and data collection methods for each student. Researcher one used an AB design, researcher two used an ABC design, researcher three used an ABAB design, researchers four and five used multiple-baseline-across settings.

General procedures included: students training in self-monitoring procedures, use of auditory tones and visual prompts, momentary time sampling procedures used to collect on-task data, self-monitoring used during independent work time, and total daily

observations which lasted from 15 to 30 minutes. Each study also included the fading of tones and reinforcers, where appropriate. Each study varied with respect to the following: tasks required, subjects' needs, and number of non-target students in the classroom (Prater et al., 1991).

Each study contained an operational definition of on-task behavior. While these definitions were also individualized, they all contained eyes on teacher or materials and sitting in seat as components of on-task behavior. Comparative on-task data was collected for classroom peers in the same fashion as with target students. These comparisons provided a measure of how the target students' behavior fit within the whole class environment. High interobserver reliability was established with independent observers to measure and record on-task behavior in each condition.

Students' on-task behavior improved during treatment in each of the above studies. The self-monitoring procedures produced greater effects during individual work tasks than during whole class activities.

Possible limitations of these studies included: (1) baseline conditions were not always firmly established prior to treatment, and (2) observer bias may have impacted these data since training and primary observations were conducted by the researchers and they were not blind to the purpose of the studies.

Prater et al. (1991) contributed to the self-monitoring literature by providing evidence that SMA: (1) can be adapted: to different settings and to meet individual needs; (2) can be faded with lasting improvement in on-task behavior; (3) is effective with independent work; and (4) is effective with adolescents.

SMP

Based on previous SMA research, Harris (1986b) hypothesized that SMP would result in a greater increase of student academic performance than SMA. Four students with LD attending a self-contained special education class participated in this study. Harris taught students a spelling study strategy in conjunction with the SMA and SMP procedures. The dependent variables of on-task behavior and academic production were clearly defined. On-task behavior was defined as demonstrating any part of the study strategy or self-monitoring procedures. Academic production was defined as the percent of correctly spelled words written during practice. Treatments were introduced to students in a counterbalanced multiple baseline design.

Following the SMA and SMP treatment conditions, students were asked to select a condition with which to continue. This choice condition was implemented to evaluate which condition students preferred. Students and teachers were also interviewed with preset, open-ended questions regarding perceived effectiveness of treatments, personal preferences, recommendations and feedback. Students preferred SMP to SMA but found both procedures helpful.

The mean baseline scores for on-task behavior increased during SMA and SMP treatment conditions. Academic production also improved for all students during both SMA and SMP conditions. It is unclear which condition was more effective.

Possible limitations of this study follow. Students only graphed results in the SMP condition. The difference in treatments could have effected the data collected. Harris did not present data graphs on students for the choice condition because one student changed his mind during the choice condition and another student combined both treatments. This

complication makes interpreting data from the choice condition challenging. Another limitation was the lack of spelling achievement data. Achievement data would be a useful dependent variable in examining academic production. However, due to ceiling effects and the unethical nature of increasing spelling word difficulty with these students, this variable could not be used in this study.

Harris (1986b) recommended future research explore the effects of self-monitoring of production on both performance rate and achievement across a variety of academic tasks. She also recommended further comparison of SMA and SMP procedures.

Comparative Studies

Roberts and Nelson, (1981) evaluated the differential effects of self-monitoring with third grade boys during independent math work. Three students participated and a multiple baseline across subjects design was used to analyze on-task behavior, rate of performance, and accuracy of problems completed during self-monitoring for correct answers and self-monitoring for on-task behavior.

Both self-monitoring procedures produced immediate and consistent improvements in on-task behavior. Student accuracy was variable throughout the study. Two out of three students improved their rate of performance as well. The third student remained at his baseline level throughout treatment. However his rate at baseline was the highest of the three students. In conclusion, both self-monitoring procedures improved on-task behavior. Further research is needed to identify the conditions under which accuracy and rate of performance can be consistently improved with self-monitoring procedures.

A possible limitation was the decision not to include all of the baseline data for one student. Chuck did not complete any math problems for 5 days during baseline subsequently; these days were not averaged into his baseline data. This inflated his baseline accuracy data. These results must therefore be viewed with caution.

Rooney, Polloway, and Hallahan, (1985) examined the effectiveness of self-monitoring of attention, self-monitoring of academic accuracy, and a combination of the two procedures for students with LD who attended a self-contained elementary class. Four students from eight to nine years old participated in an alternating treatment design study during independent arithmetic tasks. Each self-monitoring session lasted 15 minutes and occurred daily. On-task behavior improved for two out of four students during both self-monitoring conditions. All students' on-task behavior improved during the combination phase of the study. Students demonstrated consistent improvement in the percentage of problems correctly completed in all phases with a substantial increase noted in the combination phase.

One possible limitation in this study was the amount of training students received prior to implementation of the self-monitoring procedures. Two of the four students required additional training sessions during the course of the study. Perhaps if the students had demonstrated independent mastery of self-monitoring procedures over 2 or more training sessions, their results would have been less variable during treatment.

Lloyd, Bateman, Landrum, and Hallahan, (1989) analyzed the differential effects of SMA and SMP on independent math work with five students ten to eleven years of age who attended a special education classroom for students with behavior and learning disabilities. The researchers administered three treatment phases: alternating treatments,

choice, and fade. Students demonstrated improved performance, accuracy, and on-task behavior during both SMA and SMP conditions. However, differential effects between SMA and SMP were unclear.

A possible limitation was modifying SMP in order to create a procedure that more closely resembled SMA. Requiring students to stop working during math practice in order to count and assess number of correct practices changed the SMP procedures. Students therefore stated that the SMP condition was confusing and intrusive. Perhaps, the researchers should have analyzed SMA and SMP without altering the SMP procedure.

Another possible limitation was the incorrect administration of phase changes. Multiple baseline design consists of students entering treatment conditions according to time-lagged procedures based on student results. Adjusting phase changes could have impacted the reported results.

Lloyd et al. (1989) recommended that future research address the following: a) Do students prefer less intrusive interventions? b) Is graphing reinforcing for students?

Reid and Harris (1993) examined the effectiveness of SMA versus SMP with students with LD who attended multi-graded self-contained special education classrooms. Students' average age was eleven years old. They were taught a spelling study procedure (SSP), in addition to the SMA, and SMP procedures. All treatment was implemented during daily spelling instruction.

Both SMA and SMP were effective in increasing on-task behavior. Average number of practice words written by students was significantly higher during the SMP

condition than during SSP. Students overall stated a preference for SMP over SMA. They noted that SMA was intrusive and therefore not as helpful as SMP.

Reid and Harris (1993) recommended that future research focus on expanding the range of dependent measures analyzed with SMA and SMP. The authors also noted that researchers keep in mind the match between students, learning task, and self-monitoring procedures when designing studies.

Maag, Reid, and DiGangi (1993) analyzed the effects of self-monitoring on-task behavior, accuracy and production of students with LD who attended general education math classes. Four fourth grade students and two sixth grade students participated in a combined multiple schedule and multiple baseline design study during 30-minute independent mathematics sessions. Self-monitoring procedures were faded using a sequential withdrawal design.

Students demonstrated differential effects across grades. The fourth grade students' performance improved the most during the self-monitoring of production condition. Whereas the sixth grade students' performance improved the most during the self-monitoring of accuracy condition. Following treatment, students were interviewed to establish which self-monitoring condition they preferred. Students preferred the condition in which they demonstrated the most improvement. On-task behavior improved in all three self-monitoring conditions.

Maag, Reid, and DiGangi (1993) stated that future research should address the effectiveness of self-monitoring with students of a variety of ages and focus on implementing treatments in general education settings.

A possible limitation is that self-monitoring training occurred in the resource room while students were required to self-monitor in the general education classroom. Requiring students to transfer skills from one setting to another may have impacted the findings.

Another possible limitation is the vague description of the student choice component in this study. At one point the authors mention interviewing students with regards to their preference of self-monitoring procedures, in another section the authors refer to the choice phase of the study.

Harris, Graham, Reid, McElroy, and Hamby, (1994) evaluated the effectiveness of SMA versus SMP with two academic domains, spelling and writing. Elementary school students participated in two experiments.

The first experiment analyzed self-monitoring during spelling instruction with students graphing their performance during both conditions. Fourth and fifth grade students who attended a self-contained class for students with LD participated in a counter-balanced multiple baseline design study. Students self-monitored during their 15-minute spelling practice sessions Monday through Thursday. The addition of graphing in the SMA condition controlled for confounds noted in the Harris (1986) study in which students only graphed in the SMP condition.

On-task behavior improved in both self-monitoring conditions. Academic performance improved in both conditions as well. However, three out of four students in the SMP condition demonstrated higher gains than in SMA. Students participated in a choice condition. Three out of four students chose SMP. One student initially chose

SMA, but then switched to SMP. Students further indicated during exit interviews that they preferred SMP.

The second experiment expanded the self-monitoring research by examining the effects of SMA and SMP on a new task, story writing. Four students with LD ten to twelve years of age who attended a self-contained class participated in this study. During daily writing sessions, students wrote stories with black and white picture prompts. Before baseline, students were taught a story writing strategy for generating and organizing content. A wall chart listing the strategy steps was posted on the classroom wall. A counterbalanced multiple baseline design was used to analyze three dependent measures: on-task behavior, academic performance, and academic quality.

Students wrote more words per session during both self-monitoring conditions than in baseline. However, they wrote even more words per session during the SMP condition. Three out of four students improved their on-task behavior during both self-monitoring conditions. One student reported that he did not like to write and his performance remained variable throughout the study. All four students wrote higher quality stories during the self-monitoring conditions than during baseline. And three out of four students wrote their highest quality stories during SMP. One student, however, wrote better stories during the SMA condition. During the choice condition, three students chose SMP and one chose SMA. When interviewed about the self-monitoring procedures, three students were positive about both conditions, stating they were more on task and wrote better stories when using the self-monitoring procedures. However, students liked and disliked various aspects of both conditions.

Again, both SMA and SMP proved successful in improving on-task behavior. Both self-monitoring procedures positively impacted performance and quality as well. Neither procedure proved clearly superior to the other, however. The teachers noted a preference for the SMP condition. Harris, et al., (1994) recommended future research focus on the match between task, learner, and outcome variables as well as differing developmental levels.

Issues in SMA and SMP

In Reid's (1996) review of the literature, he located eight comparative studies (Harris, 1986; Harris, Graham, Reid, McElroy, and Hamby, 1994 [Experiments 1 and 2]; Lloyd, Bateman, Landrum, & Hallahan, 1989; Maag, Reid, & DiGangi, 1993; Reid & Harris, 1993; Roberts & Nelson, 1981; Rooney, Polloway, & Hallahan, 1985) that examined the effectiveness of SMA and SMP with academic variables. The evaluation of academic variables from these studies produced mixed results.

One explanation for the mixed results is the differing target variables utilized in the SMP conditions of these studies. They consisted of: (a) accuracy and rate, (b) performance and accuracy, (c) average number of practices or problems completed per session, (d) accuracy and production, (e) and words written per session and quality of writing. Comparing results from one study to another is challenging when such variability exists.

Implementation procedures also differed markedly from study to study. Some researchers used rapid alternating treatment designs while others taught specific academic strategies before self-monitoring procedures were introduced. Thus, comparing findings from such diverse studies is difficult.

In addition, researchers differed on methods of cueing and graphing between treatment conditions. Some researchers used tones for both SMA and SMP, whereas some only utilized tones during SMA. Some researchers had students graph their results; some did not. Cueing and graphing differences might have impacted social validity as well as treatment results in these studies. Many students noted a dislike for interrupting work to count and tally. Also, many students noted liking the graphing condition.

Some researchers had students count and tally at the end of sessions for SMP, but asked students to count and tally during work sessions for SMA. In some studies, students counted and tallied results during instruction for both the SMA and the SMP condition. Counting and tallying during work time reduces the amount of time available to perform tasks. Therefore, counting and tallying should occur at the end of the work session for SMP. All of these differences make the determination, of which procedure is superior, SMA or SMP, quite complex.

Hallahan and Sapona (1983) evaluated the past research and issues of the effects of self-monitoring of attention with students with LD. They noted the following areas for future study. First, more replication of SMA studies are needed before it can be considered a proven procedure for success. Secondly, they questioned which procedure SMA or SMP, is more effective for students with LD and attentional difficulties.

Snider (1987) evaluated the research on SMA with students with LD. Snider recommended using caution when multiple treatments are examined in one study. For example, she mentioned students self-recording with a cued tape and then without. Possible order effects confound interpretation of results in such instances.

Snider (1987) also recommended areas for future research. Researchers should utilize multiple-baseline design instead of ABAB reversal design in order to increase internal validity of SMA interventions. Researchers need to focus on improving both academic output and quality in addition to on-task behavior. On-task behavior is not a sufficient goal in itself. Complex tasks need to be evaluated, not just drill and practice type tasks. Self-monitoring is most effective when paired with a program that teaches students what to attend to.

McDougall (1998) conducted a literature review of self-management techniques, which includes self-monitoring, used by students with disabilities in general education classrooms. He recommended researchers examine students with a variety of learning challenges that is, LD, behavior disorders (BD), attention deficit disorder (ADHD), sensory deficits, and severe-profound disabilities. McDougall also suggested evaluating the effects of age, maturation, and developmental factors on students' self-management skills. He further supported pairing on-task behavior with an academic target variable to assess improved student performance. Finally, McDougall suggested self-management training should occur in the general education classroom instead of in the special education classroom.

In summary, future research should focus on the following: (a) further comparison of SMA and SMP procedures; (b) increasing the types of academic tasks analyzed; (c) expanding the settings for both training and implementation; (d) expanding the types of exceptionalities of participants; (e) examining the match between learner, task, and self-monitoring procedure; and, (f) examining the impact of age, maturation, and developmental abilities on self-monitoring abilities.

SMA and SMP General Procedures

Self-monitoring procedures are research based (Graham, Harris, & Reid, 1992; Hallahan & Sapona, 1983; Harris, 1986b; Thoresen & Mahoney, 1974; Reid & Harris, 1989). A basic outline of the steps follows. First, a target behavior is identified and explicitly defined with the student. Second, baseline data is collected on current level of performance. Third, a discussion of why the target behavior is important is presented along with the rationale for self-monitoring. Fourth, the experimenter encourages the student to agree to use the targeted procedures. Fifth, the steps of the self-monitoring procedure are taught (Graham et al. 1992).

Teaching students how to self-monitor is quick, usually taking 15-30 minutes, it is fairly simple. Students typically reach independence after one training session; steps can and should be flexible and tailored to individual student needs during training and implementation (Graham et al. 1992). The instruction of the self-monitoring steps for my study will be outlined in detail in chapter 3.

Writing and Self-Regulation

Writing is an important task in school for many reasons (Ballard & Glynn, 1975; Hayes & Flower, 1986; Hopman & Glynn, 1989; Zimmerman & Risemberg, 1997). First, students write to demonstrate knowledge and express ideas (Zimmerman & Risemberg, 1997). Second, teachers read students writing to assess both knowledge and skill (Ballard & Glynn, 1975). Writing, however, is difficult for many students. They must master the following basic components: planning, drafting, editing, revising and publishing (Graves, 1985).

Writing is a complex and challenging cognitive task, which skilled and struggling writers approach differently (Ballard & Glynn, 1975; Hopman & Glynn, 1989; Ransdell & Levy, 1999; Scardamalia & Bereiter, 1986; Zimmerman & Riesenberg, 1997). First, skilled writers utilize different strategies than less skilled writers (Ransdell & Levy, 1999). Second, skilled writers view writing as a recursive process in which planning, writing, editing and revising co-mingle in order to enhance the final product (Ransdell & Levy, 1999). Third, skilled writers are competent self-regulators and masters of writing skills and strategies (Bereiter & Scardamalia, 1987; Zimmerman & Riesenberg, 1997). Fourth, skilled writers self-monitor, set goals and problem solve throughout the writing process (Bereiter & Scardamalia, 1987). Fifth, they focus on both high-level concepts such as ideas and content while tending to the low-level concepts of syntax and grammar as needed (Fayol, 1999). Sixth, they manage on-line writing tasks (planning and composing at the same time) creating clear sentences in order to reach their goal of producing coherent text (Fayol, 1999). The ability or lack of ability to self-plan, self-initiate and self-sustain at high levels sets skilled writers apart from struggling writers (Zimmerman & Riesenberg, 1997).

However, less skilled writers view writing tasks as a linear processes in which the objective is to address a topic, maybe plan a little and revise for punctuation and spelling toward the end of the task (Graham & Harris, 2000; Ransdell & Levy, 1999). Teaching the recursive nature of the mature writing process benefits students that struggle with writing (Graham & Harris, 2000).

Theories of Writing

From a social cognitive perspective, effective writing involves interaction between the student, behavior and the environment (Zimmerman & Risemberg, 1997). Zimmerman and Risemberg's (1997) social cognitive model of writing is composed of three forms of self-regulation: Environmental, behavioral, and covert or personal. Skilled writers utilize these triadic forms of self-regulation reciprocally to self-monitor and self-react to feedback in a cyclical fashion (Zimmerman & Risemberg, 1997). This feedback loop allows one process to influence another and enables students to learn from consequences and actions (Graham & Harris, 1997). These processes facilitate effective writing and create successes that improve self-efficacy (Zimmerman & Risemberg, 1997). This success enables students to continue to write and revise until their personal standards of quality are fulfilled (Zimmerman & Risemberg, 1997).

An important component of the recursive writing process is the ability to self-monitor. Producing text typically consists of writers performing three tasks: planning, translating plans into sentences, and reviewing written text (Torrance & Jeffery, 1999). Skilled writers move fluidly among these three tasks or phases of the writing process (Hayes & Flower, 1980). Writers read, assess, and adjust text against personal criteria as they compose; thereby, utilizing self-monitoring techniques to generate quality written material.

The cognitive model of the writing process describes how good writers utilize working memory to shift from various writing processes; store word sets in working memory while creating written sentences; as well as juggle between storage and processing tasks (Ransdell & Levy, 1999; Torrance & Jeffery, 1999). Skilled writers

must also be able to comprehend text while composing in order to generate logical text that ties in with previously written text (Ransdell & Levy, 1999; Torrance & Jeffery, 1999; Troia, Graham, & Harris, 1999). Writers often report the need for extended periods of concentration, attention and uninterrupted time in order to generate quality work (Torrance & Jeffery, 1999). To that end, researchers have noted that the writing process requires immense cognitive resources (Torrance & Jeffery, 1999).

Developmental Phases of Writing

Students in the second-grade begin the school year learning about writing mechanics and form. They learn that expressive writing is different from writing to persuade for instance. Throughout the year, students learn that writing is a recursive process, and not just a once through linear task. Second-graders learn how to evaluate their writing to assess whether or not they addressed the prompt given or topic chosen as well as whether or not they have addressed the needs of the audience. In summary, second-grade students learn to address form, process, and audience (Maryland State Department of Education, 2003).

Review of the Writing Studies and SMA and SMP

The following is a review of studies that examined story writing strategies and self-monitoring from 1975 through the present. First, Ballard and Glynn (1975) evaluated behavioral self-management procedures in story writing with third grade children who attended a general education classroom. The researchers taught the procedures to the whole class and then randomly selected fourteen students for whom they collected data. Story writing occurred 25 minutes, four days a week.

