**Critical-Input Strategies / Experiences**

*What will I do to help students effectively interact with new knowledge?*

This is a comprehensive approach that allows for student construction of meaning while interacting with the content, the teacher, and other students.

1. **Identify Critical Input Experiences**
   There are many. The teacher picks those that are essential and would have the highest impact on the students. The teacher knows what her students need to know and selects the strategies required to meet those needs. Visual and dramatic strategies tend to have greater impact than verbal, but all enhance learning when done effectively.

2. **Preview the Content Prior to a Critical Input Experience**
   The teacher helps the students activate prior knowledge relative to the information. There are several strategies that can be used to accomplish this; the teacher would select the most appropriate.
   - **KWL:** What do you know or what do you think you know? What would you like to know? What did you learn?
   - **Overt Linkages:** The teacher points out the connections between content previously addressed in class and content that is about to be presented.
   - **Preview Questions:** Asking of questions to stimulate thought of previously learned material.
   - **Brief Teacher Summary:** An oral or written summary of the highlights of the new knowledge is delivered to the students.
   - **Skimming:** The students skim new written material. They may need an explicit strategy:
     a. Read the section heading and ask yourself what it tells you about the overall passage.
     b. Next, read all of the subheadings and a few sentences within each subheading.
     c. Finally, briefly summarize what you think the passage is about.
   - **Teacher-Prepared Notes:** This is the most elaborate type of previewing activity. The teacher provides students with an outline of the important content within an upcoming critical-input experience, reviews the notes, and students refer to the notes throughout the critical-input experience. The notes may cover more than one critical-input experience.

3. **Organize Students into Groups to Enhance the Active Processing of Information**
   Groups of 2-3 are recommended as more than 5 can actually decrease the effectiveness of the instruction. Groups enhance the processing of new information because they provide students with multiple reference points and allow each student to see how others process information. For the best result, norms need to be established:
   - Be willing to add your perspective to any discussion.
   - Respect the opinions of other people.
   - Make sure you understand what others have added to the conversation.
   - Be willing to ask questions if you don’t understand something.
   - Be willing to answer questions other group members ask you about your ideas.

4. **Present New Information in Small Chunks and Ask for Descriptions, Discussion, and Predictions**
   The teacher needs to identify the chunks of information ahead of time, and decides on the size of the chunks; the more the students know about the material, the larger the chunks can be.
   A sample strategy:
   The teacher organizes the students in groups of three (each student being assigned a letter A, B, or C) and delivers the information in chunks. After each chunk, she asks member A of each group to briefly summarize the new information, and the other members add to what A has said. Then, the teacher takes questions from the whole class to clarify any confusion, and asks the class if they have any predictions of what might be covered in the next chunk. After the next chunk, member B takes the lead and summarizes the information and A and C add to it. C takes the lead after the next chunk, and so on.
   Some other strategies:
   - **Reciprocal Teaching:** After reading a portion of the text, the group leader raises questions about the text and the group discusses them. Another member summarizes the information up to this point and the group clarifies difficult concepts and makes predictions about the next portion of the text.
   - **Jigsaw:** The teacher presents a topic and the students are arranged into teams of four. Each member is assigned subtopics on which they are to become experts. Students from different teams with the same subtopic meet and discuss their subtopic to become as knowledgeable as they can, or experts on the information. The experts then return to their original teams and teach the material to the other members of their team.
• Concept Attainment: The teacher presents material by asking the students to compare and contrast examples that contain characteristics of the concept with examples that do not. The teacher presents the examples one at a time indicating that one is a “yes” and that its opposite is a “no”. Then he asks if the class knows what he is thinking about. As students raise their hands, he asks them to keep their answers private until all of the students think that they know the answer. Then, the students meet in groups of three and share their ideas to come to a common understanding of the concept and express it in their own words. The process can be repeated for additional concepts.

5. **Ask Questions that Require Students to Elaborate on Information**

Questions can be divided into two categories: inferential questions and elaborative interrogations.

• Inferential Questions: Students are asked to rely on their background knowledge to fill in information that was implied but not explicit in the information that was presented. To answer the question, the students must rely on their previous learning that is related to the current topic. Another type of inferential question asks the students to infer what is true or most likely to be true based on the information that was presented. The students will need to use what was explicitly stated in the presentation and reason logically to generate conclusions about what might happen to answer the question.

• Elaborative Interrogations: The discussion begins with an inferential question, but leads to a class discussion where the students need to explain the thinking behind their answer. Sample discussion questions would be “Why do you believe this to be true?” or “Tell me why you think that is so?”, or for a more formal discussion “What are some typical characteristics or behaviors you would expect of…” In this form of questioning, the teacher is trying to make explicit the thinking the student is using to formulate her answer. Phrasing such as “It seems to me that you are saying…” would be used. This type of questioning eventually leads to an articulation of the generalization from which the student is making her inferences.

6. **Have Students Write Out Their Conclusions or Represent Their Learning Nonlinguistically**

The teacher needs to select the most appropriate form of nonlinguistic representation for the particular instruction.

• Notes: Taking notes requires the student to differentiate between information that is considered important and that which is considered supplemental to the current topic. It is not advisable for students to take detailed notes during the presentation of the chunks because it may distract their attention from the content. They can jot down main ideas, but they should take more detailed notes after the small chunks of information have been processed. One strategy, but not the only one, would be for the students to record their thoughts in written form on the left of the page and represent their thoughts on the right as a graphic representation. There are many forms of notes, and it is up to the teacher to select the most appropriate form for the information that is being presented.

• Graphic Organizers: Students are asked to graphically show the relationships of the information that was presented. They may use a model provided by the teacher, or the teacher may ask groups to create their own to later share with the whole class.

• Dramatic Reenactments: The students physically act out the concept from the instruction. These can be highly engaging, but they do take time and can be superficial unless the teacher asks how the enactment represents the important information.

• Mnemonic Devices Employing Imagery: It is important that teachers employ mnemonic devices only after students have processed the information thoroughly and have a good understanding of the concept. Before using this technique, the teacher needs to introduce the concepts of symbols and substitutes. Some factual information is easy for the students to imagine, but some abstract information may require symbols and substitutes to remember. A symbol is something that suggests or reminds the student of something he is trying to remember. A substitute is a word that is easy to picture and sounds like the information.

• Academic Notebooks: Academic notebooks can be used to record notes and graphic organizers, creating a chronology of the students’ thinking during instruction. This allows them to make corrections in their thinking because the notebooks provide a sequential record of the students’ understanding of the content.

7. **Have Students Reflect on Their Learning**

The students reflect on their experiences at the completion of the instruction. Some questions they might address:

• What they were right about and what they were wrong about.
• How confident they are about what they have learned.
• What they did well during the experience and what they could have done better.

Not every question would be asked, but rather the teacher would select the most appropriate. The reflection may also be used for the students to evaluate how much they have learned during the instruction.

All information is summarized from: