METHODS FOR PROMOTING CRITICAL THINKING

PREPARED FOR THE
READING & WRITING FOR CRITICAL THINKING PROJECT

GUIDEBOOK II

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CONTENTS

INTRODUCTION

The purpose of this course is to introduce instructional methods that promote critical thinking in all classrooms. This guidebook first will present issues related to critical thinking, offering a definition and rationale for implementing instructional practices which promote critical thinking. The various components and expected outcomes of critical thinking will also be discussed. This discussion is followed by a sample lesson, presented in two parts, both of which focus on teacher-questioning practices. This sample lesson offers a model for questioning and includes a discussion of questioning practices. It is constructed so participants first will experience the lesson as students. Participants then will return to the lesson to consider what transpired and why. Finally, further discussion is offered about teacher questioning and its importance in setting purpose and value in the classroom.

> **Two–part lesson— experience and consideration**

The model is presented using materials intended for an adult audience. The sample reading material is not intended to be used with children. It is provided so the workshop participants can experience, at their own level, the instructional methods being taught.

Critical Thinking and the Framework for Teaching and Learning

The critical thinking approaches outlined here are congruent with the "Framework for Thinking Learning" outlined in Guidebook I, *A Framework for Critical Thinking Across the Curriculum*. That framework began with an *evocation stage*, in which students are encouraged to summon their prior knowledge about a topic, make predictions, and generally set purposes for their reading or inquiry. It is followed by the *realization of meaning stage*, in which students are exposed to new content through text, lecture, or other mediums and are expected to integrate the ideas or content into their own existing understanding. The framework culminates in the *reflection stage*, in which students consider what they have learned within the context of their existing thinking in order to reconstruct their knowledge to accommodate their new learn-

ing experiences. The methods of encouraging critical thinking delineated here should be worked into all three stages of that framework.

Outcome Expectations

The RWCT project has set some general expectations for educators participating in the project and some specific expectations for this guidebook.

General Expectations

General expectations of the program are that participants will be master teachers, able to serve as instructional models and resource people within their own professional setting, be it a school, university, methods center, pedagogical institute, or agency.

They also should be able to conduct staff development workshops and courses for other classroom teachers, university faculty, and other educators.

Specific Expectations

At the conclusion of this course participants should

- understand the relationship between questioning and critical thinking;
- understand the importance of teacher questioning for promoting critical thinking;
- understand the relationship between critical thinking, decision-making, problem solving, and thinking process;
- be able to present a narrative text to a class using the Evocation, Realization of Meaning, Reflection (ERR) framework;
- engage a class in guided inquiry using multiple question formats;
- understand the value of questioning students at various levels;
- understand the thought processes associated with various question levels; and
- be able to conduct a course on questioning and critical thinking for other educators.

Precautions

Students are routinely, often almost exclusively, asked literal-level questions. Students therefore anticipate these questions. When initially encouraged to engage in more complex thought processes by being asked to respond to different questions, they are likely to be uncertain and quiet. It takes repeated efforts and reassurance to convince students that there are new expectations for them which require more elaborate responses. Students also need to be convinced that the environment is safe for speculation before many will risk speculative responses.

> **Students need time to grow accustomed to open–ended questioning.**

Planning a lesson using the ERR Framework takes time and practice. With practice it becomes easier and quite natural. However, a lesson built around the ERR Framework requires careful consideration of the lesson's goals. Tteachers must know why a particular content or particular text is being presented. This is often more difficult to determine than it seems and can provoke interesting debate as to why we teach particular content.

Materials

This course requires very few materials. The sample text used, "The Sniper," is contained in the appendix. It serves only as an example. Any similar story can be used for demonstration purposes. When participants give their own workshop it will be important for them to select relevant articles and when teachers select content material for their classroom they should select age-appropriate material. It is helpful, of course, to select material which is of interest to students and reasonably well written.

To conduct the course described in this guidebook the instructors will require the following resources:

- An article or story for participants to read in class that is well written and compelling. In other words, a good piece of literature of no more than three to four pages.
- An overhead projector and transparencies, poster paper and markers, or chalk and a chalkboard on which to draw a picture.
- Selected reading materials from the curriculum used by participants.

PART I CRITICAL THINKING EXAMINED

Information Explosion

Change of the magnitude occurring in today's societies around the world poses a daunting challenge to those whose task it is to prepare children for the twenty-first century. Educators, from curriculum planners and policy makers to classroom teachers, are faced with the question of how best to prepare children for a successful, prosperous, and productive life in a future we cannot see. It is not possible to predict the kinds of work our elementary school children will perform by the time they complete secondary school and enter the work force. In the United States it is believed that over twenty-five percent of the jobs people will be performing in the next century do not now exist, and that the current jobs that will continue to exist in the early part of the next century will be substantially different. Often completely new knowledge and understandings will be required to function effectively in the future.

> **The future work of our students is no longer predictable.**

Compounding matters is the continuing explosion of information. The creation of information in the public domain continues at an unprecedented level. It is estimated that within the next ten years, 100% of the world's present collective knowledge will constitute only 10% of the available knowledge base. Phillips (1992) has reported that most of what we know has a shelf life of ten years or less before it becomes inaccurate or antiquated. Paralleling this extraordinary production of information is a technological explosion in information delivery. With CD-ROM and Internet technology, the libraries of the world are accessible from any home or office with a phone line, a modem, and a computer. The tremendous volume of available information makes it impossible to think that enough content can be taught in schools to make a sizable dent. The direct information we are able to teach our children will constitute only a small fraction of any content area and only a small fraction of the information they will need to know throughout their lifetime.

As more and more societies wrestle with the transition to a market economy and democratic social order a central question educators must ask is: How can we best prepare students for a democratic and economically productive life in the twenty-first century? While learning content is important, it is perhaps not the most crucial learning. The central

task for students is more likely to learn how to learn effectively and think critically. Students must be able to encounter new information and examine it thoughtfully and critically. They must be able to consider information and ideas independently and act in accordance with that thinking so the information can be useful. They must be able to examine new ideas from numerous perspectives, making judgments about veracity and value and determine the overall worth of the ideas based on their own needs and purposes.

> **How can we best prepare students for democratic life?**

Teaching for Thinking

If teaching students to think critically is essential, then it must be introduced into teaching practice systematically (Zelina, 1994). It cannot be assumed that students will come to effective critical thinking naturally or simply because it is declared to be important. It is also not enough to simply make critical thinking a part of the content of the curriculum. Critical thinking does not occur by teaching "the seven steps to critical thinking" or other prescriptions for this behavior. To become effective critical thinkers, students must actually experience thinking critically. The mistake often has been made of considering critical thinking a "subject" to be taught or a set of skills to be memorized and applied.

> **Critical thinking is an outcome, not a subject.**

What is critical thinking? Critical thinking is an outcome. It is a point in one's thinking whereby one thinks critically as a matter of course, as a natural way of interacting with ideas and information. It is an active process, either intentionally invoked or spontaneously occurring, which firmly places the learner in control of the information so the learner can challenge, integrate, reconfigure, adapt, or dismiss information. It occurs when learners ask such questions as "What does this information mean to me?" "How can I use this knowledge?" "How does this knowledge relate to what I already know?" "Is this information helpful?" "How do I feel about these ideas?" "What might be the consequences of acting on these ideas for me and for others?"

What Is Critical Thinking?