A multiple-baseline across behaviors design was used to evaluate self assessment plus self-recording of writing responses. Self-assessment and self-recording were evaluated first and then reinforcement was added in order to determine whether or not self-assessment and self-recording alone could produce the desired changes. Dependent variables were number of sentences, number of different action words, number of different describing words, quality of stories, and on-task behavior.

Following a 12-day baseline condition, self-assessment and self-recording were implemented for eight days. Next, reinforcement contingencies were added to the self-assessment and self-recording procedures. The following phases lasted eight days each: a) number of words written, b) different action words, and c) different describing words. During treatment phases, students wrote for 25 minutes per session and then used 8 minutes extra time to fill in record sheets and token booklets.

Students utilized wall charts to assess their writing each day. Each chart defined a variable. Number of sentences was defined as beginning with a capitol and ending with the appropriate punctuation. A separate chart defined and provided examples of action words, describing words, and ideas. On-task behavior was not defined on a wall chart.

The researcher scored target students' stories for number of sentences, number of different action words, and number of different describing words daily. An independent scorer who was blind to the purpose of the study rated four stories per student. Subjective quality ratings were assigned on a 1 to 5 scale, with 5 indicating a high score and 1 indicating a low score. Seventy stories were scored in the above manner.

On-task behavior was observed during the last seven days of baseline and the last three days of each following phase. Four independent observers participated throughout

the study. Observers utilized a momentary time sampling method to collect on-task behavior. Timers set in 10-second intervals signaled observation periods. Five-second scoring periods occurred after each observation period. The students were observed in a random order that varied per session. Each student was observed at least once per session. On-task behavior improved for all students during each treatment phase.

Ballard and Glynn (1975) concluded that self-management procedures improved writing output and quality. Nine of the fourteen students responded with increased writing output when reinforcement was paired with self-assessment and self-recording. However, self-assessment and self-recording alone did not produce such increases. The remaining five students did not demonstrate consistent responses to any of the treatment conditions. Story quality in the reinforcement phases improved. However, the quality of stories written during self-assessment and self-recording without reinforcement did not improve above baseline levels.

Possible limitations of this study follow. Four independent observers collected on-task data throughout the study; this could have impacted results by introducing variability into the scoring of on-task behavior. Order effects of treatments were not controlled for by the design of this study. Therefore, it is also unclear if one treatment condition impacted another.

Ballard and Glynn (1975) contributed evidence that general education teachers can teach young children to manage specific reinforcement schedules on their own. Students in this study increased their writing output, number of describing words used and number of action words. In addition, this study supports findings that show self-reinforcement of academic activity correlates with increased on-task behavior.

Rumsey and Ballard (1985) evaluated self-management strategies during story writing with primary school children in a general education classroom using an ABAB withdrawal design. Students attending this class ranged in age from 9 to 11. All 34 students were taught self-recording procedures. Data was collected for seven students who demonstrated difficulties staying on-task during the 25 minute independent writing session three days a week. Dependent variables included on-task writing behavior, off-task disruptive behavior, and number of words written.

Behaviors were well defined. For example, on-task behavior was described as writing, looking at the blackboard with pencil in hand, looking in a dictionary or reading what he or she wrote. Ten-second intervals were used to observe and five-second intervals were used to score each student as on-task or off-task. Off-task behavior was coded if any disruptive behavior occurred during the ten-second observation interval. Off-task disruptive behavior was defined as behaviors incompatible with writing or likely to disrupt others, such as talking, laughing, touching other students, and being out of seat. Off-task behavior that was not disruptive was coded as neutral. Neutral behavior consisted of hand raising, erasing, sharpening pencils, opening desk, turning pages in a book, talking to the teacher, fiddling with objects, and watching other children.

Numbers of words written was calculated by the experimenter counting the number of words written per story. Students also counted and graphed the number of words written each day.

Quality of stories was assessed by first typing all stories with all identifying information removed. The stories were typed exactly as written by the students. All words were counted, including titles, crossed out words, and attempted words. Two

college lecturers who specialize in children's writing scored the stories. The lecturers were told that students in a 3-4 class wrote the stories and they were asked to rate them on a scale of 1 to 5, with 1 indicating a low rating and 5 indicating a high rating.

There were five phases: baseline, self-recording, return to baseline, reinstated self-recording and correspondence training phase. Baseline consisted of the teacher collecting stories and, without students' knowledge, counting and recording the number of words written for the seven target students and the five control students.

During the experimental phase of the study, the whole class counted the number of words written and entered this information into personal folders on a bar graph daily. The experimenter and teacher moved around the room and counted the number of words written during this time as well. The target students number of words written was checked against the researchers' data each time. If the numbers differed, the student and researcher re-counted together.

Correspondence training consisted of individual students receiving approximately three minutes of training with the experimenter prior to independent writing time. This training followed the say-do procedures discussed in Risley (1977). The researcher shared charts of student progress and described the students' performance from the previous writing session. Next, the researcher read prompts from a chart that the student could utilize to facilitate successful writing behavior (i.e., "I will work on my story, I will write a really good story; I will not talk to others"). Afterwards, the researcher asked the student what he or she would do during story writing. Following feedback, the researcher asked the student again to repeat the answer; this time with the chart covered up. At the

close of the session, the researcher said to the student “All right, now we’ll see how you do today”.

Rumsey and Ballard obtained the following results. Five of the seven target students demonstrated improved time on-task behavior, increased number of words written, and a decrease in off-task disruptive behavior during the study. Two students demonstrated variable results. The say-do training improved performance, but only slightly. The control students increased the number of words written during self-recording and maintained that increase during the withdrawal phase. Quality of story writing slightly improved during self-recording, but almost returned to baseline levels during the withdrawal phase. This study provided further support that self-recording is an effective self-management technique for some students.

One possible limitation of this study was the lack of follow-up data. Once the intervention was terminated, no maintenance data were collected. It would be useful to see if the students maintained their improvements over time. The question of whether or not the correspondence training, say-do training, created multi-treatment effects should also be considered. However, this study provided useful information for researchers interested in self-recording, self-statements, and writing.

As detailed earlier in this chapter, Harris et al. (1994) evaluated SMA and SMP and story writing with students with LD who were 10 to 12 years of age who attended a self-contained class students. A counterbalanced multiple baseline design was used to analyze three dependent measures: on-task behavior, academic performance, and academic quality.

Again, both SMA and SMP proved successful in improving on-task behavior, performance and quality. During the choice condition, three students chose SMP and one chose SMA. Overall, students were positive about both self-monitoring conditions. Teachers stated a preference for the SMP condition.

Future studies should incorporate follow up data to assess lasting treatments effects. Studies should also address the impact of the following: a) multiple treatment effects, b) order effects, and c) multiple observers collecting observational data. Furthermore, multiple baseline design should be utilized instead of ABAB design.

Additional questions that researchers need explore are: a) Does reinforcement increase on-task behavior and production more than self-monitoring alone? b) Can SMA and SMP improve academic quality in addition to on-task behavior and academic quality? c) Does teaching students what to attend to improve performance? d) Are SMA and SMP effective with complex academic tasks? and, e) Is SMA or SMP, more effective for students with LD or ADHD?

Further points to address include: a) examining diverse groups of children with various learning challenges; b) studying age, maturation, and developmental factors on students' self-monitoring performance; c) exploring diverse settings for training and implementation of strategies; and d) examining the match between learner and task.

CHAPTER 3

METHODS

In this chapter, the methodology and procedures for the study are presented first. Next, the study design and data analysis procedures are described.

Participants: Selection Criteria and Identification

This study involved second-grade students with attentional and writing difficulties who were in general education inclusive classrooms. The sample consisted of eight students who received writing instruction in two separate classes in one school. Four students from each classroom participated.

The process for selecting participants involved the following steps. First, teachers identified children who were poor writers, produced little content during journal writing, and who were frequently off-task during journal writing. Second, teachers administered the Spontaneous Writing Test from the Test of Written Language – 3 (Hammill, & Larsen, 1996) to their whole class. Numbers replaced names and teachers removed all other identifying information. The experimenter then scored the writing tests. Students whose standard score on the Story Construction Test of the TOWL-3 was 8 or less (i.e. scored at the 25th percentile or below), writing output (i.e., number of words written) on the story from the TOWL-3 was in the bottom 25th percentile for their class, produced at least two written t-units on the TOWL-3, produced a written response that could be read, and were initially identified by their teacher as having attention and writing difficulties remained in the subject selection pool.

To verify that these students had difficulty with on-task behavior during journal writing, the experimenter observed and recorded on-task behavior during two journal writing sessions. Students who met the qualifications detailed above and whose average on-task behavior was below 60% for the two sessions remained in the subject pool.

Once a pool of 12 students was identified, a consent letter was sent to each of the children's parents or legal guardians (see Appendix A for consent letter). The teachers mailed the consent letters to each child's parents or guardians. The letter included information about the study, any possible risks, the address and telephone number of the experimenter, and a place for parents to record their signed consent. Along with this letter was a self-addressed stamped envelope for the parents or guardians to use when returning the signed permission letter. All students with signed consent formed the final pool of subjects for this study. From this pool, 8 students received signed consent, 4 from each classroom, and were therefore selected to participate in the study. I tried to select as many students as possible who had been identified as having a special need (e.g., learning disability, attention deficit disorder, and speech and language difficulties). Of the eight students, one received special education services for reading, mathematics, and written language. Three of the eight students were identified by their teachers as having attention challenges, especially during writing tasks. However, they were receiving only teacher-designed modifications, and not receiving special education services or medical services for these attention problems.

The experimenter collected information on gender, race, socioeconomic status (i.e. receipt of free or reduced lunch), chronological age, and academic indicators from school records and by interviewing teachers. For the participating student with special

needs, test scores, referral information, and so forth were collected. This information is presented in Table 1.

Student Information on Achievement and IQ

Of the eight participants, one student (Anne) qualified for special education services. Anne's scores on the Wechsler Intelligence Scale for Children-3rd Edition (Wechsler, 1991) were as follows: Verbal IQ 101, Performance IQ 94 and Full Scale IQ 97. She received academic services from the special education teacher in the resource room for reading, written language, and math for 90 minutes a day most school days. In addition, her classroom teacher made modifications to teaching methods and student expectations as needed.

In addition to the aforementioned assistance, Anne received modifications for the Comprehensive Test of Basic Skills (CTBS) achievement testing during the year the study took place. Her percentile scores on the CTBS were as follows: reading 35, language skills 11, language mechanics 45, language comprehensive 21, math 23, math computation 5, math comprehensive 9, science 12, social studies 9, and total score was 20. The school had yet to receive the results for the remaining seven students at the completion of the study.

Of the remaining seven students, three (Tom, Bob, and Nikko) were identified by their teachers as students who had difficulty attending to journal writing and other academic tasks. None of the three students received special education support, medication, or other medical support. However, each teacher made classroom modifications to facilitate student success throughout the school year.

Table 1.

Student Information

Students	Pair 1		Pair 2	
	Tom	Bob	Anne	Todd
Gender	Male	Male	Female	Male
Race	Caucasian	Caucasian	Caucasian	Caucasian
SES	Full Priced Lunch	Full Priced Lunch	Full Priced Lunch	Full Priced Lunch
Age	7 yrs. 9 mos.	8 yrs. 6 mos.	8 yrs. 6 mos.	8 yrs. 2 mos.
Academic Indicators	On grade level	On grade level	Specific Learning Disabilities ^a	On grade level
Attention Challenges	Yes	Yes	No	No
IQ	None available	None available	Verbal IQ 101, Performance IQ 94 and Full Scale IQ 97	None available
Achievement/ CTBS scores	None available	None available	R 35, LS 11, LM 45, LC 21, M 23, MC 5, MCC 9, Total score 20.	None available

Table 1 continued.

Student Information

Students	Pair 3		Pair 4	
	Ralph	Nikko	Tamara	Ty
Gender	Male	Male	Female	Male
Race	Caucasian	Asian	African American	American Indian / Alaskan Native
SES	Full Priced Lunch	Reduced Lunch	Full Priced Lunch	Full Priced Lunch
Age	8 yrs. 0 mos.	7 yrs. 9 mos.	7 yrs. 10 mos.	7 yrs. 5 mos.
Academic Indicators	On grade level but struggled with writing	On grade level	On grade level	On grade level
Attention Challenges	No	Yes	No	No
IQ	None available	None available	None available	None available
Achievement/ CTBS scores	None available	None available	None available	None available

Notes. Ages stated are chronological. Attention Challenges were students identified by teachers as likely to qualify for special education for attention deficits, but have not been officially diagnosed as such. Codes for Achievement/CTBS subtest scores are as follows: R = Reading, LS = Language skills, LM = Language Mechanics, LC = Language Comprehensive, M = Math, MC = Math computation, MCC = Math Comprehensive.
^a Anne received special education services for her Specific Learning Disabilities.

Students routinely demonstrated the ability to read the teacher selected topics. On a few isolated occasions 3 of the students requested help with one or two words from a prompt.

Setting

The study occurred during the spring semester in a predominantly white middle class suburban elementary school. The school had a population just over 500. This school served kindergarten through grade five. Special education services were provided both in the resource room and an inclusion program in the general education classroom. All students in second-grade participated in journal writing daily in the general education classroom.

Both second-grade classrooms had between 22 and 25 students and each had one general education teacher. The school contained five second-grade classes. Special educators co-taught and collaborated in these classrooms based on student needs. With these second-grade classrooms, most services were provided with a collaboration or resource room service delivery model, however.

Teacher Writing Questionnaire Results

Both teachers responded to questions about second-grade writing instruction in their class. According to the teachers, writing instruction consisted of journal time, free creative writing, and formal writing instruction. Formal writing instruction was defined as teaching the writing process and specific genres (for example, story schema). Formal writing instruction occurred once or twice a month and journal writing occurred daily. Creative writing occurred when time permitted. Both teachers also integrated writing into the content area curriculum in science, social studies, and math. For example, students

wrote a five-day diary about what they thought it would be like to be a pioneer in a wagon train as part of a social studies unit. Both teachers emphasized that writing was not just for language arts time.

Each teacher had similar writing philosophies. They firmly believed that students could learn how to be good writers. They indicated that a process approach with many opportunities for practice as well teaching writing strategies were successful for teaching writing to second-grade children. Engaging students in lots of reading was mentioned as a tool for teaching writing as well.

Teachers stated their writing goals as follows: (a) to have students proofread their work, (b) write in complete sentences, (c) write coherently, (d) identify the purpose of writing, (e) utilize all parts of the writing process, (f) peer edit, and (g) utilize correct grammar. Teachers further wanted students to write until a topic was completely addressed, choose their own topic, and provide supporting details. A final goal was to have students focus on content and not on the number of sentences they needed to write.

At the beginning of the year, the focus was on writing in complete sentences. As the year progressed, students were taught to form complete paragraphs with attention to form, genre, audience, topic and process. The teachers also focused on grammar and creativity, emphasizing that communication is a crucial component of good writing.

Writing Task

The writing task chosen for study in this experiment was journal writing. In the participating classrooms, journal writing consisted of students writing daily on teacher-selected topics. Journal writing occurred from 8:55 until about 9:20. Journal writing was

the first academic task of the day. Students completed 2-4 morning jobs during a flexible work time that ran from 8:55 until 9:20. Each teacher had a minimum number of sentences that students were expected to write as they prepared their journal entry for the day. The minimum number ranged from 5-7, depending on the teacher. Students' level of output varied from student to student and day to day. Some students wrote several pages a day. Others did not reach the minimum standard set by the teacher. Students wrote freely and independently at their desks during journal writing. Examples of the types of writing assignments students were asked to work on during the month of December, were: a) Decorate a Christmas ornament (a teacher directed activity) and then write a descriptive paragraph about it; b) Write about finding Santa by the tree on Christmas Eve, what would you talk about? c) If I lived at the North Pole, I would... d) Tell me what you are going to do over the winter vacation. (What do you want to do?). See appendix J for a complete list of journal topics. Students were permitted to illustrate their journal entries as time permitted.

Sharing was a normal part of journal time in these classrooms. Teachers listened to individuals read their entries during informal conferences and provided time for students to share their entries with the whole group. Class-wide sharing occurred often, but not every day. Students also quietly shared with their peers seated next to them as desired.

At about 9:20, teachers began reading groups. One student from our study left at this time to receive special education resource room services. The remaining 7 students were divided into 3 reading groups with their classmates. Two groups completed independent work at their desks while the teacher provided reading instruction for the

third group at the reading table or area. Each of the three groups rotated from direct reading instruction with the teacher to independent seatwork at their desks with the language arts block lasting until 11:00. Students were permitted to return to journal writing during independent seatwork. However, data collection only occurred during a fifteen-minute window of active student writing from 8:55 – 9:20. Students typically took a few minutes to unpack and complete lunch count tasks before beginning their journals therefore, data collection did not occur for the entire 25 minutes from 8:55 – 9:20.

Materials

The following materials were utilized during journal writing. Composition books, 8 by 10 inches, ruled and with margins were used for journals. Each student wrote his or her journal entries in their own composition book. Students wrote with number two pencils. Number of words written were counted each day by the experimenter. All words were counted; including crossed out and erased words as in prior research (Graham, 1990). Also, journal entries were photocopied twice a week in case journals were lost or misplaced during the course of the study. In order to facilitate holistic scoring, the journal entries were typed. All typed copies were corrected for spelling, punctuation, and capitalization miscues.

For self-monitoring, the following materials were used. For the SMA condition, students listened to tape recorded beeps produced at random intervals. Beeps occurred on average every 45 seconds, spaced at 10 to 90 second intervals. Headphones were used so as not to disturb classmates. Students marked if they were on- or off-task on a specially designed checklist (see Appendix B) when they heard the beeps. After each journal session, they graphed the number of times they were on-task (see Appendix F). The

experimenter helped as needed. During the SMP condition, students counted the number of words produced (with assistance from the experimenter if necessary). Students recorded data from the above measures on a graph again (see Appendix G), the experimenter assisted only as needed.

General Procedures

Prior to the start of the study, the experimenter observed each of the participating classrooms in order to provide a more accurate description of journal writing activities and topic selection procedures. The classroom teachers also were asked to complete a questionnaire designed to provide information about their writing program (see Appendix C). The information obtained through these observations not only helps the researcher describe each setting, but ensured that experimental procedures were appropriate for each class.

Throughout the study, the experimenter worked with target students on self-monitoring skills for journal writing. The experimenter was introduced to the students as a teacher helper. The experimenter taught students how to use experimental procedures. In addition, the experimenter helped students count and graph their data. During the study, the experimenter was present for journal writing activities five days a week. Data collection occurred for seventy-four days.

Students were taught self-monitoring procedures following baseline conditions. Self-monitoring instruction was scripted (see Appendices D and E) to help insure intervention integrity across students and classrooms. Graphs and writing journals were stored in a folder kept by the experimenter. The graphs and any new journal entries were viewed daily and copied twice a week by the experimenter.

When implementing SMA and SMP procedures, the experimenter focused only on students in the study and did not provide assistance to other students in the class. Students seeking help from the experimenter were instructed to ask the classroom teacher for help.

