

Improving Children's Story Writing: A Direct Instruction Approach

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In order to investigate how teaching strategies for planning and reviewing would affect students' planning, reviewing, and text production behaviors, we conducted this instructional intervention study. In addition, four raters compared students' writing quality before and after instruction. We plotted data on Standard Celeration Charts and examined training effects using a multiple baseline across participants design with multiple probes in baseline. During baseline and in intervention phases, two highly capable 12-year-old students wrote stories on a computer using a word processor. Frequency of words written during planning prior to story writing, as well as during story writing sessions, changed little from baseline to intervention phases for each participant. This was also true in the case of frequency of story elements; however, direct instruction increased the amount of time the writers spent planning prior to story writing, as well as the amount of time writers reviewed their text while writing. Most stories written after instruction contained more words, and all of them contained more sentences and story elements. Social validity evaluations indicated that stories written after instruction were higher in overall writing quality than stories written during baseline.

Documented decreases in students' writing skills (e.g., Applebee, Langer, & Mullis, 1986) coupled with demands for higher literacy standards (e.g., Linn, Baker, & Dunbar, 1991) reflect the need for instructional interventions to help students write more effectively. Professional organizations such as the National Council of Teachers of English and the International Reading Association (1996) currently emphasize the importance of written language instruction in the classroom. Their standards for English language arts state that students should be able to use a wide variety of strategies to appropriately communicate with their intended audiences.

Writing is an exacting, complex, and difficult skill to master. Good writers must coordinate their topic knowledge, and they must effectively use strategies to plan, transcribe, review, revise and monitor their progress while they write (Harris & Graham,

1992). Negotiating the rules and mechanics of writing is essential, but only rudimentary to expert writing. Writers must also attend to content organization, form purpose, goals for writing, audiencegenre, and the monitoring of their communicative intent and efficacy (Bereiter & Scardamalia, 1982).

Expert writers possess and use a variety of strategies for planning and reviewing (Hayes & Flower, 1980). Planning occurs at the sentence level and at the more global rhetorical level. Planning includes idea generation, goal setting and organization of ideas to create a well-written product. Good writers plan more and do so in qualitatively different ways than unskilled writers. Reviewing includes editing and revising and leads writers to make changes in their texts. Effective revision expands and reorganizes meaning and requires more than just correcting spelling or grammatical errors

(Fitzgerald, 1987). According to MacArthur, Harris, and Graham (1994), effective use of such strategies during writing can greatly enhance the quality of expert writers' texts. One goal of instructional studies aimed at increasing writing quality has, therefore, been to teach unskilled writers, who usually focus solely on generating content and meeting simple genre writing task requirements, to write more like experts.

Strategy instruction has become a valuable means of remedying students' academic deficiencies (Pressley & Levin, 1986). The effectiveness of strategy instruction for writing, however, has been examined in studies that have focused primarily on students with learning disabilities. The effects of frequency as a measure of fluency have rarely been investigated. The purpose of this study was to examine how instructing strategies for planning and reviewing would affect story writing processes and outcomes. First, we attempted to determine whether strategy instruction would increase the amount of time gifted participants planned, produced text, reviewed, edited and revised. Second, we examined the effects of strategy instruction on the frequency of words written during planning prior to story writing, as well as during writing. Third, we compared the number and frequency of story elements included in stories written prior to instruction and after instruction. Fourth, and finally, we assessed whether stories written after instruction would be considered higher in overall writing quality than stories written during baseline.

METHOD

Participants and Setting

Two highly capable 12-year-old grade six students served as participants. Liz and

Matt attended the same elementary school in Washington State, and both were in English honors programs and labeled "gifted." Both had adequate keyboard skills to type comfortably on a word processor. Liz was a bright, outgoing daughter of a physician and an artist. She earned high grades in school, enjoyed theater and dance, and liked to write. However, as with most young writers, Liz often wrote quickly, doing very little planning or reviewing when doing school assigned writing projects.

Matt was a gregarious and mature 12-year-old. He was socially popular and very bright. He scored in the 99th percentile on standardized tests and had qualified to take a national test designed to identify gifted students who might benefit from accelerated instruction. Although Matt was bright, his teacher commented that he often rushed through his schoolwork and produced written products below his grade-level.