Thinking is a process similar to reading, writing, speaking, and listening. It is an active, coordinated, complex process which involves thinking about something genuine. It is not something which can be taught out of context. Critical thinking is not best learned when it is separated from the general context of the school curriculum or daily life. Thinking critically in school is best learned by experiencing this type of thought as a way of approaching content, as something which is part of and an expected outcome of the daily curriculum. Recent research concerning critical thinking and learning suggests that a model focusing on teaching isolated skills and fact learning minimizes critical thinking. For example, Brown (1989) argues that learning skills separate from real world tasks and purposes may allow students to do well on an objective test but leave them unable to apply those skills in new situations.

Richer definitions of learning and thinking are supported by the research of cognitive psychology, philosophy, and multicultural education. Common threads are found among this research:

- Effective, long-term learning which can be applied to new situations is basically a matter of making sense of information and ideas at hand. This happens best when learners actively participate in learning—internalizing, synthesizing, and making the information their own (Anderson, Hiebert, Scott, & Wilkinson, 1985).
- Students' learning is enhanced when they use a repertoire of strategies for thinking. It is through the use of these strategies, in meaningful learning experiences, that learners internalize the process of learning (Palincsar & Brown, 1989).
- Learning and critical thinking are enhanced when students have opportunities to apply new learning to authentic tasks (Resnick, 1987).
- Learning is enhanced when it is built on students' prior knowledge and experiences, allowing learners to link what they already know to new information to be learned (Roth, 1990).
- Critical thinking and learning occurs when teachers understand and value diversity of ideas and experiences. Critical thinking occurs when there is not a "only-one-right-answer" mentality (Banks, 1988).

Creating an Environment for Critical Thinking

Teaching critical thinking is not a simple task nor is it a task that can be accomplished at a certain grade level and forgotten. There are no credible lists of steps to take that will lead to critical thinking. There exist, however, a set of classroom conditions and student understandings that promote the development of critical thinkers. To stimulate critical thinking, teachers should

- provide time and opportunity for critical thinking experiences,
- give permission for students to speculate,
- accept diverse ideas and opinions,
- promote the active engagement of students in the learning process,
- assure students a risk-free environment without ridicule,
- express belief in each student's capacity to make critical judgments, and
- value critical thinking.

To engage in effective critical thinking students must

- develop self-confidence and an understanding of the worth of their opinions and ideas,
- actively engage in the learning process,
- listen with respect to multiple opinions, and
- be prepared to both formulate and suspend judgments.

Time

Critical thinking takes time for several reasons. Before thinking through something new, one must first take time to discover what one already thinks and believes about a topic. Uncovering one's own thoughts involves some exploration of previous ideas, beliefs, encounters, and experiences (Pearson, Hansen, & Gordon, 1979). Time also is needed to begin to express these thoughts in one's own words and to hear how they sound. Sharing critical thoughts also takes time. Without sharing there is no opportunity for hearing feedback from others which allows refining of thought and further reflection. To promote critical thinking, classrooms must allow sufficient time for students to express their ideas

Time must be set aside for sharing and feedback.

and receive constructive feedback. Through time spent verbalizing thoughts, in an atmosphere which encourages sharing, ideas are more fully formulated and clarified.

Permission

Students do not always speculate freely about important ideas. They often wait for the teacher to give out the one true answer. However, students engaged in critical thinking are actively developing speculative

> **Permission is granted within a supportive and productive setting.**

hypotheses, and are putting ideas and concepts together in differing ways. Some of these combinations will be more productive than others; some may seem reasonable at first but with further reflection become less meaningful. Still other conceptualizations may appear foolish at first only to become more valuable with refinement or changes in perspective. For this kind of thinking to occur freely, students need permission to speculate, create, and state the obvious or the foolish. When students understand that this is acceptable they will more actively engage in critical analysis.

However, when teachers grant students permission to become critical thinkers they must do so advisedly. That is, they must draw distinction between granting permission and being permissive. Granting permission to speculate does not grant student's license to be frivolous or inconsequential thinkers. Not all contemplation is worthy contemplation; students deserve to be held accountable for the genuine quality of their thinking and given honest feedback. Thus, permission to think critically implies granting permission within the context of both a supportive and productive environment where there is genuine purpose for speculating.

Diversity

Once students are free to speculate, diversity of opinion and ideas will emerge. When the belief that there is only one right answer is abandoned, there will often emerge as many opinions as there are students. To attempt to limit expression of opinion is to limit student thinking. For critical thinking to flourish, a classroom atmosphere must be created which reassures students that a broad range of opinions and ideas are expected and tolerated.

There are occasions however, when there is one right answer and we must be honest with our students. In these cases what may differ is the means or processes by which individuals arrive at the answer. In most cases this is far more important than the answer itself. If most class time is spent looking for the one right answer, then thinking is not likely to be occurring at a very meaningful level.

Engagement

Where there is lack of engagement in the thinking and learning process, there is an absence of critical thinking. Many students come to school as passive learners believing the teacher or the text contains the knowledge is responsible for each student's learning. They see knowledge as fixed, only needing to be poured into one's head and recited back on command to demonstrate learning. These students do not engage in critical thinking until they are energized to do so and begin to invest in their own learning. It is only then that they are engaged in the learning process and prepared to take responsibility for their learning.

Active engagement is essential to critical thinking.

Classroom instructional approaches that involve students in speculative reflection and sharing of ideas and opinions will engage and activate students. Those classrooms which allow students to remain passive will typically find critical thinking absent from student behavior.

Risk Taking

Thinking freely can be risky. Ideas can come together in strange, humorous, or sometimes contradictory ways. It is part of the thinking process to sometimes come up with dumb ideas, crazy combinations, or embarrassing notions. Teachers need to reassure students that this is a natural part of the learning process. It is also important to make clear that ridicule of ideas is not to be tolerated because it stifles thinking by creating an atmosphere of excess personal risk. Thinking is done best

Cognitive risk taking should be promoted and supported.

in a risk-free environment where ideas are respected and where students are highly motivated to engage actively in thinking.

Respect

Often we are afraid or unsure of what our students will think or how they will interpret information. Great attempts are made to control and channel their thinking as though, without this control, their minds would spin out of control and wreak havoc in some way. In fact, the opposite appears to be the case: When students understand that their opinions are valued, when they believe their teacher has respect for their ideas and beliefs, they typically respond by demonstrating greater responsibility and care. Students begin to show greater respect for their own thinking and take the process and its consequences far more seriously when teachers show respect as well.

Value

Communicating to students that opinions, that is, the result of their own critical analysis, are of value is essential before they will engage openly in critical thinking. Schools, by the nature of what they demand from students in terms of student feedback, communicate a great deal about what is most valued. When students are asked only, or mostly, to simply retell what they have been told, either through classroom dialogues or testing, they quickly understand that it is rote recall of someone else's ideas that is of the greatest value. If this is not what we wish to value most, then we must demonstrate what it is we do value by interacting differently with students and by asking them for different kinds of feedback.

> **The responses we demand from students dictate what is most valued.**

Student Responsibility for Critical Thinking

The responsibility for learning and engaging in critical thinking ultimately rests with students. The classroom environment must enable students to engage in critical thinking, but it is the students themselves who must act. However, before they can act they must understand what is required of them to become effective critical thinkers.

There are a few attributes and behaviors which critically engaged students exhibit and which classroom instruction should promote and encourage.

Confidence

First, students should come to believe that their opinions are of value. They must recognize that what they think is unique, important, and represents a contribution to the greater understanding of the concepts and issues being debated. Without confidence in their own worth and dignity, students will refrain from fully engaging in critical thought.

