The efficiency and effectiveness of self-monitoring for increasing fourth graders' work completion

Stacy S. Jeffrey

University of Northern Iowa

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THE EFFICIENCY AND EFFECTIVENESS OF SELF-MONITORING FOR INCREASING FOURTH GRADERS' WORK COMPLETION

An Abstract of a Thesis
Submitted
In Partial Fulfillment
of the Requirements for the Degree
Specialist in Education

Stacy S. Jeffrey
University of Northern Iowa
May 1999
ABSTRACT

This research study investigated the efficiency and effectiveness of self-monitoring as an individual intervention technique. Data were collected for 10 weeks in a public elementary school in a small city in central Iowa. The subjects were 1 fourth-grade regular classroom teacher and 1 of her students and 1 special education teacher and 1 student from a fourth-grade regular classroom in which the special education teacher team-taught. Both teachers had willingly volunteered to participate in the research study and later identified a student in their class who had low rates of work completion. None of the 4 subjects had received formal training in the use of self-monitoring as an individual intervention technique for work completion concerns prior to this study.

Each teacher completed an interview with the researcher to identify and define the target area of concern and a brief training session in self-monitoring. Both teachers and the researcher maintained journals to document their perspectives on implementing self-monitoring throughout the study. At the end of 10 weeks, teachers completed a rating scale of their views on time and cost efficiency, effectiveness, maintenance, and “teacher-friendliness” of self-monitoring.

Teachers trained students to self-monitor work completion. After each student had met their work completion goal over 5 consecutive days, intervention components were systematically phased out and maintenance of intervention effects was monitored. Both students obtained their work completion goal.

Although little maintenance data were available, the students increased their average percentage of daily work completed in the target area and maintained
intervention effects while intervention components were removed. The teachers differed in their views of self-monitoring as a “teacher-friendly” intervention. The regular classroom teacher preferred reward based class-wide strategies and reported that she would be unlikely to use self-monitoring again. The special education teacher indicated that she would use self-monitoring in the future.
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This Study by: Stacy S. Jeffrey

Entitled: The Efficiency and Effectiveness of Self-Monitoring for Increasing Fourth Graders’ Work Completion.

has been approved as meeting the thesis requirement for the Degree of Specialist in Education

\( \sqrt{27/98} \)
Date Dr. Annette M. Iverson, Chair, Thesis Committee

\( 7/27/98 \)
Date Dr. Melissa L. Heston, Thesis Committee Member

\( 7/27/98 \)
Date Dr. Susan K. Etscheidt, Thesis Committee Member

\( 12/2/98 \)
Date Dr. John W. Somervill, Dean, Graduate College
I would like to dedicate this project to my wonderful husband, Jeremy.
Whenever I lost my balance, you were there to hold me up.
It was a long trip, you must be tired!

A & F
ACKNOWLEDGEMENTS

I would like to acknowledge all of the help that I have received from some very thoughtful people. Thank you, to all of my committee members for their guidance and assistance. And a special thank you, to the teachers that opened their doors to me.
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CHAPTER I
INTRODUCTION

With the enactment of Public Law 94-142 (1975), educators must develop individualized educational plans for all students in need. Accordingly, the costs of educational services have increased, forcing schools to find effective means of intervention that are inexpensive. The search for effective and inexpensive academic and behavioral interventions is ongoing and laborious.

Over the last two decades, self-management has become more prevalent in the classroom intervention literature. Self-management consists of “the actions designed to change or maintain one’s own behavior” (Shapiro & Cole, 1994). Self-management techniques are based in both behavioral and social cognitive theory. Self-management interventions require students to implement strategies, on their own, to change their academic or behavioral performance.

Self-monitoring is defined by Shapiro and Cole (1994) as “a self-management procedure that requires the student to observe specific aspects of their own behavior and provide an objective recording of those observations” (pg. 7). It is a behavioral intervention based on self-management principles.

Cognitive-behavioral theory and research yielded various self-monitoring interventions that appeared to be effective and inexpensive. Self-monitoring interventions are supported throughout the school-based intervention literature as effective and efficient means of helping students with academic or behavioral problems succeed in the classroom.
Students use interventions that focus on the observation and evaluation of their own behavior to create behavior change. The target behavior may be academic or behavioral and is defined as detrimental to the student's learning environment.

Self-monitoring was initially used as an assessment technique. Clinicians who were seeking data pertaining to their clients' behavior during the times that the clients were not in treatment, or data on client behaviors that were not directly observable (e.g., thoughts or feelings), found that clients could be taught to observe and record their own behavior. The clinicians soon found that, when clients observed and recorded their own behavior, reactive effects occurred. Simply having the person observe a behavior caused changes in that behavior. Researchers and practitioners have taken advantage of the ease of implementation and reactive effects of self-monitoring in order to assist students with classroom behavior change.

The self-monitoring task has two basic components: (a) observation of the behavior or skills and (b) recording of the observation data. Students learn to execute a routine that requires them to stop what they are doing, assess their own behavior, and record whether a specific target behavior/skill has occurred or is occurring. The student can observe and record the target behavior/skill in many different ways.

There are four complementary parts of the self-monitoring intervention which determine how the technique will vary for each individual student. Those four components include: (a) the presence or absence of cueing, (b) the observational procedure employed, (c) the method of recording, and (d) the self-monitoring training that is given to the student (Lloyd, Landrum, & Hallahan, 1991).
Research supports self-monitoring as an effective intervention technique for academic and behavioral targets. Maintenance of improved target behaviors has been investigated by few researchers. From the limited research, investigators have reported the maintenance of improved target behaviors from 4 days to 8 weeks after the self-monitoring intervention components were systematically removed (Bolstad & Johnson, 1972; Dunlap & Dunlap, 1989; Hallahan, Lloyd, Kneedler, & Marshall, 1982; Hallahan, Marshall, & Lloyd, 1981; Lloyd, Bateman, Landrum, & Hallahan, 1989; Szykula, Saudargas, & Wahler, 1981; Turkewitz, O'Leary, & Ironsmith, 1975).

Researchers also have praised the time and cost efficient characteristics of self-monitoring, but have not provided research data to support these claims. Likewise, educators have not commented on the time and cost efficient characteristics of self-monitoring either. These characteristics are critical to the use of an intervention by educators. Time and cost data, that support self-monitoring as an efficient intervention, would assist educators in choosing self-monitoring as an intervention to implement in their own schools.

Purpose

The purpose of the present study was to investigate the: (a) effectiveness of self-monitoring with students with work completion target behaviors, (b) time and costs of first-time implementation of the self-monitoring intervention, (c) maintenance of self-monitoring, and (d) teacher perceptions of self-monitoring after initial training and use in the classroom. For this study, the definition of self-monitoring by Shapiro and Cole (1994) was used: "a self-management procedure that requires the student to observe
specific aspects of his/her own behavior and provide an objective recording of those observations." (pg. 7).

Statement of the Problem

Although the current school-based intervention literature supports the use of self-monitoring as an effective academic and behavioral intervention technique, it may not be used on a widespread basis due to the absence of data concerning time and cost efficiencies of the intervention and the potential maintenance of intervention effects. The present study examined the: (a) effectiveness of self-monitoring with 2 students with work completion target behaviors, (b) time and cost efficiency of the technique for the teachers, (c) maintenance effects, and (d) the perceptions of the intervention by teachers who were trained in the intervention, who subsequently trained students in self-monitoring, and who implemented it.

Research Questions

1. How much time and money were required to train the teachers in the use of self-monitoring as a classroom intervention?

2. How much time and money were required by the teachers to prepare for and train the students in self-monitoring?

3. What were the effects of self-monitoring when the students used it as an intervention?

4. Did self-monitoring help students to improve work completion behavior?
5. Did students maintain intervention effects after self-monitoring components were systematically removed?

6. What were the teachers’ ratings of the effectiveness of self-monitoring on work completion behavior?

7. Did teachers report that they would use the self-monitoring intervention in the future with students that experienced academic or behavioral difficulties?

8. Did teachers think that they could independently implement the intervention in the future?

Importance of the Study

Educators must develop individualized educational plans for all students in need of assistance. Accordingly, the time and money expenditures on educational plans have increased, and the need for effective interventions that are inexpensive and time efficient is in demand. Self-monitoring has been supported in the literature as an effective and cost-efficient intervention technique for academic and behavioral difficulties. However, the intervention’s maintenance potential continue to merit investigation. Teachers’ perceptions of the intervention and its usefulness in classrooms also are important information. If self-monitoring is to be of use, teachers must find it to be both effective and time and cost efficient.

Limitations of the Study

Single subject designs have been identified as potentially possessing limited validity and generalizability (Cozby, 1993). They may yield data that could be attributed to the time frame in which the study took place or the individual characteristics of the
participants in the study. Enhancing the validity and generalizability of the study would require a larger and more homogeneous sample of subjects sharing a common target behavior (Cozby, 1993). Judgments on cause and effect relationships may not be made. But, inferences may be made about improvements in work completion due to the self-monitoring intervention. In addition, the teachers' perceptions of the use of self-monitoring as an intervention technique cannot be generalized to the population of teachers.
CHAPTER II
LITERATURE REVIEW

Elements of Self-Monitoring

Self-monitoring requires the individual to act as the observer for his or her own behavior or skills. The self-monitoring task has two basic components: (a) observation of the behavior or skills and (b) recording of the observational data. Students learn to execute a routine that requires them to stop what they are doing, assess their own behavior, and record whether a specific target behavior/skill has occurred or is occurring. The student can observe and record the target behavior/skill in many different ways.

There are four complementary parts of the self-monitoring intervention which determine how the technique will vary for each individual student: (a) the presence or absence of cueing, (b) the observational procedure employed, (c) the method of recording, and (d) the self-monitoring training that is given to the student (Lloyd et al., 1991).

Cueing

Most self-monitoring intervention programs include some form of cueing system. The presence of cueing implies that some type of indicator is used to cue the student to begin the self-monitoring routine (Lloyd et al., 1991). Research has shown that cues are important to the effectiveness of self-monitoring (Heins, Lloyd, & Hallahan, 1986) and may eventually be removed after the target behavior has improved (Hallahan et al., 1979). A common method used to cue students involves using a taped recording that plays tones at relatively frequent, irregular intervals. The tones serve as a cue for students to assess and record their target behavior/skill. Many teachers have questioned the intrusiveness of
the tape recorded tones, in that they may distract other students, and have suggested the use of earphones so that the tones would not be audible to other students. Research has shown that when other students, who are not the targets of the self-monitoring intervention, hear the cues, their behavior improves as well (Kosiewicz, 1981).

Some self-monitoring intervention plans do not require a separate cue to occur, because the occurrence of the target behavior itself, or the end of a given task, is used as a signal for the student to monitor the behavior. For example, a self monitoring program could require teachers to mark certain problems on students' worksheets. The marked problems serve as cues for students to stop and assess the accuracy of their work (Rooney, Polloway, & Hallahan, 1985). A similar procedure might require students to record their hand raising behavior in asking questions or requesting permission from the teacher.

Observation Procedures

Different observation systems can be used in self-monitoring. A frequency count procedure requires the student to observe and record every occurrence of her own target behavior/skill. Momentary time-sampling may also be employed. It requires the student to observe and record the target behavior/skill at a single point in time. For example, a student with a learning disability hears a cue on a taped recording. If she is engaged in the target behavior at the cue, she records the behavior (Hallahan et al., 1979). Another method involves a summary rating procedure. The student learns to make overall judgments of her behavior/skill after a set period of time elapses.
Observation procedures may also focus on the duration of the target behavior/skill or combine the frequency with duration. For example, Schwartz (1977) required tutors to have their tutees collect duration data on the time spent on their reading practice. Lloyd et al. (1989) used a combination of frequency counts and momentary time sampling to instruct students to count the number of arithmetic problems completed during brief time periods.

