

## Technical Reading and Writing

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Many high stakes state tests include informational text in the reading comprehension section and technical writing on the writing exam. Who hasn't wondered how to help students read technical or informational text more effectively? Who hasn't wondered how to help student write reports and other technical documents better? So often, students are pushed to read literary text and write narrative papers but very seldom are encouraged to make connections to the type of reading and writing they will do as adults. Within the career and technical education (CTE) classroom, opportunities abound for encouraging students to read and write in a manner that will help them communicate successfully as adults. I have found several wonderful resources that have helped me teach students to read and write effectively. This paper is a brief overview of what I have learned.

Most students in our high schools are able to decode words successfully. That is very different from reading for comprehension. If teachers assign the questions at the back of each chapter for students to answer as evidence of reading the selection, students quickly look for answers within the text. Many of the "back of the chapter" questions are developed so that students may find the answers to the questions in almost the exact language as the question. Any student who can decode can accomplish this without ever reading the first sentence. Some of the same strategies employed by elementary school reading teachers can be used successfully with high school students. See the strategy *Guided Note Taking* below.

Technical papers usually fall into two types of writing: expository or persuasive. Both types of writing appear on high-stakes writing tests. An expository essay is one in which the writer is explaining, giving directions, or listing steps in a procedure. Having students rewrite directions for use in their own words or writing a safety manual in the lab are examples of expository writing. Many times, business letters can be either expository or persuasive in style. A persuasive essay is designed to convince someone to do something or change something. Advertising or marketing uses persuasive essays.

I've discovered that if I encourage students who are novices at writing to think about writing using a five-paragraph form, they will write a more organized paper than they usually do. Here are the sections of the five-paragraph essay:

*Paragraph one:* Introduce the paper and list the points you will cover

*Paragraphs two through four:* Use one paragraph to extend each of the points. (If the students have more than three points, they should add additional paragraphs.)

*Paragraph five:* Summarize what you have covered in the essay including a conclusion statement.

This is a very basic instructional strategy to use to get students comfortable with writing in classes other than their English class. It will give them a structure to use that will help them communicate more effectively in writing. I have found this format to be successful for students for whom English is a second language.

When students write a technical paper, whether it is a business letter, a report, or an executive summary, they have difficulty deciding how to edit the text to improve it. A classroom strategy, *A Checklist for Editing Technical Writing*, is included here to help teachers encourage students to be self-directed in editing their writing.

## **GUIDED NOTE TAKING**

### ***The Topic, Restriction, Illustration (TRI) Frame***

On note cards or on a single sheet of paper, have the students identify the key topic within the reading. One way to do this is have the students skim the section first, noting the headings and sub-headings. Have them brainstorm what they think the reading will be about and predict what they will get out of it.

Next, have the students read the section and identify the restrictions to the topic. In other words, the main topic might be dangers and prevention measures of Hepatitis B. As the students analyze the reading selection, they may discover that this particular section deals with Hepatitis B in inner city housing projects. That is a restriction.

The final part of the guided note taking is to have the students identify the illustrations within the reading that are used to strengthen the key points. To extend the TRI, have students identify examples they are aware of from their own experience. This can provide opportunities for comparing and contrasting. Comparing and contrasting are the most powerful ways to have students learn beyond simple memorization of facts. Through comparing and contrasting, students are developing new pathways for recalling facts and are more likely to transfer this learning to unrelated situations.

Marzano, Pickering, Pollock;  
*Classroom Instruction that Works:*  
*Research-based Strategies for Improving Student Achievement* (2001)

**A CHECKLIST FOR EDITING  
TECHNICAL WRITING**

Area	Yes	No
<b>Purpose</b> Is it clear why this has been written?		
<b>Content</b> Is the information complete? Is the information accurate? Are points adequately developed?		
<b>Organization and layout</b> Is an introduction, a body, and a concluding statement included? Does each idea proceed logically from the previous idea? Is the layout functional and appealing? Are important points highlighted?		
<b>Paragraph structure</b> Does each paragraph make one point? Is each major point stated clearly? Did the writer avoid excessive length in paragraphs?		
<b>Style and tone</b> Is the language specific, natural and appropriate to the reader? Did the writer avoid unnecessary words or phrases? Are sentences varied in length and structure? Is the writing direct, clear, and easy to read? Does the writing flow smoothly? Is the tone consistent with the purpose of the writing?		
<b>Mechanics</b> Is grammar correct throughout? Is the punctuation correct throughout? Are all words spelled correctly?		

**Comments regarding the writing:**

Reference: Piotrowski, M. (1996). Effective business writing: A guide for those who write on the job. New York: HarperPerennial.