Self-monitoring of attention training. The SMA training followed procedures outlined by Hallahan and Sapona (1983). Student strategy training occurred in pairs and data were collected in pairs. This was consistent with prior research and had the added benefit of shortening the length of time that the study interrupted the natural classroom situation. However, students wrote in their journals independently just as the non-participating students did. Teachers selected which students were paired together based on similar student performance and timing of reading groups that occurred just after the journal writing sessions. The first step in training consisted of the experimenter discussing the purpose of paying attention and staying on-task during independent work time. The experimenter told students and then demonstrated for them what on-task behaviors look like (i.e., looking at the board for a topic, looking at their journal notebook, writing in their journal, crossing out words, re-reading words written, and performing any steps of the self-monitoring procedure). Next, the experimenter modeled off-task behavior, which was defined and modeled as behavior that did not contribute to journal writing. Students then modeled on- and off-task behaviors for the experimenter. Instruction in on- and off- task behavior continued until students could model each type of behavior successfully.

The experimenter also discussed the purpose of journal writing as used in their classroom by their teacher. Students and the experimenter engaged in a conversation about their understanding of the purpose of journal writing and their teachers' purpose.

Then, students were taught a strategy or trick to help them stay on-task when writing. Students were shown how to mark their "I am paying attention" chart (see Appendix B) when they heard the tones in the headphones. After completing their journal entry for the day, students graphed (see Appendix F) with the help of the experimenter, the number of "I am paying attention" marks on a special rocket graph (Hallahan & Sapona, 1983). During the instruction, the experimenter modeled while thinking aloud how to do these steps. Examples of self-verbalizations during think alouds included: What am I supposed to do? This is hard, but I can write more. I met or beat my goal. Good job today. Students were encouraged to use such positive self-speech during their daily journal writing.

Finally, it was determined that students had reached independent mastery when they demonstrated use of the SMA procedure correctly and could tell the experimenter all of the steps of the procedure. The experimenter provided guided practice and support until students were able to independently demonstrate their use of the SMA procedures. Guided practice consisted of the experimenter modeling the self-monitoring procedures including: a) making tally marks on the "I Am Paying Attention" chart when they heard a beep, b) using positive self-statements during journal writing, c) counting tally marks at the end of each session, and d) graphing tallies. The SMA treatment condition began after students demonstrated mastery of these skills. Training consisted of one 20 – 30 minute session, which was consistent with prior research (Hallahan and Sapona, 1983). Session

length was determined by how quickly the students mastered the procedures. Students demonstrated proficiency and accuracy with the self-monitoring procedures during this short session.

Self-monitoring of performance training. The SMP training followed procedures outlined by Reid and Harris (1990). Again, student strategy training occurred in pairs and, data were collected in pairs to facilitate replication of findings and to shorten the length of time the study interrupted the classroom situation. However, students wrote in their journals independently just as the non-participating students did. Teachers selected which students were paired together based on similar student performance. The first step in training consisted of the experimenter discussing the purpose of journal writing as used in their classroom by their teacher. This consisted of a conversation about the students' understanding of the purpose of journal writing and their teachers' purpose. Next, the experimenter discussed the purpose of counting words. The definition of a word was discussed with students (i.e. the smallest group of letters to make sense) all students demonstrated understanding of the concept of word.

The experimenter and students next discussed a strategy or trick to self-monitor their journal entries. Students were taught to count the number of words written daily during journal time and graph that number on their journal rocket graphs (see Appendix F). The experimenter modeled: a) journal writing using think alouds and positive self-statements, b) counting words and, c) graphing number of words written (see Appendix G). Guided practice and support were provided by the experimenter until students were able to independently demonstrate mastery of the SMP procedures.

In addition, the students were taught how to count and graph their number of words written and were taught a chant “Beat your score from the day before.” Examples of other self-verbalizations during think alouds included: a) What am I supposed to do? b) This is hard, but I can write more. c) I met or beat my goal. d) Good job today. Students were encouraged to use such positive self-speech during their daily journal writing.

During the instruction, the experimenter modeled while thinking aloud how to complete all of the strategy steps. It was determined that students had reached independent mastery when they demonstrated use of SMP procedure correctly and could tell the experimenter all of the steps of the procedure. The SMP treatment condition began after students demonstrate mastery of these skills. Training consisted of one 20 – 30 minute session as was done in prior research (Reid and Harris, 1990). Session length was determined by student needs. Students demonstrated proficiency and accuracy during training.

Design

A multiple-baseline design with multiple probes in baseline was used in this study (Gay & Airasian, 2000). Multiple-baseline designs are utilized when behavior is unlikely to return to baseline levels after treatment is withdrawn, regardless of student ability level. This design was selected instead of an A-B-A-B design, because knowledge of self-monitoring strategies cannot be untaught or unlearned, especially with the SMP procedure. In order to control for order effects, treatment conditions were counter balanced across classrooms. For two randomly selected pairs of students, SMA was introduced first. SMP was introduced first for the remaining two pairs. Students’

responses to the SMA and SMP procedures determined how long each phase of the study lasted. A carry over effect was not anticipated due to the short nature of the strategy interventions and the unlikelihood that students would inculcate one strategy enough to impact the next (Harris, et al., 1994).

Following are some advantages of a multiple baseline design. The flexible design conditions are effective for adjusting conditions and procedures to classrooms, teachers, or students as necessary (Tawney & Gast, 1984). Each student acts as his or her own control. Experimental control is rigorous in multiple-baseline design studies (Tawney & Gast, 1984). Multiple-baseline design is also compatible with instruction and functional for teachers in the classroom (Tawney & Gast, 1984).

Possible limitations of a multiple-baseline design should be considered as well as the advantages. Multiple baseline designs require concurrent measurement of several baselines. In this study, this included 8 baselines of students attending two different classrooms. It also entailed prolonged baseline conditions, for each succeeding pair of students. These limitations can be time consuming or cumbersome (Tawney & Gast, 1984).

Therefore in this study, a multiple probe design was utilized during baseline conditions instead of a continuous baseline. This variation of multiple baseline design consists of observations of the independent variable in a systematical and sequential manner introduced to one student (or pair) at a time. Since data were collected on an intermittent basis during baseline instead of continuous, the researcher could monitor for progress or improvement of independent variables (Tawney & Gast, 1984).

Baseline. Baseline consisted of the experimenter observing students during journal writing. The experimenter did not interact with the students during this phase. No self-monitoring instruction occurred during the baseline phase either. Two students were observed in each baseline condition. Teachers assisted the experimenter in assigning students into pairs based on reading group schedules and student arrival time at school. Student pairs are identified in Table 1.

Data were collected in the general education classroom during journal writing. Baseline data consisted of: a) the experimenter observing and recording on-task behavior during journal writing, b) counting of the number of words produced by the student (completed after each journal writing session); and c) number of minutes spent writing daily. Once the on-task behavior, number of words written daily and number of minutes spent writing were stable over 3 consecutive sessions without an increase in number, the experimenter introduced the self-monitoring procedures.

Treatment. Following a stable baseline, students in each class were taught the target self-monitoring procedure (SMA or SMP). The SMA and SMP procedures were implemented following procedures specified in the previous section (see Hallahan & Sapona, 1983; Reid & Harris, 1990). In addition, procedures for administering and collecting journal entries were identical to those described in baseline.

As noted earlier, the first two pairs started with SMA and once stable treatment effects were obtained, SMP was implemented. Stable treatment effects were defined as 25% or more improvement over baseline for 4 consecutive sessions in reference to time on-task and an upward progression in number of words written. Similarly, the second two

groups started with SMP, and after stable treatment effects were obtained, SMA was implemented.

Instruments

The following dependent measures were collected: on-task behavior, number of words written per entry, and number of minutes spent writing daily. In addition, the Story Construction sub-test Test of Written Language-3 (TOWL-3) was used as a screening measure for selecting participants as well as a posttest measure.

On-task and off-task behavior. On-task behavior was operationalized as: a) looking at the board for the topic, b) looking at their journal notebook, c) writing in their journal, d) erasing, e) re-reading words written and f) performing any steps in the self-monitoring strategy process. On-task behavior was measured by daily observations utilizing momentary time sampling. Off-task behavior was defined as all other behavior.

Momentary time sampling is an accurate means for estimating the duration of behavior (Tawney & Gast, 1984). Observations occurred during 15 minutes of the journal session. Data collection began after students opened their journals and began writing on their journal page. For the two students in each pair, one student was observed at the end of 3-second intervals. The next student was observed at the end of the following 3-second interval. Each student was observed every 6 seconds. Students needed to be on-task for the whole 3-second interval in order to be scored as on-task. The total number of observations per day per pupil varied according to the length of time spent writing by each student during the 15 minutes of data collection. In the event a student was absent, a null interval represented the corresponding observations to keep constant the observations across pairs. Average on-task scores for each student during each session was computed

by dividing the number of intervals that the student was scored as on-task by the number of observations in the session.

In order to establish inter-rater reliability, an independent graduate student unfamiliar with the purpose of this study observed and independently scored one third of the journal sessions for on-task behavior.

Number of words written. Number of words written were counted and recorded daily by the experimenter. A word was defined as a group of letters that convey meaning when read. After being typed, a computer word count program served as an independent count to establish reliability.

Time spent working. A measure of writing time was obtained by the experimenter recording the amount of time that elapsed (in minutes) from when the student started their journal entry to when it was completed daily. Time spent writing varied from student to student and from day to day. However, students averaged, 8.6 minutes of writing per day during baseline, 9.5 minutes during SMA and 10.9 minutes during SMP.

Quality of Journal Writing. Entries from both conditions were scored using a holistic rating scale (see Appendix I). This scale addressed broad writing qualities that would be present in quality writing for any of the genre presented by the participating teachers for journal writing topics. The scale was a Likert-type scale consisting of five points, with a score of 5 representing the highest quality of writing and 1 the lowest quality. Anchor points for scores of 1, 3, and 5 were selected from a pool of student journal entries collected from two second-grade classes. Two graduate students unfamiliar with the purpose and design of this study read the sample of journal entries in order to select the anchor points. They independently selected 3 entries of: lowest quality

Table 2

Comparison of SMA and SMP Procedures

Self-Monitoring Procedures	
SMA	SMP
Taped tones	No tones
Tally and count "I am Paying Attention"	Count number of words written
Tally during journal writing	Count at end of session
Positive Self-Statements	Positive Self-Statements
Graphing attention at end of session	Graphing number of words written at end of session
Rocket Graph	Rocket Graph

Note: SMA = self-monitoring of attention; SMP = self-monitoring of performance

The formula for reliability of percent agreement utilized was:

$$\frac{\text{\# of agreements (occurrence and nonoccurrence)}}{\text{total number of observations}} \times 100$$

Reliability for on-task behavior was 89 %.

The formula for reliability of percent for nonoccurrence utilized was:

$$\frac{\text{\# of agreements of nonoccurrence (off-task)}}{(\text{\# of agreements on off-task}) + (\text{\# of disagreements on off-task})} \times 100$$

Reliability for off-task behavior was 87%.

(score of 1), medium quality (score of 3) and highest quality (score of 5). The experimenter then selected one paper from their selection to serve as a sample for each anchor point.

Journal entries were scored for quality after the study was completed. Inter-rater reliability was established by comparing the scores of the two graduate students. The Pearson r (i.e., the reliability between the independent observers' scores) for this measure was .90. Prior to scoring, all entries were typed and corrected for spelling, punctuation, and capitalization errors.

Test of Written Language 3. The Story Construction sub-test of the TOWL – 3 (Hammill, & Larsen, 1996) measures story construction. With a picture prompt, students generate a spontaneous writing sample involving a story. This sample was used to assess writing ability. Student stories are scored for use of prose, action, sequencing, and theme.

Each general education teacher administered a spontaneous writing sample (Form B) to their whole class prior to the start of the experiment. The experimenter administered the TOWL-3 again (Form A) as a post-test measure to students who participated in the study (see Table 5). The scoring criteria for Story Construction sub-test of the TOWL-3 was utilized to assess each writing sample.

The TOWL-3 is a norm referenced writing measure published by Pro-Ed. The purpose of the TOWL-3 is to assess and evaluate student writing. The Story Construction sub-test assess student's mechanical skills as well as students' ability to generate text, utilize standard form, (i.e., write a story with story parts), utilize acceptable grammar, and express ideas in a creative manner. This test produces percentiles and standard scores based on student's chronological age.

Reliability coefficients for a) content sampling, b) time sampling, and c) interscorer differences on the Story Construction sub-test of the TOWL – 3 are presented below. The coefficient alpha for content sampling was averaged for 7 – 17 year

olds and is .90 with a standard error of measure of 1. The time sampling or test-retest coefficient of .80 was averaged across Form A and Form B and the 2nd grade and 12th grade. Thus, the Story Construction sub-test of the TOWL – 3 is a reliable indicator of story writing ability.

Content, criterion related, and construct validity for the Story Construction sub-test of the TOWL – 3 are presented next. Item discrimination, item difficulty, and item bias were used to establish content validity. Item discrimination was assessed with point-biserial correlation to ensure internal consistency of the test. The minimum value of .3 was utilized for the item-test coefficient. All items met this criterion. The acceptable average value for item difficulty was 50% with a large dispersion. Most of the items, (83%), on the TOWL – 3 were within acceptable limits and ranged from 15% to 85%. Item bias was evaluated to determine whether or not some items were more advantageous for one group of students than another. Delta scores were derived and reported as correlation coefficients. The larger the coefficient, the smaller the item bias. The delta-values between three groups: male/female, white/non-white, and hispanic/non-hispanic were .99, .97, and .95 respectively for Form A. The delta-values for Form B were .99, .95 and .95 respectively. All of these values were within acceptable limits.

Coefficients above .50 indicate an acceptable level for criterion-related validity. The TOWL – 3 was moderately correlated with Writing Scale on the Comprehensive Scales of Student Abilities (CSSA). All of the correlations between these two measures were .40 or higher.

Construct validity was determined by correlating performance on individual items with the total test score. High item discriminating powers, .3 or higher, were obtained for 83% of the items on the test. These scores indicate acceptable construct validity.

Student interviews. The following questions, based on Reid and Harris (1990), were asked of each student in a semi-structured interview following completion of the treatment conditions: Which procedure did you like better? Why? Which procedure helped you more? Why? What did you like about SMA? Why? What did you not like about SMA? Why? What did you like about SMP? Why? What did you not like about SMP? Why? Which one would you choose to use again? Why? (see Appendix H). Each interview was tape recorded and transcribed.

Treatment Validity

When students were taught to use either the SMA or SMP procedures at the start of each intervention phase, the experimenter's instruction was tape-recorded. An independent observer listened to these tapes to establish that instruction occurred as intended. The independent observer was provided a checklist of instructional procedures for each treatment condition and checked off each step as it was completed. Percentage of completed steps was then computed for each session. The percentage of steps completed was 99%.

To establish that students used the SMA and SMP procedures as intended, the experimenter recorded during each session if the procedures were used correctly, and noted any deviations that occurred. On 3 occasions, students had to be prompted to put on their headphones. Otherwise, students completed all steps of the self-monitoring procedures independently and accurately.

Data Analysis and Interpretation

Multiple baseline design is analyzed through visual inspection of graphed data points (Gay & Airasian, 2000). Therefore, the experimenter looked for stable data lines during baseline followed by positive change in data lines during instruction. A positive change was considered an increase in the number of words written or an increase in time on-task, indicating a successful intervention (Tawney & Gast, 1984). If a treatment produced an increase in either words-produced or on-task behavior and there was no subsequent change in corresponding baselines of students in the other pairs, then the treatment was deemed to have a positive effect on the behavior in question. Both words written and on-task behavior were graphed.

The results for the time spent writing measure and holistic quality scores are presented in Tables 6 and 7 respectively. These scores were not graphed, as scores were only available once the study was completed (see Instruments section).

Writing quality was assessed with pre-intervention and post-intervention holistic rating scores on the TOWL – 3 are presented in Table 5. (see Instruments section). Means and standard deviations for holistic quality rating were not graphed due to the fact that calculations were only possible after data collection was completed (see Table 5).

Students' responses to open-ended questions regarding treatment preference, effectiveness, applicability, and efficiency were categorized qualitatively and coded using procedures outlined by Bogdan and Biklen (1998) to gauge students' affective and cognitive reactions to treatments.

CHAPTER 4

INTRODUCTION

Self-monitoring of attention (SMA) and self-monitoring of performance (SMP) were taught to students to improve their time on-task and performance during independent journal writing activities. The presentation of the results of this study are organized by baseline, treatment conditions, and social validity.

Analysis of Baseline Data

Stability of Baseline Scores

To determine whether or not students were ready to move from baseline to either of the treatment conditions, I examined the stability of each students' performance on two key variables: percent of time on-task and number of words written. These evaluations consisted of data collection procedures utilized during the aforementioned baseline condition. These evaluations are typically called probes. When using a multiple probe design for baseline, it is important to probe systematically during baseline in order to establish stability, yet it is also important to minimize the number of probes. The minimum number of probes used to establish stability was six. Students, who did not demonstrate stable scores within six probes, were administered additional probes until stability was achieved.

As can be seen in Figures 1 and 2, the number of baseline probes varied as it took some students longer to evidence stable scores on both measures (or to evidence a downward trend in data). The shortest baseline consisted of six probes and the longest was fourteen probes. The students were paired in the following manner: Anne and Todd

were Pair 1, Ralph and Nikko were Pair 2, Tamara and Ty were Pair 3, and Tom and Bob were Pair 4 (see Figures 1 and 2).

Baseline Performance

Teachers' indications that the participating students' on-task behavior was low were further verified during baseline, as none of the students' mean performance during baseline exceeded 60%. Across all students, the average on-task behavior was 44% (see Figure 1). Students' on-task behavior during baseline varied considerably. Although Anne, Todd, Ralph, and Tom's on-task baseline scores evidenced the smallest spread in range of scores, the differences between their highest and lowest baseline scores were 43%, 40%, 30%, and 30% respectively. The on-task baseline scores for Nikko, Tamara, Ty, and Bob evidenced an even greater spread than the other four students (70% for Nikko, 48% for Tamara, 55% for Ty, and 70% for Bob), but even more importantly their on-task baseline scores evidenced greater variability from one day to the next.

Despite the variability evident in all of the participating students' on-task behavior, stable baselines or a declining baseline were established for each child. With the exception of Anne and Todd, whose baseline performance stabilized, all other students evidenced a decline in on-task behavior at the end of baseline. It should further be noted that there was no sustained dramatic increase in students' baseline on-task behavior when either the MA or SMP treatment were introduced for the other students who had not yet participated in that treatment. Treatment effect is evident when behavior or performance change occurs only during treatment conditions.