Active Engagement

Mihaly Csikszentmihalyi (1975) demonstrated that when learners are actively engaged in the learning process at an appropriately challenging level, they express great pleasure in the engagement and an increased capacity for consideration and comprehension. Students who experience this complete engagement come to understand that when they commit

Cognition equates with fulfillment.

sufficient energy and effort to their learning experience and successfully engage in the learning process there is pleasure in the process and a greater sense of fulfillment.

Sharing

Sharing is a disciplined behavior. It requires the sharer to give up something for the sake of others. It is taught by parents to young children as an important social and survival skill. Children come to accept the idea of sharing however, not just because parents expect it, but because they come to see the intrinsic rewards of sharing. That is, they understand that in giving up something there are certain benefits to be gained. When learners commit to sharing they are making a commitment to the learning community, to their class, to their school. Sharing beliefs, ideas, and opinions can be risky. It requires learners to show themselves to others as thinkers and believers, capable of great thought and humbling mistakes. Giving of oneself in this way is what defines the learning community from which we are all nurtured.

Listening

In the classroom, sharing ideas among peers requires students to listen, to suspend judgment or the need to impose their own order on what is being said. What they receive in return is the collective wisdom of others that exposes them to an expanded expressive language and a larger context in which to place their own ideas. It is through an expanded dialogue that students become better able to examine and refine their own ideas and fit them into the tapestry of ideas they are creating through their learning and life experiences.

Suspending judgment allows one to hear the voices of others.

PART II TEACHER QUESTIONING

Teacher Questioning

One powerful tool for either promoting or discouraging critical thinking is teacher questioning. The kind of questions teachers ask establish the atmosphere in the classroom. These questions determine what is most valued; how right and wrong are defined; and who and what are, or are not, sources of information and knowledge. Questions which limit student thinking to simple recitation or constrain thought processes inform students that their own thinking is superfluous. Questions that invite students to reflect, speculate, reconstruct, imagine, create, or weigh carefully elevate the level of student thought and teach students that their thinking is of value and that they can contribute to the community of understandings and beliefs. The types of questions asked can teach students that knowledge is not fixed, and that ideas are malleable.

> **Knowledge is not fixed, but malleable.**

The following section will model how teacher questioning during classroom instruction can successfully engage students in critical thinking at numerous levels, enhancing their capacity for reflection.

Questioning and Valuing

Teachers are powerful models. Children learn from their earliest school experiences to pay careful attention not only to what their teacher says but also to what their teacher does. By careful observation students learn what is considered most important, what will be expected of them in the future, and what types of information they will be expected to know for evaluation. Thus, in addition to sharing information and ideas, teachers reveal what they most value through their choice about what questions to ask (Steele & Meredith, 1991). Repeated exposure to what teachers indicate they value determines what children value most and what they attend to with greatest intensity.

Studies of classrooms in the United States suggest that over 75% of the questions teachers ask students are literal-level or factual questions. Studies in Slovakia have revealed an even more pervasive pattern of fact-based teacher questioning, with some research suggesting 95% of teacher questioning to be literal level (Zelina, 1994; Zelina & Zelinova, 1990; Gavora, 1990; Mares & Krivohlavy, 1989). Whether the subject matter is

science or literature, the questions students confront most often are re-quire only single-word or simple-phrase responses. Examples of these kinds of questions include asking students to name a four-legged animal; the name of the village in a story students have read together; or to tell how many, what color, how far, or on what date. With so many literal-level questions being asked it is no surprise that students value factual information above all other forms of knowledge and attend most to this level of thinking.

Too often, literal–level questioning is the norm.

When factual information is most valued we may be shortchanging our students on several counts. First, with the enormous growth in available knowledge and information, even suggesting that students could ever learn enough factual information to master a content area is misleading at best. Second, knowledge of facts by themselves is relatively worthless unless students have the ability to synthesize, integrate, and reconstruct information in forms which make the information usable, practical, and applicable. Third, responding to literal-level questions requires only minimal use of language and does not involve meaningful conversation. To respond to literal-level questioning one needs only a superficial awareness of content and words or phrases borrowed from the text. Many students have developed the capacity to recall factual information without ever coming to understand the central ideas in which the facts are embedded. They are able to memorize without being meaningfully challenged or changed by the their learning experience. If learning is regarded as a permanent change in behavior, memorization can only contribute minimally to student learning.

For students to reflect on new information and integrate it with previous knowledge and beliefs, they must engage in meaningful conversation, put their ideas in their own words, and make any newly encountered vocabulary their own. It is only through ownership of the new knowledge and new vocabulary that their new experiences will become permanent learning. Literal-level questioning denies students the opportunity for conversation and thus the opportunity to expand their expressive capacity (Gavora, 1990).

Meaningful dialogue is required to integrate knowledge.

Model Lesson With a Narrative Text

Evocation, Realization of Meaning, Reflection (ERR)

This is a guided reading activity which is intended to actively engage students in the reading process. The process also engages students in critical analysis and critical reflection as they read the text. The ERR Framework demonstrated here with narrative text is the same as that presented in Guidebook I. However, the lesson in Guidebook I used expository text and was performed somewhat differently. As you experience this model lesson, note the differences and similarities between it and the lesson in Guidebook I.

This lesson includes two parts. In the first part, participants act as students and engage in the guided lesson. Participants are asked to experience the learning process but also notice what they are doing and how the various activities within the lesson affect them so they will be able to reflect on their experiences in the second part of the lesson.

This model lesson uses the short story "The Sniper" by Liam O'Flaherty (also in the appendix). The segmentation of the story and prompt questions were developed by Beth Whetmore while at the University of Virginia.

Begin this lesson by informing students that they will be reading a story together. Tell them not to look at the story as you hand it out because they will be reading it as a group and it is not good to read ahead.

After the story is distributed, including the short summary about the author, briefly discuss the author and his writing. This should take only

> **Evocation**

about 10 minutes. After this discussion, it is time to read the story. Explain that the story is by the author they have just discussed and that you want them to read only as far as they are instructed. Caution them that it is important not to read past the stopping point. They are to read only the first two paragraphs. Instruct them as follows:

> **Evocation**

As you read the first two sentences and the last three sentences of the first paragraph, notice the sensory contrasts. The first and second paragraphs seem also to be deliberate contrasts. Please go ahead and read the first two paragraphs. When you are done look up so I will know.

The Sniper

The long June twilight faded into night. Dublin lay enveloped in darkness but for the dim light of the moon that shone through fleecy clouds, casting a pale light as of approaching dawn over the street and the dark waters of the Liffey. Around the beleaguered Four Courts the heavy guns roared. Here and there through the city, machine guns and rifles broke the silence of the night, spasmodically, like dogs barking on lone farms. Republicans and Free Staters were waging civil war.

On a rooftop near O'Connell Bridge, a Republican sniper lay watching. Beside him lay his rifle and over his shoulders were slung a pair of field glasses. His face was the face of a student, thin and ascetic, but his eyes had the cold gleam of the fanatic. They were deep and thoughtful, the eyes of a man who is used to looking at death.

First stop

When everyone has finished ask them to look away from the story and ask the following questions:

How do these sentences in the first paragraph and the first two paragraphs make you feel? What did you see and hear? (Translation)

Allow time for participants to respond. Silence is not a concern. Thinking takes time. It also is important not to agree or disagree with what is said, but simply to acknowledge the respondents. Then ask:

What will be the problem in this story? What big issue is at stake? What do you think? Why do you think so? (Interpretation)

Ask these questions one at a time, allowing participants time to consider the question and encouraging them to think through the questions in terms of what they have read so far. Now instruct the students as follows:

Read the text until the end of paragraph 14. It is marked in the sample text with a stop. As you read, try to picture the scene in your mind in as much detail as possible. Please look up when you are finished and be sure to stop.