**Method of Recording**

Self-monitoring has been found to be more effective when students are required to record their observations in an obvious manner. The different methods for recording observations have been separated into two main categories: pencil and paper systems and counting devices (Lloyd et al., 1991). Pencil and paper systems require students to make tally marks every time the target behavior/skill occurs. Teachers may find that preparing a recording sheet makes it easier for students to monitor and record the occurrence of their behavior/skill because of the structured and uniform format of the recording procedure. In developing prepared recording sheets, it is critical that teachers keep the age and interests of students in mind to ensure that sheets are developmentally appropriate.

Counting devices may also be used for recording. For example, a teacher may have students monitor the number of arithmetic problems completed by having them move a bead on a leather strap. The students can wear the leather strap on their wrists and move a bead after completing each problem (Holman & Baer, 1979). A mechanical counter may also be worn on the wrist to record the occurrence of a specific behavior/skill (Hallahan et al., 1981).
Training

Self-monitoring may be taught to a student by a teacher or school psychologist in 15 to 20 minutes (Lloyd et al., 1991). For training to be successful, the self-monitoring program must be explained in a very clear manner. Lloyd et al. stress that it is important for the trainer to: (a) define the behavior that the student will be recording; (b) model the defined behavior; (c) check for the student’s understanding of the defined behavior; and (d) observe the student while she practices the procedure.

Depending upon students’ target behaviors and the various needs in teachers’ classes, teachers or school psychologists choose an appropriate training program. Training programs may include a variety of elements. Students may be trained individually or in groups. Self-monitoring may be paired with another intervention (i.e., token economy). Videotapes may also be used so the student may practice observing and recording their target behavior. Students may be required to match recordings with a teacher, or rewards may be given for accurate recording (Sprick, Sprick, & Garrison, 1993). For the self-monitoring intervention to be effective it is recommended that teachers, rather than school psychologists, conduct training with students due to the availability of teachers (Lloyd et al., 1991). This allows the student to have an easily accessible resource for further assistance with the intervention.

Typically, contingent rewards are not necessary for a self-monitoring intervention to work effectively. For many students, using self-monitoring as the sole intervention proves to have a reactive effect on the target of change, but the effects of self-monitoring are unique for each individual student. While many students experience reactive change
when subjected to self-monitoring, others may not. In this instance, the use of self-monitoring may be paired with additional self-management strategies (i.e., contingent rewards).

Through an analysis of the self-monitoring literature, Nelson (1977), Shapiro (1984), and Mace and Kratochwill (in press) have identified certain variables that may assist the reactive effects of self-monitoring: (a) motivation, (b) valence, (c) target behaviors, (d) goals, reinforcement and feedback, (e) timing, (f) concurrent monitoring of multiple behaviors, (g) schedule of self-monitoring, and (h) nature of self-monitoring device. In addressing motivation, the more motivated a student is to change their target behavior, the more likely reactive effects of self-monitoring will occur. Self-monitoring also has a tendency to strengthen desirable behaviors and decrease the capacity of undesirable behaviors. Reactive effects may be more evident for more obvious, nonverbal behaviors and for those common antecedents that follow undesirable target behaviors. If a self-monitoring program is accompanied by performance goals, feedback, and reinforcement, reactive effects are also more likely to occur. Requiring the student to self-monitor before the target behavior occurs, and to self-monitor only one or few behaviors also increases the possibility of reactive effects. Lastly, by implementing the use of continuous self-monitoring (versus intermittent self-monitoring) and obtrusive recording devices (beep tapes), the occurrence of reactive effects may also be increased.
Implementing the Self-Monitoring Program

There are several factors that teachers and school psychologists should consider when developing and implementing self-monitoring programs for students. Three factors are listed by Lloyd et al. (1991): (a) planning a system for evaluating treatment, (b) planning for the withdrawal of treatment, and (c) programming for maintenance and generalization.

Evaluating Treatment

Because the student is observing and recording her own target behavior, a lot of data is produced on the target behavior. The data that is produced cannot be used to analyze the outcome of the self-monitoring intervention because students are typically inaccurate during some part of the assessment of their own behavior. Lloyd et al. (1991) note that "data generated by the pupils generally reveal an overestimation of the occurrence of the appropriate behavior...completely accurate self-monitoring may not be essential to obtaining acceptable intervention effects... even when students' assessments of their own behavior are found to be exaggerated in comparison with independent observational data, positive changes in the target behaviors have still been observed" (pg. 206). It is important that teachers or school psychologists who are responsible for implementing the self-monitoring program also collect data. This results in independent evaluations of the effects of self-monitoring interventions. Teachers or school psychologists may collect data by obtaining it themselves or by training someone as an independent observer. The observer then conducts periodic observations in the classroom where the student is involved in the self-monitoring intervention. In conducting an
independent evaluation of the self-monitoring program, the teacher or school psychologist can be assured of the appropriateness of the self-monitoring intervention for the particular student.

**Withdrawing Treatment**

Research suggests that using overt cues (e.g., tape recorded tones, kitchen timer) and recording devices are important in teaching students to use a self-monitoring routine (Heins et al., 1986; Lloyd et al., 1991). The overt cues and recording devices are not necessary after the student has become skilled in self-monitoring. Studies have shown that after systematically removing either the overt cues or the recording device first, the students continued to sustain the treatment effects (Hallahan et al., 1979; Hallahan et al., 1981; Hallahan et al., 1982). It is important that teachers and school psychologists use professional judgment in deciding whether treatment effects reached the desired levels and were maintained over an appropriate amount of time before removing elements of the self-monitoring intervention. When it is determined that the treatment effects have reached the desired levels and have been maintained appropriately, the elements may be removed one at a time, in a gradual manner. Each component (e.g., overt cue, recording device) may be removed individually, in a gradual and tapered off manner, over a designated period of time. An example of this would include the student receiving fewer overt cues (to record the occurrence or absence of a behavior) over time until they are completely absent. It is important that the teacher or school psychologist monitor treatment effects and slow down the withdrawal process accordingly, if treatment effects begin to weaken.
Maintenance and Transfer

If a self-monitoring intervention is removed abruptly after the student displays the desired behavior/skill change, the student will not maintain treatment effects. After the student has used self-monitoring for some time and the target behavior has improved, the overt cues and recording devices may be removed systematically, and the behavior change can be maintained. Heins et al. (1986) reported that follow up observations, made for as long as two and a half months after the appropriate removal of the self-monitoring intervention, showed continued treatment effects.

The amount of time needed for students to participate in a structured self-monitoring intervention program in order to maintain treatment effects varies from student to student. It is recommended that teachers and school psychologists evaluate the data that they collect independently, in order to determine if the student has displayed improvement of the target behavior for a stable amount of time. After the student has displayed improvement over a stable amount of time, the treatment should be systematically removed; and teachers and school psychologists should continue to independently gather data to determine the maintenance of the desired levels and/or frequencies of the behavior/skill (Lloyd et al., 1991). The continued data collection should occur at least once a week after the self-monitoring intervention has been removed. If observations indicate that the self-monitoring treatment effects have become weak or unstable, provide the student with short retraining sessions to assist in treatment maintenance.
Investigations of the generalization potential of self-monitoring include: (a) transfer to untreated but related behaviors and (b) transfer to other settings (Lloyd et al., 1991). Hallahan et al. (1979) found that self-monitoring treatment effects on a student's attending behavior also generalized to the student's academic productivity level. The self-monitoring intervention focused solely on attending behavior and academic productivity increased. Warrenfeltz et al. (1981) found that self-monitoring treatment effects transferred to another setting. Students learned social skills and then used a self-monitoring program to generalize the acquired social skills to a vocational classroom. Individual cases demonstrated that generalization occurred. Typically, generalization of self-monitoring treatment effects is as difficult to obtain as generalization of the effects of other interventions used in the schools (Lloyd et al., 1991).

Classroom Applications of Self-Monitoring

Many studies have established the reactive effects of the self-monitoring procedure. The reactive effects of self-monitoring have been found to occur during the remediation of both academic skills, behaviorally-based target behaviors, and assisting students in becoming self-regulated learners.

To improve work completion, it is routine for researchers to require a student to monitor on-task behavior. Monitoring on-task behavior results in the student becoming aware of their productivity, which results in improved work completion. Therefore, it is effective to choose on-task as the target behavior for improving work completion, and vice versa. Research on the use of self-monitoring with academic targets of on-task behavior and/or work completion will be described. Although many intervention
programs combined self-monitoring with other self-management techniques, self-monitoring was as effective when used as the sole intervention.

**On-Task Behavior**

One of the most commonly researched behaviors is students’ on-task behavior (i.e., focusing attention on a specific task) (Armstrong & Frith, 1984). Typically, self-monitoring programs target improvement of on-task behavior and a subsequent improvement in assignment completion.

Broden, Hall, and Mitts (1971) used self-monitoring to increase on-task behavior of a student. An eighth grade female student was observed at the end of 10 second intervals before and during self-monitoring for 30 minutes in her history class. Data were recorded for 6 days on a piece of paper with three columns of ten squares, a place for the date, and instructions that reminded the student to record her on-task behavior “when she thought of it” by marking a plus if she was on-task and a minus if she was not.

Results indicated a dramatic increase in her on-task behavior (from a baseline average of 30% of recorded intervals to an intervention phase average of 78% of recorded intervals). All intervention components were removed and a second baseline was implemented for 5 days, which resulted in her on-task behavior decreasing to an average of 27% of the recorded intervals. Self-monitoring was reinstated for 10 days, which resulted in her displaying on-task behavior for an average of 80% of the recorded intervals. Self-monitoring was then paired with teacher praise for 9 days, leading to another small increase in on-task behavior, with an average of 88% of the recorded intervals. When self-monitoring and praise were withdrawn in a systematic manner, on-
task behavior continued to show improved effects for 4 days at a stable 80% of recorded intervals, compared to her 30% baseline period.

Glynn and Thomas (1974) used self-monitoring and reinforcement to increase the study skills of nine 3rd grade children rated by the principal as hard to manage (not paying attention). Eight boys and one girl were observed throughout the experiment. Eight raters were trained to observe students’ on-task behavior using whole interval observation assessment. The raters observed the on-task behavior for 10 second intervals during an oral and written language lesson that lasted 50 minutes and included group and individual work sessions. The raters were trained to rate the child’s behavior as A (on-task) or O (off-task). For behavior to be rated as A, the student had to be observed in on-task behavior for the majority of the 10 second interval. On-task behavior was defined as: during teacher instruction must remain in seat, be silent, look at the teacher, and during work periods write a story, draw a picture, or perform any other activity assigned by teacher.

During the first baseline, rates of on-task behavior were recorded for a 10 day period. A self-control period followed in which students were required to self-monitor, record, evaluate, and reinforce their behavior. Beeps were intermittently (i.e., one, two, three, four, or five minute intervals) played by a tape recorder to cue students. Students recorded their behavior on a self-monitoring card taped to their desk. Students who were on-task at the beep were instructed to place a check on their card. Students were allowed to exchange their checks for free time in an adjacent room filled with toys and activities.
A 2-week return to baseline involved no tape recorded signals, self-monitoring, recording, evaluating, or reinforcement. After baseline two, students entered a behavioral self-control plus cueing phase. During this phase, all of the self-monitoring, recording, evaluating, and reinforcement procedures were reinstated but with some changes. The tape recorded signals included only 1, 2, or 3 minute intervals. Also, a behavior specification chart was used to assist students in monitoring their behavior when a tone sounded. On one side of the chart, the following definition was listed: "(Red) Look at the teacher, stay in your seat, be quiet." On the other side, the following definition was listed: "(Green) Work at your place, write in your books, read instructions on the blackboard." The teacher was in charge of displaying the red side during group instruction and the green side during individual work time.

