

Learning Comprehension through Multisensory Manipulation, Graphic Organizers, and Text Transformation

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Abstract

This chapter discusses three student-generated activities (i.e., multisensory manipulation, graphic organizers, and text transformation). Each of these activities can be used to increase comprehension. As presented in this chapter, multisensory manipulation involves students interacting with confusing text, graphic organizers refer to the organizational tools promoted by Dinah Zike (1992), and text transformation requires students to rewrite learning materials into different genres.

Research has proven that there is more to literacy and learning than simply opening a book and reading the contents (Gee, 1996; Thompson, 2008). As Sam Houston reminded his men before the battle of San Jacinto, “You will remember this battle” (as cited in <http://www.quotes.net/>), teachers are reminded daily to find active ways for students to read, write, and learn. Because of such importance, this paper explores three student-generated activities—multisensory manipulation, graphic organizers, and text transformation. As presented in this chapter, multisensory manipulation involves students interacting with confusing text, graphic organizers refer to the organizational tools promoted by Dinah Zike (1992), and text transformation requires students to rewrite learning materials into different genres.

Multisensory Manipulation

Learning is dynamic. Learning changes from day to day and from one content area to another (Picciano, 2008). In order to meet the varying needs of students and to increase comprehension, content-area teachers are encouraged to use a multisensory and multimodal approach to instruction (Yandell, 2008). A teacher incorporating multisensory and multiple

modalities may give students the opportunity to learn through audio, visual, and linguistic approaches. By creating a learning environment that is balanced in the modalities that students prefer along with those they need to further develop, the teacher is able to create a challenging, yet comfortable classroom.

Active reading is a multisensory, multimodal approach because students need to use their minds to touch, see, hear, taste, and smell what is happening around them. Active reading strategies such as visualizing, predicting, clarifying, connecting, questioning, and evaluating provide a chance to engage students with text.

One multisensory, multimodal strategy is conceptual annotations (Daniels & Steineke, 2011). Conceptual annotations encourage students to stop, think, and react to text. Readers using conceptual annotations may (a) write brief summaries in the text’s margins; (b) sketch pictures, graphs, or charts to explain difficult concepts; (c) list or number multiple ideas; (d) predict and write possible test questions; (e) note difficult ideas that need clarification by the teacher; and (f) underline key ideas. This activity is another multisensory approach to the text, giving students another chance to interpret the world around them in multiple ways (Freire, 2000).

What should the reader annotate? Figure 1 provides some items and codes that readers may consider while using conceptual annotations to read text. Furthermore, an example of conceptual annotations is displayed in Figure 2.

Figure 1. Items and Possible Codes that Readers May Use to Annotate

<i>Definitions</i>	<i>Def. * []</i>
<i>Lists, features, causes, effects, characteristics, reasons</i>	<i>1. 2.</i>
<i>Names, dates, events that are key</i>	<i>Underline or circle</i>
<i>Examples of main idea</i>	<i>ex.</i>
<i>Good test questions of the passage</i>	<i>T.Q.</i>
<i>Difficult material</i>	<i>??</i>

Figure 1. Readers may place the codes listed above in their text’s margins as a way to annotate the text. Readers may also develop additional codes.

Text annotation can have several advantages for readers. It can (a) improve concentration and help readers focus on the reading with less distractions, (b) provide an immediate self-check for understanding the text’s key ideas, (c) help readers remember more, (d) assist readers in

getting ready for exams, (e) decrease the need to reread chapters for understanding, and (f) assist readers in stating important ideas from the text in their own words.