The Sniper, *continued*

He was eating a sandwich hungrily. He had eaten nothing since morning. He had been too excited to eat. He finished the sandwich, and, taking a flask of whiskey from his pocket, he took a short draught. Than he returned the flask

to his pocket. He paused for a moment, considering whether he should risk a smoke. It was dangerous. The flash might be seen in the darkness, and there were enemies watching. He decided to take the risk.

Placing a cigarette between his lips, he struck a match, inhaled the smoke hurriedly and put out the light. Almost immediately, a bullet flattened itself against the parapet of the roof. The sniper took another whiff and put out the cigarette. Then he swore softly and crawled to the left.

He rolled over the roof to a chimney stack in the rear, and slowly drew himself up behind it, until his eyes were level with the top of the parapet. There was nothing to be seen—just the dim outline of the opposite housetop against the blue sky. His enemy was under cover.

Just then an armored car came across the bridge and advanced slowly up the street. It stopped on the opposite side of the street, fifty yards ahead. The sniper could hear the dull panting of the motor. His heart beat faster. It was an enemy car. He wanted to fire, but he knew it was useless. His bullets would never pierce the steel that covered the gray monster.

Then round the corner of a side street came an old woman, her head covered by a tattered shawl. She began to talk to the man in the turret of the car. She was pointing to the roof where the sniper lay. An informer.

The turret opened. A man's head and shoulders appeared, looking toward the sniper. The sniper raised his rifle and fired. The head fell heavily on the turret wall. The woman darted toward the side street. The sniper fired again. The woman whirled round and fell with a shriek into the gutter.

Suddenly from the opposite roof a shot rang out and the sniper dropped his rifle with a curse. The rifle clattered to the roof. The sniper thought the noise would wake the dead. He stopped to pick the rifle up. He couldn't lift it. His forearm was dead. "I'm hit," he muttered.

Dropping flat onto the roof, he crawled back to the parapet. With his left hand he felt the injured right forearm. The blood was oozing through the sleeve of his coat. There was no pain—just a deadened sensation, as if the arm had been cut off.

Quickly he drew his knife from his pocket, opened it on the breastwork of the parapet, and ripped open the sleeve. There was a small hole where the bullet had entered. On the other side there was no hole. The bullet had lodged in the bone. It must have fractured it. He bent the arm below the wound. The arm bent back easily. He ground his teeth to overcome the pain.

Then taking out his field dressing, he ripped open the packet with his knife. He broke the neck of the iodine bottle and let the bitter fluid drip into the wound. A paroxysm of pain swept through him. He placed the cotton wadding over the wound and wrapped the dressing over it. He tied the ends with his teeth.

Then he lay still against the parapet, and, closing his eyes, he made an effort of will to overcome the pain.

In the street beneath all was still the armored car had retired speedily over the bridge, with the machine gunner's head hanging lifeless over the turret. The woman's corpse lay still in the gutter.

Second stop

When the group is finished ask:
What do you see?
Allow time for discussion. You might ask if anyone knows what a parapet is. (Memory)

Now ask:
Now what do you think this story is about? What do you think will happen? (Analysis)
Why do you think so? What makes you think so? (Synthesis)
Now prepare to read the next part of the story. You may guess that this story is going to have some kind of complication. Look for a point in the next two pages where there is a twist; where you feel a change of some kind. (Interpretation)

Please read until the next stop at the end of paragraph 22. It is marked Third stop. (Construction of Meaning)

The Sniper, *continued*

The sniper lay still for long time nursing his wounded arm and planning escape. Morning must not find him wounded on the roof. The enemy of the opposite roof covered his escape. He must kill that enemy and he could not use his rifle. He had only a revolver to do it. Then he thought of a plan.

Taking off his cap, he placed it over the muzzle of his rifle. Then he pushed the rifle slowly upward over the parapet, until the cap was visible from the opposite side of the street. Almost immediately there was a report, and a bullet pierced the center of the cap. The sniper slanted the rifle forward. The cap slipped down into the street then catching the rifle in the middle, the sniper dropped his left hand over the roof and let it hang, lifelessly. After a few moments he let the rifle drop to the street. Then he sank to the roof, dragging his hand with him.

Crawling quickly to the left, he peered up at the corner of the roof. His ruse had succeeded. The other sniper, seeing the cap and rifle fall, thought that he had killed his man. He was now standing before a row of chimney pots, looking across, with his head clearly silhouetted against the western sky.

The Republican sniper smiled and lifted his revolver above the edge of the parapet. The distance was about fifty yards—a hard shot in the dim light, and his right arm was paining like a thousand devils. He took a steady aim. His

hand trembled with eagerness. Pressing his lips together he took a deep breath through his nostrils and fired. He was almost deafened with the report and his arm shook with the recoil.

Then when the smoke cleared he peered across and uttered a cry of joy. His enemy had been hit. He was reeling over the parapet in his death agony. He struggled to keep his feet, but he was slowly falling forward, as if in a dream. The rifle fell from his grasp, hit the parapet, fell over, bounded off the pole of a barber's shop beneath and then clattered on the pavement.

Then the dying man on the roof crumpled up and fell forward. The body turned over and over in space and hit the ground with a dull thud. Then it lay still.

The sniper looked at his enemy falling and he shuddered. The lust of battle died in him. He became bitten by remorse. The sweat stood out in beads on his forehead. Weakened by his wound and the long summer day of fasting and watching on the roof, he revolted from the sight of the shattered mass of his dead enemy. His teeth chattered, he began to gibber to himself, cursing the war, cursing himself, cursing everybody.

He looked at the smoking revolver in his hand, and with an oath he hurled it to the roof at his feet. The revolver went off with the concussion and the bullet whizzed past the sniper's head. He was frightened back to his senses by the shock. His nerves steadied. The cloud of fear scattered from his mind and he laughed.

Third stop

When everyone is done ask:

What do you think is good about what is happening? What is bad? Why do you think so? (Evaluation)

	Everything is done now in this story but the au-
Reflection	**thor will not finish for another 200 words or so. Thinking of what has happened up to now, can you predict how the story will end? How might you end it?**

Why? (Synthesis)

This may generate considerable discussion. It is important to let the conversation go as long as it remains generally related to the themes

	and issues raised by the story.
Evocation	**Think now what is at issue in this story. If you were the sniper, how would you feel right now? What**

	would you do? Why? (Synthesis)
Realization of meaning	**Read the last four paragraphs now**.

Taking the whiskey flask from his pocket, he emptied it at a draught. He felt reckless under the influence of the spirit. He decided to leave the roof now and look for his company commander, to report. Everywhere around was quiet. There was not much danger in going through the streets. He picked up his revolver and put it in his pocket. Then he crawled down through the skylight to the house underneath.

> **Realization of meaning**

When the sniper reached the laneway on the street level, he felt a sudden curiosity as to the identity of the enemy sniper whom he killed. He decided that he was a good shot, whoever he was. He wondered did he know him. Perhaps he had been in his own company before the split of the army. He decided to risk going over to have a look at him. He peered around the corner into O'Connell Street. In the upper part of the street there was heavy firing, but around here all was quiet.

The sniper darted across the street. A machine gun tore up the ground around him with a hail of bullets, but he escaped. He threw himself face downward beside the corpse. The machine gun stopped.

Then the sniper turned over the dead body and looked into his brother's face.

When everyone is done ask:

> **Realization of meaning**

Does it end as you thought it would? What will happen next? What evidence is there in the story to suggest what you think?

