FEATURE

By Catherine Laverick DeFelice

Mapping the Chapter: One Way to Tackle the CTE Textbook

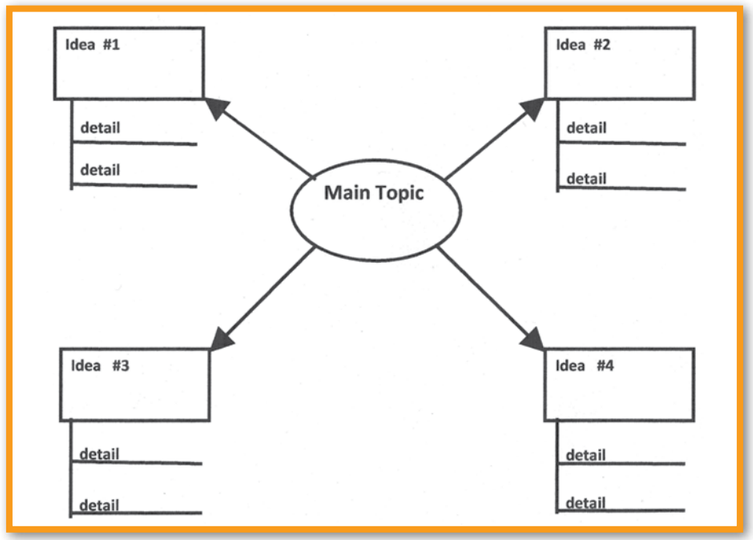
CTE TEXTBOOKS PRESENT A PARTICULAR CHALLENGE BECAUSE THEY ARE PACKED WITH INFORMATION AND CAN BE QUITE DIFFERENT IN STRUCTURE THAN TEXTS STUDENTS HAVE ENCOUNTERED IN TRADITIONAL, ACADEMIC CLASSES.

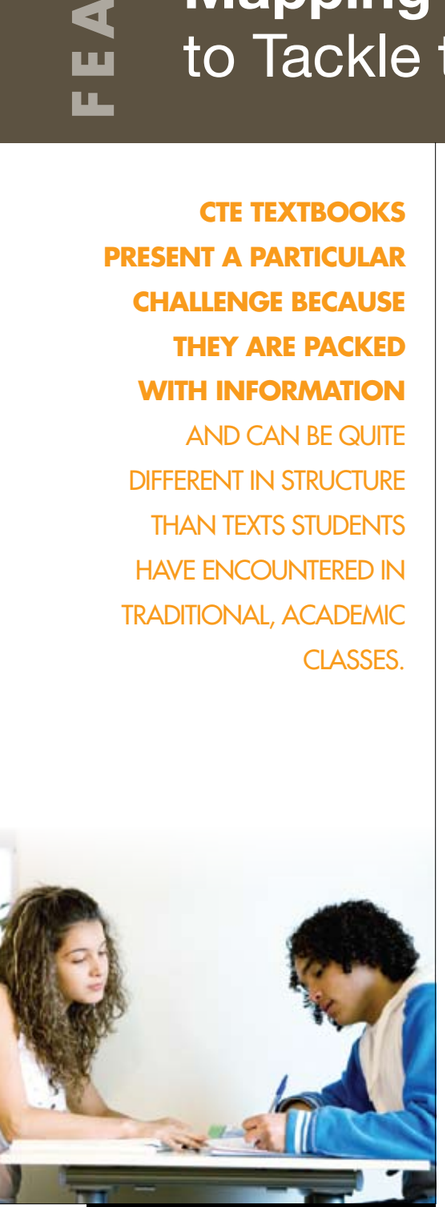
SINCE 1999, I HAVE BEEN A READING SPECIALIST IN A VOCATIONAL-TECHNICAL HIGH SCHOOL, where one of the greatest challenges has been helping students read their textbooks. Career and technical (CTE) textbooks present a particular challenge because they are packed with information and can be quite different in structure than texts students have encountered in traditional, academic classes. The goal of this article is to share a mapping strategy that I found successful in culinary arts, masonry and plumbing classes. I based my chapter mapping ideas on Tony Buzan's (1993) mind-mapping strategies, which incorporate excellent note-taking and discussion techniques.