We conducted this study in the first investigator's home office using an IBM computer. This site provided a quiet and nondisruptive environment for the participants to concentrate, learn, and write. We held baseline sessions twice a week for each child; these sessions lasted approximately 1 hour each. When the baseline phase was finished, the primary investigator conducted instructional intervention sessions once or twice per week, depending on the participants' schedules. Each intervention session lasted between 1.5 to 2 hours. Instruction took approximately 20 minutes during the initial baseline session, but was reduced to less than 5 minutes during the final session for each participant. During the remainder of the intervention session time, participants planned, wrote and reviewed their texts. Participants did not plan or review during the baseline phase. Time spent on instruction, coupled with the time

participants spent planning and reviewing, accounted for the time difference between the baseline and intervention sessions.

Strategies and Materials

The planning strategy instruction consisted of the story grammar C-SPACE mnemonic as described in Harris and Graham (1996). First, we provided verbal instruction in which students were told to think about their audience and about the type of story they would like to write. Next, we introduced the C-SPACE mnemonic as a written prompt and asked students to use it to take notes and outline prior to story writing. The mnemonic is as follows:

C = Character--List and describe your characters using as many describing words as you can.

S = Setting--Where does your story take place? Does your story take place in one location, several, or many? Describe each location in detail.

P = Problem or purpose for story--What is the purpose of your story? What are the problems that your main character and secondary characters encounter in the story? How do they deal with these problems and how do they resolve them?

A = Action--What happens in your story? Use as many action words as possible to describe what your characters do in the story.

C = Conclusion--How does your story end? What ending do you want to create, so that your readers want to read more of your work?

E = Emotion--How do your characters feel? Write sentences that describe and explain your characters' moods."

The reviewing strategy consisted of teaching participants how expert writers review, edit, and revise their texts. Emphasis was placed on making meaning-changes to texts to make them more coherent and clear.

Spelling and mechanical fixes were mentioned as editing. Teaching occurred at the beginning of each intervention session with a written reviewing prompt given to participants at the end of each initial writing session. The written reviewing prompt asked the following questions: "Go back, and reread your story. Do you have a beginning, middle, and an end to your story? Have you described the setting where your story takes place? Did you make the problem or plot of your story clear? Is the action of your story interesting? Is the plot exciting and well thought out? Does your conclusion resolve the problem in the story? Have you corrected all spelling and punctuation errors? Are your ideas clear? Do all of your sentences read well? Do they make sense? Now, once you have made your changes, go back and reread your story one more time. Can you write and say more?"

We timed several variables using WriteScope computer software (see Butterfield, Locke, & Albertson, 1995). The software began timing at the first keystroke and stopped timing when the student selected the "done" button on the computer screen.

Dependent Variables

Planning. We measured planning as time spent outlining prior to writing, number of words generated per outline, and number of words written per minute. WriteScope measured planning time which was validated by timing writers with a stopwatch.

Text Production. We measured text production in four ways. First, the overall amount of time spent writing (not including planning time) was measured using WriteScope and a stopwatch. Second, we calculated the number of words written per story. Third, we counted the number of

sentences per story; fourth, we recorded the number of words written per minute.

Time Spent Reviewing. Using a stopwatch, we recorded the amount of time writers spent reviewing, editing, and revising after initial story writing.

Number of Story Elements. Story elements include main character, locale, time, start event, goal, action, ending, and reaction (Stein & Glen, 1979). The investigators counted the number of story elements writers included in their stories, and compared stories written prior to instruction to stories written after instruction. One point was awarded for each element included in the story; a second point was given if the element was highly unusual or highly developed. For details on scoring story elements, see Harris and Graham (1996).

Writing Quality. Four raters including a grade six teacher, two writing tutors, and a graduate student researcher made subjective evaluations about writing quality. Four stories were randomly selected from each participant, two baseline stories and two after-instruction stories. We paired each of these stories with each of the participant's other stories, allowing raters to select one of the paired stories as better in overall writing quality.

Each selected story was then rated against every other of that participant's stories in the same-paired fashion.

