

A new Starter Strategy¹: InSPECT

Strategic use of computer-based spellcheckers

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What seems to be needed is a strategy that enables students to 'help' the spellchecker do a better job.

I have a spelling checker,
It came with my PC.
It plane lee marks four my revue
Miss steaks aye can knot sea.

*Eye ran this poem threw it,
Your sure reel glad two no.
Its vary polished in it's weigh.
My checker tolled me sew.*

—Excerpted from
Candidate for a Pullet Surprise²

Have you ever heard teachers or teacher-trainers say something like, “If a student with learning disabilities has writing or spelling problems, set him up with a computer and a spellchecker, and that should take care of it”? Although we know computer-based spellchecking programs can and do help students with learning disabilities in the composition process, we also know they are not 100 percent effective in compensating for spelling problems. There are at least three reasons why:

1. As the poem “Candidate for a Pullet Surprise,” above, illustrates, spellcheckers do not detect homophone errors.
2. Spellcheckers do not identify legitimate but inappropriate words resulting from typographical errors (for example, “to”

¹ Like other Starter Strategies, *InSPECT* is taught relatively easily and quickly and can be used to introduce students to strategic learning. Because of the ease of learning and relative simplicity of this strategy, training is *not* required for teachers to obtain the instructor’s manual. Contact Edge Enterprises, (785) 749-1473. The cost is \$12.

- instead of “do”).
3. Spellcheckers do not present correct alternatives from which to select when spelling errors are significant (for example, the word is missing several letters).

Many spellchecker programs are based on algorithms that focus on common typographical errors or phonetic errors (kat vs. cat). As a result, spellcheckers often detect and provide correct alternatives for only about half of the existing spelling errors in a document. And, right or wrong, multiple spelling errors can result in others perceiving the writer as lazy or “slow.”

What seems to be needed is a strategy that enables students to “help” the spellchecker do a better job. So with Charlie’s background in strategy development and David’s seemingly genetic predisposition towards technology (although a current theory is that this predisposition is hormonal [over-production of the hormone, technostrogen] rather than genetic), we developed a strategy for detecting and correcting spelling errors, the InSPECT Strategy. The strategy was developed based on the following:

- a. spelling errors common in the writing of

² “Candidate for a Pullet Surprise,” by Jerrold H. Zar, was published in the January/February 1994 issue of *Journal of Irreproducible Results*, page 13. The title was suggested by Pamela Brown. Poem based on opening lines suggested by Mark Eckman. The poem also has been widely distributed on the Internet and in various newsletters, sometimes with the title “Owed to a Spell in Checker.”

- students with learning disabilities
- b. important proofreading skills specified in previous proofreading research with students with learning problems
- c. factors that optimize error-detection performance in a wide range of activities

Three instructional goals are associated with teaching students to use the *InSPECT Strategy*:

- a. To help students understand how reducing the number of spelling errors in their written work will improve their ability to communicate effectively in writing.
- b. To increase the number of spelling errors detected and corrected by students while proofreading.
- c. To decrease the number of spelling errors in the final draft of students' written work.

We conducted the research on the *InSPECT Strategy* with high school students with learning disabilities who were identified by their teachers as having significant writing and spelling problems and who were using word-processing programs to produce written work. **Before learning the strategy, the students were correcting only about 40 percent of their spelling errors even after running the spellchecker and engaging in other proofreading activities. After they began using InSPECT, they corrected 75 percent of their errors, resulting in an error rate (3 percent) close to that of students without learning disabilities (2 percent).**

Steps of the Strategy³

When students use the InSPECT Strategy with a word-processing program on a computer, they follow the six-step sequence listed in Figure 1. In the first two steps, students make sure they are in their document

The InSPECT Strategy

In your document

Start the spellchecker

Pick the correct suggestion

Estimate the correct spelling

Correct additional errors

Transfer your corrections

Figure 1

and then start the spellchecker at the beginning of the document. After the spellchecker detects a misspelled word and lists spelling alternatives or options, students pick the correct suggestion by first rereading the sentence in which the error occurred. This is done to focus their attention on the exact word used and its meaning in the sentence. Next, they look at the first several options (usually the first screen) and, if they are **sure** of the correct option, they make the change.

If the spellchecker does not present any alternatives or the student does not see the correct word, the student can “help” the spellchecker by estimating the correct spelling. This is done by

saying the word aloud slowly and adding any missing letters. If this process does not generate the correct option, students are directed to think of a synonym to use. After proceeding through the document in this fashion, students correct additional errors by printing a hard copy of the text and reading through it twice. A copy is printed because it has been shown that most people do a better job of monitoring errors on paper than on a computer monitor. The first pass over the document requires students to read sentence-by-sentence starting with the **last** sentence, with the primary goal of detecting and correcting misused words.⁴ The next pass is made by reading the text out loud from the

³ Most of the instructors' manuals included in the Strategic Instruction Model are precise in terms of directions and explanations provided to students during instruction. Because there are a variety of spellcheckers (and thus a variety of formats), some of the instructions in the InSPECT manual will vary depending on the type of spellchecker. These variations are noted in the manual and prompt teachers to be able to describe how the spellcheckers used by their students function.

beginning to the end. All corrections are made on the paper. If students have learned the Error Monitoring Strategy, they can be directed to ask themselves the COPS questions (Figure 2) during this step. In the last step of the strategy, students transfer their corrections into the computer, run the spellchecker one more time, and then print a final copy.