Searching for a Better Way

Over the years, I have been searching for better ways to help students comprehend their textbooks. I had read and heard much about the value of teaching text structures like compare-contrast, listing, cause and effect, etc. "Teachers need to explicitly teach students that expository text has many structures" (Dymock, 2005). I admit, though rather embarrassingly, that when I tried to teach them, my text structure lessons were ineffective. I showed students examples of texts with each type of structure, had them discuss each, and then tried to have students identify the patterns on their own. They couldn't do that, and for a while I abandoned the idea. I knew something had to be missing in the process but just couldn't figure out what it was. I could "see" the way the text was written, so why couldn't my students "see" it too?

Figure 1: My original plan for a simple map of chapter ideas.





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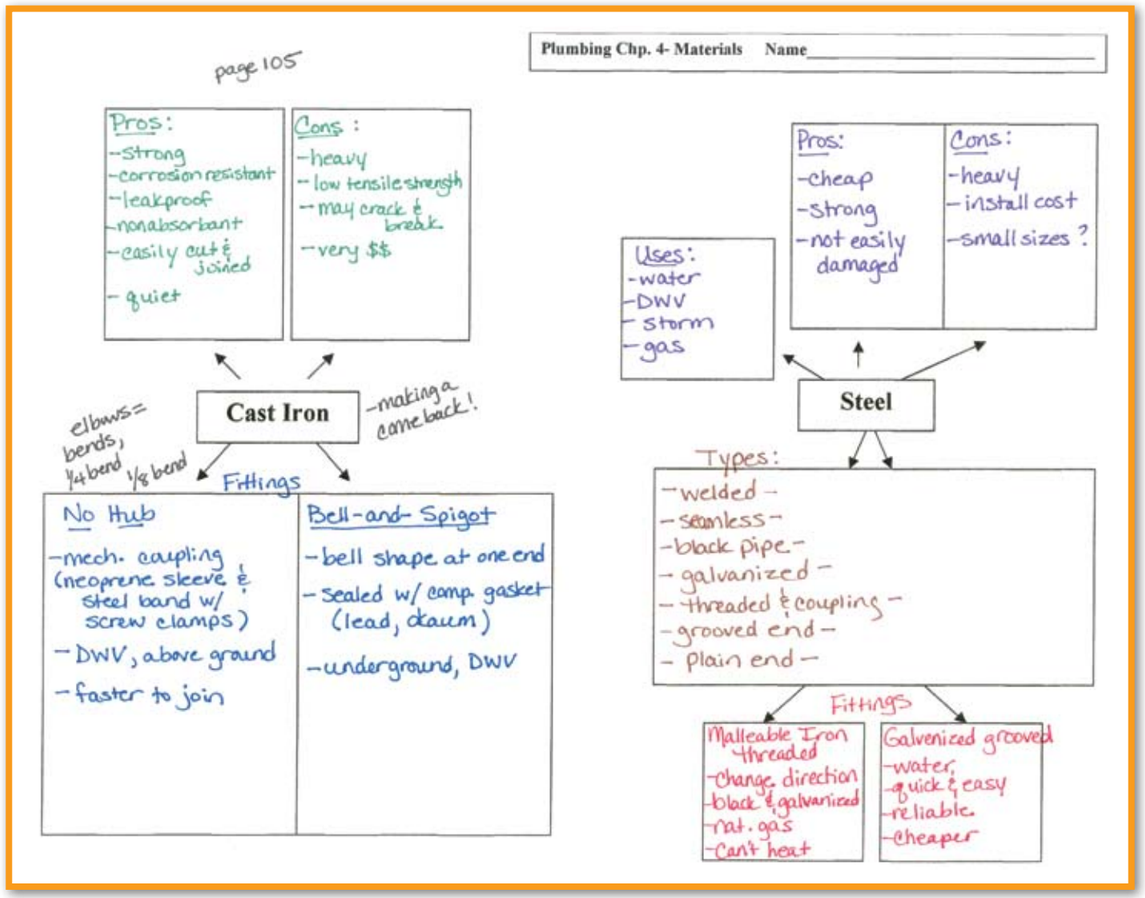

Figure 2: Example of a plumbing lesson we completed together on the overhead projector.

Ironically, several years later, I found myself teaching text structure lessons in the vocational classrooms, but by accident. My original purpose for these lessons was to assist the students in comprehending their difficult and information-filled text chapters and teach them a simple note-taking process at the same time. I planned on having them visually map out the information in a concept-web or mind-map (Buzan 1993) style, simply starting with the main idea in the center (see Figure 1) and branching out with supporting details that were presented in the chapter. What I learned was that this basic mapping style was not going to work with their complicated textbooks, and that it was impossible for students to understand how and why a mapping process would help their comprehension of the text without teaching them about the text structure and the textbook features.