Figure 1

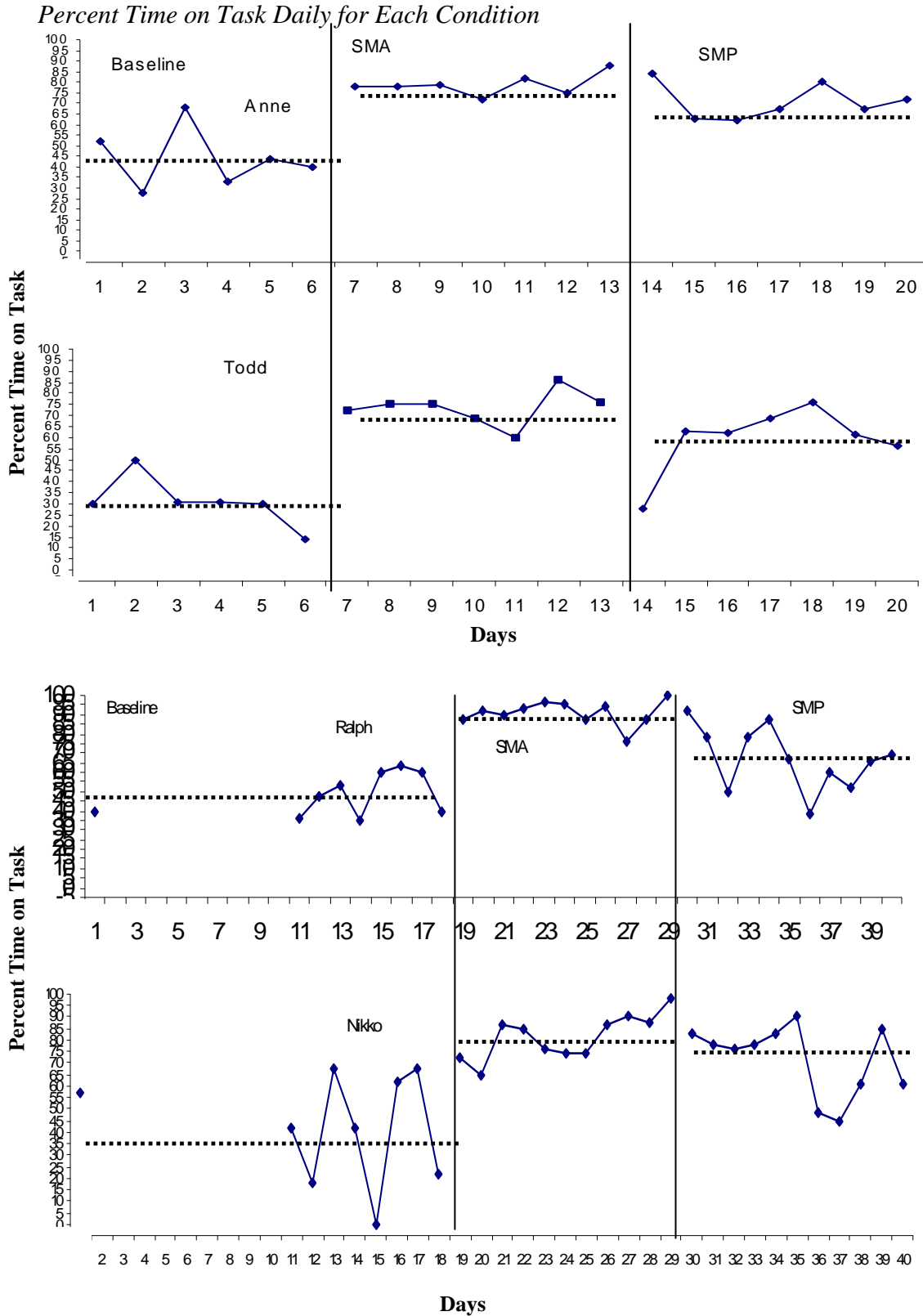


Figure 1 Continued

Percent Time on Task Daily for Each Condition

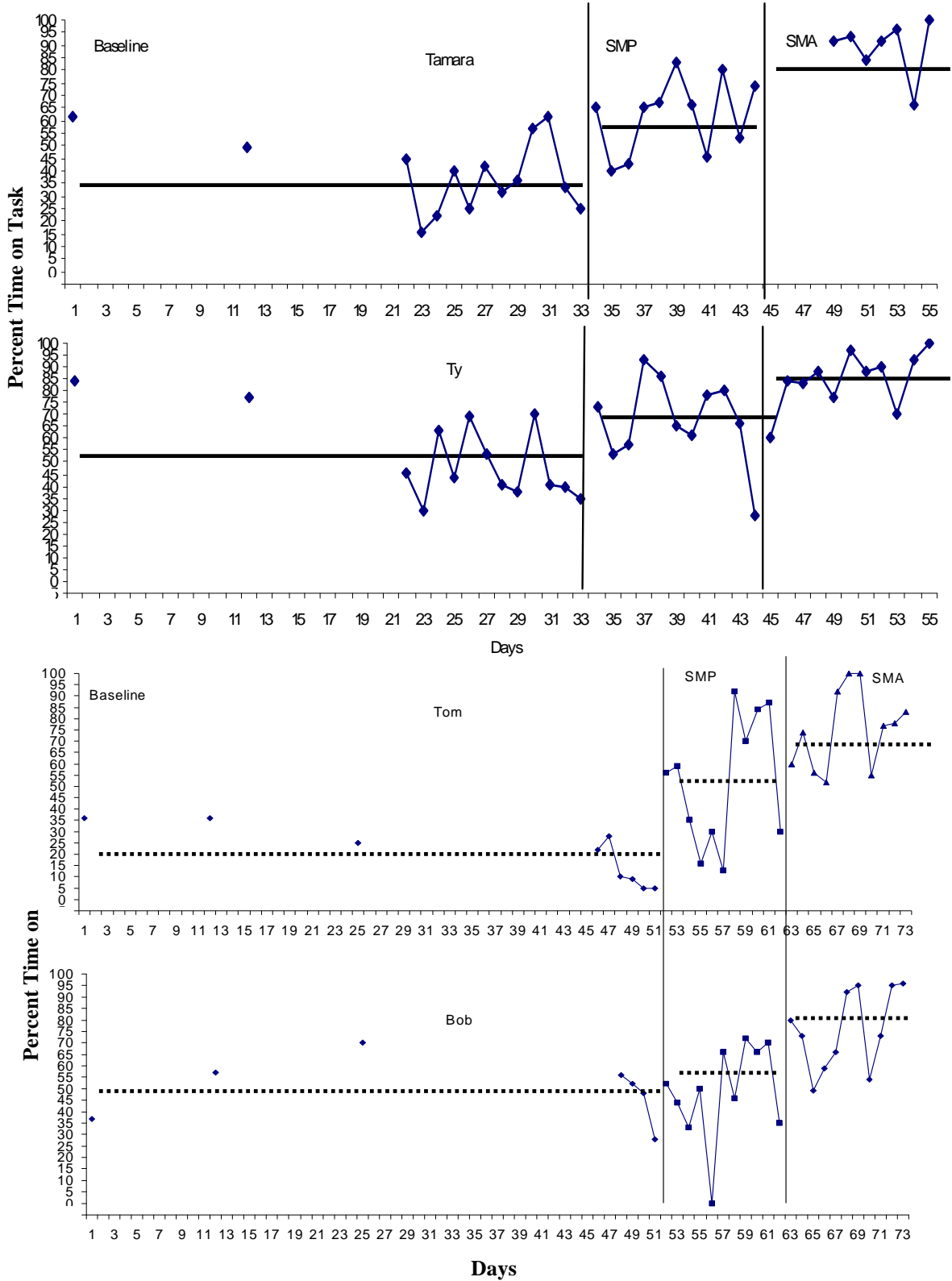


Figure 2

Number of Words Written Daily for Each Condition

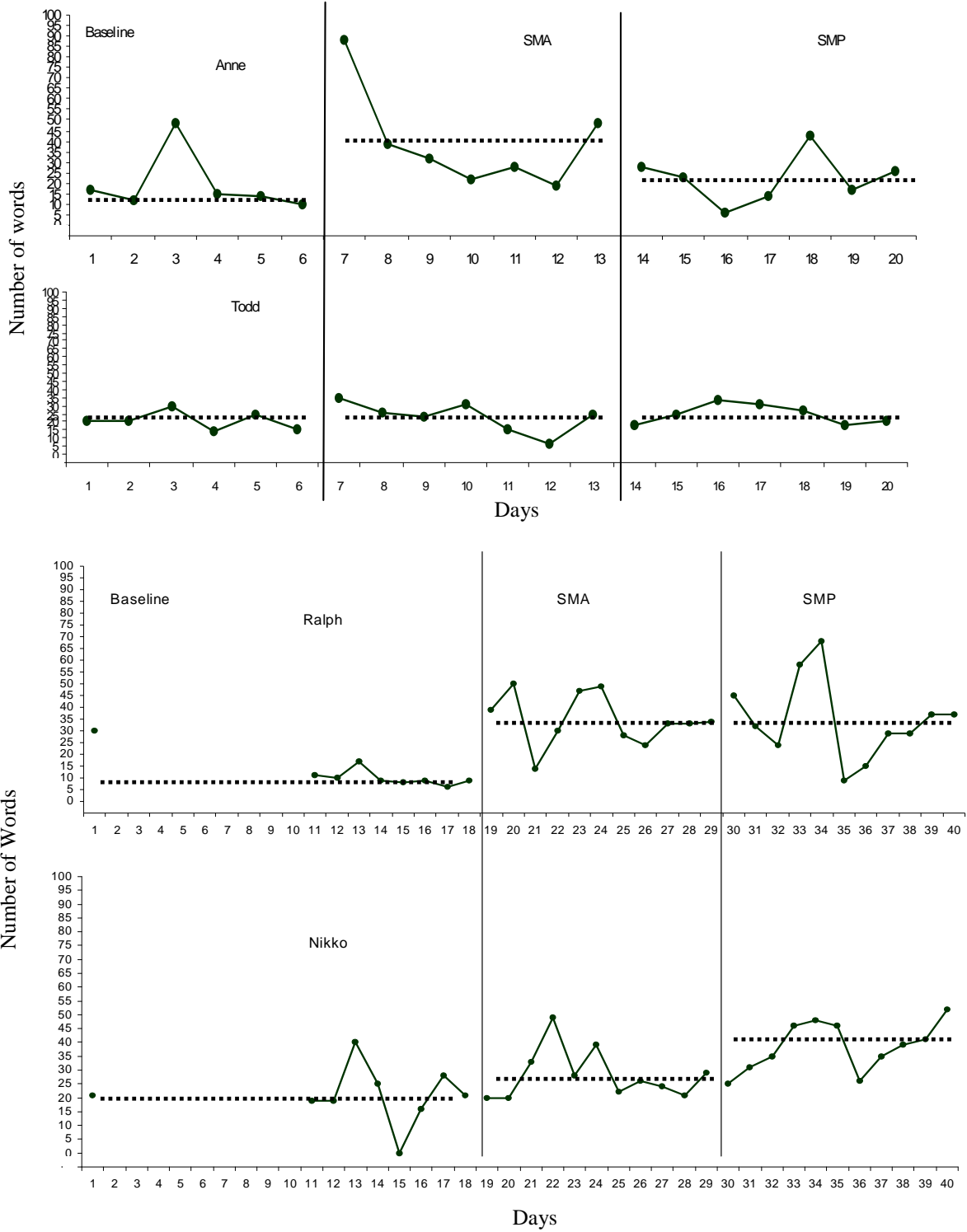
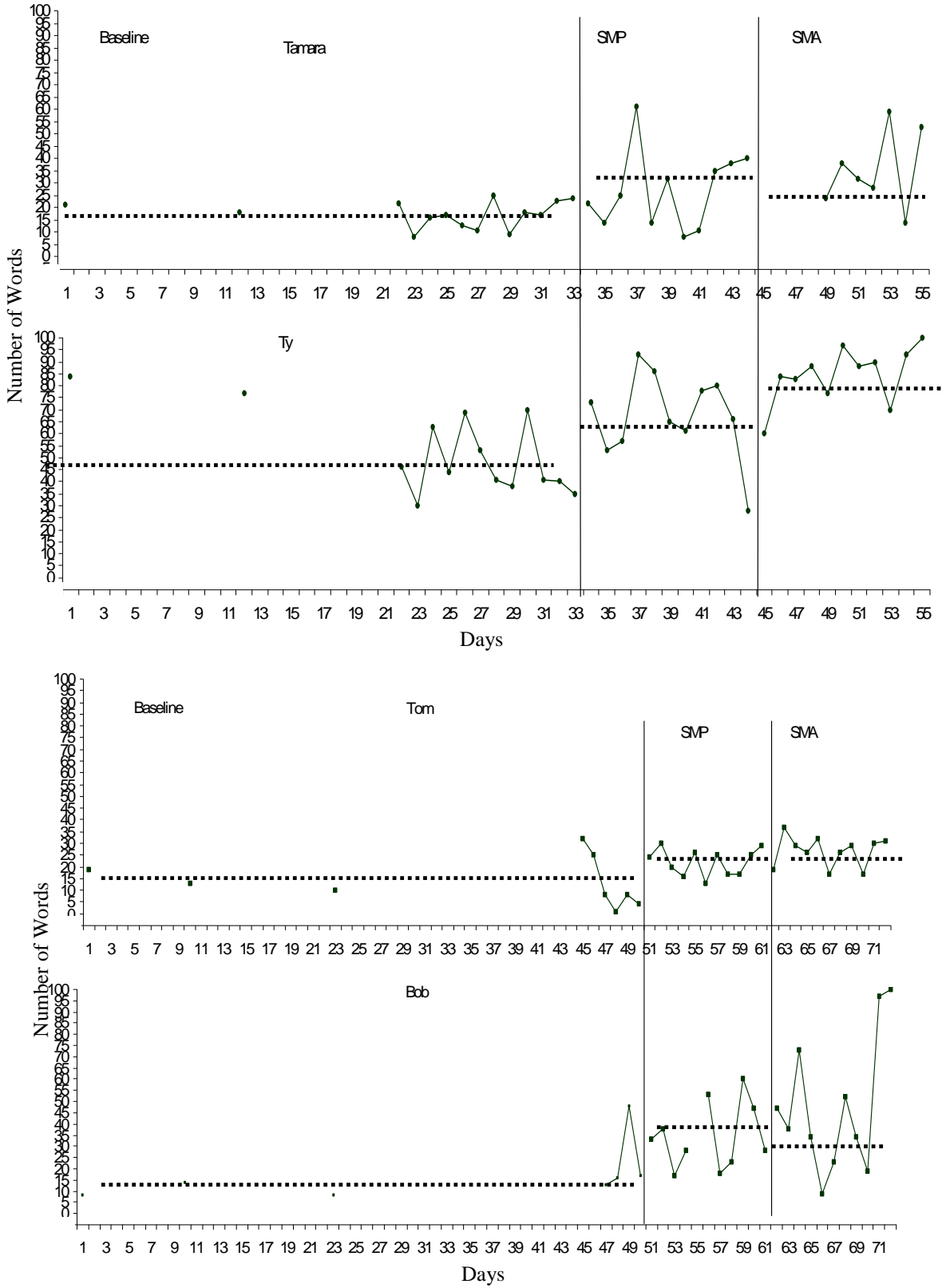


Figure 2 Continued

Number of Words Written Daily for Each Condition



For the number of words written (see Figure 2), baseline performance was generally less variable. None of the students averaged more than 21 words per journal entry, with two of the students averaging less than 15 words per entry (i.e., Ralph and Tom). These baseline results provide additional confirmation that the participating students generally produced little text during journal writing. Additionally, it should be noted that students did not cross out or erase words. Once words were written, students left those words on the page.

The students who exhibited the least variability in terms of length of baseline journal entries were Todd, Ralph, and Tamara. The difference between their highest and lowest scores was 18 for Todd, 25 for Ralph, and 16 for Tamara. Anne, Nikko, Ty, Tom, and Bob evidenced a greater spread in baseline journal entry length, with a difference between highest and lowest scores of 40, 40, 35, 32 and 47, respectively. Bob had the most variable scores in terms of daily journal output change.

Despite the variability in students' length of journal entry scores, all students obtained a stable baseline or declining baseline. For Anne, Todd, Ralph, and Tamara this consisted of three final baseline data points that remained generally flat. For Nikko, Ty, Tom, and Bob this involved a decline in length of journal entries at the end of baseline. Importantly, none of the eight students evidenced a sustained increase in length of baseline journal entries when either SMA or SMP were introduced with the other students.

Effects of the SMA Treatment

The SMA treatment had a positive effect on students' on-task behavior (see Figure 1). Anne's, Todd's, Ralph's, Nikko's, Tamara's, Ty's, Tom's and Bob's on-task

performance increased over baseline by 34.7%, 42.3%, 41.5%, 41.2%, 48.6%, 31.9%, 54.7%, and 24.8% respectively. All of Anne's, Todd's, Ralph's, and Tom's on-task scores during SMA exceeded their highest baseline scores. Similarly, only one of Nikko's SMA on-task scores was below the highest baseline score, whereas three and four of Ty's and Bob's SMA on-task scores were below the highest baseline score, respectively. There are no data for Tamara for the first four days of SMA because she was absent.

SMA was equally effective when it was presented first following baseline or after the SMP treatment. As can be seen in Figure 1, SMA mean on-task treatment scores (represented by the dotted lines) exceeded baseline scores for all students regardless of when the treatment was introduced.

Anne, Todd, Ralph, and Nikko participated in the SMA condition following baseline. Anne's time on-task increased on average 34% over baseline with her lowest SMA time on-task (73%) slightly higher than her highest baseline (70%) time on-task score. Todd's time on-task increased on average 42% over baseline with her lowest SMA time on-task (58%) slightly higher than his highest baseline (54%) time on-task score. Ralph's time on-task increased on average 41% over baseline with his lowest SMA time on-task (74%) higher than his highest baseline (64%) time on-task score. Nikko's time on-task increased on average 41% over baseline with his lowest SMA time on-task (65%) lower than his highest baseline (70%) time on-task score.

Tamara, Ty, Tom, and Bob participated in SMA following the SMP condition. Tamara's time on-task increased on average 49% over baseline with her lowest SMA time on-task (66%) slightly higher than her highest baseline (64%) time on-task score. Ty's time on-task increased on average 32% over baseline with his lowest SMA time on-

task (60%) lower than his highest baseline (85%) time on-task score. Tom's time on-task increased on average 53% over baseline with his lowest SMA time on-task (53%) higher than his highest baseline (37%) time on-task score. Bob's time on-task increased on average 23% over baseline with his lowest SMA time on-task (50%) lower than his highest baseline (70%) time on-task score.

The SMA treatment also had a positive effect on number of words written, but these effects were not as dramatic or consistent as the impact for on-task behavior. Anne's, Todd's, Ralph's, Nikko's, Tamara's, Ty's, Tom's, and Bob's length of journal entries increased from baseline to SMA by 20.1, 2.2, 24.6, 7.3, 18.3, 15.4, 13.3, and 29.1 words, respectively. The highest percentage of SMA scores that exceeded the largest baseline scores were obtained by Ralph (64%), Tamara (57%), and Ty (90%). None of the students, however, consistently wrote more words during SMA than their highest score during baseline.

