

Appendix B:

Inquiry and Critical Thinking

One of the foundations of AVID's philosophy is that inquiry is as fundamental to rigorous teaching and higher-level learning as reading and writing are. The outcome of regular inquiry is often referred to as critical thinking. Inquiry, simply put, is about questioning. One aspect of inquiry in the classroom is teacher-driven; teachers pose interesting, open-ended questions to draw students into the language arts content, and they follow up with probing questions to guide students to deeper levels of thought; they ask many "how" and "why" questions to push students to think analytically. Using open-ended questioning is the key to authentic inquiry as it models the value of considering multiple perspectives and answers; if the teacher only asks questions with one right answer, the spirit of inquiry is lost—the students are simply playing a guessing game trying to figure out what the teacher wants them to say.

The other aspect of inquiry in the classroom is student-driven. Students must learn how to ask the thought-provoking questions about content. These are the questions that lead students to Socratic discussions as they probe the various meanings of a text in order to reach a higher-level understanding and interpretation. Writing higher-level or critical thinking questions based on content material must be deliberately and strategically taught to students in incremental steps so they become aware of their own cognitive processing and can monitor their own critical thinking. The process of asking questions is essential for improvement in writing because the process of writing itself is driven by inquiry. Students need to ask themselves questions in the pre-writing and drafting stages in order to develop ideas for their essays. Questioning is a vital part of the reader-response and self-response stages also. Asking the writer probing questions will serve to guide and support the revision process.

Many teachers are familiar with Bloom's Taxonomy, but AVID uses Arthur Costa's Levels of Thinking as the

framework for driving inquiry. The three levels present a more concise, direct approach, which students might find more accessible. The chart titled, "Bloom's Taxonomy and Costa's Levels of Thinking in the ELA Classroom" clarifies the similarities between Bloom and Costa. Introduce this chart to students through direct teaching and include activities that require students to practice developing questions at all three levels. Suggested activities for introducing inquiry and questioning in your classes are listed below.

Activity 1: Developing Level 1 Questions

Have students practice formulating Level 1 questions by playing "Jeopardy" with them. Show them a word or phrase, and provide 20 seconds to write an appropriate question; tell them to read their question to a partner, who then confirms if it is indeed a Level 1 question. Select three students to read their questions aloud; have the class give a thumbs-up for each question it thinks is correct. Follow up by having students name the cognitive function that each question asks for. For example, if the question for San Francisco is, "Where is the Golden Gate Bridge located?" then the cognitive function would be "locate" or "identify."

Example words/phrases:

- San Francisco
- addition
- Zora Neale Hurston
- fruits and vegetables
- 3:00
- "Happy Birthday, dear Monica, Happy Birthday to you."
- baseball
- Any language arts content currently being studied

Activity 2: What's that Function?

Start with Level 1 questions and have students identify the cognitive function required to answer the question. For example, based on four of the “five W’s” ask:

Level 1:

- Who are your best friends?
cognitive function: name, list
- What are the lyrics to your favorite song?
cognitive function: recite
- Where is the largest muscle in your body located?
cognitive function: identify
- When does the word bear not refer to an animal?
cognitive function: define

Have students construct their own questions in pairs and then share out with the class.

Repeat the activity with **Levels 2 and 3**. Here students may need to learn the definitions of some of the cognitive function verbs, and you should provide good examples of questions for each level. A few examples:

- How are you different from your sister or brother?
cognitive function: contrast
- How are you and your best friend alike?
cognitive function: compare
- Why is your bike not working?
cognitive function: analyze
- What do you have to do to start that computer program?
cognitive function: sequence
- When do you think is the best time to go to the library so it isn't crowded?
cognitive function: speculate
- Why should we go to that restaurant; why is it good?
cognitive function: evaluate

Activity 3: Name that Level

After your students have gained a basic understanding of the three levels of thinking, frequently ask them to identify the level of questions you are using in the context of a content lesson. For example, if you ask questions of the class during a presentation or discussion, pause once in a while and ask, “By the way, what level of question am I asking?” You can also follow up by having students name the cognitive function required to answer the question.