Now what would you say is the big issue in this story? How does this story relate to the concept of the brotherhood of all humankind? (Synthesis)

> **Reflection**

Share these two quotes for discussion:

"The Tree of Liberty must from time to time be watered with the blood of patriots.

How does this story relate to the quote from Thomas Jefferson? (Evaluation)

Suppose they gave a war and nobody came.

How does the story relate to this quote from a poster frequently seen in the late 1960s? (Evaluation)

Allow time for thought and discussion. Let views be expressed freely. Participants should be speaking to one another and not through the teacher. Encourage this to take place by saying little, nodding, and deferring to participants.

> **Allow time for thought and discussion.**

It is appropriate at this time to ask students to do some individual reflections on the story. This is an excellent time to encourage participants to engage in one or more of a set of possible writing activities. Writing for critical thinking will be covered in Guidebooks III and VII.

PART III ANALYSIS OF THE NARRATIVE LESSON

Analysis of the Narrative Lesson

In the lesson described in the previous section, two primary ideas come together. First is the application of the framework for learning (presented in Guidebook I) but here it is for narrative rather than expository text. Second, is the idea that questioning can serve as a powerful guide for learning, prompting thinking at various levels and from various perspectives while moving the learner through the three stages of the framework for thinking. In the following section of this guidebook a detailed discussion of questioning will be presented using this directed reading–thinking activity as the model. First we will examine the lesson from the ERR framework perspective.

The ERR Perspective

After the lesson has been conducted, participants should be guided back through the lesson examining in detail how it was constructed and what their experiences were. The process is one of deconstructing the lesson so the various elements are apparent. This examination should begin with a general discussion about what the participants experienced and observed during the lesson. It should be a systematic review, so discussion should

Recall what happened and how it felt.

begin at the beginning. Start by asking participants to think back to what they did first. This should not become a "guess what is in the teacher's mind" activity. Rather, it should be the beginning of a discussion about the process.

The first activity related to the reading of "The Sniper" was the discussion of the author and the context in which he wrote. This was done as a general evocation activity. Its purpose was to begin to stimulate thinking about the context of the story, the time and location, and some likely themes. It was intended to be general, as more specifically targeted evocation activities were introduced during the reading of the article. In fact, it is evident from the process that the lesson had a very global framework. That is, the lesson began with an evocation activity. It then proceeded to a realization-of-meaning activity, embodied in the actual reading of the article. Finally, it was suggested that a reflective-writing activity be introduced to conclude the lesson. Thus, the three phases of the framework were present at a global or general level.

What also is important to notice is that the lesson included, within the general framework, a series of shorter applications of the framework. These were applied to each of the reading segments. It is these segments within the text that should now be examined.

Ask the participants what they remember happened next. They may recall that before reading they were asked to look for some specific shifts in the texts, some contrasting images. The intent of asking these questions is to invite the readers to begin anticipating what they will be reading, to be alerted to attend specific elements, and to be active critical thinkers while they read.

> **Invite anticipations and predictions.**

Participants then read to the first stop before being asked to reflect on how the reading made them feel. This process represents engagement in the reflection stage within the body of the text or lesson. Activating engagement in the framework within the lesson is a robust means of maintaining engagement with the text and starting critical analysis at the outset. There is no reason to wait until the end of a narrative or expository pieces, lecture, or other lesson medium before beginning to interact meaningfully with the experience. Comprehension is a process of thinking about meanings, both those the author may intend and those the learner begins to construct. The more diverse, less restricted, and more critically considered the meanings constructed by the reader the more sturdy, elaborate, and eloquent the constructions become.

After answering questions about the first reading, readers were then invited to create as detailed as possible a vision of the scene that will unfold. The text used in the sample lesson is particularly rich and visual. It is an excellent work for suggesting that the reader conjure up a mental image of the unfolding story. Creating a mental image (also known as translation) is an excellent means of maintaining engagement in the text. The image is personal, intentional, and alterable, adjusting as the reader proceeds through the text.

When the readers have finished answering the questions, go to their images directly, asking what they saw. Opening the discussion by referring to the visual images does two things. First, it confirms that the task you assigned for them was serious rather than frivolous: By following through immediately, you reinforce your expectation that they are engaged, process-oriented students. Second, the discussion now requires students to

> **Students must see that their tasks are serious, not frivolous.**

transform their visual representations into their own words. This puts their representations in the public domain for other students to consider

and respond to, allowing feedback and a glimpse at how others have constructed the scene.

It is interesting to note that the end of this section was the only time when a literal-level or memory question was asked: "Does anyone know what a parapet is?" This question stands in stark contrast to the richness of the other questions. It is easy to see in this context how literal- or memory-level questions do not access meaning making at a thoughtful or critical level. Although understanding what a parapet is helps the reader, it is not essential to understanding the story.

The reading of the third section begins as did the previous section, with a comment to invite student engagement in critical analysis of the text as they read. Readers are asked to look for plot twists and to anticipate that something might change. Uncovering this mystery is thus added to the purpose for reading. The remainder of the lesson unfolds through a series of applications of the framework using a process of structured inquiry.

While the readers proceeded through this guided text, another central pedagogical process was also unfolding: smaller more specific applications of the framework were applied throughout the story. At each stop readers were asked questions which guided their reflection of what they just read. Then, before reading a new section, questions were asked which encouraged the reader to predict what would happen next, which is evocation. Their discussion is likely to indicate that those predictions increased interest in reading.

Point out at this time that when the ERR framework is applied in this way it is easy to see that it is not linear but cyclical. Evocations lead to realizations and then reflections, which lead to new questions and new evocations.

The participants should be asked to walk back through the lesson as described in the preceding paragraphs. They should recall what they did and how it affected them during the learning process. Ask if the process increased their motivation to read. Were they more engaged in the text as they read? Were they eager for the conversation to stop so they could continue? How does this model lesson differ from the one modeled in the first course with expository text? How are they similar? Bring out for sharing the students' own experiences with the process so they will be able to relate to the experiences of *their* students when they implement this process in their own classrooms.

Adaptation of Sanders's Revision of Bloom's Taxonomy of Questioning

The second level of this lesson involves questioning for critical thinking, that is, using inquiry to guide critical considerations of text. The questions used here are identified by type within the lesson itself. The questions require students to interpret information, synthesize ideas, analyze information, reconstruct or translate images, and evaluate or apply their constructs to the story as it evolves. These questions are derived from Sanders's (1969) revision of Bloom's taxonomy of questioning. There are many other ways of conceptualizing question types; this represents only one way of thinking about questions. Understanding that questions are a means of triggering different kinds of thinking at differing levels of sophistication is important.

For Sanders, the various types of questions form a hierarchy with memory or literal-level questions representing the lowest form of questioning and thinking. Evaluation or judgment questions are regarded as the highest level of questioning and thinking (see Figure 1).

To be sure, all questioning is important, as all types lead to different ways of thinking across a broad array of conceptual frameworks, thought processes, and learning experiences. It is important to understand that each question type represents a way of thinking which provides access to different visions which in turn may contribute to more elegant, more richly constructed comprehensions. However, it should be the goal of instruction to move students from lower level thinking to higher order thinking. This is how students come to make use of their knowledge and ideas. When questioning and thinking remain at the literal level or memory level the students' knowledge is similar to the information in an encyclopedia stored on some dusty shelf.

Multiprocess Questioning

Literal-level questions are those which asked for factual information. They typically require only rote recall and the student needs only short-term knowledge of fragments of specific content to successfully respond. Answers to literal-level questions are typically found in the text. They require students to recite what has already been stated.