When SMA occurred after baseline, Anne and Ralph made a considerable jump in number of words written over baseline (20.1 additional words written for Anne and 24.6 additional words written for Ralph). Anne's average number of words written increased 20% over baseline with her lowest words written during SMA (23) being lower than her highest number of words written during baseline (50). Todd's average number of words written increased 3% over baseline with his lowest words written during SMA (5) being lower than his highest number of words written during baseline (30). Ralph's average number of words written increased 24% over baseline with his lowest words written during SMA (15) being lower than his highest number of words written during baseline (30). Nikko's average number of words written increased 7% over baseline with his

Table 3

Percent Time On-Task by Condition

Students	Baseline		SMA		SMP	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Anne	44.2	14.4	78.9	5.1	70.7	8.4
Todd	31.0	11.4	73.3	7.9	59.3	15.2
Ralph	49.4	11.5	90.9	6.4	67.0	16.4
Nikko	40.3	25.3	81.5	9.8	71.6	15.4
Tamara	40.4	15.2	89.0	11.2	62.0	14.7
Ty	52.6	16.7	84.5	11.8	67.3	17.9
Tom	19.6	12.6	74.3	17.1	52.0	28.8
Bob	49.7	13.8	74.5	17.0	53.4	14.3

lowest words written during SMA (20) being lower than his highest number of words written during baseline (43).

When the SMA treatment occurred after the SMP treatment, gains in students' scores were as follows: Tamara (18.3 additional words), Ty (15.4 additional words), Tom (13.3 additional words), and Bob (29.1 additional words). Tamara's average number of words written increased 13% over baseline with her lowest words written during SMA (9) being lower than her highest number of words written during baseline (20). Ty's average number of words written increased 15% over baseline with his lowest words written during SMA (57) being lower than his highest number of words written during baseline (85). Tom's average number of words written increased 13% over baseline with

his lowest words written during SMA (17) being lower than his highest number of words written during baseline (33). Bob's average number of words written increased 29% over baseline with his lowest words written during SMA (10) being lower than his highest number of words written during baseline (45).

SMA increased minutes spent writing for all students except for Todd and Tom. Todd and Tom wrote for 0.1 and 2.5 more minutes, respectively during the baseline condition than the SMA condition. Anne, Ralph, Nikko, Tamara, Ty, and Bob increased their length of writing time from baseline to SMA by 2.7, 2.2, 1.2, 0.3, 0.4, and 3.6 minutes respectively. The occurrence of SMA after baseline or SMP does not appear to have an impact on minutes spent writing because six out of eight students increased their length of writing time regardless of treatment order.

SMA improved the writing quality of seven (Anne, Todd, Ralph, Tamara, Ty, Tom, and Bob) students over baseline. Average quality scores for these students increased from 1.3, 1.1, 1.0, 1.5, 1.2, 0.2, and 0.6, respectively, on the 5-point quality scale. Nikko, however, scored his highest quality score (2.4) during baseline. Anne, Ralph, Tamara, and Ty) scored their highest quality ratings during the SMA condition. Anne and Ralph participated in the SMA condition following baseline and improved 1.3 and 1.0, respectively, over baseline, and Tamara and Ty participated in the SMA condition following SMP with 1.5 and 1.2 improvements respectively. The occurrence of SMA after baseline or SMP does not appear to have an impact on writing quality because seven out of eight students improved their writing quality regardless of treatment order.

Table 4

Number of Words Written by Condition

Students	Baseline		SMA		SMP	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Anne	19.3	14.3	39.4	23.6	22.4	11.8
Todd	20.8	5.4	23.0	9.8	24.7	6.4
Ralph	10.0	3.5	34.6	11.1	34.8	17.3
Nikko	21.0	12.2	28.3	9.1	38.5	9.0
Tamara	17.1	5.3	35.4	15.9	27.3	15.9
Ty	14.4	7.4	29.8	13.1	18.3	7.4
Tom	13.3	10.1	26.6	6.5	22.0	5.7
Bob	18.7	13.2	47.8	30.4	34.5	14.8

Effects of the SMP Treatment

The SMP treatment had a positive effect on students' on-task behavior (see Figure 1). Anne's, Todd's, Ralph's, Nikko's, Tamara's, Ty's, Tom's, and Bob's on-task performance increased over baseline by 26.5%, 28.3%, 17.6%, 31.3%, 21.6%, 14.7%, 32.4%, and 24.8% respectfully. However only two of the students, Anne and Todd, had scores during SMP that consistently exceeded their highest on-task score during baseline. In contrast, almost all of Ty's and Bob's SMP on-task scores were lower than their highest on-task baseline scores.

Effectiveness of the SMP treatment for on-task behavior did not appear to be influenced by its placement either after baseline or SMA. Anne, Todd, Ralph, and Nikko

participated in SMP following SMA and their increase in percent time on-task over baseline was (26.5%, 28.3%, 17.6%, and 31.3%) respectively. Tamara, Ty, Tom, and Bob participated in SMP following baseline and their increase in percent time on-task was (21.6%, 14.7%, 32.4%, and 24.8%) respectively. Regardless of order of treatment, all students demonstrated an increase in on-task behavior over baseline, and there was little difference in the overall magnitude of these increases by the order of SMP treatment. Since students only collected on-task behavior data during the SMA treatment, increased on-task behavior was not attributed to a practice effect. Students did not carry over their on-task strategies from the SMA treatment to the SMP treatment.

SMP also had a positive effect on how much most of the students wrote in their journals (see Figure 2). Anne's, Todd's, Ralph's, Nikko's, Tamara's, Ty's, Tom's, and Bob's length of journal entries increased over baseline by 3.1, 3.9, 24.8, 17.5, 18.3, 15.4, 13.3, and 29.1 words, respectively. However, it is important to note that only one student, Ralph, consistently wrote more during SMP than his highest baseline score. In contrast, the length of journal entries of three students (Ty, Tom, and Bob) rarely exceeded their highest baseline score.

All students increased the length of their journal entries during the SMP treatment over baseline regardless of when it was implemented. Six students (Ralph, Nikko, Tamara, Ty, Tom and Bob) wrote more words during the SMP condition over baseline (24.7, 38.5, 27.3, 18.3, 22.0, and 34.5) respectively, regardless of treatment order. However, Anne and Todd participated in the SMP condition following the SMA condition and their average number of words written only increased 3.1 and 3.9, respectively, over baseline.

Table 5

Minutes Spent Writing per Day by Condition

Students	Baseline		SMA		SMP	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Anne	11.7	3.0	14.4	2.4	11.4	4.5
Todd	10.4	3.7	10.3	3.1	11.8	2.6
Ralph	5.3	2.1	7.5	1.9	12.2	2.6
Nikko	6.7	4.7	7.9	2.2	10.7	3.1
Tamara	7.6	3.5	7.9	2.7	9.9	3.1
Ty	8.8	5.6	9.2	4.4	8.4	2.4
Tom	10.7	3.8	8.2	2.8	10.3	4.0
Bob	7.3	3.1	10.9	2.9	12.5	3.3

Effectiveness of the SMP treatment for number of minutes spent writing might be influenced by its order of treatment. Todd, Ralph, Nikko, Tamara, and Bob increased their minutes spent writing over baseline to SMP (1.4, 6.9, 4.0, 2.3, and 5.2 minutes respectively) regardless of treatment order. However, Anne, Tom, and Ty spent slightly more minutes (0.3, 0.4, and 0.4 minutes) writing during baseline than during the SMP condition regardless of treatment order.

Average writing quality improved over baseline regardless of order of treatment for Anne, Todd, Ty, Tom, and Bob: their quality scores increased by 1.1, 1.2, 0.8, 0.3, and 0.6, respectively. However, Ralph, Nikko, and Tamara had higher quality ratings

during baseline (1.9, 2.4, and 1.8) than during SMP 1.7, 1.6, and 0.6, respectively. Thus, it is unclear how writing quality was impacted by treatment order.

Effects of SMA versus SMP

In terms of on-task behavior, all eight students demonstrated a larger increase during the SMA treatment than during the SMP treatment (see Table 3). Anne's, Todd's, Ralph's, Nikko's, Tamara's, Ty's, Tom's and Bob's increased time on-task during the SMA from the SMP condition by 8.2%, 14%, 23.9%, 9.9%, 27%, 17.2%, 22.3%, and 21.1%, respectively.

Number of words written increased for Anne, Tamara, Ty, Tom, and Bob more during the SMA treatment than the SMP treatment regardless of treatment order. They wrote 17.0, 8.1, 11.5, 4.6, and 13.3 more words, respectively during SMA than SMP. However, Todd, Ralph, and Nikko wrote longer entries (1.7, 0.2, and 10 words, respectively) during the SMP treatment than the SMA treatment (see Table 4).

Three students (Todd, Ralph, and Nikko) wrote more words during SMP when this condition occurred following SMA instead of baseline. However, five students (Anne, Tamara, Ty, Tom, and Bob) wrote more words during SMA regardless of its order of treatment.

Minutes spent writing increased more for five students (Todd, Ralph, Nikko, Tamara, and Bob) during SMP (1.5, 4.7, 2.8, 2.0, and 1.6 minutes, respectively) than it did during SMA. Two students (Anne and Ty) increased minutes spent writing (3.0 and 0.8) more during SMA than SMP. Tom spent more time writing during baseline (10.7 minutes) than during either the SMA (8.2 minutes) or SMP condition (10.3 minutes).

Table 6

Pretest and Posttest Quality of Journal Writing

Students	Baseline		SMA		SMP	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Anne	1.8	1.6	3.1	.9	2.9	1.1
Todd	1.7	.5	2.8	.9	2.9	.6
Ralph	1.9	.9	2.9	1.2	1.7	1.1
Nikko	2.4	1.3	2.3	1.0	1.6	.8
Tamara	1.8	1.1	3.3	.6	1.6	.9
Ty	1.5	.9	2.7	2.0	2.3	1.7
Tom	3.0	1.7	3.2	.9	3.3	1.5
Bob	2.4	1.8	3.0	1.0	3.0	1.4

Writing quality increased more for Anne, Ralph, Tamara, and Ty during the SMA treatment, with higher scores (1.3, 1.2, 1.7, and 0.4, respectively) over the SMP treatment. Two students (Todd and Tom) demonstrated only slightly higher quality writing during SMP with 0.1 and 0.1 gains, respectively, over SMA. Bob scored equally high (3.0) during both SMA and SMP treatments.

All students performance on the TOWL-3 Story Construction Sub-test improved in both percentiles and standard scores from pre-treatment to post-treatment (see Table 7). Bob demonstrated marked improvement in his percentile score, 16%ile at pre-treatment to 50%ile at post-treatment. Three students, Tamara, Ty, and Tom, moved from

the 25%ile to above the 83%ile. Todd demonstrated the smallest gain, moving from the 25%ile to the 37%ile. Since the TOWL-3 was a pre-treatment and post-treatment measure, improvements cannot be attributed to either strategy. Improvements could be attributed to many factors: the SMA or SMP strategy, experience with both of the strategies, maturation, exposure to the second-grade curriculum, or a combination of all of these factors.

Social Validity of SMA and SMP

When students were asked “which strategy did you like better? Why? Why not?” four students stated that the SMA treatment was more helpful. One student stated both conditions were helpful and three students stated SMP was more helpful than SMA. When students were asked, “Which strategy helped you more? Why? Why not?,” three students voiced a preference for the SMA condition. The other five students found parts from both strategies helpful. However, a general theme throughout the student semi-structured interviews was that students recognized that the headphones and beeps from the SMA condition as helpful tools for screening out classmates and distractions. For example, Ty asked if he could use the headphones and beeps for another day after he completed his participation in the study. In addition, Tamara stated, “The tape player helped me more because I didn’t have to count and I just had to write tally marks on if I was doing good or not.” Ty also remarked, “paying attention helped me more because it helps you not get up and stuff so it helps you just sit down and do it.”

Students’ responses to the following question, “What did you like about SMA? Why? Why not?” varied somewhat as well. Anne expressed a dislike of the headphones. The other students enjoyed the headphones and liked explaining to their peers that they

were listening to beeps and paying attention to journal writing. Todd did not like the SMA condition due to the interruption of writing to mark his “I am Paying Attention” chart. However the other students expressed liking the tally sheet or “I am Paying Attention” chart.

Question number four asked what students did not like about SMA. Even though the questions were separated, students frequently responded to the first question “What did you like?” with both what they liked and disliked about the SMA and SMP strategies. For this reason, student responses to Question Four are mixed in with responses to Question Three.

Although three students voiced a preference for SMP, one idea that was expressed repeatedly by students was that “counting words takes too much time or was not fun.” For example, Nikko stated, “I don’t want to count my words and beat my score. The tape player is fun.” Ralph also commented that, “I don’t like counting the words everyday because it makes your mouth dry out.” However, Ralph also stated, “SMP helps you write more because you had to beat the day before. One I got to 57, but I beat it so I got to 58.” Anne stated, “Counting words is fun, I like seeing how much I wrote.”

When queried about “What did you not like about SMP? Why? Why not?” students’ responses mirrored the ones provided during the proceeding question. Ty mentioned, “Counting words takes longer the more words you write. And it is hard to keep remembering [your score] everyday”. In response to this question, students did not always address the question as asked. For example, Nikko expressed his preference for SMP by stating, “Nothing, I just like it”. Anne expressed, “ I didn’t not like anything

about it". The other five students stated they did not like counting their words and beating their score from the day before."

When asked, "Which trick or strategy would you choose to use again? Why? Why not?" Five students chose SMA and three chose SMP. Ty responded with, "the tape player because it helps you to sit down. And usually I get up because I get worn out. But with the tape, I'm just relaxed and I just sit down and write." Bob answered, "I would use the tape player and tallies because I like to do the tallies and tape player because it is fun. It helps me concentrate on my work and study it." Ralph stated, " I would choose SMP because I had to do more words."

It is interesting to note that some students' performance was at odds with their evaluation of the treatments. Four students responded to one intervention better but indicated they liked the other intervention more. For example, Todd expressed liking SMP better because "you can see how much better you are doing" by counting words. He also said he liked counting words because " the more words, the higher you get. You can think longer." However, Todd's on-task behavior was higher during the SMA condition than the SMP condition and he produced relatively few words during both conditions.

When queried is there anything else you want to tell me about the tricks or strategies you learned, Ty responded, "I just think the tricks were really cool. You're relaxed and don't talk to other people and do your work." Bob stated, "Doing the tape player and counting words and studying and working in journal. I like to do those things because it's really fun to do it." Nikko stated, "They are pretty much the same trick. I mean they both have the rockets." The remaining students indicated they did not have anything else to add.

Table 7

TOWL-3 Scores in Pretest to Posttest

Students	Pretest		Posttest	
	Form B	Form A	Form B	Form A
	Percentile	Standard Score	Percentile	Standard Score
Anne	16	7	37	9
Todd	25	8	37	9
Ralph	25	8	50	10
Nikko	25	8	50	10
Tamara	25	8	91	14
Ty	25	8	91	14
Tom	25	8	84	13
Bob	7	16	50	10

An interesting note is that two students would not voice a preference for either strategy. They declared they liked both.

According to their responses on the semi-structured interview, students enjoyed and benefited from both SMA and SMP. They noted that both treatments were easy to learn and use. One student called both strategies “cool.”

In unsolicited comments and informal conversations, teachers responded that SMA seemed more beneficial for improving students’ on-task behavior. Teachers also noted that both strategies were easy for the students to learn and utilize. They were

delighted with the results. These social validity data suggest that SMA and SMP are ecologically viable interventions.

A final component of the social validity data was the appreciation for the rocket graphs. All of the students enjoyed using the graphs. They found the rockets motivating and fun. Two students mentioned liking the rockets during the semi-structured interviews in response to the question “What did you like about the strategies?”

CHAPTER 5

DISCUSSION

Writing is an important task in school (Ballard & Glynn, 1975; Zimmerman & Risemberg, 1997). Students write to communicate, demonstrate their knowledge of skills and the curriculum, and express their beliefs (Graham, 1982). Written language enables children to communicate across both time and space (Swedlow, 1999). It is useful for studying and learning content material (Durst & Newell, 1989). Journal writing, poetry, stories, and plays allow students to express their feelings and provide mechanisms for creative expression (Durst & Newell, 1989). Thus, writing is crucial to communication, learning, and expression, making it an essential component of modern education (Zimmerman & Risemberg, 1997).

This investigation examined the effectiveness of two self-monitoring interventions for improving the writing of young children who experience difficulty with this skill. Second-grade students were taught to use SMA and SMP, as techniques for increasing their on-task behavior, writing output, writing quality, and time spent writing journal entries. This study was designed to answer three questions about the singular and comparative effectiveness of these two treatments. I first address these three questions by examining data on students' on-task behavior and writing performance as well as their response to questions about the social validity of both the SMA and SMP treatments. Next, I examine implications for instruction, limitations of the study, and recommendations for future research.

Research Question 1: Is SMA effective in improving the on-task behavior, writing output, writing time, and writing quality of struggling writers at the second-grade level during journal writing time?

Based on previous research (Harris et al., 1994), I expected that SMA would be effective in improving students' on-task behavior, writing output, writing time, and writing quality. This was the case as students' average time on-task during SMA increased over the baseline condition. Students' average improvements during SMA ranged from 31.9% to 54.7% time on-task over baseline.

While improvements in writing output were not as dramatic or consistent as improvements in on-task behavior, the amount of writing generally increased over baseline. The range of increase for number of words written over baseline was 2.2 to 29.1 words. Writing time also increased over baseline for six students. Students' range of increase in minutes spent writing over baseline was 0.3 to 3.6.

In terms of overall writing quality, seven students (Anne, Todd, Ralph, Tamara, Ty, Tom, and Bob) evidenced improvements on holistic writing scores over baseline during the SMA phase. Of these seven students, four children (Anne, Ralph, Tamara, and Ty) demonstrated their highest quality scores during the SMA phase. The range of increase in quality scores over baseline was 0.2 to 1.5 on a 5-point scale

Thus, SMA was effective in improving the on-task behavior of all eight struggling second-grade writers during journal writing. SMA was generally effective in increasing the number of words students wrote. While six students increased the amount of time spent writing daily during SMA over baseline, only 2 out of these eight students wrote for

the longest amount of time during the SMA condition. Therefore, SMA did not appear to be very powerful for the other 6 students in terms of increasing writing time. Finally, the SMA treatment appears to have been beneficial in slightly improving writing quality for most of the second-grade struggling writers in this study.

Teachers provided unsolicited comments about the positive effects of SMA for student on-task behavior. The teachers were pleased with students' increased time on-task behavior. Students expressed a sense of pride in improving their journal writing skills and credited the tape recorder, headphones, and beeps with helping them make these gains. In addition, students with attention challenges preferred SMA.

These findings generally supported my predictions that SMA would improve time on-task, number of words written, and writing quality during journal time for struggling second-grade writers and are consistent with findings of previous research (Harris et al., 1994; Maag et al., 1993; Reid & Harris, 1993). Time spent writing improved slightly for seven out of eight students. This finding is counter to prior research (Harris et al., 1994; Maag et al., 1993; Reid & Harris, 1993).

Research Question 2: Is SMP effective in improving the on-task behavior, writing output, writing time, and writing quality of struggling writers at the second-grade level during journal writing time?

Based on previous research (Harris et al., 1994), I expected that SMP would be effective in improving on-task behavior, writing output, writing time, and writing quality. As predicted, time on-task increased over baseline (percentages ranged from 14.7% to 32.4%) for all eight students. Writing output also increased over baseline, with a range

increase of 3.1 to 29.1 words. However, students did not consistently write more during the SMP condition than they did during baseline.