Design and Procedures

For this study, we selected a multiple baseline across participants design with multiple probes in baseline. Multiple probes were used to lessen the number of baseline sessions required by Matt in order to avoid reactive effects and decrements in performance due to an extended baseline phase (Horner & Baer, 1978).

Baseline. In all baseline sessions, Liz and Matt were allowed to practice using the word processor. They had the option to practice for 10 minutes at the beginning of each writing session to familiarize themselves with all keys, mouse, and other features of the word processing program. Each participant worked separately and at different session times throughout the study. Each baseline session lasted for approximately 1 hour over several weeks, and each participant received identical directions.

For each baseline session, participants received the following simple written direction on a computer screen: "Write a story that involves (randomly assigned topic). There is no time limit, and when you are happy with your story, let me know." When told by participants that they were through writing, the investigator asked if there were any changes they would like to make to their texts. When the participants said that they were completely finished, either the participants or the investigator used the mouse to click on the "done" button to end writing sessions.

Liz wrote five baseline stories followed by the instruction intervention. Matt wrote six baseline stories and began the instruction intervention after Liz had completed three intervention sessions.

Instruction Intervention. Instruction included teaching both the planning and reviewing strategies. A C-SPACE mnemonic handout was introduced and used to describe and discuss the planning strategy. A separate handout was used to introduce and discuss the reviewing strategy.¹ Initially, the investigator described both strategies in detail; participants were encouraged to ask questions during instruction. Participants then verbally explained both strategies to show mastery.

An instructional session preceded each story writing session during the intervention phase. By the final session, each participant could verbally explain the strategies without any description or prompts by the investigator.

After Liz and Matt had mastered the strategies and prior to story writing, they made notes and an outline on the computer using the C-SPACE written handout. All outlining sessions were conducted separately from story writing sessions. Hard copies of their notes were printed and given to the writers to use during story writing. Planning intervention directions were given to participants on a printed sheet and consisted of the following: "You will plan to write a story that involves (topic randomly assigned). Your story needs to have a beginning, middle, and end. Think about who and what you want to write about. Think about your audience and the type of story you will write (humorous, fiction, non-fiction, scary, science fiction, or mystery). Before you start writing your story, think about the three items above. Use the computer and the C-SPACE mnemonic (included in detail in handout) to guide your outlining and note-taking; make a letter for each part of the mnemonic, and fill it in as you plan. Tell me when you are finished planning and writing your outline, and click on the 'done' button."

As in baseline, if participants did not immediately click on the "done" button, the investigator clicked on it for them. Immediately following planning, participants wrote stories on the computer and used their notes and outlines as needed to aid their writing. When participants finished writing, the investigator gave them the reviewing checklist with instructions to read it carefully and mark off each item as they completed it. When they finished reviewing, editing, and revising, they told

the investigator that they were done; the investigator asked them if there was anything that they wanted to change in their texts. When participants said that they were completely finished, the investigator clicked on the "done" button.

Procedural Reliability and Interrater Agreement

Procedural reliability (Billingsley, White, & Munson, 1980) was assessed for six baseline and two intervention sessions per participant. The primary investigator developed a checklist for both baseline and intervention sessions and had a trained independent observer use the checklists to determine whether procedures were implemented accurately. The observer indicated that specified procedures were followed consistently and in correct order.

We calculated interrater agreement between the investigator and the trained observer for inclusion of story elements using the formula: $(\text{agreements} / [\text{agreements} + \text{disagreements}]) \times 100\%$. A total of 18 scores were generated for the 18 stories scored across participants. The independent observer rated 13 randomly selected stories. The investigator and independent observer agreed on 11 scores and disagreed on 2 scores. Interrater agreement was 85%. Interrater agreement was calculated for writing quality using the same formula and is discussed in the Results section.

The WriteScope software program automatically recorded all word counts and time measures for planning and story writing. The investigator used a clock in the office synchronized with a stopwatch to record the amount of time participants spent reviewing. Perfect correspondence was always obtained in those cases.