Instructional Stages

The InSPECT Strategy is taught using a modified version of the Strategic Instruction Model's Stages of Acquisition and Generalization. *InSPECT Strategy* instruction involves the following seven stages:

- Stage 1: Pretest
- Stage 2: Describe and Model
- Stage 3: Verbal Practice
- Stage 4: Controlled Practice and Feedback
- Stage 5: Advanced Practice and Feedback
- Stage 6: Posttest and Make Commitments
- Stage 7: Generalization

During **Stage 1: Pretest**, students are instructed to write a 150-word passage using a computer-based word processing program and then use the spellchecker as well as any other proofreading techniques they currently use. A variation on the usual SIM instructional sequence is the combination of the **Describe and Model** stages (**Stage 2** of *InSPECT Strategy* instruction): The teacher performs both processes during one instructional session.

⁴ Misused words are typically homophone errors (for example, "its" for "it's" and "their" for "there"). The *InSPECT Strategy* manual contains suggestions for teaching students about common homophone errors as well as "tips" for remembering the appropriate word. Other misused words are correctly spelled words but are not the intended word (for example, "same" for "tame," "pints" for "points," etc.)

COPS Questions

Capitalization

- Have I capitalized the first word of the sentence?
- Have I capitalized all of the proper nouns in the sentence?

Overall Appearance

- Is my handwriting easy to read, on the line, and not crowded?
- Are my words and sentences spaced right?
- Did I indent and write close to the margin?
- Are there any messy errors?

Punctuation

- Did I use the right punctuation mark at the end of each sentence?
- Did I use commas and semicolons where necessary?

Spelling

- Does it look right?
- Can I sound it out?
- Have I used the dictionary?

Figure 2

Another unique instructional feature of InSPECT is that teacher and student materials are on computer disks (one in Macintosh format and another in IBM-compatible format) that come with the instructor's manual. The disks contain the passage the teacher uses to describe and model the strategy along with two dozen passages written at three different reading levels to be used during **Stage 4: Controlled Practice and Feedback**. Each of these passages contains 20 spelling errors, and students are directed to use InSPECT to detect and correct them. The disks

also contain answer keys and scoring forms.

One advantage of providing the passages on disk is that they can be readily edited for a variety of instructional purposes. For example, if a teacher is teaching other grammar skills (for example, appropriate punctuation, capitalization, or subject-verb agreement), errors related to these skills can be inserted easily into the word processor file copies of the passages. Students can then apply their proofreading skills to detect and correct these errors, too.

See "Setting the stage to teach the InSPECT Strategy" by Irma Brasseur on page 4 for *InSPECT Strategy* instruction ideas.

Setting the stage to teach the InSPECT Strategy

Editor's Note: *Irma Brasseur, a doctoral fellow at KU-CRL, has worked with students using the InSPECT Strategy and has presented it to other teachers. Here are some of Irma's suggestions for the strategy based on her experiences.*

From my 15 years of teaching learning strategies to students with learning disabilities, I know that I need to make strategies come to life for my students. So the first time I thought about how to present the *InSPECT Strategy*, two ideas came to mind:

1. I needed to become an inspector.
2. My students needed to become inspectors with me.

How could I make this happen? Elementary, my dear. I decided to adopt the characters of Sherlock Holmes and Watson as wonderful examples of what inspectors do to solve problems. I began by searching for necessary costume materials (pipe, hats, magnifying glasses, and gloves) around the house and at a local costume shop. Then, I rented a Sherlock Holmes video. Upon returning home from the video store, I put on my Sherlock accessories and watched the video. I began to talk a little like Sherlock (I do have some English in me, so it was almost natural) and to move about the room in an investigative manner. Yes, I thought to myself, this is how I will kick off the *InSPECT Strategy*.

Stage 1: Pretest

The opening day of *InSPECT Strategy* instruction, I greeted my seventh-grade students at the door in my Sher-

lock Holmes persona. The students were a little puzzled but curious about what was up for the day. I told them it was a very important day because we were all going to begin training to become inspectors. Our discussion included questions such as "Does anyone know who I am today?" and "Who is usually with Sherlock Holmes?" I was prepared to show a clip of the video that illustrated Holmes performing "inspector" behaviors, and I asked for an assistant (Watson) to help me with the investigative activities we would perform that day. We discussed what inspectors do and how we could become inspectors in Language Arts class.