Perhaps students did not make the anticipated gains in writing output and increased writing time due to a need for content generation writing strategies. Prior research (Graham & Harris, in press; Scardamalia & Bereiter, 1986; Reid, 1993) found that students make gains when they self-monitor tasks within their ability levels. The low writing output of these 8 students might be due to difficulty with generating enough ideas per journal entry.

On average, writing time increased over baseline for five out of eight students. The range of increased minutes written was 1.4 to 6.9. All five of these students averaged their longest writing times during the SMP condition.

Five students' (Anne's, Todd's, Ty's, Tom's and Bob's) holistic quality scores improved over baseline (with a range of 0.3 to 1.2). Of these five students, two students (Todd and Tom) demonstrated their highest writing quality (2.9 and 3.3) during the SMP condition. Surprisingly, three students' (Ralph's, Nikko's, and Tamara's) scores were lower during the SMP treatment than in baseline.

Thus, SMP did facilitate increased time on-task for struggling second-grade writers, and resulted in an increase in the amount of time spent writing for slightly more than one-half of the students. In contrast, SMP produced inconsistent results in improving number of words written for these students. In addition, SMP did not facilitate consistent improvements in writing quality for these second-grade struggling writers.

These findings provide only partial confirmation of the more positive results obtained in an earlier study investigating the impact of SMP in writing (Harris et al.,

1994). It may be that the difference in findings is related to the age of the students in the two studies. The older students in the previous Harris et al. (1994) were typically more positive about SMP than the younger students in this study. At least, in part, this may account for the obtained differences in the two studies.

It is also possible that differences between the findings for this and the Harris et al. (1994) study are due to the differences in writing tasks. In the prior study, students wrote stories. In this study they wrote in their journals. SMP may work better with one writing task than the other. In addition, journal writing was viewed by teachers as one type of task when in fact, many genre were utilized, requiring students to demonstrate a variety of writing skills. Assuming that each of these journal entries were equal tasks could have contributed to the variability in the results of the current study.

Finally, in the previous Harris et al. (1994) study, students were taught a strategy for generating story ideas and content before they learned to apply the SMP procedures. This did not occur in the present study. Since the SMP procedure was so closely tied to content generation, this may have weakened the power of the SMP procedure in the current study.

Research Question 3: Are SMA and SMP differentially effective in improving the on-task behavior, writing output, time spent writing, and writing quality of struggling writers at the second-grade level during journal writing time?

Based on previous research (Harris et al., 1994), I did expect that there would be a differential effect for SMA or SMP on students' on-task behavior, writing output, time spent writing, or writing quality. I expected students would prefer SMP to SMA,

however, as other students have described it as easier to implement and execute (Harris et al., 1994).

While all eight students (Anne, Todd, Ralph, Nikko, Tamara, Ty, Tom, and Bob) increased their average time on-task behavior from baseline during the SMP treatment, all eight students demonstrated their highest percent time on-task behavior during the SMA treatment. Demonstrated time on-task during the SMA treatment for Anne, Todd, Ralph, Nikko, Tamara, Ty, Tom, and Bob was higher than during the SMP treatment by 8.2%, 14%, 23.9%, 9.9%, 27%, 17.2%, 22.3%, and 21.1%, respectively. Thus SMA and SMP were differentially effective in improving on-task behavior for second-grade students in this study, with SMA being more effective than SMP in this regard.

Again, all eight students improved their average number of words written from baseline to both the SMA and the SMP treatments (see Table 4). However, four students (Anne, Tamara, Ty, and Tom) averaged more words during the SMA treatment: 17.0, 8.1, 11.5, and 4.6 respectively. Two of the four remaining students (Todd and Ralph) averaged almost the same number of words during SMA and SMP with a slight advantage going to the SMP treatment (1.7 and 0.2, respectively). The final students, Nikko and Bob averaged more words (10.2 and 13.3, respectively) during SMP than SMA. Thus, SMA and SMP were differentially effective in improving the number of words students wrote daily in their journals. SMA was generally more powerful in increasing number of words written for four of the eight second-grade students in this study while SMP appeared to be more powerful for two of the remaining four students.

All eight students increased their number of minutes spent journal writing over baseline during SMA and SMP (see Table 6). However, six students, (Todd, Ralph,

Nikko, Tamara, Tom, and Bob) increased the number of minutes per day journal writing more during SMP than SMA (1.5, 4.7, 2.8, 2.0, 2.1, and 1.6 minutes, respectively). The remaining two students, Anne and Ty, spent more time journal writing during the SMA treatment (3.0 and 0.8 minutes, respectively). Thus, SMA and SMP were differentially effective in improving the number of minutes spent journal writing each day for second-grade students. Although differences were small, improvements generally favored the SMP treatment.

Four students (Anne, Ralph, Tamara, and Ty) demonstrated their highest quality writing during SMA (3.1, 2.9, 3.3, and 2.7) whereas two students (Todd and Tom) demonstrated their highest quality writing during SMP (2.9 and 3.3). Bob's quality score for SMA and SMP was the same (3.0). Finally, Nikko scored his highest quality rating of 2.4 during baseline. Thus, SMA and SMP produced mixed effects on students' writing quality.

In summary, SMA was more effective than SMP in improving time on-task and number of words written. It also was more likely to improve students' writing quality than the SMP treatment. The only advantage for SMP, and it was a small one, involved number of minutes spent writing. These findings vary from prior research (Harris, et al., 1994) which found that both SMA and SMP were effective in increasing time on-task, performance, and quality.

Based on previous research (Harris et al., 1994), I expected that students would prefer SMP to SMA, as it is easier to implement and execute. However, students responded in a mixed fashion to strategy preference during interviews. Students' comments were split as to which strategy they preferred. Some liked SMA better due to

the lack of word counting, whereas others found the word counting in SMP to be motivating.

As in prior research (Harris et al., 1994), students did not demonstrate carry over or lasting effects from using either of the two strategies. I assumed that the short duration of the study reduced the likelihood of the students would internalize the strategies and continue to utilize them without the graphs and tones supplied during treatment.

Possible Reasons for Differential Effects

I think that it is likely that students' interest in and knowledge of the topic of the day influenced students' performance and interacted with the effectiveness of the two strategies: SMA and SMP. This clearly added variability in students' performance, and may have inadvertently influenced on-task behavior, writing output, writing quality, and writing time differently during the two treatments.

Differential effects may have also been due to social perceptions about the apparatus used during the SMA condition. In the prior Harris et al. (1994) study, older students noted disliking the headphones because their peers were not wearing them. It is possible that older students disliked wearing the headphones because of a perceived social stigma attached to looking different from their peers. The second-grade students readily saw the benefits of wearing the headphones and were very capable of answering their peers' inquiries as to why they were doing so. The experimenter instructed the students to state, "I am helping Mrs. Moran." At this point, the peers either left the subject alone or asked to help the experimenter as well. The second-grade students mentioned liking the headphones to screen out classroom distractions. Looking different from their classmates did not appear to bother the second-grade students. In fact, 7 of out

of the 8 second-grade students in this study stated they enjoyed wearing the headphones and attributed their success to staying on task to the headphones blocking out distractions. Their positive view about the headphones may have increased the effectiveness of SMA in this study. Possibly second-grade students preferred the headphones due to their developmental ability level and their difficulty in screening out external noises without assistance.

As in previous research (Harris et al., 1994), students did not always like the strategy that produced the best results for them. For example, Tamara noted “the tape player (SMA) helped me more because I didn’t have to count and I just had to write tally marks if I was doing good or not.” However, Tamara’s minutes spent writing were longer during the SMP treatment than the SMA treatment. Ralph stated, “SMP helps you write more because you had to beat the day before. One I got to 57, but I beat it so I got to 58.” Ralph’s average number of words written and minutes spent writing per day were higher during SMP, however, his holistic quality and time on-task were higher during the SMA treatment. Finally, Anne disliked of the headphones (SMA), but consistently performed better during this treatment.

Teachers provided unsolicited social validity information throughout the study. Both teachers found the strategies easy for students to utilize with little to no assistance. This is an important factor in a general education classroom. The teachers also noted that students enjoyed the strategies and that SMA kept the students on-task more than during baseline or SMP. These teacher observations support the ecological validity of SMA and SMP in second-grade inclusive classrooms.

Implications for Instruction

This study has several implications for classroom practice. One, this investigation demonstrates that children as young as second-grade can be taught to monitor their attention or performance. It is possible that the effectiveness of the SMA and SMP procedures used here could be improved by adding the self-selection of daily goals for on-task behavior or writing output. Furthermore, adding a brief daily conference about goals might further improve performance. Since this was a naturalistic study and such conferences did not occur in these classrooms, these procedures were not utilized in this study. Another possible way to improve the effectiveness of SMA or SMP is through reinforcement procedures. Giving students stickers when they beat their score or met their goal might improve performance. Likely, a combination of the above suggestions would prove useful for classroom purposes.

Frequently, students commented that they could not think of anything else to write. Teaching students strategies for how to brainstorm or generate ideas might improve the effectiveness of SMA or SMP in the classroom as well. Combining idea-generating strategies with self-monitoring procedures might further empower students and facilitate the independent management of their learning (Graham et al. 1992). Students or teachers are unlikely to find that self-monitoring procedures are effective if students do not have the skills to carry out the monitored task (Gickling & Armstrong, 1978; Hallahan & Sapona, 1983).

Journal writing is frequently used as a means to develop an authentic link between reading and writing (Montgomery, 2001; Wollman-Bonilla, 2001) and to motivate students to write (Bromley & Powell, 1999). While journal writing as defined by the

participating teachers addressed both of these issues, it also varied from typical journal writing. Three types of journal are commonly utilized; they are: dialogue journals, buddy journals, and interest journals (Bromley & Powell, 1999). Dialogue journals consist of students writing to teachers about student-selected topics and teachers providing leading questions requesting more details and information (Bromley & Powell, 1999).. Buddy journals allow students to interact with each other and discuss assigned readings or topics (similar to the teacher selected topics in the current study) (Bromley & Powell, 1999). Interest journals are designed to encourage reluctant writers to write (Bromley & Powell, 1999). They consist of students writing about whatever topics they find interesting Then they share their entries with classmates and clarify issues, debate issues, and voice opinions (Bromley & Powell, 1999). Typical journal writing is not teacher directed and does not involve a teacher selected prompt. Perhaps, if the participating teachers incorporated some of the above techniques into their daily journal writing routines, students would have written more words per day.

Limitations of the Study

Although this study avoided some of the problems of previous research, there are several areas of concern that need to be noted as limitations.

Sample Size

Sample size was limited to 8 students and consequently, replication is needed to verify the findings from this study. It is also not clear how representative these students are of other poor writers at the second-grade level; thus, this must be kept in mind when considering the generalizability of the findings from this study.

Writing Task

Although the teachers who participated in the current study considered journal writing as one type of writing task, the variety of genre utilized presented students with various writing tasks to execute. In addition, students were allowed to manage how much time they devoted to this activity per day. Similar results may not have been obtained with different writing tasks, teacher directed writing lessons, or in an environment where students were not allowed as much freedom in regulating their behavior.

Self-Regulation

One possible confound in the current study is that the two treatments involved different levels of self-regulation. Students in the SMA condition used headphones and tape players with tones to prompt them to record their on- or off-task behavior. Consequently, students in the SMA condition received support through this equipment with the process of self-monitoring. Students in the SMP condition, however, monitored their production and attention without such assistance.

Another issue is whether or not students were accurate in their recording of on- and off-task behavior. Prior research has shown (Nelson, 1977), however, it is not necessary for students to be accurate when recording on-task behavior in order to see positive improvements in this area.

Content Generation

The SMA and SMP strategies may not have been optimally effective with these second-grade struggling writers because they typically generated little content when writing, providing them with little to monitor, especially in the SMP condition. If students had been taught a strategy for generating content in conjunction with the use of

SMA or SMP, the effectiveness of both strategies might have increased. Additionally, student interest in and knowledge about daily topics probably influenced the number of words written daily (Bromley & Powell, (1999).

Effectiveness of Treatments

For 6 out of 8 of the students, either their on-task behavior or their writing output was quite variable either during baseline, treatment, or both. This made it more difficult to establish stable trends or interpret the effectiveness of treatments.

Interpreting Data

It is important to note that individual student differences probably contributed to the effectiveness of treatments and the interpretation of data. For example, Tom had days when he appeared to be on task but produced little writing (see Figures 1 and 2). He had home life issues that visibly impacted his school performance. His father was on long-term assignment overseas and occasionally came home for short visits. Although these were happy occasions, they interfered with Tom's ability to focus on schoolwork. His father's departures also impacted his ability to focus and complete school assignments and tasks.

Bob also had variable performance that was probably due to factors other than journal writing or the treatment conditions. His three lowest days in SMP were days he arrived at school late, past the tardy bell. On these days, he had particular trouble orienting himself to the school environment and school tasks. Ralph produced his least amount of words written during treatment in the SMP condition. This was a day he arrived late and required teacher guidance to unpack, get organized, and sign up for lunch. These outside influences likely impacted the effectiveness of the treatments.

In addition, the pairing of students for data collecting might have impacted the results due to the interrelated nature of phase lines between partners. For example, if Todd and Bob had been partners, the phase lines could have been shorter. Finally, another possible reason for so much variability in the data is the variety of genres utilized for daily writing.

Ecological Validity

The classroom teachers did not conduct the observations of on-task behavior or writing performance, nor did they implement the treatments. Thus, it is not clear if these procedures are readily transferable to a typical classroom.

Implications for Future Research

This study enhanced the existing literature by comparing the effectiveness of SMA and SMP in a new academic area (i.e., journal writing) and with younger students. Additional research is needed to replicate the findings obtained here as well as to examine ways of improving the effectiveness of this intervention with struggling writers at the second-grade level. One possible way to do the latter is to examine if teaching students a strategy for generating content in conjunction with self monitoring improves SMA or SMP. Harris et al. (1994), in their comparative study of SMA and SMP with older students taught such a strategy prior to the start of the study.

Research is also needed to examine the comparative effectiveness of SMA and SMP with other types of writing tasks. To date, researchers have examined the use of self-monitoring with journal writing (this study), and story writing (Ballard & Glynn, 1975; Harris et al., 1994; Rumsey & Ballard, 1985). Other writing tasks that self-monitoring might be effective with are: writing to persuade, essay writing, and personal

narratives. Even though these genres (see Appendix J) were utilized for journal topics in this study, future research should focus on examining the effects of SMA and SMP for each genre separately.

Additional research is needed on the comparative effectiveness of SMA and SMP in different educational settings as well. To date, studies have examined the use of these procedures in general education with both large and small groups for reading instruction; small group seatwork, writing, math and spelling instruction in special education (Harris et al., 1994; Lloyd et al., 1989; Maag et al., 1993; Reid & Harris, 1993; Roberts & Nelson, 1981; Rooney et al., 1985). The reading studies have examined the effectiveness of self-monitoring with students second-grade through high school. Findings for these settings need to be replicated and extended to other settings such as general education math, writing, and spelling instruction.

As in prior research (Harris, et al., 1994), no carry over effect was observed from one treatment to the other. Short interventions do not allow the students sufficient time to inculcate the strategies deeply enough for carry over effects to occur (Harris, et al., 1994). Future research should continue to examine if carry over effects occur and under what conditions they are most likely to occur.

The effectiveness of SMA and SMP has mostly focused on children who experience difficulty in school. Nevertheless, additional investigation is needed to understand more fully the potential impact of the procedures with students with special needs. It is especially important to examine the match between learner, task, and self-monitoring procedure. Perhaps SMA and SMP are more powerful for specific types of

students doing certain types of tasks. Future research should also examine if students with attention challenges have a consistent preference for SMA over SMP.

Finally, more study needs to be directed to the comparative effectiveness of SMA and SMP with children at different developmental levels. Younger students may not have developed the prerequisite skills needed to use self-monitoring effectively (Pintrich & Zusho, 2002). In contrast, older students may view self-monitoring procedures such as SMA as too intrusive. Thus, developmental differences need to be more fully explored.

Conclusion

In conclusion, this study investigated the differential effects of SMA and SMP during second-grade journal writing. The study attempted to eliminate a number of limitations (e.g., order effect, implementing the SMP strategy correctly, teaching the strategies until mastery, and graphing results in both conditions) that plagued prior research involving SMA and SMP comparisons.

The SMA and SMP conditions were presented in a counter-balanced manner to control for order effects. It does not appear that any order effects occurred in the current study. Three students did write more words during the SMP condition when it was presented after the SMA condition. However, the other five students wrote more words during the SMA condition regardless of its order of presentation. Consequently, a clear order effect was not established in this study.

Prior research (Lloyd et al., 1989) modified SMP to make it comparable to SMA, producing mixed results. In the current study, students did not interrupt their writing task but counted and graphed words written at the end of each writing session. Counting and graphing at the end of the academic task utilizes SMP as was intended by Harris (1986b).

Teaching the SMA and SMP strategies until students demonstrated they had mastered the strategies and could verbalize all of the steps independently avoided the limitation experienced by Rooney et al. (1985). Extra training sessions were not required by students during the current study.

Students graphed their progress in both conditions (SMA and SMP) to allow for a more true comparison than in previous research (Harris, 1986). One student even noted during the exit interview that the two strategies were “the same because they both had rockets (graphs).” Each student commented on enjoying the graphing.

In comparing the two treatments, students demonstrated stronger results during SMA than SMP for: on-task behavior and words written. However, students generally spent more minutes writing during SMP than SMA (although these differences were small). The results for writing quality were mixed. Students expressed appreciation for both strategies and verbalized the benefits of each. Teachers noted increased time on-task behavior during the SMA condition. They also indicated that both strategies were beneficial for students and easy to learn and utilize.

Appendix A

Parent Information Letter

1 of 2

Dear Parents,

I am Ms. Susan Moran, a doctoral candidate at the University of Maryland, College Park. I will be conducting a study to complete my doctoral degree. This work will be under the direction of Dr. Steven Graham a professor at the University of Maryland, Department of Special Education.

My study will examine the benefits of two instructional procedures that help children stay on-task. The children participating in the study will receive 1) instruction in a strategy to help them monitor their attention to their journal writing and 2) instruction in a strategy to help them monitor the length and quality of their journal writing. Instruction on how to use the strategies will be delivered by myself. Instruction will occur 5 days a week during normal journal writing time for approximately 20 minutes a day. Instruction will last 10 weeks. All instruction will occur in your child's classroom.

To determine the benefits of instruction, children will be assessed prior to the start of instruction and following the completion of instruction. Assessment will consist of the following: (1) Classroom observations of children during journal writing. (2) Children will be asked to complete a story writing activity from a published writing test. This test will take about 8 minutes. (3) They will be asked to participate in a short interview to examine their attitudes, confidence and knowledge about writing. This interview will take about 15 minutes. Sample journal entries will be collected before and after instruction. Journal writing will take about 20 minutes. Available test information from each child's

file will be collected as well.

All information collected in this study is completely confidential. Your child's name, your name, and the school's name will not be used in any reports or presentations of the results of this study. Participation in this study poses no risk to your child, as the instruction provided is based on sound teaching procedures, and should improve your child's academic skills. You may withdraw your child from participation in this study at any time you decide that it is not in your or your child's best interest to continue.