"No matter what textbook format teachers select, they must be prepared to scaffold students toward reading success by first introducing the learning aids that have been included. Among these aids are the table of contents, preface, chapter introductions, headings and subheadings, problems or questions, chapter summaries, charts, graphs, illustrations, maps, marginal gloss, index, glossary, and notes" (Garber-Miller, 2007).

I needed to show how their particular textbook presented ideas, and make them aware of the fact that, unfortunately, not all textbooks are well-organized. The students needed to understand that their

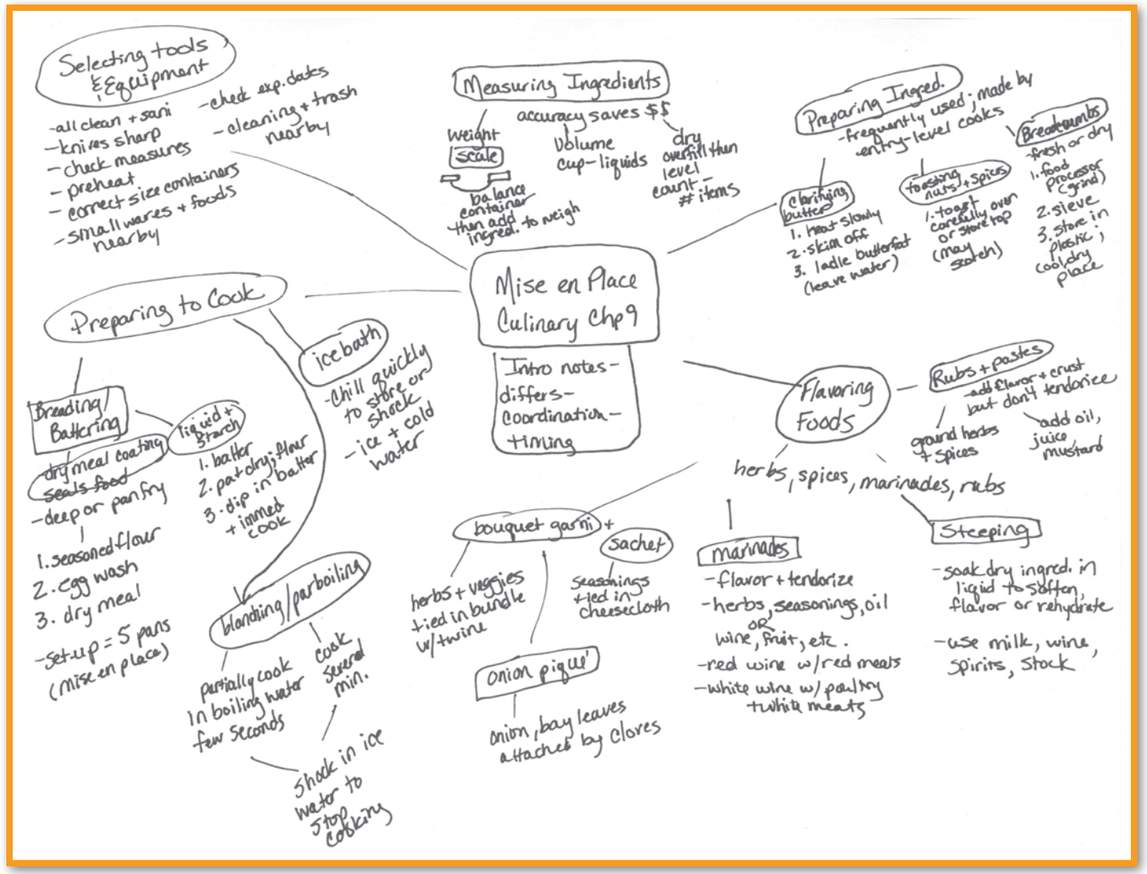

Figure 3: My rough sketch of the culinary chapter from which I designed the student map template.

resulting maps may not always be clean and simple representations of the chapter.

As Carol Rhoder states in her thoughts on "mindful reading," figuring out how ideas relate in a chapter is not always a simple task. "In fact, lots of school texts are 'inconsiderate' of the reader: They don't always discuss the topic stated in the title of the section or headings; many structures may be embedded in the same chapter or even the same subsection and authors sometimes ramble from one topic to another, then back to the first. Identifying text structure and making a map can be a challenge" (2002). This is yet another reason (besides being struggling readers to begin with) that students need a great amount of support to get through their textbook chapters.