Results of the study indicated that during the first intervention phase, only one student had an increase of greater than 30% in on-task behavior over baseline. During the self-control plus cueing phase, all 9 students increased their on-task behavior to over 30% when compared to baseline one. In addition, variability of performance was present during the first self-monitoring, recording, evaluating, and reinforcement phase, but decreased during the self-control plus cueing phase. Results indicated that the use of an additional cueing system (chart defining on-task behavior) with self-monitoring, recording, evaluating, and reinforcement assisted in the increase of attention to the task. Due to a lack of regular observers, maintenance data was not obtained.

In a study conducted by Sagotsky, Patterson, and Leper (1978), self-monitoring was used with 67 fifth and sixth grade students to improve on-task behavior and
assignment completion. The students rated their on-task behavior by determining if they were: (a) at seat working; (b) at teacher's desk; (c) at seat not working; (d) out of seat not working; and (e) out of room. The self-monitoring program required that students use a sheet of paper to mark where their math workbook progress stopped each day. Students had a piece of paper with 12 empty boxes and were told to periodically note whether they were actually working on math units. Students put a plus in a box if they were on-task and a minus in the box if they were not. Students were also asked to use a minus as a reminder to resume studying. Results showed an increase in the average number of math problems completed accurately with a mean change in number of problems correctly solved per day rising +8.78, when compared to baseline totals. In addition, a mean change in percentage of on-task classroom study behavior was noted as +9.14%, when compared to baseline percentages. The maintenance effects of the intervention were not investigated.

Hallahan et al. (1981) used self-monitoring to improve the attention levels of three 10-year-old students diagnosed with learning disabilities. The students had low levels of on-task behavior during a 45-minute reading comprehension lesson. At baseline, students were on-task for 20-30% of the observed intervals. At intervention, the students wore wrist counters and a tape recorder played audible tones between 10 and 90 seconds apart. When the tone played, the students were to ask themselves, “Was I paying attention?” If students believed they were paying attention, they advanced their wrist counter once. Students were trained for 3 days to ensure that they were able to make an accurate distinction between the presence or absence of their own on-task behavior.
Results indicated a significant increase in the levels of on-task behavior for all 3 students. On-task behavior increased to 50-80% of the observed intervals. After the intervention was in place for 20 days, the use of the wrist counter and tape recorder were phased out and on-task behavior was maintained. The tape recorder was then removed and all 3 students continued to maintain the increased levels of on-task behavior over the remaining 3 month observation period.

In a study conducted by Hallahan et al. (1982), self-monitoring was used to improve the on-task behavior of an 8-year-old student identified with learning disabilities. The student was trained to self-monitor his on-task behavior when an audible tone was emitted from a tape player. When the tone sounded, the student asked himself “Was I paying attention?” He then recorded his answer on a recording sheet at his desk. The student used the self-monitoring technique in 20 minute sessions. Teacher-assessment of the student’s on-task behavior was also completed in the same manner. Baseline consisted of 8 days of initial data collection by a trained observer, self-monitoring was introduced on the 9th day of the study and remained for 8 days, and teacher-assessment began on the 11th day of the study and was present for 9 days. A reversal of treatment was in effect for 9 days, before the study returned to self-monitoring for 6 more days.

After treatment effects were established and maintained, parts of the self-monitoring intervention were systematically removed by eliminating the tape recorded cues on the 41st day of the study, and the recording sheet removed on the 46th day of the study. After implementing self-monitoring, the student’s on-task behavior improved from baseline levels of 40% on-task to over 90% on-task. Maintenance effects were observed
for an additional 4 days, which had shown the percentage of time samples on-task and the number of problems completed correctly as remaining at their increased levels.

Hallahan and Sapona (1983) used a self-monitoring intervention program to increase the on-task (paying attention) behavior of an 11-year-old male with learning disabilities. A tape recorder was placed near his desk which would play audible tones to cue the student to monitor and record his attention during assigned seatwork (handwriting and math). When the tone was played, the student was instructed to ask himself "Was I paying attention?" After asking himself the question, he recorded his answer on a recording sheet that was placed on his desk by checking "yes" or "no." The study consisted of six conditions which included: baseline, self-monitoring with tape, self-monitoring without tape, and self-praise. The last two conditions were used to observe maintenance of intervention effects. Hallahan and Sapona report that the student's attention and academic productivity increased dramatically with self-monitoring during handwriting and math, although specific data on the amount of increase was not disclosed. In addition, it is reported that the on-task behavior was maintained at a high level during the last two phases when intervention was withdrawn. A 1 month follow-up of maintenance effects resulted in high level of attention maintained during math seatwork. The maintenance effects during handwriting were not investigated.

Hughes and Hendrickson (1987) used self-monitoring to improve the on-task behavior of fourth, fifth, and sixth grade students in a regular classroom who were identified as at risk for academic failure. A recording device sounded intermittent tones to cue the students to self-monitor. Students were taught to ask themselves "Was I paying
attention when the tone went off?” After asking themselves the question, students then recorded their answers by checking “yes” or “no” on a recording sheet. Self-monitoring was shown to increase on-task behavior. Student attentiveness improved from the initial 50-60% of the observed intervals to over 80% for most students.

Lloyd et al. (1989) also investigated on-task behavior and academic task productivity/completion when using self-monitoring as an intervention. Five students, identified as seriously emotionally disturbed or learning disabled, were trained in either self-monitoring of on-task behavior or completion. On-task behavior and correct academic performance were observed for all students. On-task behavior was observed by using a 3 second momentary-time sampling procedure. Self-monitoring produced higher rates of on-task behavior and completion for all students over what was produced at baseline. Self-monitoring resulted in higher levels of completion for all students. When compared to baseline levels, student 1 experienced higher levels of completion on 38% of the intervention phase days and displayed an increase in attention to task on 57% of the intervention phase days. Student 2 increased completion on 95% of the days and displayed an increase in attention to task on 77% of the days. Student 3 experienced an increase in completion on 21% of the days while attention to task increased on 77% of the days. Student 4 displayed increased completion on 100% of the days and improved attention to task on 71% of the days. Lastly, student 5 increased completion on 92% of the intervention phase days and increased attention to task on 55% of the days. These increased levels of completion and attention were maintained over the 3 days that
intervention was phased out, in addition to the levels being maintained for 5 weeks after all intervention was eliminated.

In a study conducted by Prater, Joy, Chilman, Temple, and Miller (1991), adolescents with learning disabilities used self-monitoring to increase their on-task behavior. The students ranged in age from 12 to 17 years. The self-monitoring intervention was implemented in a resource room for math, a self-contained special education classroom, a study hall for social studies, and a resource room for government and English. A visual cue, in the form of a sign, was used to help students remember to self-monitor when an audible beep sounded. At the beep, students recorded their on-task behavior on a sheet placed on their desks. In addition, trained observers monitored the students' on-task behavior by using a momentary time sampling procedure with intervals ranging from 15 seconds to 1 minute, lasting for a total of 15 to 30 minutes. At the end of each interval, the observer noted if the subject was on- or off-task on a tally sheet. Self-monitoring yielded significant increases in on-task behavior for all of the students. Students' baseline on-task behavior averaged 40% of the observed intervals. On-task behavior during the intervention phase increased to an average of 80% of the observed intervals for all students. Increases occurred without the use of contingent rewards for most students. Maintenance effects were monitored for an additional 3 to 5 sessions, which resulted in all students maintaining increased levels of on-task behavior.

Hughes and Boyle (1991) examined the effects of self-monitoring on the on-task behavior and task completion of three students with moderate retardation. The rates of accurate task completion over seven different tasks were recorded. Task completion for 2
of the 3 students improved considerably after implementing self-monitoring. The third student improved in on-task behavior but not in task completion, which may have been an indication that the student was not able to comprehend how to complete the required task.

Throughout the research, self-monitoring on-task behavior has resulted in increased attention and productivity for students with a variety of needs in a number of different settings. The use of contingent rewards was shown to be effective, but not necessary for all students. In addition, maintenance of improved on-task behavior and/or work completion was evident in those studies that had investigated it's potential.

**Work Completion**

Piersel and Kratochwill (1979) used self-monitoring of assignment completion with two different students. The first student was a 7-year-old female who did not complete phonics assignments. Self-monitoring was used by taping a card inside the student’s desk and asking her to record her scores on the phonics assignments. The researchers also monitored the percentage of correct items on daily phonics assignments. The student increased her work completion from 30% of assignments correct during a 7 day baseline, to 65% during self-monitoring over the remaining 58 days of school. Interrater reliability was 1.00.

The second student was a 15-year-old male student who did not complete assignments in reading and mathematics. At baseline, the number of SRA units completed in reading and the number of assignments completed in math were recorded. SRA units required students to read a story independently and then answer vocabulary and comprehension questions that relate to the story. In reading, the student was required to
complete one SRA unit per week. In math, one completed assignment was required daily with 75% accuracy. At the beginning of intervention, the student recorded on a sheet of paper the number of correct SRA assignments that he completed on a sheet of paper. Recording the number of math assignments was introduced after intervention in reading had occurred for 2 weeks. An increase was found in his work completion behavior, with zero SRA assignments completed during baseline to 17 completed during the intervention phase. Completed math assignments also increased, with an average of zero math assignments completed with 75% accuracy during baseline to one or more assignments completed with at least 75% accuracy nearly every day. The length of the intervention was not specified.

Piersel (1985) used self-monitoring with an 8-year-old, third grade, male student who experienced severe problems with work completion. The self-monitoring procedure required the student to record completed assignments on a chart as he turned them in to his teacher. This chart was then checked weekly by the student and a school psychologist. The student monitored the completion of reading, spelling, penmanship, language, mathematics, science, and health on a daily basis. Phase I included baseline levels of completed assignments ranged from 0 to 30% of assignments over a 10 day period. During Phase II, the intervention of self-monitoring and weekly meetings began and the student completed 75 to 100% of assignments over a 20 day period. Phase III consisted of a return to baseline for 5 days, which resulted in the student completing 0 to 25% of assignments. During Phase IV, the student participated in self-monitoring without weekly meetings, and high rates of 60 to 100% work completion were obtained. Phase V
required the student to participate in weekly meetings only, which resulted in a drop of 15 to 35% assignments completed. The last phase required the student to return to self-monitoring with weekly meetings, which resulted in 60 to 100% of assignments completed.

In summary, self-monitoring alone or paired with other self-management techniques increased the on-task behavior and work completion of diverse students in a variety of settings. Students at risk of academic failure, identified as learning disabled, or residing in the regular education mainstream improved their on-task behavior and work completion. The use of contingent rewards with self-monitoring can be effective, as shown by various studies, but is often not critical or necessary when implementing an effective self-monitoring intervention program. Although several of the studies did not investigate the maintenance and long-term effects of the self-monitoring intervention technique, those studies that did investigate found that the maintenance and long-term effects of self-monitoring were supported with diverse students that possess a variety of academic targets.
CHAPTER III

METHODOLOGY

Subjects

Subjects participating in the study included 1 fourth-grade regular classroom teacher and 1 of her students and 1 special education teacher and 1 student from a fourth-grade regular classroom in which the special education teacher team-taught. Both teachers were willing volunteers, who had requested to participate in the study after reading a handout that had been created by the researcher and distributed to all teachers in the school by the principal. Both students had low rates of work completion. Work completion was defined as in-class tasks completed and turned in for a particular content area. A student in need of improving work completion behavior was defined as not meeting the in-class work completion requirements set by the teacher in a content area and having the academic skills to meet in-class work completion requirements.

The students attended a public elementary school in a small city in central Iowa. Before participation in the project, informed consent for participation was obtained from the students and their guardians.