It is often thought that students who struggle the most in school would enjoy memory or literal-level questioning most. However, some

Figure 1 Critical Inquiry

Translation
+
Interpretation
Changing information into
new forms
+
discovering relationships
among ideas, facts,
values

Memory
(Literal Level)
Recognition & recall
of information

Application
Issue identification,
problem solving,
generalizing

Critical Inquiry

Evaluation
Forming judgments,
opinions according
to application of values
to understinding

Analysis
Examining subparts in light
of general understandings
and awareness of
thinking process

Synthesis
Reconstructing in unique
or original forms, creating
new scenarios, conditions
outcomes

researchers have found that since answers to these questions are either correct or incorrect, many struggling students find these to be the most challenging and threatening questions.

Translation questions require the responding student to change information into a different form. A translation question asks students, for example, to picture in their minds the situation, scene, or event they are learning about and describe what they see. Translation questions en-

courage students to restructure or transform information into differing images. Students responding to translation questions must discuss the image they envision or the sounds they hear while reading. They have to create a sensory experience and then use language to inform others about their vision. It is an active, creative process of engagement.

Interpretation questions ask students to discover connections between ideas, facts, definitions, or values. Students must think about how ideas or concepts go together meaningfully. They must understand connections between ideas and build various contexts in which ideas can fit. Interpretation questions can include Why do you think the main character waited until her father came home? or What do you think was the reason that the tragic event happened now? This kind of questioning begins to stimulate speculative thinking. Sanders considers interpretation questions to be core questions in higher level thinking and many (Vaughn & Estes, 1985) suggest that comprehension is truly interpretation.

Connecting ideas and building context.

Application questions offer students the opportunity to solve problems or further investigate problems of logic or reason encountered in their reading or learning experiences. Analysis questions ask whether an event is explained adequately or if other responses or circumstances explain things more reasonably. A student might be asked about a character's motives in a story or about an experimenter's research plan, or question the reasonableness of the story's conclusion.

Synthesis questions encourage creative problem solving using original thinking. While application questions ask students to solve problems based on available information, synthesis questions allow students the opportunity to bring the full range of their knowledge and experiences to a problem to solve it creatively. Synthesis questions ask students to create alternative scenarios, for example, What do you think these two characters might have done to avoid suspicion? or What is another way to look at these circumstances that would avoid the problems we now have?

Evaluation questions ask students to make judgments about good and bad or right and wrong according to standards the student defines. Evaluation questions ask that the student comprehend what has been encountered and integrate it into a personal belief system from which judgments can be made. This involves complex integration and comprehension which makes the learning process personal and enables the learner to take ownership of the new ideas and concepts. Evaluation questions ask students to judge the quality of information they have

learned or, in some cases their own behaviors, in light of new information: For example, why don't they brush their teeth before bed in light of what they have just learned about tooth decay? They may be asked to judge the behavior of a character in a story; was the character right or wrong to behave in a particular way? Was a character fair or unfair to other characters in the story?

What is important to recognize is what happens as questioning expands beyond basic memory or literal-level questioning. What you will

Engagement in the construction of meaningful ideas.

see is that students begin to engage in the active construction of meaningful ideas. They develop these constructions using their own words and expressions based upon their unique learning histories. The dialog that develops out of these questions further exposes students to a broad range of ideas through the opinions of their fellow students. This in turn broadens the vocabulary of the entire class and expands their conceptual framework and their own capacity to articulate new and creative ideas.

By moving beyond literal-level questioning, teachers demonstrate that they value student thinking. Students become aware that learning factual information is only one kind of learning and that they must integrate, analyze, and utilize knowledge purposefully to make it valuable.

Students also come to understand that knowledge is not simply what

Varied questioning is important for all ages and grades.

is on the printed page or in the teachers' words. They learn that what is in their mind is valuable knowledge. They come to understand that knowledge is the construction of meaning the learner has created from the integration of new ideas and concepts into their previously held knowledge.

What is also important to recognize is that children of all ages can engage in questioning across all of Sanders's dimensions. Many teachers might think that such questioning is only appropriate for the oldest or most sophisticated students. This is not the case. These questions do not represent a developmental sequence. It is only the responses of children that reflect developmental characteristics. Kindergarten children can and will respond to each type of question described. Their responses will differ in terms of sophistication but each, at their own developmental level, is capable of generating appropriate responses to each type of question. In fact, children of all ages ask these types of questions of each other routinely in social settings. They are eager to

ask and respond to them, but simply are not given enough opportunity to do so in the classroom.

A Four-Part Model of Comprehension

Sanders's revision of Bloom's taxonomy offers one way of thinking about questioning and thinking. There are, however, many models which help us think about thinking processes. Another model proposes that we consider four types of comprehension occurring as we are exposed to new content.

Global comprehension is a form of general comprehension which provides us with general understandings about a topic or content area.

Interpretative comprehension is similar to Bloom's interpretive level. This type of comprehension occurs when the learner is able to discuss implications; discover relationships; and connect ideas or information from different, perhaps superficially, unrelated areas of the content.

Personal comprehension describes a process of understanding linking understandings of new knowledge with the personal experiences and frameworks of knowledge the learner has already constructed.

Critical comprehension enables the learner to step away from the content; to analyze it; and to consider its relative value, correctness, utility, and significance in light of what the learner already knows, believes, and understands.

It is possible to ask questions which guide learners toward these types of understanding. The four types certainly vary in their level of sophistication and complexity from general to critical, but each type requires the learner to act on the newly received knowledge, to place the knowledge within a meaningful context and to do so thoughtfully.

Students must see their learning as a continuous flow of ideas, information, and experiences. Learning never occurs as an isolated act. It is always embedded within the life experience and learning history of the student. Therefore we must ask questions of our students that facilitate connections between what they are learning and what they already know, understand, believe, and feel. What this means is that we must think, not just about a specific lesson on content, but about the array of meanings our students have constructed out of their learning histories. When we present content, such as a powerful story like the one in this guidebook, we must certainly help students to look within the story to build connections and understandings. We also must help them build

connections outside the story by encouraging them to compare and contrast this learning experience or this text with others they have encountered. We must ask them to look at the themes in the story and relate them to similar themes in other stories or in their own lives and ask them how these previous experiences influence their present thinking.

Discussion as a Learning Tool

Several teaching principles are important to note in the process of understanding the sample lesson. First, one of the primary types of thinking being encouraged in the example is prediction. Throughout the story you were asked to consider what you thought would happen next. The phenomenon of prediction is a powerful factor affecting critical thinking and comprehension. Prediction increases interest and forces the learner to examine what is already known and not known, raising existing knowledge to an awareness level for the reader. The process of prediction helps to set a learner's purpose for reading and thinking. The process of setting purpose has been directly linked to comprehension. Setting purpose, having one's questions answered is, according to some researchers, the very definition of comprehension (Steele & Steele, 1991). Thus, prediction or hypothesizing is an essential factor in raising levels of comprehension. It is important to note that it does not matter if the predictions are correct. It only matters that one engages in predictions, beginning the process of searching for answers, agreements, or rebuttal of tentatively offered hypotheses.

The second principle for directing learning experiences toward higher level thinking in the manner described here is that there must be a coherent plan to guide student thinking. It is important, especially when teachers are just beginning, to develop a plan for working through a text or learning experience which will allow students to engage in various thought processes. However, the plan should be used only as a guide; teachers also should respond to the flow of classroom discussion, altering questions when necessary according to students responses. When we read a story with children we follow the basic plan but let the children's ideas lead us to a discussion of particular points of interest to them. Generally, the discussion will cause the teacher to ask more questions than planned. However, it is important to remember to focus on questions such as, What do you think is going to

Plans should be applied flexibly to respond to student initiatives.

happen next? What do you think about...? How do you feel about a particular character or action in the story? What would you do next? or What do you think about what your classmate has shared? Keep the questions open ended.