"That's right," I said, "we are going to inspect our typed documents or written papers for errors. For the next several days, we will focus specifically on how to inspect our typed documents or written papers for spelling errors."

"To begin, a good inspector always gathers background information, so that's what we will do today. I'm going to ask you to type a paragraph on the computer and use your spelling skills to detect and correct any spelling errors you find, then turn in a printed copy."

Stage 2: Describe and Model

During the Describe and Model Stage, I asked two students to dress up as Sherlock and Watson to assist with activities. The focus was on describing what we investigated the day before and how we would use a specific set of strategic steps to solve

the problem of finding spelling errors. I proceeded with the Describe and Model Stage in the following manner:

"Because we are good inspectors, we only use highly researched techniques to reach our goals. Plus, we make a commitment to investigate the problem until the solution has been found. Let's all make a commitment to become highly skilled inspectors today. My goal will be to train you to the best of my ability in the strategic problem-solving steps titled InSPECT."

On the first modeling day, I acted out all of the InSPECT steps as Sherlock Holmes. I projected a typed document on a screen so students could see everything I did to the passage as I proceeded through each step. My assistant, Watson, helped by pointing to the InSPECT step I was performing. My setup for the day included the following:

"Today, I'm going to show you how to be a good inspector for finding spelling errors. I want you to watch closely and listen carefully to how I perform the InSPECT steps. I will expect each of you to model these steps for me at a later date."

Later, I provided many opportunities for modeling, following the process of teacher-led to shared to student-led modeling (Figure 1). Teacher-led modeling involves the teacher thinking aloud through the entire strategy process while students observe and focus on the teacher's talk to himself or herself. During shared modeling, the teacher guides students

through the strategy process through questioning (for example, “What do I do next?” “Why did I just do this step?” and “What might I ask myself to know where to go next?”). Student-led modeling involves students demonstrating their self-talk of the strategy steps and problem-solving in front of the class or in small groups.

Stage 3: Verbal Practice

Verbal rehearsal and elaboration provided the opportunity to “pass the inspector hat” while stating each step of the *InSPECT Strategy*. This stage of instruction opens up the opportunity for expanding activities that promote an automatic level of knowledge of the strategy steps. The following are some of the activities I’ve used:

1. I have created a song incorporating the strategy steps.
2. I have had students make flashcards for each step to use for class-wide peer tutoring or Numbered Heads Together, a cooperative learning structure in which students are divided into groups of three or four and asked to number off (1, 2, 3, ...). The teacher, who holds a stack of cards with numbers on them, asks a question, such as “How can the *InSPECT Strategy* help you perform better?” or “What does the ‘S’ step of InSPECT stand for?” The teacher asks the students to put their heads together for 10 seconds to come up with an answer. It is important that everyone in the group know the answer. Then, the teacher draws a card from the stack and asks the students with the corresponding number to stand and represent their groups. The teacher circulates around to each representative and asks for his or her response. During this process, the teacher

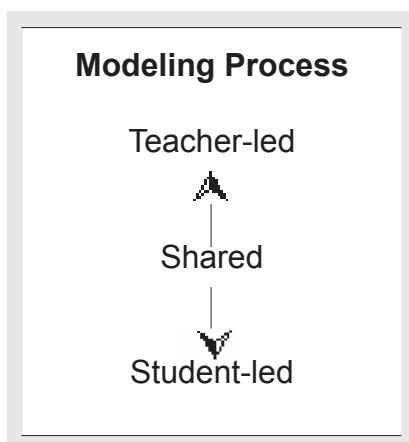


Figure 1

3. I organize a low intensity rehearsal involving a “pass the hat” idea. Low intensity means the student knows when he or she will receive the hat and what step of the strategy he or she will be expected to say when that happens.
4. I also use high intensity rehearsals in which the student does not know when his or her turn will come up. Thus, all students are required to actively pay attention to which step was just stated so they will be prepared to say the next step, if chosen. Typically, during this process, I require students to state a step, then walk at least three feet before handing the hat to another student. After a student has had a turn, he or she must remain standing. When all students are standing, I reverse the process, having students sit down after stating a step, until all students are sitting again.
5. For individual checks, I have students take a quiz over the strategy

steps. I require students to receive 100 percent six times. I use this activity as a daily warm-up until all students have demonstrated mastery of the strategy steps.

Stages 4 through 7

The remaining instructional stages (Stage 4: Controlled Practice and Feedback, Stage 5: Advanced Practice and Feedback, Stage 6: Posttest and Make Commitments, and Stage 7: Generalization) involve the student being the driver of his or her learning. During these stages, I continue to infuse the theme of Sherlock Holmes and Watson by providing some daily student modeling of *InSPECT* or rehearsing the steps. My decisions are based on how the students are performing, and I focus on feedback from which the whole group can benefit.