Teacher 1 was a fourth-grade regular classroom teacher. She identified Student 1 as having work completion difficulties in all academic areas. Student 1 was a male, Caucasian and African-American, fourth-grade student who received all instruction in the regular classroom. Teacher 1 indicated that Student 1 experienced the most difficulty in completing the in-class math assignments. Student 1 did not complete the in-class assignments, took the incompleted assignment home as homework, and completed
problems were accurate. However, he did not complete all the math assignment and would have to stay in at recess to complete it. Student 1 had in-class work completion problems in math and all other content areas throughout the year. At the beginning of the year he was able to finish incomplete assignments at home with parent assistance. As the year progressed, he did not finish all his work at home due to increasing amounts of homework in all areas. This, in turn, increased the number of recesses missed daily. Teacher 1 rated the severity of the in-class math completion problem as an 8 or 9 (i.e., 0 = no problem to 10 = severe problem). She indicated that an “average” student completed the entire assignment in-class and turned it in. Student 1 completed less than half of the assignment in-class. The teacher indicated that she would like the student to complete 80% of the in-class math assignment as a goal for improvement.

Teacher 1 did not believe that she was familiar with formal self-monitoring techniques. She reported using some self-monitoring strategies with the students in her classroom. Strategies included a homework completion notebook and a chart posted on a blackboard which used stickers to indicate completed homework assignments for each student. In addition, Teacher 1 used a response-cost system with the entire class. The response-cost system consisted of paper stars which were earned by the students and traded in for privileges. Teacher 1 would pass out stars to students who had stayed on-task and had participated during seat work, and the students would lose or owe a star if they were not on-task or failed to complete tasks. These class-wide strategies were used with Student 1 but did not assist him effectively. He did not seem concerned with his lack of stickers on the poster and did not complete the assignments in his homework.
completion notebook or earn stars. Therefore, the teacher used an additional individual intervention with Student 1 which focused on self-monitoring. The intervention included a chart with 5 button stickers with which Student 1 would start the day. Each time he was off-task, he lost a button sticker. He earned the choice of a reward if he had 3 stickers left at the end of the day. Teacher 1 believed that the intervention worked initially but did not believe that the effects had lasted for over a week and a half.

Teacher 2 was a fourth-grade special education teacher who spent over half of her day in a fourth-grade regular education classroom. She identified Student 2 as possessing work completion difficulties in all academic areas but science. She indicated that he was one of the best students in participating and completing science assignments, due to his intense interest in the subject. Student 2 was a fourth-grade, Caucasian male who received special education assistance for reading and math in the regular classroom. Teacher 2 indicated that Student 2 experienced the most difficulty in completing the in-class reading assignments. The completed tasks were accurate but he did not complete all the in-class assignments. He took incomplete assignments home as homework. He did not complete the assignments at home either, and then stayed in at recess to complete work. He did not always use this time efficiently and missed additional recesses. Student 2 did not experience the in-class work completion problems in reading and other content areas at the beginning of the year but had difficulty completing assignments as the year progressed. This was evident during the previous year and was described as a “downhill slide” by the teacher. At the beginning of the year he was described as a “typical student” with 75-80% in-class work completion. At the time of the study, he was completing
approximately 40%. Teacher 2 rated the severity of the in-class reading completion problem as a 7 or 8 (i.e., 0 = no problem to 10 = severe problem). Teacher 2 indicated that she would like Student 2 to complete 80% of the in-class reading assignment as a goal for improvement.

Teacher 2 was familiar with self-monitoring interventions. She had experience assisting the regular classroom teacher in using class-wide self-monitoring strategies with students. Strategies included a homework tracker sheet, which assisted students in remembering what homework they needed to complete for the day, and a homework chart on the wall which represented the social studies homework completed by each student on the 2 days of the week that it was assigned to all students. Teacher 2 believed that Student 2 benefited from these strategies toward the beginning of the year, but did not benefit from them as the year progressed. Student 2 would not use the homework tracker consistently and did not seem motivated by the homework chart for social studies.

Setting

Self-monitoring interventions took place in the regular classroom setting. Teachers provided no additional, specific interventions for the students on in-class work completion behavior. Each teacher completed a problem identification interview with the researcher at the school. Following the interview, they received training on the implementation of self-monitoring during one individual session with the researcher. Teacher training consisted of an overview of self-monitoring program components, a case example of using self-monitoring with a student with work completion concerns, and role
playing between the teacher and researcher on the development and implementation of a self-monitoring lesson with the targeted student.

Materials / Instruments

Problem Identification Interview

A problem identification interview (see Appendix A) was individually administered to each teacher at the beginning of the study. The problem identification interview followed an outline provided by Witt and Elliott (1983) and required the teachers to identify problem behaviors, select a priority behavior, define the priority behavior (frequency, duration, intensity), identify antecedents and consequences, identify a required level of performance, describe student strengths, and choose a method to collect baseline data.

Training

Teacher training materials (see Appendix B) consisted of an outline, case example, and a recording device example. The outline described self-monitoring and its components/procedures, which followed a combination of training suggestions provided by Lloyd et al. (1991) and Sprick et al. (1993). The case example followed a Sprick et al. (1993) case example and was adapted with permission. The case example illustrated how intervention components were explained, and how student training progressed. A recording device example was also provided to each teacher and reviewed, to illustrate the essential components of a recording device and provide an example during student training.
**Recording Devices**

Each student used a recording device. Recording devices were constructed by the student during student training, with teacher assistance. Both students chose to use a graphing device to record their daily assignment completion in the target area. Both students used bar graphs which were constructed on graphing paper. The percentage of assignment completed was represented along the Y axis, and the date was present on the X axis (see Figure 1). Each student would calculate their percentage of assignment completion in the target area, and would then color in the bar graph with a highlighter or marker, to represent their assignment completion for that day.

**Visual Cues**

Each student also had a visual cue (see Figure 2). Visual cues were constructed by each student during student training, with teacher assistance. Teachers used materials presented in teacher training to construct the cues. In addition, each student constructed self-talk statements. The statements were relevant to the students' goal, served as a cue and motivator, and were present on the visual cue also.

**Teacher Survey**

A survey was constructed by the researcher and administered to the teachers at the end of the study (see Appendix C). Teachers rated user-friendliness, efficiency, and effectiveness of self-monitoring by reading statements on the survey and circling a number on a Likert-type scale.
Figure 1. Recording device: Graphing example.
Figure 2. Visual cue.

1) START
2) Don't space out!
3) Stay on it!
Procedures

Anecdotal Records

Journaling was completed by the researcher and the teachers. The researcher’s journal focused on recording thoughts and feelings about conducting self-monitoring training with teachers and assisting teachers with interventions. Beginning with the teacher training, the researcher documented each teacher’s weekly estimate of how much time and cost they had invested in the self-monitoring intervention. Teachers were instructed to journal as much as possible and to focus on their feelings/views about using self-monitoring as an intervention in their classroom during each stage of the research project.

Baseline

The investigation took place in the second half of the school year during the final 12 weeks. Teachers had volunteered to participate in the study and were informed that the study would last approximately 10 weeks. Initially, each teacher met with the researcher to complete a problem identification interview (see Appendix A) to determine what content area would be targeted, how the teacher defined work completion, what interventions were used in the past, and what the classroom environment was like for the student.

After the problem identification interview was completed, the teachers collected baseline data for 8 days. Baseline data consisted of percentage of daily in-class work completed by the students in the target area. Assignments in the target area did not occur every day, therefore, the teachers recorded the percent of work completed on the days...
that assignments did occur. At the beginning of Week 2 of the study, each teacher participated in one-60 minute training session on self-monitoring and implementation of self-monitoring.

**Self-Monitoring Training**

Self-monitoring training was provided to the teachers by the researcher during one session at the school. Teacher training consisted of providing materials to the teachers which described self-monitoring and its components/procedures, giving instruction on self-monitoring components, and discussing an outline of how to train students (see Appendix B). A case example from Sprick et al. (1993) was adapted and presented to the teachers to illustrate the intervention components and training procedures. Role playing was also conducted between the researcher and teacher. This required the teacher to display a clear understanding of how to construct student self-monitoring materials and complete student training in self-monitoring. Training followed a combination of the Lloyd et al. (1991) and Sprick et al. (1993) outlines: (a) define the behavior that the student will be recording; (b) model recording behavior; (c) check for the student's understanding of the target behavior and self-monitoring process; and (d) observe the student while they practice recording (see Appendix B).

After teacher training, the teachers prepared individual training sessions for each student, following guidelines provided during the teacher training. The student training was conducted in the regular classroom setting at the end of Week 2. Self-monitoring had two basic components: (a) observation of the behavior or skills and (b) recording of the observational data. Students learned to stop what they were doing,
assess their own behavior, and record whether a specific target behavior/skill occurred or was occurring.

**Initial Intervention Phase**

After the students were able to perform the intervention steps correctly, the first intervention phase began. Goals for work completion in the target area were set by the teacher suggesting a target goal to the student and then collaborating with the student to determine the goal. If a student needed to improve work completion in more than one content area, the teacher was instructed to implement self-monitoring in the area of most interest to the student. Students participated in the self-monitoring intervention for as long as it took them to demonstrate goal attainment over a consecutive 5 day time span. Students and teachers documented daily work completion on the days that the student had an assignment in the target area. Students graphed their work completion on the days that included an assignment in the target area, and teachers documented work completion in a gradebook.

If a student did not show an increase in work completion during self-monitoring, self-reinforcement was added to the intervention program. Each teacher completed a reinforcer survey with her student and constructed a list of reinforcers from which the student made selections. Self-reinforcement was defined as a student selecting a reinforcer from the list after meeting the teacher's criterion for work completion. Both students showed an increase in work completion during self-monitoring; therefore, self-reinforcement was not used by either student.
Progress Monitoring

Progress monitoring was completed by the students individually graphing their work completion daily. In addition, the teachers monitored work completion in a gradebook and collected permanent products in the area of concern. These were photocopied by the researcher and used to conduct reliability checks. The students kept their progress monitoring graphs in a place designated by their teachers. Teachers met with the researcher to review the students’ progress monitoring graphs a minimum of every 2 weeks or as needed during the weekly meeting when teacher time and cost were estimated.

Fading Intervention Components

Self-monitoring intervention components were systematically removed following stable goal attainment. The teachers and the researcher collaborated to determine which individual components of the intervention would be removed over what specific amount of time for each student, based upon each student’s progress with the intervention and the student’s attitudes toward the intervention and intervention components. If the removal of self-monitoring intervention components resulted in a decrease in work completion (i.e., 5 consecutive days of a 30% drop in daily work completion), intervention components were reinstated.

Second Intervention Phase

If sufficient time remained in the school year after all of the self-monitoring intervention components were removed in the first target area, the student met with the teacher to discuss his progress during the intervention and to review the implementation of
the same self-monitoring program for a different content area. The student then began self-monitoring the second target area. The student self-monitored work completion in the second target area until he/she met the teacher-imposed goal for 5 consecutive days. At this time, the teacher met with the researcher to determine what elements of the intervention would be removed over a specific amount of time, based upon the student’s use of and attitude toward the intervention.

**Second Baseline Phase**

After all components of the self-monitoring program were removed from the second intervention phase, maintenance of the intervention effects were monitored by the teachers’ records of work completion in the gradebook and photocopies of permanent products. If the removal of self-monitoring intervention components resulted in a decrease in work completion (i.e., 5 consecutive days of a 30% drop in daily work completion), the teachers reinstated intervention components.

**Week 10**

Teachers also rated the user-friendliness, efficiency, and effectiveness of self-monitoring by reading statements on a teacher survey and circling a number on a Likert-type scale (see Appendix C). The researcher then met with each teacher individually to informally discuss the self-monitoring project and to clarify ratings on the survey that did not coincide with views/feelings provided in their journals.

**Experimental Design and Analysis**

A multiple baseline across settings design was planned for each student, in order to analyze the effects of self-monitoring on work completion in two content areas of concern.
The multiple baseline across settings design included the following phases: (a) pre-baseline interview; (b) 2 weeks of baseline data collection; (c) initial intervention phase in the first content area; (d) second intervention phase in the second content area; and (e) second baseline phase for maintenance data collection.

