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## **TECHTALK: GAP, A READING STRATEGY FOR MULTIPLE SOURCES**

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"Where is the wisdom we have lost in knowledge? Where is the knowledge we have lost in information?"

(T.S. Eliot 1963, p. 147.)

Consider college students in an American History class required to read a textbook chapter describing the events leading up to the ratification of the American Constitution, an excerpt from a novel chronicling a family's experiences trying to pay the taxes on their farm during that time, and copies of primary sources like the Federalist Papers to be read from the World Wide Web (www). Multiple text information sources like these are becoming the norm in the current Information Age. Technology along with sound instructional practices can help developmental students access and learn from these various sources. In this column, we will review how technology is integrated into our instruction in order to teach students how to use a reading strategy developed at Southwest Texas State University. The GAP (Gather, Arrange, and Present) strategy is presented

here to demonstrate how technology as a tool can benefit developmental reading instruction.

### GAP Between Information and Knowledge

As students come to our developmental reading program struggling with managing multiple sources (e.g., the history class example described earlier) we begin by identifying the extent of the problem. For the few with weak reading skills, we start with one source and work on their ability to decode, comprehend, and monitor their developing understanding. For the majority of students beyond this basic reading level, we teach them PLAN (Preview, Locate, Add, Notes; Caverly, Mandeville, & Nicholson, 1995) as a study reading strategy for learning from one source. Our experience has shown that PLAN does not seem to be sufficient, however, when attempting to reconcile multiple sources of information. So, our team developed GAP (Caverly, 1996).

Using GAP, we teach students to gather up all the ideas being presented from their textbook, the supplementary material, the lecture, and even other sources they collect in order to understand. Next, we teach students to arrange those ideas into main ideas, details, and examples by adding them to their knowledge map created from the textbook. Then, we teach students to confirm that they understand by presenting those ideas to others to confirm what is known. Adding information to existing knowledge maps and convincing themselves that they know by presenting the information to others guides students through the thinking process of converting simple information into complex knowledge.

### Technology and GAP

We incorporate technology into our instruction in order to orchestrate learning from multiple sources using GAP. Technology can make the students' reading more effective, so they can spend their effort on understanding.

#### **Gathering through the WWW**

After students attempt to learn as much as they can from the assigned sources, we teach them to seek out supplementary sources of information which can help them understand. We teach them to approach the WWW like a "desktop library" in which a myriad of information is at their fingertips. To efficiently gather information, we teach them to use the Boolean logic inherent in WWW search engines. This helps them hone in on fruitful sources of information.

Although it is initially counter-intuitive for students to seek out even more sources to read, through this experience they usually find multimedia material on the

WWW which helps them understand the assigned text more completely. Actually, reading additional sources on the WWW helps students build background knowledge necessary to understand the assigned material.

For our history example presented earlier, students might explore Federalism on the WWW and find a summary of the Federalist Papers, copies of position papers describing current politics as being more aligned with Anti-Federalism, and even syllabi from distance education courses with sample essay questions giving them a sense of the task demands for their reading. These multiple sources from the WWW present a broad view of the concept of Federalism quickly and easily.

### **Arranging through Cognitive Mapping Programs**

Next, we teach students to create a knowledge map of the ideas presented by these multiple sources by using a cognitive mapping, computer program (Inspiration, 1998). Students easily learn how to use Inspiration to create both hierarchical and wagon-wheel maps by first previewing the textbook chapter and then gathering and arranging the title at the top level of the map. Next, they gather the major subtitles and arrange them at level one of their map; then gather the highlighted words and graphics (i.e., maps, charts, diagrams, pictures) and arrange them at level two under the appropriate level one map node. Next, students read the introduction and conclusion to the chapter to confirm they have included the major concepts present in the chapter. Much like the preview step in PLAN, this map provides a graphic representation of what they are learning from their reading. We also emphasize the recursive nature of gathering and arranging the concepts that is necessary when creating a knowledge map.

Then, as students gather new information from additional sources, like a Federalist Paper in our example, they evaluate their ability to "assimilate" and "accommodate" (Piaget, 1971) the information into their knowledge maps. If students recognize how the new information from each source is simply presenting additional main ideas, details, or examples, they understand how the information can be assimilated into their map, and their knowledge grows as their map grows.

However, if they don't understand how this new information fits into their maps, we teach them to evaluate the rhetorical structure of the new information. They learn how to determine whether the information is compared or contrasted with what they know, whether it is presented as a cause or an effect to what they know, or whether it is presented as a sequence to what they know. Inspiration (1998) again comes in handy as they add this new information to their maps;

they also learn to label the links with a signal word designating the type of structure. Adding new nodes and labeling the links help students understand how to arrange (i.e., accommodate) new ideas with old as they create knowledge. Slowly the map is accommodated with more and more information labeled as to its rhetorical structure in the map. To extend the learning, student debriefings are held discussing their decisions as to why they placed information under certain nodes and why they labeled the links as they did.

### **Presenting through Technology**

Finally, we will teach students to use the notes function of inspiration (1998) to confirm their understanding. Available at the click of a mouse button, a note window appears, and we teach students to summarize in the note window how each main idea fits with the other main ideas in their map. These note windows then are hidden with another click of the button but can become available when students are ready to review for a test.

As students select each main idea and summarize it in a note to themselves, they are forced to demonstrate what they know and what they don't know. Metacognitively, if they cannot summarize an idea in the note, they realize they must go back and reconsider how this main idea fits. To foster this presenting step, we also teach students to share their map with a study group, a study buddy, or really anyone to orally recall each note. They are further encouraged to solicit feedback from other students taking the same class. This presenting with feedback further confirms the level of understanding.

We have expanded the opportunities inherent in the presenting step to our developmental students. For example, students have used additional computer programs to share what they have learned. We have taught our students to document what they have learned by creating tutorials in the form of multimedia slide shows using PowerPoint (1998), hypermedia slide shows using Hyperstudio (1998), WWW pages using Composer (1998), and e-mail. Our students learn that the more they document what they know by teaching others, the more they understand.

### **Conclusion**

Teaching students to use the GAP strategy provides a pragmatic means for learning through reading from multiple sources. Moreover, it provides a forum for our developmental readers to see the benefits of using computer technology as a tool when tackling a complex task demand. This will bode them well in the Information Age.

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