One additional important point about questioning: Since teachers initiate the questioning process students tend to respond to the teacher directly. They look at the teacher, and they listen intently to the teacher, listening less well to classmates. If we are to have a dialogue in the classroom then we will have to change this interaction pattern. Teachers engage in several behaviors which support this pattern. Changing these teacher behaviors will help alter this classroom interaction pattern.

The first and most important teacher behavior to change is that of classroom commentator. When students speak teachers typically believe they must respond. What emerges is a predictable conversation pattern:

> First the teacher speaks, then student A, then the teacher, then student B, teacher, student C, teacher, student D, teacher.

As long as the teacher engages in this response pattern students will never speak to each other. Each student will be having a one-on-one discussion with the teacher. What is more effective is for the teacher to moderate and guide the discussion among the students. So student A speaks, then student B, then C. The teacher can interject of course but as one party to the discourse, rather than the central figure.

The second behavior teachers engage in which sustains the teacher-centered interaction pattern is the instant evaluator role. This is exhibited when each time a student speaks the teacher passes judgment on the student comment. It is not uncommon to hear teachers responding with such phrases as "Yes, that's right" or "No, that's not right." What teachers can say instead include such comments as "Who else has something to share?" or "What do others think about this?" The goal is to remove the overriding evaluative context to free students to express their ideas.

It is also important when planning to identify where in the story to stop and ask questions. While the stops should occur naturally, it takes practice to identify these points. It is not as easy as it looks and care should be given to selecting stopping points that will allow students to reflect on the text and make predictions about the future.

Wait Time

An important issue to consider when engaged in student questioning is the issue of "wait time." Wait time refers to the time teachers wait after asking a question before they intercede by asking another question, moving on to another student, or answering the question rhetorically. There is considerable research on this topic which will not be reviewed here (Steele & Meredith, 1991). However, this research suggests there is a direct relationship between the amount of time teachers wait after asking a question and the level of students' thinking. Teachers usually wait an average of only one second or less. This research indicates that if teachers increase wait time to three seconds, levels of thinking increase significantly and the number of students responding increases as well. It is therefore crucial for teachers to refine their questioning behavior to include adequate wait time for students' responses. It is only common sense that if thought-provoking questions are being asked, students will need time to think.

Finally, when teachers engage in multiprocess questioning, it is important to encourage all students to participate. To accomplish this, teachers must call on the less outgoing students by name and sometimes overlook the students who feel they must answer every question. Many students do not respond freely to classroom questioning because it is typically evaluative (testing questions with only right or wrong answers) rather than part of a discourse. When teachers move away from constantly engaging in evaluative questioning and move toward questioning for critical thinking and learning, students will more freely engage in open discussion. As students become accustomed to a true discussion, where all ideas are respected and considered important and where there is not only one right answer, they will be eager to express their thoughts and hear the ideas of others. When students are at this level of classroom interaction, guiding discussion to include all members becomes easier for the teacher and more natural for students.

> **Students need time to respond thoroughly.**

Outcomes of Using the ERR Framework

The ERR Framework is an excellent means of guiding students at all grade levels through narrative and expository text. In fact, the more complex the text the more helpful is the process. Questions which are open

ended but guide student reading can give structure to complicated material by providing a framework within which they can construct meaning. Yet, by being open ended, the structure does not inhibit critical analysis as it invites prediction and open speculation. Guiding reading and learning using the ERR Framework accomplishes several important instructional tasks. The framework

- allows students to clearly set purposes,
- maintains active engagement,
- provokes rich discussion,
- encourages students to create and ask their own questions,
- facilitates students' expression of their own opinions,
- maintains students' motivation to read,
- provides an atmosphere where opinions are respected,
- allows students to develop empathy for characters,
- creates a setting for reflection on what students value,
- serves as stimulation for change,
- sets expectations for students' critical engagement, and
- facilitates critical thinking at sophisticated levels.

PART IV IMPLEMENTATION

Asking Stimulating Questions

It takes time and practice to divide text successfully and ask the kinds of questions that will guide students through the text. The multi-level questions presented in the previous section are intended to model possible types of questions and to understand the type of thinking they elicit. When teachers prepare their own questions it is not necessary to use all types of questions. In fact, rather than attempting to create a series of questions which include all types, it is much better to let the natural flow of the text itself and the purpose for reading the text determine the most appropriate questions, remembering always to limit literal-level questions.

Materials must be carefully selected.

The next step in this process is to have participants bring copies of the materials they use in class. It is from this material that they must work. It may be a struggle for teachers working with their materials, especially if they are restricted to basic state-mandated readers. It is informative, however, to examine the available materials under the light of higher level questioning as it can serve to illuminate shortcomings in the types of materials to which students are exposed. In some cases the materials available will work fine. In other cases supplemental materials are allowed within the curriculum and can serve the purposes of critical inquiry within text more successfully. Whatever the case, it is important for participants to begin the process of examining their own materials and developing their own questions.

Implementation should be planned in small groups.

First-time participants should dissect a text and develop questions in small groups with materials they will be able to use almost immediately in their classrooms. The small groups should thus be selected by instructional level or content area. It is important to allow time for the groups to examine possible stories as the first implementation is always the most difficult. They should be sure they have chosen reading material they believe will support the activity.

Once reading material is selected they should discuss a number of issues before starting to dissect the text. Of course they should read and understand the story themselves first. When that is done they should ask themselves the following questions:

- Why do I want my students to read this material?
- What do I hope my students will understand when they are finished with the text?

- What do I want my students to do when they have finished reading the text?
- What, if any, are the big issues or questions posed by the text?
- What experiences do I want my students to have and share as they read?

Answering these questions will guide many of the questions asked in the text. As the small groups move from these questions to dividing the text and writing their own questions there are a few things to keep in mind:

- There are no right or wrong dividing points. Try to find the point in the story that will build interest.

- Nothing is fixed after dividing the text. If it becomes obvious with use that other places would work better, then redivide the text.

- No questions are right or wrong.

- Look at the question types in this guidebook and remember the importance of asking a variety of types.

- Let the framework guide the process so students will be continuously engaged in evoking, anticipating, understanding, constructing meaning, and reflecting.

- Do not subdivide the text into too many parts. It is important to keep the flow of the text.

- Do not ask too many questions and thus break the continuity of the text.

This process can take some time and some serious negotiations within the small groups. After the small groups are done, each group should share the basics of their story, why they subdivided as they did, and what questions they will ask to guide the reading. Participants should then set specific dates for trial implementation and determine when follow-up meetings will take place for reporting back on how the process went.

Schedule implementation and follow up.

Caution teachers that it is usually wise to anticipate some initial reluctance from students when this type of questioning is first introduced. Students will be hesitant to respond so personally for fear it is not truly what the teacher wants or because they are not accustomed to this type of questioning, and are unsure how to respond. Therefore, it should be tried often to convince students that their thoughts are important and eagerly sought.