During the initial weeks of baseline data collection, teachers documented the percentage of in-class work completion in the target area and received teacher training in self-monitoring components and implementation. The initial intervention phase included the completion of student training in self-monitoring, the student’s participation in the self-monitoring intervention in the target area, and fading of intervention components. A second intervention phase began after the student had met the teacher-imposed goal for 5 consecutive days. The second intervention phase required the student to use self-monitoring in a second target area. After the student demonstrated stable goal attainment in the second target area, all self-monitoring components were removed and a second baseline phase began. During the second baseline phase, maintenance of the intervention effects was monitored by the researcher and teacher in both target areas. Teacher recordings of work completion in gradebook records and student graphs were analyzed to determine the maintenance of the target behaviors.

Analyses of the progress monitoring data required visual interpretation of graphic displays of the results. Graphs included: (a) each student’s percentage of daily work completion during baseline; (b) each student’s percentage of daily work completion in the first content area during the initial intervention phase; (c) each student’s percentage of daily work completion in the first and second content areas during the second content area
intervention phase; and (d) each student's percentage of daily work completion in the two content areas during the maintenance phase. The maintenance phase varied, depending upon the amount of time left in the 10-week study. A slope of improvement was calculated to assess intervention effects. Graphs also were constructed on the intervention time and costs of each teacher.

Descriptive statistics were calculated for teacher ratings of user-friendliness, efficiency, and effectiveness of self-monitoring. A summary of anecdotal notes kept by the researcher and the teachers also was completed.
CHAPTER IV

RESULTS

Time and cost analysis data from the researcher are reported. Progress monitoring data for each student, journal data from the researcher and both teachers, in addition to teacher survey data are described.

Time and Cost Analysis

Time and cost investments made by both teachers were recorded by the researcher weekly. As seen in Figure 3, the time required by both teachers ranged from .25 to 1.25 hours after Week 1 and 2. During Week 1, both teachers invested a little more than two hours for the problem identification interview, teacher training, and for preparing student training materials. During Week 2, both teachers spent an hour or a little more than an hour for student training. After training was complete, the teacher's reported differences in the time that was needed for the intervention's success. Teacher 1 invested 30 minutes in assisting Student 1 with the intervention components and routine. Teacher 2 invested 45 minutes. As seen in Figure 3, Teacher 2 invested an hour and 15 minutes, while Teacher 1 invested 15 minutes for Week 4. The changing classroom environment and additional school personnel that were involved with Student 2's daily routine impacted the amount of time that Teacher 2 had to invest. Teacher 2 reported that the intervention was time efficient and she continued to report this throughout the study. She continued to invest more time than Teacher 1, but the time varied from 30 to 45 minutes per week. Teacher 1 maintained a 15 minutes time investment weekly, to check with her student briefly each day.
Figure 3. Time invested by teachers during each week of the study.
An initial investment of under $10.00 was made by the researcher to construct teacher training materials. As seen in Figure 4, an initial $5.25 investment was needed to construct the student's training and intervention materials; this was the only cost required of the teachers. Both Teacher 1 and 2 had a one time investment of under $1.00 when copies of intervention materials (graphs) were needed, but this was the only additional cost requirement. Both teachers reported low-costs in their journals.

Progress Monitoring Data

Graphic representations of progress monitoring data were constructed for each student. Neither student reached stable goal attainment until the final days of the study. Therefore, the intervention was not implemented in a second content area for either student.

Student 1

As seen in Figure 5, Student 1 averaged 58% math assignment completion in-class at baseline, with a median of 52% (data points are plotted on the days that the student was present and required to complete an assignment in the target area). The 58% completion rate at baseline is based on 3 data points because the student was absent during the last 2 days of Week 1 and the first 3 days of Week 2. The student participated in training during the last 2 days of Week 2 and began the intervention during Week 3. During Week 3, Student 1 dropped to an average of 35% assignment completion. The teacher reported that the student also was experiencing some changes in the home setting. No changes were made in the student's intervention plan. The student's percentage of assignment completion increased to an average of 85% for Week 4. Improvements in
Figure 4. Cost invested by teachers during each week of the study.
Figure 5. Student 1 - Percentage of daily assignment completed during baseline, intervention phase, and fading phase.
work completion remained high (i.e., 92% for Week 5, 100% for Week 6), and resulted in the student obtaining his 80% assignment completion goal over 5 consecutive days during Week 7 of the study. Accordingly, the teacher reported that the student spent less time inside during recess completing the daily assignment.

The student was instructed to graph on Tuesday and Thursday of Week 8 and the teacher continued to monitor progress daily. The student maintained intervention effects during Week 8, with an average of 89% assignment completion. Complete removal of the graphing component occurred during Week 9, and the student maintained intervention effects with an average of 89% assignment completion. At Week 10, the student's picture cue was removed from his desk. The student averaged 88% assignment completion.

A reliability check was conducted by the researcher, by comparing permanent products and progress monitoring data maintained by Teacher 1, to self-monitoring data maintained by Student 1. Student 1's recordings agreed with Teacher 1's recordings 93% of the time. Student 1 had a tendency to record a higher percentage completed (i.e., approximately 5 to 10% more). Teacher 1 noted that this may have been a result of hurrying through the recording procedure.

**Student 2**

As seen in Figure 6, Student 2 averaged 51% assignment completion in reading at baseline. The student participated in training on the last 2 days of Week 2 and began to use the intervention during Week 3. Student 2 increased his reading assignment completion to an average of 83%. This progress continued (i.e., 70% for Week 4, 97% for Week 5, 96% for Week 6) until Week 7. During Week 7, the student dropped to an average
Figure 6. Student 2 - Percentage of daily assignment completed during baseline intervention phase, and fading phases.
The graph illustrates the percentage of assignment completed over different weeks and days. It compares the actual completion rate with the expected completion rate and a linearly expected trend. The graph is divided into two phases:

- **Fading phase 1**: The completion percentage starts at 100% and decreases to 60%, with fluctuations in between.
- **Fading phase 2**: The completion percentage then continues to decrease, showing a steady decline.

The x-axis represents the week number and day, while the y-axis shows the percentage of assignment completed. The lines indicate:
- **Actual**: The actual completion rate.
- **Expected**: The expected completion rate.
- **Linear (Actual)**: A linear representation of the actual completion rate.

Weeks are labeled as W9a, W9b, W9c, W9d, W9e, W10a, W10b, and W10c.
of 40% assignment completion in reading. The teacher reported that the student was experiencing changes at home, impacting his sleeping patterns and routine and resulting in the student forgetting materials and feeling sluggish. The student raised his weekly assignment completion average to 92% during Week 8 and met his 80% assignment completion on 5 consecutive days. Although the student improved his percentage of daily work completed in the target area, the teacher reported that he continued to spend time in at recess, comparable to the amount spent before the intervention. She attributed this to the work that was incomplete in the target area, as well as other content areas.

During Week 9, the picture cue was not present on the desk of Student 2. The student maintained intervention effects with an average of 93% assignment completion in reading. During Week 10, the student was instructed to graph on Tuesday and Thursday only, and the student completed an average of 69% of his reading assignments. This indicated a drop in assignment completion but did not justify a change in the intervention component removal (i.e., 30% drop in assignment completion over five consecutive days).

A reliability check was conducted by comparing student data to Teacher 2 data. The student and teacher agreed 84% of the time. Of those times that the student and teacher disagreed, the student had a tendency to record a higher percentage completed (i.e., approximately 5 to 15% more). Teacher 2 noted that this may have been a result of interpreting assignment requirements differently when she was not in the classroom, or hurrying through the recording procedure.
Journal Data

The researcher kept periodic journal entries which focused on reactions to conducting training with teachers and assisting teachers with self-monitoring as an intervention. Each teacher agreed to make periodic entries into a journal at their convenience. Entries focused on the implementation of self-monitoring as an intervention in the classroom.

Researcher

The researcher commented about reward systems and inclusion of resource room teachers throughout the study. Although Teacher 1 volunteered and was committed to the study, her outlook on the intervention and her preference to use strategies based on rewards seemed to affect her investment in the student’s self-monitoring intervention. She saw the benefits of the intervention for the student on his progress monitoring graph but preferred the class-wide intervention strategies that were already in place in the classroom. These strategies relied on rewards and consequences. The researcher reported frustration due to the desire to have the teacher fully invested. There were instances when the teacher would make negative comments about the time that was needed to review the student’s progress with him. From the researcher’s point of view, the time of 10-15 minutes a week was minimal. Teacher 1’s clear preference for class-wide strategies seemed to inhibit her involvement and overall outlook on the intervention.

Discussions with Teacher 2 were reflected in the researcher’s journal also. There were many instances when the resource room teacher was frustrated with the lack of involvement on the regular education teacher and student teacher’s part. She was very
insistent in using the intervention for the student and acknowledged that he clearly benefited from it. But, gaining the cooperation of the regular classroom teachers would have supported his success and may have assisted him in achieving a stable goal earlier. It should be noted that the regular classroom teacher and student teacher did not volunteer for the research project. Due to the many classroom changes that faced the teacher and student teacher, participation in the research study may not have been a priority interest.

The changing classroom structure was also detrimental to Student 2's successful use of the intervention. The changes in classroom teacher and the different management and teaching styles were difficult for all of the students in the class. This was an additional stressor in the classroom environment that seemed to impact the student and the success of the intervention. Teacher 2 had several factors to balance as she implemented the self-monitoring intervention for the student. Although the resource room teacher had contacted me to participate in the study, the regular classroom teacher and student teacher that she team-taught with did not. This impacted the ease of intervention implementation for the student and resource room teacher.

The researcher also made comments on the problem identification interview and teacher training that had occurred during the initial part of the study. There were positive comments toward the time devoted to the problem identification interview with each teacher (i.e., 45 to 55 minutes each). Although the teacher training materials were very thorough and detailed, they were as succinct as possible. The researcher believed that she had delivered the training in a reasonable amount of time (i.e., 1 to 1 ½ hours) but
believed that a more experienced school psychologist may have been able to deliver the training in less time.

Teacher 1

Teacher 1 indicated some frustration throughout her journal writing and directly to the researcher during the intervention phase of the study. She was a time conscious teacher who had high expectations of her students to exhibit responsibility. She was willing to participate in teacher training and indicated that she was satisfied with teacher training, although she believed that it could be shortened (i.e., role playing). She also indicated this for student training. She indicated that the steps seemed to be lengthy and time consuming to her. Teacher 1 mentioned that she believed the student had a thorough understanding of the procedures and concepts due to the thorough training outline. In addition, she mentioned that the intervention was cost efficient, in that little money was spent throughout the research study.

Teacher 1 believed that the student benefited from the intervention but did not believe that it was as time efficient as she expected it to be. During the 1st week of intervention implementation, the teacher mentioned some frustration because she had to cue the student to start the intervention components. This was explained to her during training and reviewed throughout the initial part of the study. Nevertheless, she indicated that because she had to stop and cue the student or give specific one on one attention, in terms of an intervention, she did not believe that it was as time efficient and beneficial to the student as it could be. Teacher 1 reported that a time efficient and beneficial
intervention for a student was one that would require little teacher attention and would require little student attention, also.

She mentioned that she preferred the strategies that were already in use in her classroom. These were classroom wide strategies of rewards and praise. These strategies focused on rewarding students with stars or requiring students to give back stars. She was aware that it did not work as well for Student 1 as she had hoped but she still preferred to use those strategies over an individual intervention that did not focus on rewards. Teacher 1 noted that Student 1 benefited from self-monitoring but did not believe that it was as teacher or student friendly as her interventions which were already in use in the classroom.

Teacher 2

Teacher 2 had a more positive view toward the use of self-monitoring in the classroom. She continually indicated positive aspects of the intervention in her journal writing and directly to the researcher, believing that it was time and cost efficient and beneficial to Student 2. Teacher 2 did not indicate that the teacher training or the student training were laborious, but commented that the training was thorough and resourceful, in terms of materials for future use. In addition, she made several comments about the cost effective aspect of self-monitoring as an intervention technique.