We hope that you decide to have your child participate in our project.

If you have any questions, please feel free to contact me, Ms. Susan Moran, at (301) 912-5151 or Dr. Graham at (301) 405-6493. If you wish to give permission for your child to participate in this study, please sign the attached form and return it as soon as possible in the provided envelope. Thank You.

P.S. Please keep this two page informative letter.

Susan Moran, Ph.D. candidate
University of Maryland
Special Education Department
Benjamin Building
College Park, MD 20742

Steve Graham, Ph.D.
University of Maryland
Special Education Department
Benjamin Building
College Park, MD 20742

Sample Permission letter

Dear Parents,

Please read, print your child's name, sign your name, print the date and return this one page form to me in the enclosed stamped envelope. Thanks, Ms. Susan Moran.

Identification of Study	Examine the benefits of two instructional procedures that help second-grade children stay on-task during journal writing.
Purpose	To help students stay on-task during morning journal writing activities. Involvement <u>may</u> improve journal writing and/or academic skills.
Procedures	Children will learn two strategies. One will help them pay attention to their journal writing. The second will help them monitor the number of words written per entry. Students will work with trained graduate students in their own classrooms for about 20 minutes a day, five days a week. The study will last 10 weeks.
Confidentiality	I understand that achievement and/or IQ information will be collected from my child's school file. However, all information collected will be confidential. My child's name, my name, and the school's name will not be used in any reports or presentations of this study.
Risks	My child will miss some class time for testing and initial teaching of the strategies (about an hour throughout the whole study). Daily instruction will occur in my child's classroom during the normal journal writing period. Participation in this study poses no risk to my child, as the instruction provided is based on sound teaching procedures, and may improve your child's academic skills. Choosing to participate or not to participate in this study will <u>not</u> affect student's grades or regular school program.
Rights to Ask Questions	Both students and parents may ask questions of the researcher at any time.
Withdrawal	I understand that I have the right to withdrawal my child from participation in this study at any time.

I give permission for my child _____ to participate in the study described above.

Child's name: _____ Signature of Parent/Guardian: _____ date: _____

Appendix B

I Am Paying Attention Chart

Name _____ Date _____

Directions:

Make a tally mark in the yes box or the no box when you hear a beep.

I am Paying Attention
Yes
No

Appendix C

Teacher Writing Questionnaire

Dear teachers,

Thank you for taking the time to fill in this questionnaire. Please respond to the following items. You may write on the back of the pages if you need more room. Thanks again.

Susan Moran

1. Please describe your writing program.

2. How often do you provide structured writing lessons?

3. What are your writing goals?

4. Do you have any specific goals for journal writing, if so, what are they?

5. Please describe how writing relates to other academic areas in your class.

6. How do you define writing?

7. Can students learn how to be good writers? _____ If yes, how? If no, why not?

8. What is the purpose of writing instruction in your classroom?

14. Circle how often you teach planning strategies.



15. Circle how often you teach revising strategies.



16. Circle how often you teach students about ways of organizing text or how texts are organized.



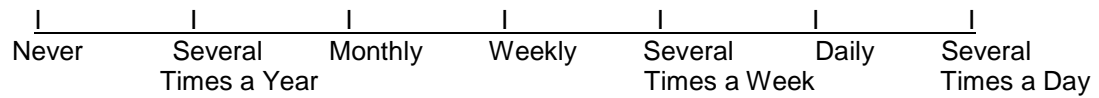
17. Circle how often you reteach writing skills or strategies that were previously taught.



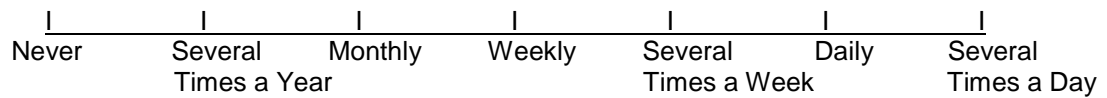
18. Circle how often students use computers during the writing period.



19. Circle how often you teach students how to write or form the letters of the alphabet.



20. Circle how often students share their writing with their peers.



21. Circle how often students are allowed to complete writing assignments at their own pace.



22. Circle how often you teach spelling words.



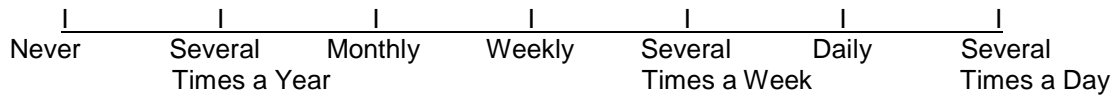
23. Circle how often you teach strategies for spelling unknown words.



24. Circle how often you teach phonics for spelling.



25. Circle how often you encourage students to use invented spellings.



26. Circle how often you overtly model writing strategies.



27. Circle how often your children help their classmates with their writing.



28. What types of adaptations/modifications do you provide to students who are struggle with writing? This is beyond what you typically do with students. List as many examples as you can please.

Appendix D

SMA Lesson Script

_____ Why is it important to pay attention? Why do you need to be able to pay attention during journal writing?

_____ I am going to show you a trick that will help you pay attention.

_____ First we need to make sure we know what paying attention means. This is what I mean when I say paying attention. Looking at my journal, looking at the board for the topic, writing in my journal, reading my journal, checking spelling words on word wall, or asking for help. **MODEL THESE STEPS FOR STUDENT.**

_____ This is what I mean by not paying attention. Not paying attention means any behaviors not listed under paying attention. For example, **MODEL THE FOLLOWING -- WALKING AROUND THE ROOM, PLAYING WITH OBJECTS, TALKING WITH NEIGHBORS.** Not working on my journal is not paying attention.

_____ Now you tell me if I am paying attention. **MODEL ATTENTIVE AND NON-ATTENTIVE BEHAVIORS. ASK STUDENT TO CATEGORIZE BEHAVIORS.**

_____ Now let me show you what we are going to do. During journal writing, you will wear these headphones and listen to this tape recorder. You will have a sheet like this one **SHOW STUDENT THE AM I PAYING ATTENTION SHEET.** Every now and then you will hear a beep like this one. **TURN ON TAPE.** When you hear the beep quietly ask yourself, “Am I paying attention?” If the answer is yes, make a tally mark next to ‘yes.’ **MODEL THIS.** If the answer is no, make a tally mark next to the ‘no.’ **MODEL THIS.** After you make the tally mark go right

back to work. When you hear the beep again, ask yourself “Am I paying attention?” Mark your answer and go back to work. Let me show you how it works. MODEL JOURNAL WRITING AND THINK ALOUDS FOR ON- AND OFF-TASK BEHAVIOR.

_____ Now you tell me, “What do you do when you hear the beep?” Good. Now you try with the tape and the “Am I Paying Attention” paper. Remember to mark your sheet every time you hear the beep.

_____ When journal writing is finished each day, you will count your tally marks. MODEL COUNTING TALLY MARKS. After counting tally marks, you will fill in your rocket graph like this. MODEL GRAPHING TALLY MARKS.

_____ Teach positive self-statements. After you graph, you will say “Good job paying attention today!” MODEL saying “GOOD JOB PAYING ATTENTION TODAY!”

_____ Show me what you will do after you finish writing in your journal. That is right, you count your tally marks and graph the number on the rockets. Good job!

_____ We will do this every day. O.K.?

Appendix E

SMP Lesson Script

_____ Why is it important to write in your journal? DISCUSS WITH STUDENTS.

_____ I am going to show you a trick to help you write more in your journal and to help you write better journal entries.

_____ First you will write in your journal like normal. Then you will count the number of words you wrote in your journal for that day. MODEL COUNTING THE NUMBER OF WORDS IN YOUR JOURNAL ENTRY.

_____ Next, you will graph that number on your rocket graph. Write your number of words written under the rocket. SHOW THE STUDENTS WHICH ROCKET TO USE ON THE FIRST DAY, SECOND DAY, ETC.

_____ Count the number of lines on the graph; draw a line on top of the bar that equals the number of words you wrote. Color in the bottom part of the rocket. MODEL COLORING IN THE ROCKET GRAPH.

_____ Here is a copy of one of your journal entries and a rocket graph. You show me what to do.

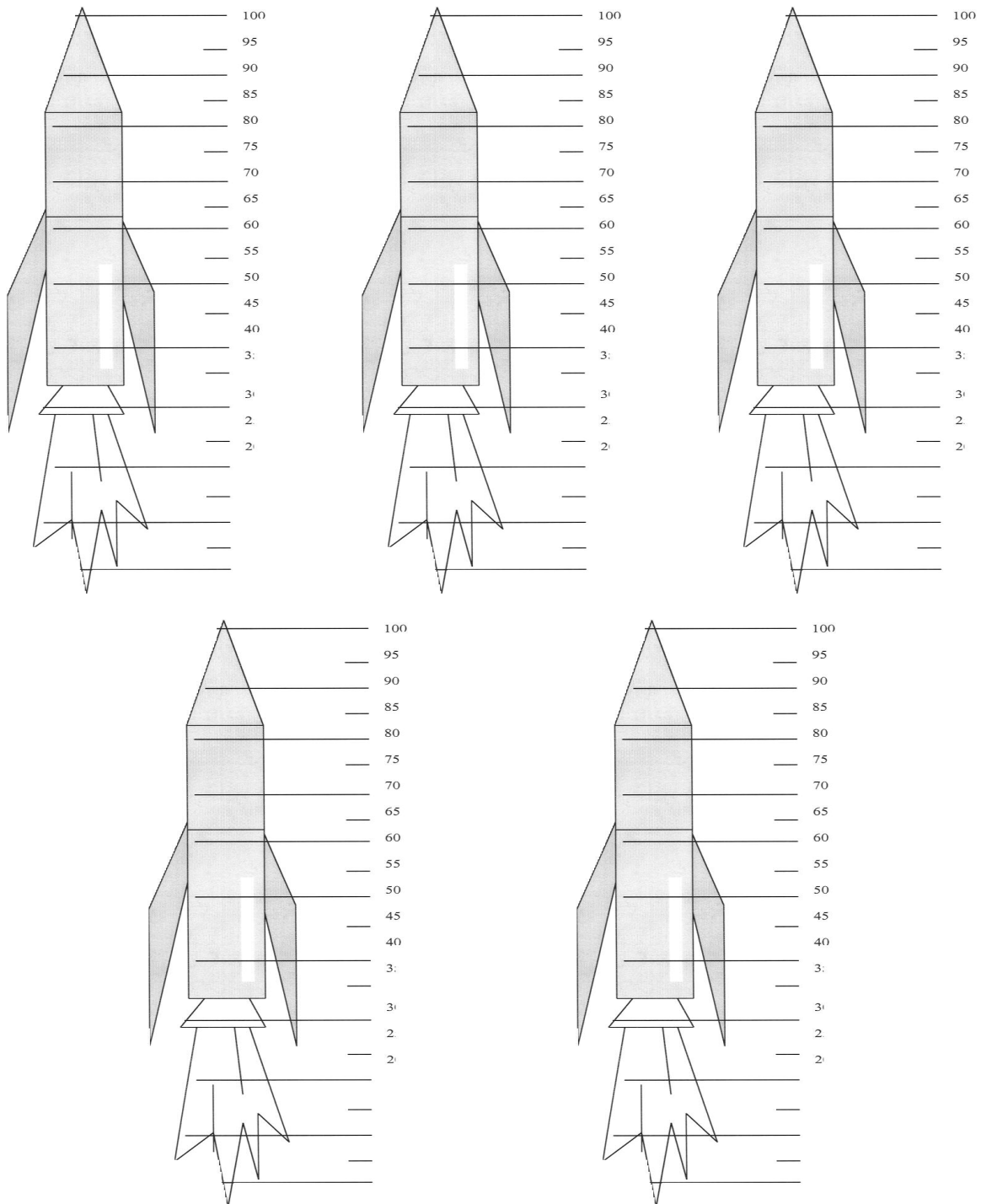
_____ When you are writing and checking your journal, you can talk to yourself. The things we say to ourselves help us work and write better. MODEL THINK ALOUDS and POSITIVE SELF-STATEMENTS.

_____ Remember, first you read your journal entry, then you answer your questions on your rubric. Finally, you graph your answers on your rocket graph. Show me please. REMEMBER YOU CAN THINK OUT LOUD WHEN YOU WRITE AND CHECK YOUR WRITING.

_____ You will use this trick everyday, O.K.?

Appendix F

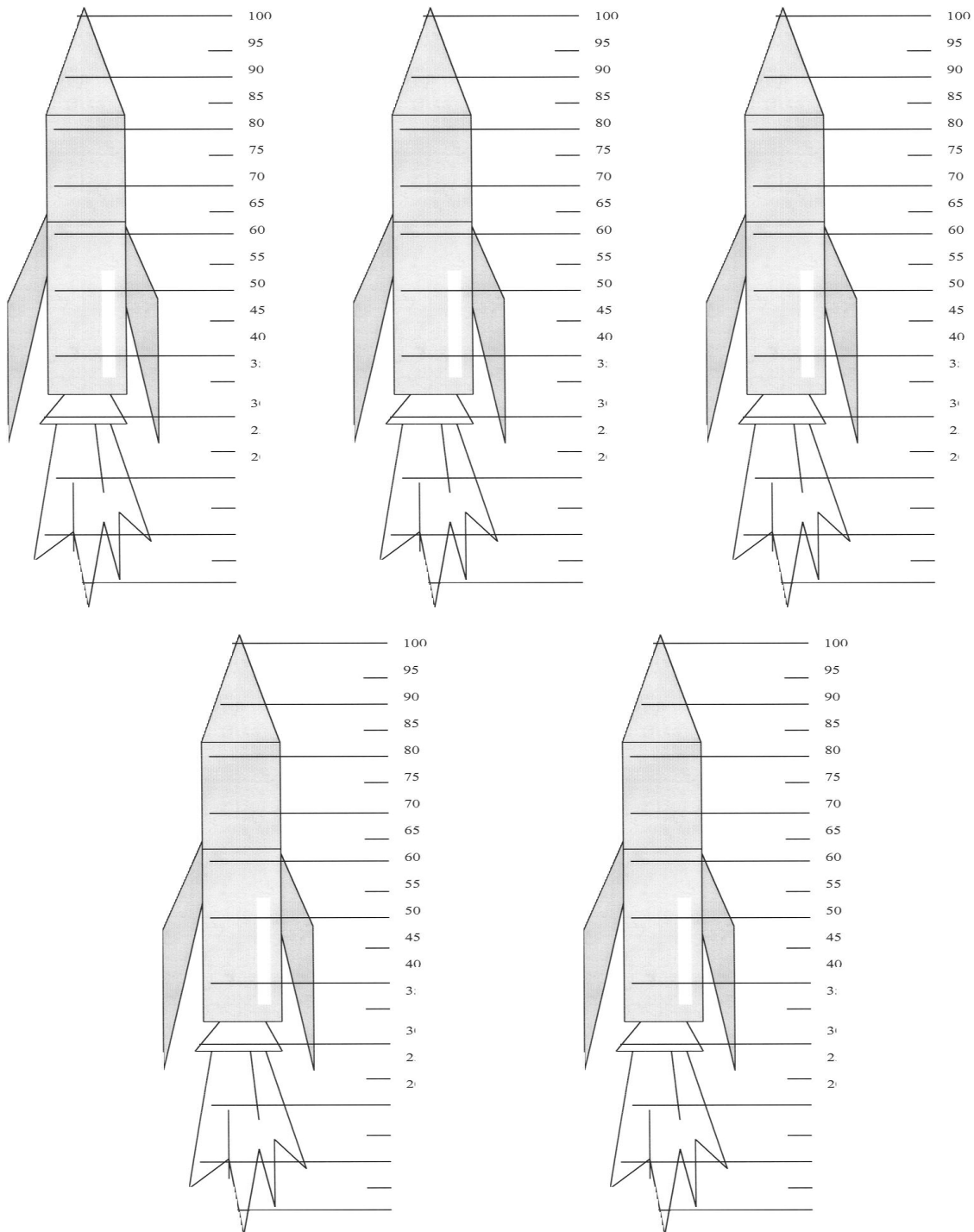
SMA Rocket Graph



_____ 's Rockets

Appendix G

SMP Rocket Graph



_____ 's Rockets

Appendix H

Student Questionnaire

1. Which strategy did you like better? Why? Why not?

2. Which strategy helped you more? Why? Why not?

3. What did you like about SMA? Why? Why not?

4. What did you not like about SMA? Why? Why not?

5. What did you like about SMP? Why? Why not?

6. What did you not like about SMP? Why? Why not?

7. Which one would you choose to use again? Why? Why not?

Appendix I

Holistic Writing Rating Scale

Score of 5	<p>Student demonstrates the ability to:</p> <ul style="list-style-type: none"> • Address or restate prompt • Relate sentences to each other • Use more than 2 T-units (a complete thought) • Use varied sentence structure (i.e. more than one clause and varied length) • Use transition words
Score of 4	Student demonstrates 4 of the above criteria.
Score of 3	Student demonstrates 3 of the above criteria.
Score of 2	Student demonstrates 2 of the above criteria.
Score of 1	Student demonstrates 0 or 1 of the above criteria.

Appendix J

Journal Writing Topics

1. Pretend you are a stuffed animal in a store window. If you could talk, what would you say to convince someone to buy you?
2. Predict who will win the Super Bowl. Why did you pick that team?
3. Tell me about your weekend.
4. Imagine you are walking in the woods when you find a magical cabin. What happens when you walk inside?
5. Octopus are ...
6. What do you like about February? Why?
7. If you could have a pile of anything, what would it be and why?
8. What snack food are you most like? Why are you like that snack food?
9. Tell about a time when you won something.
10. What do you like about March? What do you dislike about March?
11. Would you like to be the President of the U.S.? Why?
12. In the first 100 days of school, what have you liked the most? What have you liked the least? What do you want to learn in the next 80 days?
13. My favorite month is... Why is this your favorite month?
14. Complete the story. When I woke up on Valentine's Day, I found a surprise package in my room. The note on the package said to try to figure out what was in the box before I opened it. I ...
15. Red is...
16. Tell me about your 2 days with the substitute.
17. Winter is ...