Pleasant Results

With a chapter-mapping lesson, we seemed to accomplish several goals all at once. First, because I worked through the chapter and created the map with the students, I was able to use "think-alouds" to vocalize and demonstrate how I processed the information and made decisions on how to map it. "Many students are quite unaware of the mental activity that takes place during effective reading. Think-alouds help students really see how active their thinking needs to be for high comprehension"–Daniels and Zemelman, 2004.

Another benefit was that students became more familiar with the text features provided in the chapter and how they function as learning aids. Curiously, students tend to skip over all the valuable information provided in the pictures, captions, margin notes, etc. "Students often view graphics as providing redundant or incidental information and may not give them adequate attention while reading"– Spencer, 2003. Students also gained knowledge of the structure of the text, or how ideas were presented in certain patterns. For example, when plumbing students had to decide on their maps how to show that two pipe fittings were being compared in a paragraph or whether different pipe materials were simply being listed (see example map in Figure 2), they had to decide what type of visual representation would best depict the relationship of the ideas.

Figure 4: Prepared map for the culinary arts chapter. (Many clues are given to guide students.)

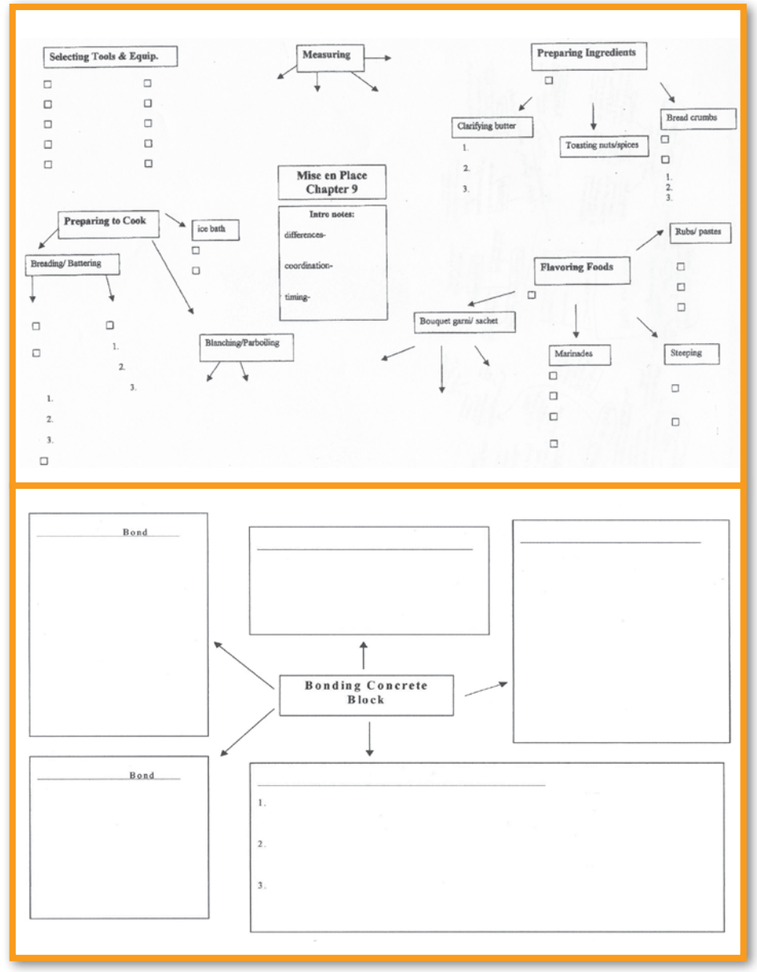

Figure 5: Chapter map for masonry with fewer clues.

How I Design a Chapter-Mapping Lesson

Step 1: Prepare My Own Map

Before conducting a chapter-mapping lesson, I must read and map the chapter (or the section to be taught) myself (Figure 3). This step is where I find how the chapter fits together (or in some cases where it doesn't) and where students will need the most assistance. Notice that I still follow the basic radiant-thinking style of Buzan's mind maps (1993).

Step 2: Make the Student Map

After my map is complete, I remove the information that I want students to find for themselves. For the first few lessons in mapping, I provide pre-made maps with strategically placed blanks and/or precise numbers of bullets for notes, such as is shown in Figure 4. Here, I included all the main headings, subheadings and the amount of notes and/or steps that students should find under each. When students are more experienced with mapping, I gradually increase the amount of blanks they will need to fill in until they can do entire maps on their own.