RESULTS

Planning

Planning data for Liz and Matt are provided in Charts 1 and 2, respectively. The amount of time writers planned and outlined prior to story writing increased after instruction. Neither Liz nor Matt planned during baseline; however, during intervention they both did so. Liz took 17 minutes (median), and Matt, 16 minutes (median) to develop outlines. Across intervention sessions, amount of time devoted to outlining decreased slightly as indicated by counting period floors. Frequency of words written across sessions during outlining remained steady for Liz (Chart 1) and accelerated slightly for Matt (Chart 2).

Text Production

Total number of words written in Liz's stories increased from a median of 496 words in baseline to 740 during intervention (Chart 3) for an increase of $\times 1.5$. The total number of words in Matt's stories increased from a median of 595 words in baseline to 965 during intervention (Chart 4). The increases were not due to an increase in the speed with which words were composed; in fact, frequency of typing words decreased slightly. Rather, they were due to an increase in the amount of time writers spent on their stories. (See change in levels of counting period floors between baseline and intervention). Median time spent developing and writing stories increased by a factor of approximately $\times 1.8$ for Liz and $\times 2.7$ for Matt during intervention. Both writers spent more time on their writing and included more words in stories written after strategy instruction.

Reviewing, Editing, and Revising

During baseline, the median time spent reviewing in the case of both Liz and Matt was 0 minutes; in fact, Matt did not review during any baseline session. Time spent reviewing increased for both participants after instruction, with Liz increasing to a median of 12.5 minutes and Matt increasing to a median of 16 minutes. Since no movements were recorded separately from the total reported for text production (Charts 3 and 4), we have not included charts for reviewing time.

Story Elements

The total number of story elements for both writers increased substantially during intervention, with an increase of $\times 2.4$ from baseline median of 4 to the intervention median of 9.5 for Liz (Chart 5). Matt obtained similar increases (Chart 6). The frequency with which elements were included remained similar across phases, indicating that desirable increases in performance were associated more with expenditure of time rather than with increases in speed.

Writing Quality

All four raters judged all of Matt's randomly selected stories written after instruction to be better in writing quality and story telling than his baseline stories. Two of the four raters agreed that all of Liz's stories written after instruction were better than her baseline stories; however, the other two raters agreed that one of Liz's baseline stories was better than one of the stories she wrote after instruction. Raters agreed in thirty instances and disagreed only twice, yielding an interrater agreement level of 94%.