Learning to question at higher levels can be challenging for students who are not accustomed to thinking for themselves. They often start out by developing questions they think the teacher wants to hear or questions that would be used on a quiz. It is a sometimes messy process to help students understand that the goal of questioning is to **engage in authentic inquiry** to better understand ourselves, each other, a text, and the world. Students will need to continually practice and refine their questioning skills throughout the year. Several strategies included in this book, *The Write Path English Language Arts: Informing Ourselves and Others Through Writing and Speaking*, offer varied approaches for sustaining the process of questioning in writing and speaking in the English language arts classroom.

When Oprah Winfrey visited with Elie Wiesel on her show in November 2000, she asked Dr. Wiesel, “Is there an answer for every question?” He responded, “I have no answers for anything, really. I have shelves and shelves of books in my apartment, but none of them has answers—only questions. I teach my students how to ask questions. In the word ‘question’ there is a beautiful word—‘quest.’ I love that word. We are all partners in a quest. The essential questions have no answers.” (Winfrey, O. [Interviewer], & Wiesel, E. [Interviewee]. [2000, November 15]. *Oprah Talks to Elie Wiesel*. [Interview Transcript] Retrieved on June 1, 2010 from The Oprah Winfrey Show website: <http://www.oprah.com/omagazine/Oprah-Interviews-Elie-Wiesel/7>).

As teachers, we need to develop a partnership with our students in their quests, as Wiesel does. Then, the critical and creative cognitive skills that they need to succeed as students and in life will develop.

Bloom's Taxonomy and Costa's Levels of Thinking in the ELA Classroom

Bloom's Level	Costa's Level	Cognitive Functions		Sample Prompts & Questions
Creating Reconstruct ideas into unique or original forms or rearrange elements to form a new coherent whole	Level 3 Applying Information Demonstrates mastery of knowledge learned	argue challenge debate judge validate pretend	assess critique evaluate justify weigh	<ul style="list-style-type: none"> Design a _____ to show... Predict what will happen to _____ What would it be like to live ...? Write a new ending to the story (event)... Pretend you are a character in the story and... Rewrite the episode from your point of view. What do you think will happen to _____? Why?
Evaluating Form judgments or opinions according to their understanding of the topic; justify a stand or decision	(OUTPUT)	alter compose create imagine invent propose	build construct generate improve modify rewrite	<ul style="list-style-type: none"> Could this story have really happened? Why or why not? How would you solve this problem in your life? How does the author's claim hold up under these circumstances: _____? What if the situation changed to _____; how would that impact the outcome?
Analyzing Examine sub-parts of a topic and perceive interrelationships	Level 2 Processing Information Practice knowledge learned	analyze categorize contrast differentiate infer	arrange compare deduce discuss outline	<ul style="list-style-type: none"> Would you have done the same thing as...? Compare and contrast _____ to _____. What was important about...? What other ways could _____ be interpreted? What is the main idea of the story (event)? What information supports your explanation?
Applying Solve a problem or generalize an idea to a new situation	(PROCESS)	demonstrate discuss organize report	develop illustrate relate show	<ul style="list-style-type: none"> Explain in your own words what _____ means. What does _____ suggest about _____'s character? What lines of the poem express the poet's feelings about _____? What is the author trying to prove?
Understanding Understand the information and communicate knowledge	Level 1 Gathering Information Introduction of knowledge	explain paraphrase review tell express	inform recognize locate report find	<ul style="list-style-type: none"> What information is given? Locate in the story where... When did the event take place? List the... Name the... Where did...? What is...? Who was/were...? Illustrate the part of the story that... Make a map of... What is the origin of the word _____? What events led to _____?
Remembering Learn specific facts, ideas, vocabulary and recall information or specific facts	(INPUT)	define recall describe name identify	list memorize label record locate	

Costa, A. L. (1985) *Developing minds: a resource book for teaching thinking*. Alexandria: Association for Supervision and Curriculum Development.