As a resource room teacher, she indicated several things about the intervention that were beneficial and effective if used in the regular classroom appropriately. She believed that the regular classroom teacher must be invested in spending some one on one time with the student, due to the fact that it is an individual intervention technique.
reported having difficulty in gaining assistance from the regular classroom teacher.

Although the resource room teacher regularly team taught in the classroom, there were some instances when she would be needed in another room while the student engaged in self-monitoring. If the student was in need of a cue or praise during these instances, it was not provided to him by the regular classroom teacher. In addition, a student teacher managed the classroom after the intervention had been in place for 2 weeks. When this occurred, the entire class had difficulty with her approach to classroom management and teaching style. She was not familiar with self-monitoring techniques and the resource room teacher believed that she was also reluctant to participate due to the difficulty that she was experiencing with the class. In addition to the classroom environment, the student experienced a variety of environmental changes that may have impacted his school performance.

Survey Data

Both teachers rated the user-friendliness, efficiency, and effectiveness of self-monitoring by reading statements on a survey and circling a number on a Likert-type scale (i.e., 1 = not true at all to 5 = very true) after the research study was completed (see Appendix C). Both teachers indicated that the teacher training moderately helped them implement the intervention, with Teacher 1 responding with a 3 and Teacher 2 responding with a 4. In terms of time invested during the self-monitoring teacher training, responses varied. Teacher 1 responded with a 4 when asked if the training took too much time, while Teacher 2 responded with a 1. A similar response was provided by the teachers when asked if they were able to construct an intervention for their student in a short
amount of time. Teacher 1 responded with a 2, while Teacher 2 responded with a 4. When asked if they would be able to implement self-monitoring with future students independently, both teachers believed they could and responded with a 4. Both teachers spent similar amounts of time constructing the intervention for their students. However, when asked if they were able to construct an intervention in a short amount of time, Teacher 1 responded with a 2 while Teacher 2 responded with a 4. Both teachers responded similarly when asked if the intervention was expensive, with Teacher 1 responding with a 2 and Teacher 2 responding with a 1.

A rating of 3 was given by both teachers to the intervention’s effectiveness for their student’s needs. Future use of self-monitoring with students who need to improve academic performance was viewed differently, with Teacher 1 responding with a 2 and teacher 2 responding with a 3. Both teachers believed that self-monitoring may help students who have behavioral concerns, with Teacher 1 responding with a 3 and Teacher 2 responding with a 4.

When asked if self-monitoring was a teacher-friendly intervention technique, Teacher 1 responded with a 1, while Teacher 2 responded with a 3. In addition, both made comments about their personal definition of what teacher-friendly meant to them. Teacher 1 believed that a teacher friendly intervention is “one that is easy to set up and use...requires a small amount of money and time.” Teacher 1 explained this comment by stating that the amount of time that was required by her to assist the student with the intervention seemed to be too much, when she considered her classroom management style and her regular daily routine. She noted that she felt much more comfortable with
the class-wide strategies which were already in place, as they enabled her to manage the entire class. Spending individual time on an intervention was somewhat cumbersome to her and she was not as comfortable with it.

Teacher 2 believed that self-monitoring was a teacher-friendly intervention technique but found it difficult to implement in an inclusive classroom that had many changing facets. She believed that the changing classroom environment and teachers impacted her view on the teacher-friendliness of the intervention. She noted that a teacher-friendly intervention is one that “does not require constant attention from the teacher...the student is trained to monitor, not the teacher trained to remind the student to self-monitor...after implementation requires less teacher time rather than more to help student achieve the goal.”
CHAPTER V

DISCUSSION

Although self-monitoring interventions are described as time efficient in the literature, the teachers viewed the intervention as somewhat time inefficient. Each teacher was required to invest 1 to $1 \frac{1}{2}$ hours for teacher training. This varied due to the different questions that were raised by each teacher. After training was completed, each teacher spent 1 to $1 \frac{1}{2}$ hours in preparing student training and intervention materials. After the intervention was started, there were distinct differences in the time invested by both teachers, which may have been due to environmental changes and belief systems.

Teacher 1 did not report the intervention to be teacher friendly. She preferred her class-wide strategies, which were already in place and did not require individual assistance of any kind. She reported that training required too much time from her schedule. The time invested in training could have been shortened, particularly if conducted by a school psychologist with more experience. Although Teacher 1 believed that the class wide strategies that she was using were more time efficient and easier for her to implement, she invested little time in the self-monitoring intervention, averaging 15 minutes of individual assistance to the student a week.

In addition, Teacher 1 did not believe that she was able to construct an intervention for her student in a short amount of time. This time investment possibly would shorten as a teacher becomes more experienced with the intervention’s use. The teacher’s preference for class-wide strategies is important to consider. An approach to
self-monitoring which included the entire class may have been a more attractive intervention for Teacher 1 (i.e., use of a beep tape).

The class-wide strategies that were already in use in the classroom were time efficient, required no individual assistance, and relied upon rewards and consequences. Teacher 1 indicated that the class-wide strategies were not as effective for Student 1 as they were for other students and noted that she needed to use a new approach. An additional question posed on the survey may have assisted Teacher 1 with reflecting upon this matter (i.e., “I am willing to implement an individual intervention that is reasonably time and cost efficient when group interventions are not effective.”). Although Teacher 1 had willingly volunteered for the study, her stated preference for class-wide strategies may have impacted her ability to become fully invested in the self-monitoring intervention.

Teacher 2 had a very different view toward the time efficient characteristics of self-monitoring, although she invested more time than Teacher 1. Teacher 2 reported that self-monitoring was moderately “teacher-friendly.” Teacher 2 gave a higher rating for user-friendliness of the intervention and she invested more time than Teacher 1.

Teacher 2 did not think that training required too much time from her schedule. She also reported constructing an intervention for her student in a short amount of time. These more positive responses by Teacher 2 may be due to her role in the school. As a resource room teacher, she may be more familiar with individual interventions and the time required to learn about and implement a new individual intervention technique. Additionally, special education teachers often expect to teach individuals. Regular education teachers expect to teach groups.
The cost efficient characteristics of the self-monitoring intervention were agreed upon by both the researcher and teachers. The researcher invested under $10.00 to prepare the training materials. After training was completed, the cost of preparing student intervention materials totaled approximately $5.25 for each teacher, due to the similar programs that were constructed. The teachers were required to invest money one other time, which was less than $1.00 a piece to copy recording materials.

Self-monitoring was effective for both students as an intervention technique to improve work completion behavior. Student 1 exhibited an average of 58% assignment completion in math during baseline. He averaged 80% assignment completion during the intervention phase. These results were similar for Student 2 who exhibited 51% assignment completion in reading during baseline, which increased to 80% assignment completion during the intervention phase. Self-monitoring was effective for both students as an intervention technique, and both experienced a 22-29% average increase in their daily assignment completion in their target content area. Teacher 1 also indicated that Student 1 was not required to spend as much recess time inside, due to his increase in assignment completion in the target area. This was not reported by Teacher 2 for Student 2, though. She indicated that he continued to spend the same amount of time inside for recess as he had before, due to work that was incomplete in the target area and other content areas.

Both students gained stable goal attainment toward the later part of the study, therefore, little maintenance data were available. Both students exhibited maintenance of intervention effects while components were removed from their intervention plan. After
the complete withdrawal of intervention components for Student 1, one week did remain in the study and he did maintain intervention effects. During the final week of the study, Teacher 2 continued to phase out intervention components. Further investigation of maintenance was not conducted due to the hesitancy that teachers had expressed toward collecting data during the last 2 weeks of school.

Both teachers believed that self-monitoring was moderately effective for their student’s work completion behavior. Both cited clear benefits while looking at the progress monitoring graph and evaluating the student’s progress but believed that outside factors may have influenced their view about self-monitoring. In essence, they believed that the intervention was effective for their student’s needs, but believed that there were additional stressors that inhibited the effectiveness of the intervention, or that there were other strategies that were in use that seemed to be more effective in terms of time invested by the teacher. Both teachers believed it was effective but did not respond as positively as they may have, if outside influences and beliefs had been absent. Influences such as a lack of teacher cooperation in an inclusive setting, changing classroom management styles, and the impact that one’s belief system has on the interpretation and investment that he/she makes in using an intervention from another belief system, were both factors that may have impacted the overall opinions that the teachers formed. In addition, outside influences such as home environmental factors (i.e., parents changing work schedules, changes in sleeping habits) also impacted the student’s ability to participate fully in the intervention. Many different factors effected the potential benefits of the self-monitoring intervention.
This may have also impacted the teachers' beliefs as to whether they would use self-monitoring with students that experienced academic or behavioral targets in the future. Teacher 1 indicated that it was unlikely that she would use self-monitoring in the future, while Teacher 2 believed that she may use it sometimes. This reflects the clear difference between the two teachers, in that Teacher 1 preferred the strategies that were currently in her classroom and required no individual one on one time. Teacher 2 was more apt to use individual strategies because it was common for her role in the school. Both teachers were confident that they would be able to implement self-monitoring with future students in an independent fashion. Therefore, it is clear that they felt equipped with enough resources from the teacher training and research study experience.

The research data has provided varied points that are important to address when using self-monitoring as an intervention and for future research. When a school psychologist is considering the use of self-monitoring as an intervention for a student, he/she must remember that self-monitoring may not be considered as a “teacher-friendly” intervention by regular education teachers. Regular education teachers are trained to manage groups of students, not individuals. The focus of self-monitoring is on an individual student, which is opposite to the group management mentality of regular education teachers. The intervention helps a student: think about, observe, and reflect upon his/her own behavior, which is a slower and more time consuming process than group management techniques (i.e., behavior modification).

The individual intervention approach will take more time from a regular education teacher’s schedule, when compared to group management techniques. But, there are
advantages to using an individual intervention such as self-monitoring. If these advantages are clearly addressed with a regular education teacher, he/she may be more willing to invest and commit to the time needed for the self-monitoring intervention. Such advantages would include self-monitoring's focus on the student's thinking, behavior, and self-reflection. The ability of a student to think about and reflect upon his/her own behavior are attributes which may promote self-reliance and control. The development of self-reliance and control is unlikely to occur when the external manipulation of antecedents and consequences is being used (i.e., behavior modification).

Additional factors that may be addressed in future research on self-monitoring include time efficient training and parental involvement in the intervention process. Teacher and student training should be more manageable within the confines of a typical school day. Training that is kept to a 15 to 20 minute time period would be ideal for both teacher and student. In addition, the participation of parents in the intervention process may be an intricate part of the intervention's success. Knowledge of the intervention's focus and elements would enable parents to communicate with their child on the progress of the intervention, in addition to enabling parents to assist the student in utilizing the intervention at home also (i.e., homework).
References


APPENDIX A

PROBLEM IDENTIFICATION INTERVIEW FOR WORK COMPLETION
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PROBLEM IDENTIFICATION INTERVIEW FOR WORK COMPLETION

1. Opening

\textit{\textbf{(IDENTIFICATION)}}

2. "What are your concerns regarding \_\_\_\_\_\_\_\_\_\_'s work completion?"

\textit{Then:} "Is there anything else?"

\textit{If yes, summarize and:} "Is there anything else?"

\textit{Repeat} "Is there anything else?" \textit{until a NO response occurs and summarize again.}

\textit{Then:} "Which subject area is the most interesting to \_\_\_\_\_\_."

"Which subject area has \_\_\_\_\_\_\_\_\_\_\_\_\_ experienced the most success in?"

"Which subject area concerns you the most?"

\textit{Then:} \textbf{SUMMARIZE} all information obtained and ask:

"Is that all that you told me?"

"Is there anything else?"
3. Precise description of the priority behavior (verbal EXAMPLES, permanent products).

   "Describe ________'s present work completion in target area."
   (What are the prerequisite skills needed to perform the assignment? Has
   he mastered/displayed better work completion in target area?
   Which target area skill might cause trouble?)