Figure 2. Example of Conceptual Annotations

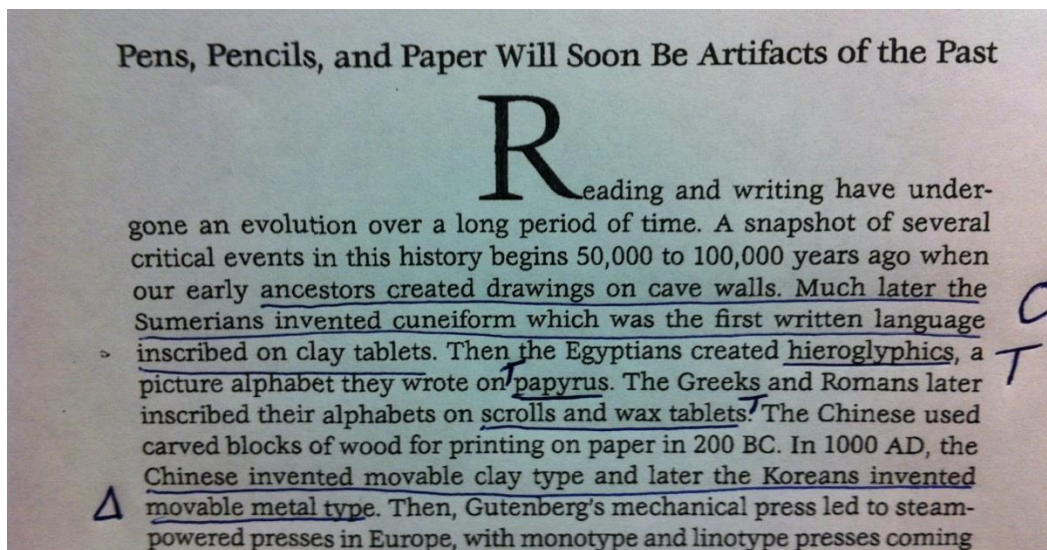


Figure 2. The reader of the passage shown above used conceptual annotations as a multisensory, multimodal-reading strategy. The annotations used by the reader are as follows:

- T = *Translation*—underline key words; synonyms of words or popular terms related to the writing
- O = *Rotation*— shift; radical/major change
- Δ = *Reflection*—memory/remembering; pondering; speculation; impression

Note: The passage used in Figure 2 is from Bromley, K. (2010). Picture a world without pens, pencils, and paper: The unanticipated future of reading and writing. *Journal of College Reading and Learning*, 41(1), 97-108.

Readers using conceptual annotation as a means to interact with the text can also use sticky-notes to identify important information to use in a discussion group or difficult material to question later. With this approach, readers do not have to stop reading to clarify difficult material, but instead place a reminder within the text as to the location of the difficult material. This type of marking also works well when there are *what-if* or *what-about* questions that arise unintentionally.

Graphic Organizers

Dinah Zike (1992), through her creation of manipulatives, has drawn attention to the idea that while children are “bombarded with words during their formative years (birth to twelve years) ...it is the words that are demonstrated through actions that form the child” (p. 4). Using student-produced study materials, such as graphic organizers and foldables have shown to

increase retention of content learned. In addition, what works for one student, may not work for another. This is why allowing students to choose how they want to remember content gives them power and ownership in their learning.

What are graphic organizers? They are visual displays that help learners comprehend and retain information. When learners gain knowledge of how to use and construct graphic organizers, they become in control of a study strategy which allows them to identify important ideas of a text, relationships among the ideas and concepts encountered in the text, and where they can find specific information to support more important ideas (National Reading Panel, 2000).

A vast amount of graphic organizers exist which depict relationships in text—word maps, semantic maps, flowcharts, and concept matrices, to name a few. Although there are numerous forms, it is important to remember that what these tools have in common is that they help students interact with and outline texts. “For example, when students read a text with an appropriate graphic organizer in mind, they focus on important ideas and relationships. And when they construct their own graphic organizers, they become actively involved in outlining those ideas and relationships” (Vacca, Vacca, & Mraz, 2011, p. 325). Using these same techniques, teachers can also create a learning environment rich in active learning, increasing the creative thinking of their students as they help empower students’ use of vocabulary and knowledge beyond the first day it is introduced. Figure 3 provides an example of one type of organizer— a diorama set-up.

Figure 3. An Example of a Diorama Set-Up



Figure 3. In this figure, using Dinah Zike's (1992) pyramid foldable, the differences among the armies at the battle of the Alamo are displayed using a diorama set-up. On the back of the diorama is an example of the Alamo as seen on the bottom picture. On opposing sides of the diorama are differences between the two armies involved in the battle.