CALENDAR WEEKS

12 01 96
DAY MO YR

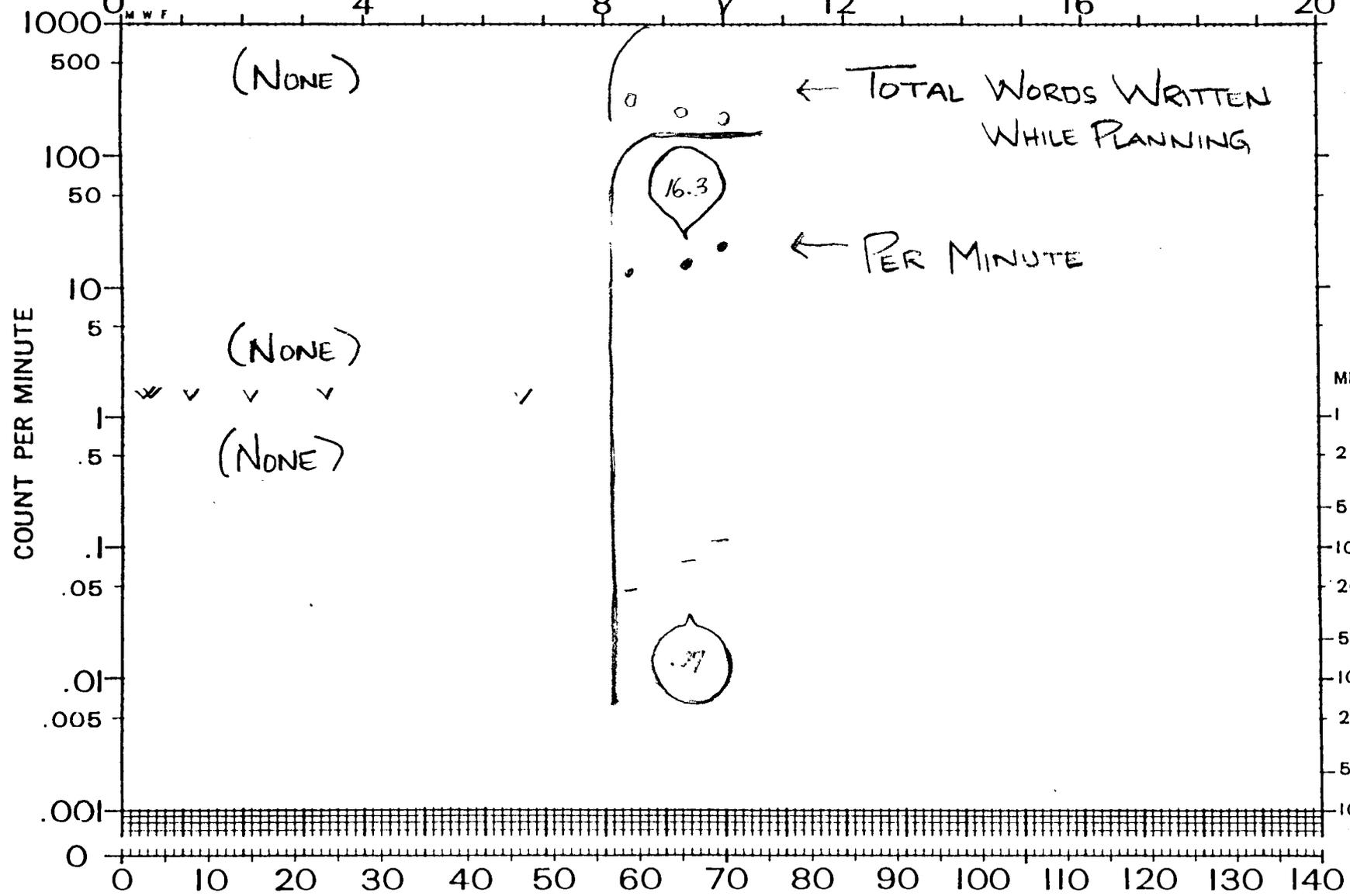
09 10 21 96
DAY MO YR

08 03 96
DAY MO YR

DAY MO YR

DAY MO YR

DAY MO YR



20

SUPERVISOR ADVISER MANAGER

DEPOSITOR AGENCY

SUCCESSIVE CALENDAR DAYS

TIMER COUNTER

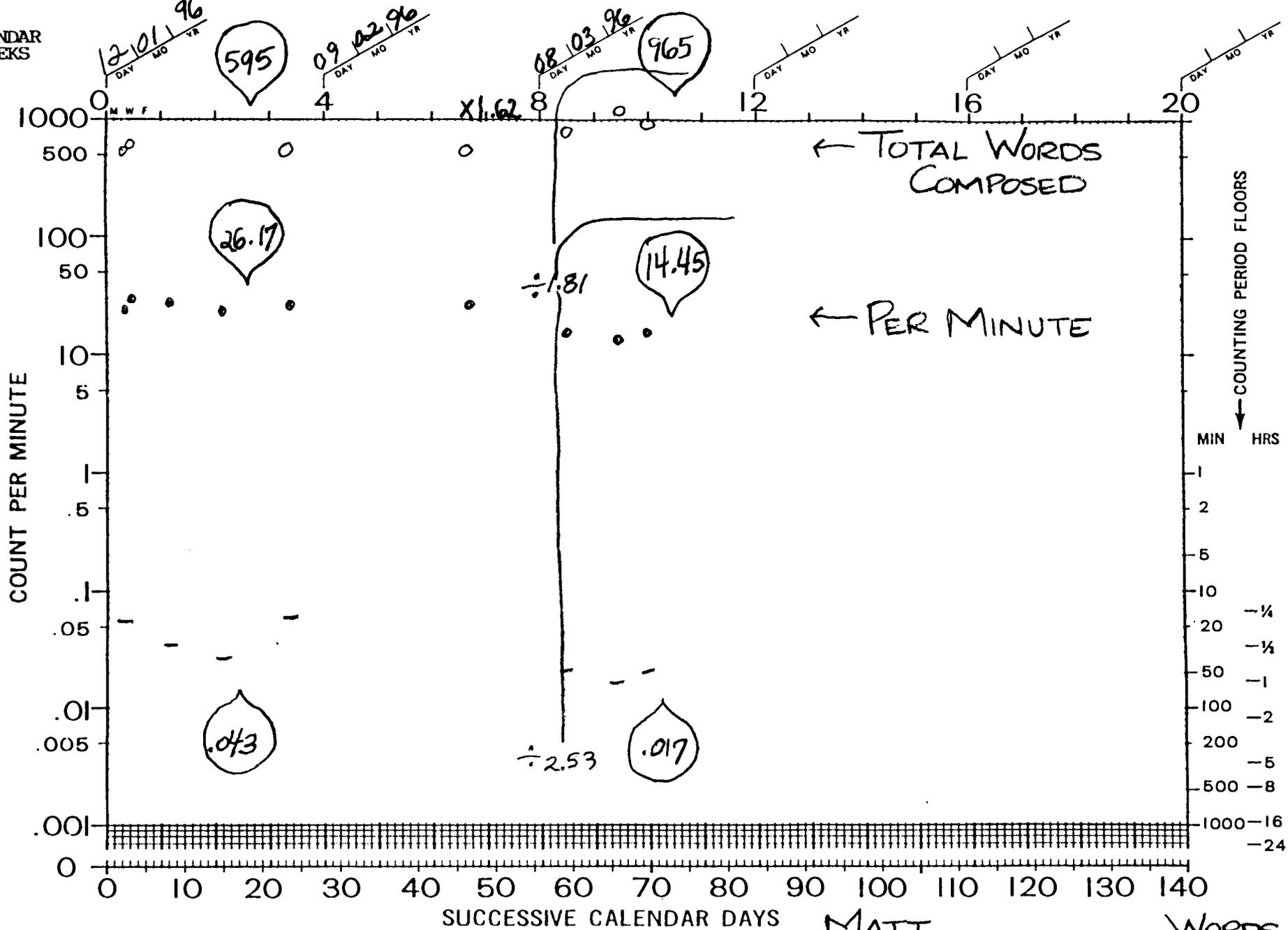
MATT
BEHAVIOR

AGE LABEL

CHARTER

WORDS
COUNTED
WRITTEN
DURING
OUTLINE

CALENDAR WEEKS



22

SUPERVISOR ADVISER MANAGER

DEPOSITOR AGENCY

SUCCESSIVE CALENDAR DAYS

TIMER COUNTER

MATT

BEHAVIOR

AGE

LABEL

WORDS
COUNTED
COMPOSED
DURING
STORY

CALENDAR WEEKS

7/1/96
DAY MO YR

4/2/96
DAY MO YR

1000

500

100

50

10

5

1

.5

.1

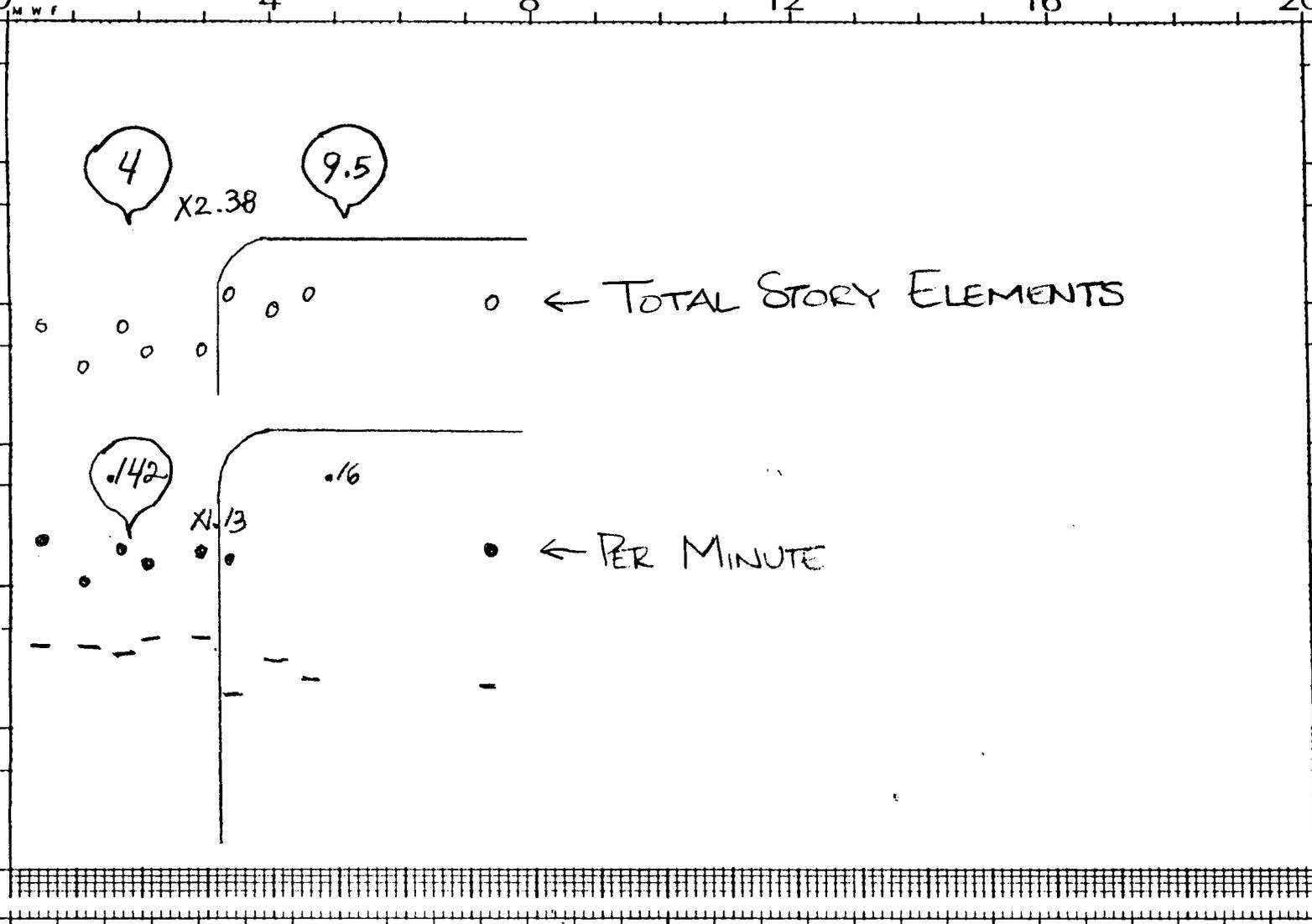
.05

.01

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0



COUNTING PERIOD FLOORS

MIN HRS

1

2

5

10

20

50

100

200

500

1000

16

24

SUCCESSIVE CALENDAR DAYS

ELEMENTS IN STORY

SUPERVISOR. ADVISER. MANAGER