In the masonry map (Figure 5) I gave only a few clues, and students needed to decide which information fits best in the boxes. For instance, the masonry students quickly decided that since the box on the lower right of the map was the largest and had three numbers, it probably corresponded to the largest section in the chapter that had a three-step process described in it. "As students become more skilled, the teacher gradually relinquishes responsibility for completing and discussing the text map to the students"–Spencer, 2003. Since they had already completed several of my more detailed maps, they were familiar with the cues I used and how they seemed to correspond with the text structure.

Step 3: Help Students Preview the Chapter

Before I have them start the map, I take the students on a "walk-through" of the chapter and we discuss the text features.

This gives a good preview of the text structure before actually reading and mapping because we take special notice of the headings; students quickly see that some are in color, bold, all capital letters, different sized fonts, etc. and figure out which type of headings are used for main ideas and which are used for details. Or, another great idea for this step would be to use an activity such as the "Textbook Feature Analysis," where students fill out a grid identifying the different features found in the chapter and their purposes (Daniels and Zemelman, 2004). I believe that this preview step, no matter which strategy you choose to use, helps students get an entire picture of the chapter in their minds before mapping.

Step 4: Read Together and Complete the Map

After previewing the features, we start reading the text together. Students complete the blanks on their maps as I complete them on an overhead transparency. When possible, I have found this step to be even more effective if students use different colored pencils for each section. Not only do my students say they like using the colored pencils, but Buzan also states that systematic use of color assists with memory.

"Choosing specific colors for coding purposes or for specific areas of your Mind Map will give you faster access to the information, will improve your memory of the information, and will increase the number and range of your creative ideas." So, for the map in Figure 5, the students either wrote the information in each box in a different color, or, if they didn't want to do this, they simply outlined or shaded each of the five boxes in a different color at the end of the lesson.

As we continue reading, I interject think-alouds to show why information fits on certain locations of the map. The dialogue I use for this process is similar to that used by Spencer (p. 753, 2003). She points out the text features and explains how certain cue words can help students understand and organize the details. Also, according to W. Welker's TLC Approach, cue words should be taught directly when working on textbook organizational patterns, and, "these cue words and phrases can be divided into six reader-cue categories: addition cues, counter-thought cues, option cues, define/explain cues, why cues, and summation cues," Welker. So, for instance, a think-aloud for the culinary map (Figure 4) went like this:

Teacher: "I notice it says here that steeping is also used for…"
"The word "also" makes me think that there's a list of uses coming up."
"How and where can we list them on the map?"
Student: "We could list them by each bullet under steeping."

Some think-alouds for the masonry map (Figure 5) went like this:

Teacher: "I notice that the last box on the page is larger, and has numbering in it."
Student: "It's probably bigger because that's where the biggest section of text, with the most words in the chapter, goes."
Teacher: "What about these numbers?"
Student: "The numbers are usually a list. Maybe steps or three important details?"

The students really seemed to like deciding what information fits in each space on the map, probably because it is like solving a puzzle or playing a game. I capitalized on this idea and for longer chapters created a "jigsaw" lesson (Silberman, 1996). I divided the class into small groups, holding each group responsible for completing a map of just one section of the chapter. The groups then took turns presenting their maps and "teaching" the rest of the class on the overhead projector. I loved listening to the group discussions as they worked on the maps. I heard comments such as, "I think this part goes under the heading with four bullets, because there are four bold print terms in this section."

Step 5: After Reading and Mapping is completed, the map is a valuable tool that can be used for follow-up activities.

For example, students can refer to their maps during a review discussion, or with partners or small groups "quizzing" each other. They are also helpful guides for students to use when composing written answers. I found that when we were done creating our maps, students really knew and could remember the information from the chapter; they could readily discuss the ideas using their maps as a reference point.

MAPPING THE CHAPTER IS EFFECTIVE BECAUSE IT PROVIDES STUDENTS WITH AN OPPORTUNITY TO VISUALIZE THE CONCEPTS AND RELATIONSHIPS OF INFORMATION PRESENTED IN A PIECE OF TEXT.

An Effective Strategy

Mapping the chapter is effective because it provides students with an opportunity to visualize the concepts and relationships of information presented in a piece of text. It makes students more aware of what information is available in their textbooks and how the author organized it—or could have organized it better! As I continue this process with classes, my ultimate goal is for the students to read and map the chapter without my assistance and carry this skill on to other classes and texts. T

ACTE Interested in exploring this topic further? Discuss it with your colleagues on the ACTE forums at www.acteonline.org/forum.aspx.

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