   "Is there anything else about ________'s work completion skills in
   target area that we should discuss?"

   "On a scale of 0 to 10, where 0=no problem and 10=severe problem,
   how severe is the work completion problem in target area?"

4. Precise description of the instructional settings in which the problem behaviors occur.

   REMEMBER: If you have the information to one of the questions,
   summarize the answer to it and get validation for it?

   "What time of the day does ________ have target area?"

   "During target area, what is your usual lesson plan like?"
   (large/small group)
   **SUMMARIZE RESPONSE

   "Which part of the lesson (list parts) causes the most difficulty for
   ________?"

   "How much in-class time does ________ have to complete the
   work?"

   "On a scale of 0 to 10, where 0=no problem and 10=severe problem,
   how severe is the work completion problem in target area?"
5. Identify antecedents

Define the nature of the teacher's instruction in terms of scope and sequence of the present curriculum and instruction that directs the student in completing current assignments. Description of teacher instruction and expectations. Clarify the nature of the teacher's instruction.

**IF ANSWER IS KNOWN, SUMMARIZE AND GET VALIDATION

“What instruction have you provided _________ in target area?”

“In the varied topics, did you have evidence that _________ understood and knew how to do the work?”

“What topic are you currently covering in target area?”

“What evidence do you have that _________ knows how to do the assignment in current topic?”

“What have you communicated to the students’ on assignment completion in target area?”

“How often do you talk about it with them?”

6. Sequential conditions analysis

Get a picture of the child’s behavior during seat work time in target area.

“What do you currently do to check for understanding of the assignment before _________ begins work?”

“When he _________ has time to complete work in-class, what does he typically do?”

“What else does he do when he is expected to complete in-class work?”

Then: “What happens then?”

“What are the procedures for turning work in?”

7. Identify consequent conditions

Describe consequences provided by the teacher to the student.

“What happens when _________ is not on-task and is not completing his work in target area?”
“What happens when target area is over and ______ did not get his work done?”

“What happens when ______ has completed his work?”

“What is there anything else that you have done in the past?”

8. Summarize what a typical lesson is like, when work completion is the worst, behavior during work time, what is typically done when work is/is not completed, and consequences.

*Summarize the nature of teacher instruction, sequential conditions and consequences. What the student is actually doing at work time.

9. Behavior strength

*IF KNOWN, REFLECT AND VALIDATE

“What % of an assignment does he usually complete in class?

“What % does he complete when he takes it home?

“How often does ______ complete work in-class?

*IF QUALITY: “What % of an assignment is correct?”

10. Summarize and validate work completion behavior and strengths.

11. Tentative definition of goal - question teacher.

What would an average student in class be able to get done?”

“Currently he’s getting ___ % done in-class, what do you think would be a reasonable % for him to complete, as a goal for improvement?”

OR

“Currently he’s getting ___ % done in-class, do we want to focus on helping ______ make an improvement first, and then set an improvement goal later, based on his change?

12. Assets questions: Determine what the student is good at.

“What are the things that ______ currently does well?”
13. Directional statement to provide rationale for data recording

*(If the teacher has a detailed monitoring system in place, this will not be needed.)*

"We need some record of _________'s work completion, how often _________ completes work, what work is completed and so on. This record will help us to determine the nature of the problem. Also, the record will help us decide whether any plan we initiate has been effective." (Graphing, permanent products)

14. Discuss data collection procedures
   1. Gradebook records
   2. Graphing gradebook record data

15. Establish a date to begin baseline data collection.
   *Teacher/Researcher or Researcher Alone*

16. Establish date to conduct training.

17. Closing
APPENDIX B

TEACHER TRAINING MATERIALS
APPENDIX B

TEACHER TRAINING MATERIALS

Self-Monitoring

1. Definition

Self-monitoring requires the student to participate in two basic tasks:
   A. Observing
   B. Recording

2. Benefits

3. Observing
   A. Teacher defines what the student is/is not doing
   B. Teacher models what the student needs to be doing
   C. Student practices what he/she needs to be doing
   D. Teacher provides feedback about accuracy

4. Recording
   A. Teacher and student decide when and how often to record
   B. Student practices recording (recording example provided by teacher)
   C. Teacher provides feedback about accuracy
   D. Student makes recording device with teacher assistance as needed
Self-Monitoring

Self-monitoring requires the student to observe his or her own skills. Self-monitoring requires two basic tasks: (a) observation of the skill and (b) recording of the observation. Students learn to stop what they are doing, observe their own skills, and record what they observed.

Benefits

Teaching the student how to self-monitor his/her performance of a skill is often the “missing link” to improving his/her performance. By becoming consistently aware of their performance of a skill, students are likely to become empowered and take control of their own performance, which results in improvement.

Observing

First, the student must clearly understand what he/she will observe. For this to occur, you must: (1) define what the student is/is not doing, (2) model what the student needs to be doing, (3) require the student to model what he/she needs to be doing, and (4) give the student feedback on the accuracy of their performance. Through these four steps, you are able to explain what task the student will observe and then check for student understanding.
Recording

With the student, you must then determine when he/she will participate in the self-monitoring routine (during what content area). Then, with the student, you must decide how often the student will make recordings of the task (several times during the content area/one time at the conclusion of the content area). Provide the student with an example of a recording device and require him/her to practice recording. The recording device example should include all of the key elements needed for the student to construct their own later. After the student practices recording, you should provide feedback about his/her accuracy. Lastly, the student should make their own recording device. The recording device should be constructed during student training, by the student, with your assistance as needed.

Self-Monitoring of Work Completion Target


Step 1 - Develop a plan for using Self-Monitoring

a. Review the problem and overall goal(s) for the student.
b. Determine in which content area the student will monitor work completion.
c. Have a recording device example available for the student.
d. Plan to monitor the student’s behavior and compare results with the student’s record every day and then intermittently.
e. Identify ways to determine whether the intervention is helping the student reach his/her goal.
f. Determine when to meet with the student to conduct training/finalize plan.
Step 2 - Meet with the student to discuss and finalize plan.

a. Review the problem and goal with the student.

b. Introduce the procedures to be followed.
   1. Introduce the self-monitoring system to the student.
   2. Model what the student should be doing while using the recording example.
   3. Require student to practice what he/she should be doing while using the recording example.
   5. Determine, with the student, when and how often the student will engage in the self-monitoring procedure. Have student make a recording device.

c. Review everyone’s roles and responsibilities
   1. Have the student practice and verbally rehearse the steps of the self-monitoring procedures.
   2. Decide what date the student will begin the self-monitoring procedure.
   3. Schedule a follow-up meeting with the student to discuss his/her progress.
   4. Review the schedule and roles and responsibilities of everyone involved.
   5. Be sure everyone involved has a clear understanding of the procedures.

Step 3 - Implement the Plan.

a. Encourage student effort.

b. Make periodic revisions and adjustments to the plan as necessary.

c. When the student demonstrates consistent success, fade the intervention.

d. Once the intervention has been faded, provide continued follow-up, support, and encouragement.
Case Example of Work Completion Target


**Step 1 - Develop a plan for using Self-Monitoring**

a. Review the problem and overall goal for the student.

Bobby is a fifth grade student in Mrs. Werner's class. During class, Bobby participates but does not complete many of his assignments throughout all content areas. *The incomplete assignments have correct answers, but he does not complete all of the tasks in the assignment. Based on his work completed, his abilities are average. He is always pleasant to have in class. Despite his strong abilities, Mrs. Werner is concerned because he is currently below-average in all content areas. Bobby's problem is in-class assignment completion. He does not complete work in-class and does not follow-up on completing the assignment at home. Mrs. Werner has discussed the problem with Bobby, but the discussions have done little good. Bobby has experienced this problem since the beginning of the year, and it hasn't improved at all.*

Mrs. Werner decides to contact the school psychologist, Ms. Pope. *Mrs. Werner briefly explains the concern to Ms. Pope over the phone. Ms. Pope then decides to schedule a time to meet with Mrs. Werner to complete a problem identification interview. She explains to Mrs. Werner that through a PII, they are able to identify and define Mrs. Werner’s concerns on Bobby.*

While completing the PII, Mrs. Werner explains that she is concerned with Bobby's work completion in all areas. He does attempt to complete in-class work, but it takes him a long time to start and is only able to complete half of what an average student would complete. *This occurs in all content areas, but the area that is the worst is English. The subject that Bobby is the most interested in and has experienced the most success in is math. Mrs. Werner indicates that Bobby typically completes 30% of the problems in math with all correct, while an average student usually completes at least 80% of the problems with all correct. Mrs. Werner decides that she would like Bobby to complete at least 80% of the daily math problems.*
b. Determine in which content area the student will monitor work completion.

Bobby has problems in work completion in all content areas. In the PII, Mrs. Werner indicated to Ms. Pope that Bobby has the worst problems in English and that he is the most interested in and has experienced the most success in math. Therefore, Mrs. Werner and Ms. Pope determined that Bobby should begin a self-monitoring program in math, to heighten the chances of him experiencing success. Bobby must be willing to participate and be invested in the intervention, so choosing him to begin in the content area that he has the most interest in is critical.

Bobby’s teacher and Ms. Pope decide that his self-monitoring program will include: (1) writing down what time he begins his math assignment, (2) recording the number of problems completed in-class on a recording sheet that he makes, (3) completing self-talk statements that are present on the recording sheet, and (4) transferring the number of problems completed onto a graph that he keeps with his recording device.

c. Have a recording example available for the student.

During the PII, Ms. Pope provides Mrs. Werner with an example of a recording device to use with Bobby during the student training. This example will help Bobby initially practice recording and will also serve as an example of all of the necessary components of a recording device for monitoring his math work completion in-class. By creating his own recording device, Bobby is able to become more invested in the program and will take ownership of the process. (REFER TO SNAKE/GRAPH EXAMPLE)

d. Plan to monitor the student’s accuracy in recording.

Mrs. Werner plans to initially check Bobby’s accuracy in recording every day and provide feedback on accurate recording. She will accomplish this by briefly passing by Bobby’s desk at the end of the math period, checking the accuracy of his recording, and providing him with brief, positive feedback on his performance. If Bobby does not record accurately, she should assist him with recording the data accurately and continue to re-check until he records the data accurately for 3-4 days. After doing this for 3-4 days, she will discontinue the daily check and only check his accuracy and give feedback periodically.
e. Identify ways to determine whether the intervention is helping the student reach his/her goal.

Ms. Pope plans to come in weekly to transfer the gradebook record of math problems completed daily to a graph to monitor Bobby’s progress. Ms. Pope and Mrs. Werner agree to meet bi-weekly, or as needed, to review Bobby’s progress in comparison to his goal, and discuss any revisions that may need to be made.

f. Determine when to meet with the student to conduct training/finalize plan.

Ms. Werner decides to meet with Bobby on the next Monday. She contacted his parents and gained permission to meet with him after school. During this time, she will discuss Bobby’s work completion problem with him, explain the self-monitoring program, obtain his views toward the intervention, in addition to forming a goal together and conducting training.
Step 2 - Meet with the student to discuss and finalize plan.

a. Review the problem and goal with the student.

Mrs. Werner meets with Bobby on Monday after school. This is an example of the dialogue that Mrs. Werner may have had with Bobby:

Mrs. Werner: Bobby, your parents may have told you that we are going to make a plan to help you with completing your assignments in math. Tell me about the problems that you have had with getting your assignments done during math time.

Bobby: I just kind of have problems getting it done. Sometimes I don’t start right away, and I end up being behind everyone else. Then I have a lot of stuff to take home and do at night. My parents aren’t happy and I’m not either.

Mrs. Werner: And I know that you could do the work. It’s disappointing to not get it done when you know how.

Bobby: I know.