DEPOSITOR AGENCY

TIMER COUNTER

LIZ BEHAVIOR AGE LABEL COUNTED

CHARTER

23

CALENDAR WEEKS

12 01 96
DAY MO YR

09 02 96
DAY MO YR

08 03 76
DAY MO YR

DAY MO YR

DAY MO YR

DAY MO YR

1000

500

100

50

10

5

COUNT PER MINUTE

1

.5

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.05

.01

.005

.001

0

M W F

4

8

12

16

20

24

x1.8

÷1.24

5

208

9

.167

← TOTAL STORY ELEMENTS

← PER MINUTE

COUNTING PERIOD FLOORS
MIN HRS

1
2
5
10
20 - 1/4
50 - 1/2
100 - 1
200 - 2
500 - 5
1000 - 16
-24

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

SUCCESSIVE CALENDAR DAYS

MATT

NAME

SUPERVISOR

ADVISER

MANAGER

BEHAVIOR

AGE

LABEL

COUNTED ELEMENTS IN STORY

DEPOSITOR

AGENCY

TIMER

COUNTER

CHARTER

Discussion

This study compared the written products of two gifted students prior to and after strategy instruction. The dependent variable measures indicated that both Liz and Matt wrote more, increased their writing time, added more story elements to their stories, and improved their overall writing quality after instruction. They also devoted more time to planning and reviewing during the intervention as compared to the baseline phase. The findings are largely consistent with those demonstrated when strategy instruction is applied to students with learning disabilities (e.g., Harris and Graham, 1996). This seems to be particularly important to educators as it indicates that even children who are considered gifted, and who are relatively competent writers initially, can make substantial gains when provided with direct strategy instruction. In fact, several of the assessed variables approached or exceeded median gains of x2 for both participants. Writing is a complex and difficult ability to develop. The data suggest that all writers can improve their skills.