18. Tell me about your long weekend.
19. Tell me about your favorite place to spend time.
20. List 5 nouns that begin with the letter M. Write a story using the 5 nouns.
21. Tell me about your week off from school.
22. Free choice
23. How do you feel about the CTBS test? Why do you feel this way?
24. Today is St. Patrick's Day! If you could wish for anything, what would it be and why?
25. What other uses can you think of for a sneaker?
26. If a spider landed on my head, I would ...
27. Why do we have classroom rules? Do you think it is important to have them? Why? Do you follow them?
28. What is your favorite Dr. Seuss book and why?
29. Write a story about your favorite number.
30. Imagine you are a meatball on a plate of spaghetti. Dinner is about to begin. Write about being the meatball and what happens to you.
31. Today is the first day of April. What do you like about April and why?
32. Mr. E is your substitute teacher! (Father of a student) Would you like your mom or dad to substitute in our class? Why?
33. Tell me about your day with Mr. E.
34. Did you enjoy Ronald McDonald? Explain why.
35. What did you do yesterday when you got home from school? (early dismissal day)

36. If I was the teacher, I would ...
37. Today is the first day of spring! What do you like and dislike about spring.
38. If I was home today, I would...
39. Which biography did you enjoy reading the most? Why?
40. What are your plans for the weekend? Describe.
41. What was your favorite part of yesterday's performance? Explain.
42. What do you enjoy doing on warm days? Explain.
43. Use the 4 knew words from yesterday in sentences or a paragraph. Precipitation, hypothesis, procedure, erosion.
44. Define hero. Who is a hero to you? Why?
45. Look at yesterday's journal. Add 3 new things you learned about Abraham Lincoln.
46. Finish your animal story.
47. One week it rained, and rained, and rained. I thought I ... Finish the story.
48. If I worked in a zoo... (Add 6 sentences to create a story)
49. Do you plan to participate in T.V. Turn-off week? Tell me 3 reasons why or why not.
50. What is your favorite type of measurement? (length, area, perimeter, weight, etc.) Why?
51. Create and April poem.
52. What does the word consideration mean? When have you been considerate to another person?

53. Happy April! What do you like or not like about April? Have you ever pulled off a good April Fool's joke? Describe.
54. Which do you find more interesting a volcano or an earthquake? Explain with reasons.
55. When I see a rainbow... (Finish the sentence. Write at least 5 more sentences. You can make a poem, if you wish).
56. Today is May 1st! What do you like or not like about May? Why?
57. Which type of poetry do you enjoy writing? Why? (Haiku, Shape, Couplets, Acrostic, Holiday, 5 Senses, 5 W's)
58. One day, my parents bought me a pet octopus. I ... (Create a story)
59. The Talent Show is in June. What talent do you have or would you like to have? Why?
60. Describe a problem you have had. Explain the solution.
61. Describe how you helped the Earth yesterday. (Earth day)
62. Today is Field Day! I can't wait to ...
63. You may choose to write about: Field Day or your plans for Spring Break.
64. Write a letter to the substitute telling him why consideration is our word of the month.
65. If I had ____ dollars, I would ... (write 5 –6 sentences)
66. There was noise in my basement. I went downstairs and ...
67. Saturday is Safety Fair. List 4 ways you can be safe. Bike, Car. Roller Blading, Swimming.
68. Monday is Memorial Day. What is Memorial Day? What are your plans for the weekend?

69. One day my teacher gave me a magic pencil. I ... (Teacher really did hand out pencils)
70. Define fairness. How do you treat people fairly?
71. What character traits would you use to describe yourself? Why?
72. Create a story or poem about rain.
73. Define stereotype. Give me an example.
74. Predict how you think your folktale (from your reading group) will end. Why?

References:

- Alexander, P. (2004). The development of expertise: The journey from acclimation to proficiency. *Educational Researcher*, 32, 10 – 14.
- Alexander, P., Graham, S., & Harris, K. R. (1998). A perspective on strategy research: Progress and prospects. *Educational Psychology Review*, 10, 129-154.
- Ballard, K. D., & Glynn, T. (1975). Behavioral self-management in story writing with elementary school children. *Journal of Applied Behavior Analysis*, 8, 387-398.
- Bandura, (1997). *Self-efficacy: The exercise of control*. New York: W. H. Freeman and Company.
- Belfiore, P. J., & Hornyak, R. S. (1998). Operant theory and application to self-monitoring in adolescents. In D. Schunk & B. J. Zimmerman (Eds.), *Self-regulated learning: From teaching to self-reflective practice*. (pp. 1-19). New York, London: The Guilford Press.
- Bereiter, C., & Scardamalia, M. (1987). *The psychology of written composition*. Hillsdale, N. J.: Erlbaum.
- Bogdan, R. C. & Biklen, S. K. (1998). Data Analysis. *Qualitative research for education: An introduction to theory and method*. Boston, London, Toronto, Sydney, Tokyo, Singapore: Allyn and Bacon
- Bromley, K., & Powell, P. (1999). Interest journals motivate student writers. *The reading teacher* 53, 111-112.
- Bronson, M. B. Supporting self-regulation in preschool and kindergarten children. *Self regulation in early childhood*. New York, London: The Guilford Press

- Creer, T. L., (2000). Self-regulation and academic learning: Self-efficacy enhancing interventions. *Handbook of Self-Regulation*. San Diego, San Francisco, New York, Boston, London, Sydney, Tokyo: Academic Press.
- Durst, R., & Newell, G. (1989). The uses of function: James Britton's category system and research on writing. *Review of Educational Research*, 59, 375-394.
- Endler & Kocovski, (2000). Self-regulation and academic learning: Self-efficacy enhancing interventions. *Handbook of Self-Regulation*. San Diego, San Francisco, New York, Boston, London, Sydney, Tokyo: Academic Press.
- Gay, L. & Airasian, P. 6th Edition. (2000). *Educational research: Competencies for analysis and application*. New Jersey: Prentice-Hall Inc.
- Gickling, E. E., & Armstrong, D. L. (1978). Levels of instructional difficulty as related to on-task behavior, task completion, and comprehension. *Journal of Learning Disabilities*, 11, 32-39.
- Glynn, E. L., Thomas, J. D., & Shee, S. M. (1973). Behavioral self-control of classroom behavior in an elementary classroom. *Journal of Applied Behavior Analysis*, 6, 105-113.
- Graham, S. (1982). Composition research and practice. A unified approach. *Focus on Exceptional Children*, 14, 1-16.
- Graham, S. (1990). The role of production factors in learning disabled students' compositions. *Journal of Educational Psychology*, 82, 781-791.
- Graham, S., & Harris, K. R. (1994). The effects of whole language on children's writing: A review of literature. *Educational Psychologist*, 29, 187-192.

- Graham, S., & Harris, K. R. (1996). Addressing problems in attention, memory, and executive functioning: An example from self-regulated strategy development. In R. Lyon (Ed.), *Attention, memory, and executive function* (pp. 349-365). Baltimore, MD: Brooks Publishing Co.
- Graham, S., & Harris, K. R. (1997). Whole language and process writing: Does one approach fit all? In J.W. Lloyd, E. J. Kameenui, & D. Chard (Eds.), *Issues in educating students with learning disabilities* (pp. 239-258). Mahwah, NJ: Erlbaum.
- Graham, S., & Harris, K. R. (2000). The role of self-regulation and transcription skills in writing and writing development. *Educational Psychologist, 35*, 3-12.
- Graham, S., Harris, K. R., MacArthur, C. A., & Schwartz, S. (1991). Writing and writing instruction for students with learning disabilities: Review of a research program. *Learning Disability Quarterly, 14*, 89-114.
- Graham, S., Harris, K. R., & Reid, R. (1992). Developing self-regulated learners. *Focus on Exceptional Children, 24*, (5), 1-16.
- Graham, S., & Harris, K. R. (in press). Writing smarter: Helping struggling writers master the writing process.
- Graham, S., Schwartz, S. S., & MacArthur, C. A. (1993). Knowledge of writing and the composing process, attitude toward writing, and self-efficacy for students with and without learning disabilities. *Journal of Learning Disabilities, 26*, 237-249.
- Graves, D. (1985). All children can write. *Learning Disability Focus, 1*, 36 – 43.

- Glynn, E. L., Thomas, J. D., & Shee, S. M. (1973). Behavioral self-control of on-task behavior in an elementary classroom. *Journal of Applied Behavior Analysis*, *6*, 105-113.
- Hallahan, D. P., Gajar, A. H., Cohen, S. B., & Tarver, S. G. (1978). Selective attention and locus of control in learning disabled and normal children. *Journal of Learning Disabilities*, *11*, 47-52.
- Hallahan, D. P., Kauffman, J. M., & Lloyd, J. W. (1999). Teaching students with writing problems. *Introduction to Learning Disabilities*. 2nd ed. (pp. 369-412). Boston, London, Toronto, Sydney, Tokyo, Singapore: Allyn and Bacon.
- Hallahan, D. P., Lloyd, J. L., Kauffman, J. M., & Loper, (1983). Academic problems. In R. Morris & T. Kratochwill (Eds.), *Practice of Child Therapy: A Textbook of Methods* (pp. 113-141). New York: Pergamon.
- Hallahan, D. P., Lloyd, J. L., Kosiewicz, M. M., Kauffman, J. M., & Graves, A. W. (1979). Self-monitoring of attention as a treatment for learning disabled boy's off-task behavior. *Learning Disability Quarterly*, *2*, 24-32.
- Hallahan, D. P., Lloyd, J. W., Kneedler, R. D., & Marshall, K. J. (1982). A comparison of the effects of self- versus teacher-assessment of on-task behavior. *Behavior Therapy*, *13*, 715-723.
- Hallahan, D. P., Marshall, K. J., & Lloyd, J. W. (1981). Self-recording during group instruction: Effects on attention to task. *Learning Disability Quarterly*, *4*, 407-413.

- Hallahan, D. P., & Sapona, R. M. (1983). Self-monitoring of attention with learning-disabled children: Past research and current issues. *Journal of Learning Disabilities, 16*, 616-620.
- Hammill, D. D. & Larsen, S. C. (1996). *Test of Written Language, 3rd ed.* Austin, TX: Pro-ed.
- Harris, K. R. (1986). Self-monitoring of attentional behavior versus self-monitoring of production: Effects on on-task behavior and academic response rate among learning disabled children. *Journal of Applied Behavior Analysis, 19*, 417-423.
- Harris & Graham (1996). *Making the writing process work: Strategies for composition and self-regulation.* Cambridge, MA: Brookline Books.
- Harris, K. R., Graham, S., Reid, R., McElroy, K., & Hamby, R. (1994). Self-monitoring of attention versus self-monitoring of performance: Replication and cross-task comparison studies. *Learning Disability Quarterly, 17*, 121-139.
- Hayes, J. R. & Flower, L. S. (1980). Identifying the organization of writing processes. In L. Gregg, & E. R. Steinberg (Eds.), *Cognitive processes in writing.* (pp.3-30). Hillsdale, N. J.: Erlbaum.
- Hayes, J. R. & Flower, L. S. (1986). Writing research and the writer. *American Psychologist, 41*, 1106-1113.
- Hofer, B. K., Yu, S. L., & Pintrich, P. R. (1998). Teaching college students to be self-regulated learners. In D. H. Schunk & B. L. Zimmerman (Eds.), *Self-Regulated Learning: From Teaching to Self-Reflective Practice.* (pp. 57–85). New York & London: The Guilford Press.

- Hopman, M. & Glynn, T. (1989). The effect of correspondence training on the rate and quality of written expression of four low achieving boys. *Educational Psychology*, 9, 197-213.
- Hutchinson, S. W., Murdock, J. Y., Williamson, R. D., & Cronin, M. E. (2000). Self-recording plus encouragement equals improved behavior. *Teaching Exceptional Children*, 54-58.
- Kanfer, F. H. (1970). Self-monitoring: Methodological limitations and clinical considerations. *Journal of Consulting and Clinical Psychology*, 35, 148-152.
- Kanfer, F. H. (1977). The many faces of self-control, or behavior modification changes focus. In R. B. Stuart (Ed.). *Behavioral Self-Management: Strategies, Techniques and Outcomes*. (pp. 1-48).
- Kauffman, J. M. (1997). *Characteristics of emotional and behavioral disorders of children and youths*. Upper Saddle River, NJ: Prentice-Hall.
- Lloyd, J. W., Bateman, D. F., Landrum, T. J., & Hallahan, D. P. (1989). Self-recording of attention versus production. *Journal of Applied Behavior Analysis*, 22, 315-323.
- Lloyd, J. W., Hallahan, D. P., Kosiewicz, M. M., & Kneedler, R. D. (1982). Reactive effects of self-assessment and self-recording on attention to task and academic production. *Learning Disability Quarterly*, 5, 216-227.
- Maag, J. W., Reid, R., & Digangi, S. A. (1993). Differential effects of self-monitoring attention, accuracy and production. *Applied Behavior Analysis*, 26, 329-344.

Maryland State Department of Education (2003). *Maryland Content Standards*. Retrieved June 4, 2003,

http://mdk12.org/scripts/worksheets/gradebook_worksheet.plContentArea=English+Language+Arts&GradeCode=2&redirect=1&Template=gradebook_form_template3.html.

McCutchen, D. (1988). "Functional automaticity" in children's writing: A problem of metacognitive control. *Written Communication*, 5, 306-324.

McDougall, D. (1998). Research on self-management techniques used by students with disabilities in general education settings. *Remedial and Special Education*, 19, 310-320.

McFall, R. M. (1970). Effects of self-monitoring on normal smoking behavior. *Journal of Consulting and Clinical Psychology*, 35, 135-142.

McFall, R. M. (1977). Parameters of self-monitoring. In R. B. Stuart (Ed.), *Behavioral Self-Management*, (pp. 196-215), New York: Brunner/Mazel.

Meece, J. L., Wigfield, A., & Eccles, J. S. (1990). Predictors of math anxiety and its influence on young adolescents' course enrollment intentions and performance in mathematics. *Journal of Educational Psychology*, 82, 60-70.

Montgomery, W. (2001). Journal writing: Connecting reading and writing in mainstream educational settings. *Reading & writing quarterly*, 17, 93-98.

Nelson, R. O. (1977). Assessment and therapeutic functions of self-monitoring. In J. D. Cone & R. P. Hawkins (Eds.), *Progress in Behavior Modification* (Vol. 5, pp. 263-308). New York: Academic Press.

- Nelson, R. O., & Hayes, S. C. (1981). Theoretical explanations for reactivity in self-monitoring. *Behavior Modification*, 5, 3-14.
- Pintrich, P. (2000). The role of goal orientation in self-regulated learning. *Handbook of Self-Regulation*. San Diego, San Francisco, New York, Boston, London, Sydney, Tokyo: Academic Press.
- Pintrich, P. & Zusho, (2001) The development of academic self-regulation: the role of cognitive and motivational factors. In A. Wigfield, A., & Eccles, J. S. (Eds.) *Development of Achievement Motivation* (249 – 284). San Diego, San Francisco, New York, Boston, London, Sydney: Academic Press
- Prater, M. A., Joy, R., Chilman, B., Temple, J., & Miller, S. R. (1991). Self-monitoring of on-task behavior by adolescents with learning disabilities. *Learning Disabilities Quarterly*, 14, 164 - 177.
- Randi, J., & Corno, L. (2000). Self-regulation and academic learning: Self-efficacy enhancing interventions. *Handbook of Self-Regulation*, San Diego, San Francisco, New York, Boston, London, Sydney, Tokyo: Academic Press.
- Ransdell, S. & Levy, C. M. (1999). Writing, reading, and speaking memory spans and the importance of resource flexibility. *The Cognitive Demands of Writing Processing Capacity and Working Memory in Text Production*. Amsterdam: Amsterdam University Press.
- Reid, R. (1993). Implementing self-monitoring interventions in the classroom: Lessons from research. *Severe Behavior Disorders Monograph*, 43-54.

- Reid, R. (1996). Research in self-monitoring with students with learning disabilities: The present, the prospects, the pitfalls. *Journal of Learning Disabilities, 29*, (3), 317-331.
- Reid, R., & Harris, K. R. (1990). Self-monitoring of performance. *LD Forum, 15*, 39-42.
- Reid, R., & Harris, K. R. (1993). Self-monitoring of attention versus self-monitoring of performance: Effects on attention and academic performance. *Exceptional Children, 59*, (6), 1-13.
- Risley, (1977). The social context of self-control. In R. B Stuart (Ed.). *Behavioral Self-Management: Strategies, Techniques and Outcomes*. (pp. 77-81). New York: Bruner-Mazel.
- Roberts, R. N., & Nelson, R. O. (1981). The effects of self-monitoring on children's classroom behavior. *Child Behavior Therapy, 3*, 105-120.
- Rooney, K. J., Hallahan, D. P., & Lloyd, J. W. (1984). Self-recording of attention by learning disabled students in the regular classroom. *Journal of Learning Disabilities, 17*, 360-364.
- Rooney, K. R., Polloway, E. A., & Hallahan, D. P. (1985). The use of self-monitoring procedures with low IQ learning disabled students. *Journal of Learning Disabilities, 18*, 384-389.
- Rumsey, I. & Ballard, K.D. (1985). Teaching self-management strategies for independent story writing to children with classroom behavior difficulties. *Educational Psychology, 5*, 147-157.
- Scardamalia, M., & Bereiter, C. (1986). Written composition. In M. Wittrock (Eds.), *Handbook of Research on Teaching* (3rd ed., pp. 778-803). New York: Macmillan.

- Schunk, D. & Ertmer, P. (2000). Self-regulation and academic learning: Self-efficacy enhancing interventions. *Handbook of Self-Regulation*. San Diego, San Francisco, New York, Boston, London, Sydney, Tokyo: Academic Press.
- Schunk, D. & Zimmerman, B. J. (1998). *Self Regulated Learning from Teaching to Self-Reflective Practice*. New York, London: The Guilford Press.
- Snider, V. S. (1987). Use of self-monitoring of attention with LD students: Research and applications. *Learning Disability Quarterly, 10*, 139-151.
- Swedlow, J. (1999). The power of writing. *National Geographic, 196*, 110-132.
- Tawney, J. W., & Gast, D. L. (1984). *Single subject design in special education*. Columbus, OH: Merrill.
- Thomas, C. C., Englert, C. S., & Gregg, S. (1987). An analysis of errors and strategies in the expository writing of learning disabled students. *Remedial and Special Education, 8*, 21-30.
- Thoresen, C. E. & Mahoney, M. J., (1974). Self control. *Behavioral Self-Control*. New York, Chicago, San Francisco, Atlanta, Dallas, Montreal, Toronto, London, Sydney: Holt, Rinehart, and Winston, Inc.
- Torrance, M. & Jeffery, G. (1999). Writing processes and cognitive demands. *The Cognitive Demands of Writing Processing Capacity and Working Memory in Text Production*. Amsterdam: Amsterdam University Press.
- Troia, G., Graham, S., & Harris, K. R. (1999). Teaching students with learning disabilities to mindfully plan when writing. *Exceptional Children, 65*, 235-252.
- Wechsler, D. (1991). Wechsler scales of intelligence, 3 Ed. The Psychological Corporation.

- Wollman-Bonilla, J. E. (2001). Can first-grade writers demonstrate audience awareness? *Reading Research Quarterly*, 36, 184-201.
- Zimmerman, B. J. (1998). Developing self-fulfilling cycles of academic regulation: An analysis of exemplary instructional models. In D. Schunk & B. J. Zimmerman (Eds.), *Self Regulated learning: From teaching to self reflective practice*. (pp. 1-19). New York, London: The Guilford Press.
- Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. *Handbook of Self-Regulation*, San Diego, San Francisco, New York, Boston, London, Sydney, Tokyo: Academic Press.
- Zimmerman, B., Bonner, S., & Kovach, R., (1996). *Developing Self Regulated Learners: Beyond Achievement to Self-Efficacy*. Washington, DC: American Psychological Association.
- Zimmerman, B., & Reiserberg, R., (1997). Becoming a self-regulated writer: A social cognitive perspective. *Contemporary Educational Psychology*, 22, 73-101.