Hand-held spellcheckers

The *InSPECT Strategy* can be adapted to meet the needs of students who do not have the opportunity to use the strategy with a word processor but who must instead rely on paper and pencil editing. To perform the *InSPECT Strategy* steps, students need hand-held spellcheckers. I think the Inspector Gadget character (known to many students because of the summer movie and the cartoon) fits this situation perfectly. Instead of using Sherlock Holmes props, gather your gadgets and demonstrate how Inspector Gadget completes the process of writing a paper.

During the 1999 International SIM Trainers’ Conference, a group of SIM Trainers discussed how to adapt the *InSPECT Strategy* to meet the needs of students who use hand-held spellcheckers. As a result of this dis-

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Paragraph Diagram modifications

Wendy Behr of Dover Intermediate School in Dover, Pennsylvania, suggests modifying the Paragraph Diagram used with the Paragraph Writing Strategy to include spaces for the topic and clincher sentences. See the modified diagram below.

Name: _____
Date: _____

Paragraph Diagram

1a. Topic:

1b. Topic Sentence: _____

2. Details:

3. Sequence:

4. Order:

5. Transitions: _____

6. Tense:

7. Clincher Sentence: _____

Combined planners meet student needs

The February 1999 issue of *Strategram* (Volume 11, No. 2) featured an article by Gwen Berry, then a doctoral fellow at the Center for Research on Learning, and three students with whom she had worked one school year: Geoffrey Knight, Cameron Knight, and David Knight. The four of them learned three strategies, including the *Assignment Completion Strategy*, and shared their observations about the learning process with *Strategram* readers. Each of the students reflected on what they liked and didn't like about each of the strategies. One of the drawbacks David reported with the *Assignment Completion Strategy* was that some teachers wouldn't let him use the Quality Quest Planner, instead requiring him to use a planner supplied

by the school.

Sharon Saunders, a SIM Trainer and teacher at Nicollete Junior High School in Burnsville, Minnesota, faced a similar situation when her students did not want their planners to look different from the planners provided by the school. Sharon's solution was to blend the two notebooks.

Sharon and her students used the front and back covers from the school notebook and picked out such pages as the school calendar and rules, metric and conversion chart, and multiplication facts page. Then, they copied the assignment pages, weekly planning pages, and monthly pages from the Quality Quest Planner

onto 8 1/2" by 11" pages, making enough copies for one quarter.

They put all of the pages together into one notebook, preserving the look of the school notebook and the functionality of the Quality Quest Planner.

"I found this to be a nice compromise for students who wanted their planners to look like all of the other planners used by general education students," Sharon said.

Foundation seeks nominations for youth award

The following information was received from the Foundation for Exceptional Children, sponsor of the Yes I Can! program:

Each year, children and youth with disabilities are recognized for their accomplishments through the international Yes I Can! program. Nominees for the award program will be recognized in one of the following categories:

- academics
- arts
- athletics (to include motor skills)
- community service
- employment
- extracurricular activities
- independent living skills (include self-care skills)

Thirty-five international award winners will be recognized and given

special awards at the Council for Exceptional Children's annual convention in Vancouver, British Columbia, in the spring of 2000.

All youth nominated for the Yes I Can! program will receive a certificate of achievement. Nomination forms for the award may be requested by e-mail from kenc@cec.sped.org or may be downloaded from the CEC's web site at cec.sped.org. You also may request a form by mail at the following address:

Yes I Can!
Foundation for Exceptional Children
1920 Association Drive
Reston, VA 20191

Nomination forms must be post-marked no later than January 7, 2000.

The Foundation for Exceptional Children has addressed the needs of children and youth with disabilities through its programs for 28 years. The goal of the Yes I Can! program is to encourage growth and development by recognizing achievements and identifying role models.

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cussion, the following modifications have been suggested for the strategy steps:

- **I**n your writing, circle spelling errors
- **S**elect an error and type it into the spellchecker
- **P**ick the correct suggestion
- **E**stimate the correct spelling
- **C**orrect additional errors
- **T**ransfer your corrections

We weren't able to test the modified steps during the conference, and we would like to learn more about modifications that work from teach-

ers who use the *InSPECT Strategy* with hand-held spell-checkers.

Because hand-held spellcheckers cannot automatically highlight misspelled words, as computer-based spellcheckers do, the conference group also developed a list of instructional suggestions for activities in which hand-held spellcheckers are used:

1. For controlled practice activities, list at the end of each line the number of errors that line contains. This will help students tune into the errors and proceed through the strategy steps.

2. Place a check mark next to any line containing an error to help students identify which lines contain spelling errors.
3. Have the students read the passage or sentence backwards one word at a time to help them find spelling errors.
4. Have students edit one another's work.

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