Mrs. Werner: Bobby, I figured out your grade for math, and you are getting below a ‘C’ for the math assignments that you are supposed to complete in class. I know that you can do the work and the habits that you are forming now will be the ones that you will take to high school. Do you think that not completing your in-class assignments will be okay then?

Bobby: No, I don’t think so.

Mrs. Werner: You’re right. And you are fully able to do well in school and go on and do something that you would like to do after school. What would you like to do after high school?

Bobby: Maybe be an artist.

Mrs. Werner: That would be wonderful and I know that you would be able to do it. You could even go to an art school when you get out of high school. But you must study and learn while you are here with us. If you miss out on learning opportunities when you are here, you will begin to slip behind the others in class. What do you think gets in the way of getting your math assignments done?

Bobby: I don’t start right away, and then I am behind others. It is easy to waste time.

Mrs. Werner: Let’s make a plan together, that may help you start more quickly and stay on track so that you get your assignments done.
b. Introduce the procedures to be followed.

1. Introduce the self-monitoring system to the student.

Mrs. Werner: Bobby, I have thought of a plan that we could form together, it is called self-monitoring. It would help you keep track of when you start your assignment and how you do with completing your math assignments in class. We could make a recording sheet that you could use to help you remember to start the assignment and complete as much of the assignment as you could. What do you think of the idea?

Bobby: It sounds good. I get to help make the sheet?

Mrs. Werner: Yes, and we would work together on this to help you complete your assignments in math.

2. Model what the student should be doing while using the recording example.

Mrs. Werner: Ok, let's talk a little bit about what you should be doing when you are in class and it's time to do your math work at your table. What are you supposed to do when I tell you what your math assignment is?

Bobby: I'm supposed to open my book, get my pencil and paper out, and then read the directions first, then I try out problem number 1.

Mrs. Werner: Right, and what do you do after you are done with number 1?

Bobby: I would go to number 2 and keep going until I am done.

Mrs. Werner: Then what would you do, if you did finish?

Bobby: I would go back and recheck them to see if there are any that I want to redo and then turn my paper in at the in-box.

Mrs. Werner: Right! Now, let's talk about how the recording sheet will help you start your assignment and get as many problems done as possible. Bobby, this is called a recording sheet. It has a picture to remind you to get your materials out and start your work. It also has numbers that you can mark off each time you complete a problem. There are also steps listed to remind you what it is that you need to do and WHY you should start your assignment and complete it—what it means to you. You would use this sheet while you are doing your math assignment, to help you begin and keep working to get as many of the problems done as you can on your assignment. After math time is done, you would take the number of problems that you completed from your recording sheet, and make a mark on the graph for that day. This would help you keep track of how many problems you complete from day to day. What do you think of the sheet and the graph?
Bobby: It looks pretty cool, would I make my own sheet, by myself?
Mrs. Werner: Yes you would, and if it’s o.k., I would like to look at your recording sheet when you are done to make sure that you included everything that you would need on it.
Bobby: That’s o.k.
Mrs. Werner: Well, what I would like to do is show you how you would use the recording sheet to help you start your math assignment and keep working on it so you can get as much done as you can. Now watch and listen to me while I do the assignment and use the recording sheet.
*Here, Mrs. Werner will verbally rehearse all of the steps like this:
Mrs. Werner: O.k., I am supposed to start on page 142 and do problems 1 through 10. So, first I need to get my book, paper, pencil, and recording sheet out. Then I need to open my book to page 142. After my book is open, I need to read the directions and start with number 1. Now that I am done with number 1, I need to cross out number 1 on my recording sheet. Next, I work on number 2. Now that I am done with number 2, I cross out the number 2 on the recording sheet. Let’s pretend that I am done with all of the problems. Since I am done with all of the problems, I will write down what time I stopped on the recording sheet, right here. Then I find today’s date on my graph, and make a mark where 10 is, right up here. Now, when I look at this tomorrow, I can remember how many problems I completed yesterday. Now that I have filled out my recording sheet and graph, I will put those away, and will turn in my assignment in the ‘in-box’ by the teacher’s desk. Now I am all done.
What did you think of using the sheet while doing the assignment?
Bobby: It looked fun. But, I hope that I can do it like you.
Mrs. Werner: Well, let’s have you practice and I will help you.
3. Require student to practice recording procedure with recording example.

Mrs. Werner: O.k. Bobby, I am going to tell you what assignment to begin, like we had done before, and I want you to begin the assignment and use the recording sheet like I had showed you. After you finish the first three problems, I want you to pretend that you had finished all of the problems and write down the time that you had stopped and turn it in-like I showed you.

*Mrs. Werner tells Bobby to begin the same math assignment (pg. 142 #1-10) and allows Bobby to begin using the recording sheet while he is beginning the math assignment and completing problems. If Bobby forgets a part of the procedure (marking down the time and marking off problems, etc.) Mrs. Werner should intervene and remind him to complete that part of the procedure. She will have Bobby complete 2-3 problems, skip to 9, and finish the remaining steps of the procedure, as she had done before.


Mrs. Werner: What did you think Bobby?
Bobby: I really liked it, and it reminded me, but I would like to have a different picture on the sheet and a different sentence.
Mrs. Werner: You can make your own recording sheet and pick those things out, and we can do that today. But first, I want to tell you that you did a wonderful job looking at the picture to remind you to get your materials out, and writing down the time that you began and finished the assignment, and also did a great job at marking off a number each time you completed a problem and putting a mark on the correct day and number on the graph.
5. Determine, with the student, when and how often the student will engage in the self-monitoring procedure. Enable student to make a recording device.

Mrs. Werner: Bobby, now that we have practiced and we both understand how you will use this, let’s decide when you will start to use this in math class.

Bobby: After I make my own sheet, I would like to start tomorrow.

Mrs. Werner: That’s o.k. Let’s start it tomorrow. We have really thought about using it in math, is that o.k.?

Bobby: Yes.

Mrs. Werner: We also need to discuss a goal for you to work towards. For example, if you had ten problems to get done in math every day and you tried to get 80% of the problems done, you would need to get 8 of the 10 done to make your goal for the day. What do you think about 80% as a goal to work toward?

Bobby: I think 80% is good, and I can try for that and we can talk about it later.

Mrs. Werner: Right, we can get together and talk about how you are doing as we go along. Since we are going to use it in math, should we use it everyday to help you remember what you are supposed to do?

Bobby: I should use it every day.

Mrs. Werner: O.K., and after we use it in math for a while and things are working well, we could also use it in another subject. We can decide that together as we go along, o.k.?

Bobby: That sounds good.

Mrs. Werner: Would you like to make the recording sheet now?

Bobby: Yes.

Mrs. Werner: O.k., use the one that we have practiced with as an example. You can use it and add things to it, or you could make a completely different one, but make sure that you include a picture that you like and can use to mark off 1 through 10 problems in math. Also, remember to list the steps that you need to do, like this one does (Shows him the START, STAY ON IT, SEND IT IN). If you need my help, I am right here. When you’re done, I will look at it with you and make sure that you have everything that you need on it and we can make copies for the days of the week. We can keep it in this special folder with a graph. You can also add drawings or these stickers to your graph. O.k.?

Bobby: Sounds good, I’ll make it now.
c. Review everyone’s roles and responsibilities

1. Have the student practice the steps of the self-monitoring procedures.

*After Bobby has made a finished copy of his recording sheet, Mrs. Werner should have Bobby practice the self-monitoring procedure with his own recording device. She should focus on Bobby verbally rehearsing the steps at first (walking himself through it verbally while he practices). While this is occurring, she should provide him with feedback to reinforce his accurate performance. In addition, Mrs. Werner should pay special attention to the steps that Bobby initially takes to start the procedure (getting his recording sheet out, starting the procedure, and finishing procedure).

2. Decide what date the student will begin the self-monitoring procedure.

*Mrs. Werner should remind Bobby that he will begin to use the recording sheet on Monday.

3. Schedule a follow-up meeting with the student to discuss his/her progress.

Mrs. Werner: Bobby, over the next couple days, I will stop by your desk when math time is done, to make sure that everything is going o.k. with our plan, is that o.k.?

Bobby: Sure, that's o.k.

Mrs. Werner: I'll do this at first, to make sure everything is o.k. Then we can meet after a whole week has gone by we can get together and look at your graph and talk about how things are going, is that o.k.?

Bobby: That's good.

4. Review the schedule and roles and responsibilities of everyone involved.

*Mrs. Werner should briefly remind Bobby that they will start Monday in addition to when they will meet again to discuss his progress.
5. Be sure everyone involved has a clear understanding of the procedures.

*If Mrs. Werner senses that Bobby has reservations about a part of the procedure or in starting the procedure on Monday, she should review the steps and responsibilities again, to ensure that things are clear and he has a comprehensive understanding of what is involved.

Step 3 - Implement the Plan

a. Encourage student effort.

*Mrs. Werner should continually provide feedback to Bobby on his accurate performance of the self-monitoring procedure. She should regularly provide this during the first three days of the procedure (during their after school meeting), and then provide it intermittently.

b. Make periodic revisions and adjustments to the plan as necessary.

*Mrs. Werner should review Bobby’s progress with Ms. Pope during their scheduled meetings. At this time, they should review Bobby’s assignment completion in math. If Bobby has not made improvements after a week of the intervention, Ms. Pope and Mrs. Werner should evaluate the recording sheet and procedure, to identify any additions or revisions that may help Bobby. In addition, they should consider adding a reinforcer, if Bobby is not displaying any progress. If Bobby is making progress, they should monitor the intervention through Ms. Pope’s graph and gradebook reports, to determine when parts of the intervention should be faded in math and implemented in another subject area.
c. When the student demonstrates consistent success, fade the intervention.

*After Bobby has displayed consistent success (5 days of consistently meeting or exceeding 80%), Mrs. Werner should consider fading the intervention in math and implementing it in another subject area. This can be accomplished by Ms. Pope and Mrs. Werner collaborating to discuss Bobby’s progress and views toward the intervention. Fading the procedure in math may entail Bobby only making a summary rating at the end of math or may mean that he participates in self-monitoring for 3 of 5 school days. At the same time, the intervention should be added to another content area. These decisions should be discussed between Mrs. Werner and Ms. Pope first, and then made between Mrs. Werner and Bobby.

d. Once the intervention has been faded, provide continued follow-up, support, and encouragement.

*After the procedure is completely eliminated from math, Mrs. Werner should continue to provide feedback to Bobby on his assignment completion in math. She should mention this when they meet to discuss the self-monitoring intervention in other content areas also.
Recording Device Example

START!
STAY ON IT!
SEND IT IN!

1 6
2 7
3 8
4 9
5 10
Graphing Example
APPENDIX C

TEACHER SURVEY
APPENDIX C

TEACHER SURVEY

Please read each statement below. Circle the number that best represents your assessment.

1. Self-monitoring training helped me implement the intervention in my classroom.
   1  2  3  4  5
   Not true at all  Moderately true  Very true

2. Self-monitoring training required too much time from my schedule.
   1  2  3  4  5
   Not true at all  Moderately true  Very true

3. I was able to construct an intervention for my student in a short amount of time.
   1  2  3  4  5
   Not true at all  Moderately true  Very true

4. The intervention was expensive.
   1  2  3  4  5
   Not true at all  Moderately true  Very true

5. The intervention was effective for the student's needs.
   1  2  3  4  5
   Not true at all  Moderately true  Very true

6. I will use self-monitoring with other students who need to improve academic performance.
   1  2  3  4  5
   Not true at all  Moderately true  Very true

7. I think that self-monitoring may help students who have behavioral concerns.
   1  2  3  4  5
   Not true at all  Moderately true  Very true

8. I think that I can implement self-monitoring with future students independently.
   1  2  3  4  5
   Not true at all  Moderately true  Very true

9. Self-monitoring is a "teacher-friendly" intervention technique.
   1  2  3  4  5
   Not true at all  Moderately true  Very true

*Write below what "teacher-friendly" means to you.