Data included in Charts 1 - 5 also indicate that, where improvements were noted, the data remained extremely stable. In other words, jump-ups in performance occurred rapidly once we introduced the strategy instruction; thereafter, however, no acceleration turn-ups were noted. Practice sessions following intervention may have been insufficient to produce additional improvement. Or, perhaps one should not expect the strategies, as we employed them, to produce accelerations in performance across time without additional intervention elements.

Finally, the data indicated that frequency measures increased very little or, more typically, decreased except in those cases in which no movements were noted during baseline assessment. It would appear, then, that

improvements in frequency require techniques beyond those involved in interventions derived from current strategy instruction literature.

A potential source of confound in the investigation may be from differing durations of baseline and intervention sessions; that is, during intervention, sessions were longer than during baseline. The possibility that those differences substantially influenced the observed outcomes due to increases in investigator attention, however, would not be great since: (1) time increases during intervention were due primarily to the participants taking longer to plan, write, and review their stories rather than to increases in duration of investigator attention in the form of instruction and (2) the amount of investigator attention decreased dramatically from the first to the last intervention sessions without concurrent decreases in participant performance.

Informally, we observed that, even though both participants made small editing changes to their texts, they did not make any extensive meaning-changing revisions. In other words, the text changes made by Liz and Matt during the reviewing sessions were minor and did not alter meaning. In essence, they cleaned up their documents, fixed spelling errors, and made grammatical changes, but they did not make the meaning-changing revisions that are often essential for clarity in writing and are typical of prose produced by experts (Fitzgerald, 1987). The findings suggest that both planning prior to writing and reviewing while writing can improve overall writing quality for above average students. Further, teaching such students to plan and review, to write longer stories, and to include more story elements, was relatively easy to accomplish with the direct instruction approach employed in this investigation. In addition, the use of direct strategy instruction may enable learners to experience rapid improvements in their writing performance. Although these outcomes are

promising, a variety of questions and productive areas remain for future investigation. A few potential topics are as follows:

1. Editing and revising behaviors that occur as writers review their work remain an area of considerable weakness for novice writers (Fitzgerald, 1987; Butterfield, Hacker, & Albertson, 1996). Investigations that focus specifically on those behaviors could substantially enhance our ability to develop and implement effective creative writing programs.
2. In the current investigation, effects of planning and reviewing strategies could not be separated. Decoupling effects of those strategies could be informative and of considerable practical value.
3. One participant (Liz) reported that she used the planning and reviewing strategies when writing a story for a young authors' conference two months after instruction ended, providing anecdotal evidence of both generalization and maintenance. Future studies should systematically explore practices designed to enhance generalization and maintenance of strategy use.
4. Although both participants increased their productivity in terms of total words written when strategy instruction was introduced, the frequency with which words
5. were produced decreased in comparison to baseline levels with no trends to suggest the possibility of future acceleration. In other words, if fluency is characterized by a combination of accuracy plus speed (Binder, 1996), both Liz and Matt became less fluent.

It is likely that some aspects of the strategies taught (e.g., reviewing) act rather naturally to

reduce fluency as compared to phases in which the students had not received instruction in reviewing and had, in fact, reviewed very little or not at all. Nonetheless, fluency appears to have been a concern of many expert writers (cf. Wallace & Pear, 1977). Considerable increases in retention, endurance and application have been documented from fluent performance (Binder, 1996; Lindsley, 1995). As few investigators have examined the improvement of children's creative writing fluency (existing examples include Albrecht, [1981], Calkin [1996], and Spaulding, Haertel, SeEVERS, & Cooper, [1995]), techniques that can be combined with effective strategy instruction to promote fluent and creative composition deserve increased attention by writing researchers.

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