Text Transformation for Comprehension

Dorn and Soffos (2005) insist that reading and writing are more than retelling information; these tasks both involve the ability to interpret what is read and written. Text reformulation, or story recycling, is an additional strategy that promotes comprehension (Feathers, 1993). Through text reformulation, students demonstrate their levels of

comprehension by rewriting the assigned material into another genre. This reformulation or story recycling could be through, but not limited to a journal entry, a poem, a song, a book jacket, news update, or PowerPoint presentation. By reformulating text into a different genre, students are required to not only take note of the content, but to also evaluate the text for important details. In addition to increasing comprehension, text reformulation increases personal creativity, thus promoting another way to increase critical thinking in the individual student.

After reformulating a text, students can present their creative works to their peers. This form of writing or creation for comprehension promotes the social acts of reading and writing, reciprocal in nature, as students share their products. Glenn (2007) argues that having students write to respond and reflect on what they get from the text clearly supports comprehension, giving students an opportunity to focus on what they derive from a text. Debate, disagreement, discussion, and intellectual growth develop from the ability to have conversations and presentations from students to their peers.

Figure 4 provides an example of a comic strip that has been reformulated from an assigned university textbook reading. For this example, future elementary teachers were asked to read a textbook chapter titled, *Bringing it All Together through Inquiry: Observing and Assessing Independent Learning* (Kristo & Bamford, 2004). The students' purpose for reading was to identify important details that would guide them in their future classrooms. The undergraduate students then reformulated the text into a new genre to portray the important details. The reformulated text in Figure 4 displays a small section of a student's recycled text.

Additional reformulated texts from this particular assignment included poems, newspapers, a café menu, and ABC books. Students presented their reformulated texts to their peers and reflective comments were posted as to what the other students thought and gained from the product posted. One student commented how it allowed her to be creative and another student said the process "caused me to slow down" (M. Razzo, personal communication, April 2011). Using this technique at the university level allowed students to experience the possibilities to come in their own future classrooms. Students also formulated the ideal that this strategy can be used at any grade level and for any content, thus making text transformations a reading strategy that can be considered timeless.

Figure 4. Example of a Reformulated Text

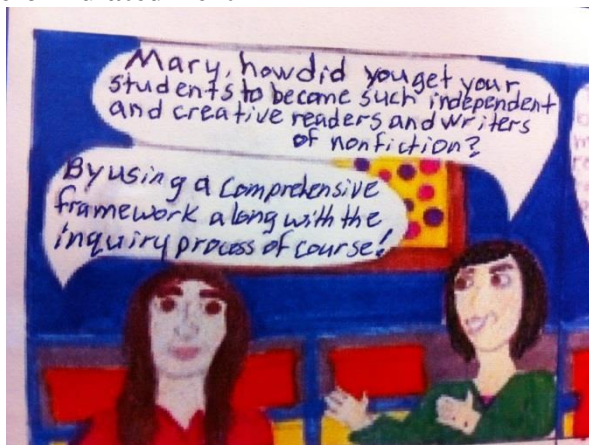


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Closing Thoughts

Duke, Caughlan, Juzwik, and Martin (2012) argue one of the problems with teaching reading and writing is that educators treat all forms of writing and reading as the same. A content area text is not the same as short story text. Reading an email is not the same as reading an article in a professional journal. Reading and writing needs to be taught and practiced in school the same way it is practiced in the real world.

Having students become actively creative in the learning process and using different avenues to express specific points will help them solve problems and to see the possibilities and alternatives in real life stories and situations. Maxine Greene (1995) pushed for releasing the imagination in students through the arts in all subjects. She believed imagination through the arts using content area subject matter would allow students to envision possibilities and realization of human existence in a different light for the real world. Not only will transformation of text assist with learning the subject matter in different subjects, but it will also help students find different possibilities for real-world situations and allow their creativity to harness content comprehension. Becoming active in reading and writing allows students to be dynamic in real-world situations through text transformation, multisensory manipulation and graphic organization.

William Travis said of Texas, "There have been many ideas of what Texas is, what it should become, and we are not all in agreement..." (as cited in <http://www.quotes.net/>). The same thing can be said of how students learn. The way students learn best is a continuing debate, and allowing them the opportunity of choice in how to produce proof of learning aids in calming

the discontent of assignments for checking understanding of content. More importantly, students' ability to reflect and reformulate content not only provides opportunities for the students to display their strengths, but it also promotes deeper mental acquisition of the content.

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