Classroom Example

Sometimes teachers, after learning about the importance of asking higher level questions to promote higher level thinking, say they would like to incorporate higher level questions in their teaching techniques but they need more concrete examples. The following example is included to demonstrate one way higher level questioning can be incorporated into the reading of a children's story. The Slovak story, entitled "Prvák" by Maria Durickova, is about a first-grade boy with a problem being able to attend school. In this example the story is presented in sections as it should be presented to children. After each section is read, a discussion of the reading is conducted. The teacher guides the discussion by asking questions which require students to reflect on what they have read and to make predictions about what will happen next in the story:

Please read the example story, stopping at each suggested stopping point to ask the questions. As you read, take time to reflect, make predictions, and enjoy the story and the process. When we have finished the story we will discuss the process in more detail.

Have you ever had to go to a new school? What were your feelings about that? How did it go? This story is about a special problem in going to school.

As you read to the first stop try to see what the special problem is.

First Grader

Once upon a time at the beginning of new school year a father came to school and he directed his steps straight to principal's office.

"Would you enroll my son at the first grade? I had applied for that to six schools but they didn't accept him."

"What was a reason they would not accept him? What happened?" asked the principal.

__What do you think is the reason the boy cannot be enrolled in school? What is the problem?__

__What do you think the story is about? What will be the problem in this story? Why do you think that?__

__Now read to the next section to see what is the problem.__

"Well, my son is too big and he can't sit in the class."

"So may he sit in a corridor?"

"He doesn't fit into a corridor," father said.

"Then we'll put him in a gym."

"But he doesn't fit in gym," father said sadly.

"So I'm sorry, dear father, but we also can't accept your son," the principal said.

"I can understand your reasons but please try to understand also mine," defended father. "My Pavko, you know, is a schoolchild and he has to go to school. Besides that I can't permit him to be uneducated. And I have no money for a penalty."

<center>**Stop**</center>

__Well, now what do you think? Were you surprised? How do you think Pavko feels? How about his father? What do you think about his feelings?__

__What do you think will happen next? Will the director allow Pavko to enroll in school? If so, how will they solve his problem? Where will he be in school?__

__Now read the next section to see what happens.__

At last they agreed to enroll Pavko to school. He'll sit in the schoolyard and look in at the class through the windows to see all the lessons. When winter comes Pavko will sit in the schoolyard again. He'll wear a fur coat with the headphones on his ears because the windows will be, of course, closed. And to write and draw—it'll be easy. Pavko will put a blackboard on his knees.

The next morning Pavko came to school. Staying in the schoolyard he perplexedly shuffled in his huge shoes and his head went up as high as the chimney. Children run into the classroom when they saw Pavko and they looked out of the windows. Pavko Debnarik looked into the windows. He wanted to know which class was his. But otherwise it was quiet there. The astonished children gaped at him. And Pavko? He just stared back at them.

<center>**Stop**</center>

Well now, what do you think about the solution for Pavko's attending school? Will it work? Why or why not? What do you think the other children in school will think about Pavko? How would you feel if you were a student and a giant was outside your window? How do you think Pavko feels? How would you feel if you were Pavko?

As you read the next section notice what happens with one of the other children.

Suddenly a girl's voice rang out of the first floor window:

"Are you from the first grade?"

"Me?" Pavko asked and stooped a little to see who is speaking to him. "Yes, I am," he nodded and smiled at that daring little girl. She was round faced and had a little jolly nose and dark hair.

"I'm a first grader too and my name is Betka," the girl said. "My father read a fairy story for me yesterday. It was about a good giant. Are you also a good giant?"

Pavko Debnarik nodded again but he realized that wasn't any proof. He did a bit of hard thinking. Betka could see a flash of thought in his big eyes.

Stop

Now what do you think? What will Pavko do? Do you think he is a good giant or a bad one? If he is a good giant, how will he prove it?

Now, what do you think will happen next? What will Pavko do? Will Betka be afraid of him? What about the other children?

Now read the story to the end to see how it all works out.

Then he stretched his hand up so he reached the forest. When he put it back there was a squirrel on his open hand. He carried it to window and passed it to Betka.

"A squirrel! It's beautiful!" the little girl shouted. "Would you pick up a cone for it?"

Pavko Debnarik stretched up his hand again. He reached a top a fir tree, and when he put hand down it was full of cones.

The other children were enthusiastic. The fear ran away, it vanished, for they already knew, that Pavko, though a giant, would not hurt even a squirrel.

Then children were playing every break. When they played golden gate, Pavko was a gate. When they played soccer, he was the goalkeeper. It was easy for him! He stretched up just one hand to cover up a half of a goal. And he stretched another hand and covered it all. He was only sorry he couldn't play hide and seek. Everybody could see him everywhere. Then the children stopped to play hide and seek because it wasn't interesting to play without Pavko Debnarik. All children wanted to be his friend. But his dearest friend

was—you know. Round-faced Betka with little jolly nose and dark hair. That little girl who first spoke to him.

We have to add: Pavko Debnarik was a good student and every day he got a bee to his exercise book. (A bee in Slovak schools is like a happy face in U.S. schools.)

So, what do you think now? How do think Pavko and the other children feel now? What about Pavko's father? How does he feel?

Pavko was very different from the other children. How do you think he felt being so different? Have you ever been in a situation where you were different or felt different from the others? How did you feel? What do you think now about the story? What was the main issue? Is there a lesson in the story? What do you think it is? Why do you think that?

A note to share with participants. Maria Durickova, the author of the short story "Prvák," is one of the most famous children's book authors in Slovakia. She wrote many of her stories in the 1960s. She was also chief editor of a very popular Slovak children's magazine. Her writing in Slovakia is considered a major contribution to Slovak classical children's literature. She lives today in her native Slovakia and continues to meet and talk with young students.

PART V FRAMEWORK STRATEGIES

Framework Strategies

The framework for teaching and learning presented throughout these courses provides a mechanism for organizing instruction. It provides a way of thinking about instruction. That enables the teacher, among other things, to systematically

- organize instruction,
- identify purposes and goals of instruction,
- plan supporting activities,
- purposefully engage students in the process of learning,
- build linkages between curricular content, and
- engage students in an ongoing discourse enabling the teacher to constantly monitor students' comprehension.

Once the framework becomes an automatic process, an array of teaching strategies can be implemented at the various stages altering instruction to meet specific demands of the content or to satisfy specific purposes. This section describes some alternative strategies which can be implemented within the context of the framework. The strategies are described in detail with implementation recommendations and identification of the proper framework stage for implementation. Those described here are particularly useful for working with both expository text and narrative text and involve the use of writing to think and learn. The following section includes a discussion of what is meant by writing to learn followed by a discussion of three writing-to-learn strategies: clustering, cinquains, and cubing. The section concludes with some general writing-to-learn strategies that can be used in content classrooms.

> **The framework provides a rationale for application of numerous teaching strategies.**

Writing is a powerful tool for developing and enhancing critical thinking. However, the power of writing for critical thinking has often been overlooked because of the way writing has been taught and used in schools. The focus on writing instruction has been on the final product of writing rather than the process. Often writing assignments have been isolated from the curriculum, with teachers giving writing assignments which have little meaningful connection to what students were studying.

A major premise of our work is that to think critically students must have something interesting and important to think about. Therefore, we suggest that critical thinking must be an integral part of an integrated curriculum which engages students in the learning process. Writing is a powerful tool for thinking critically, however, teachers must create classroom environments and a learning atmosphere which allows freedom for critical thinking and writing. In RWCT courses we focus on how to create that atmosphere and on specific strategies that can be used in a variety of content areas, all meant to be an integral part of students daily classroom experiences.

Critical literacy through writing is an extremely effective tool for enhancing the cognitive activities of thinking, reasoning, and problem solving, as well as the processes of reflection and creation. The specific writing and thinking strategies presented here are meant to be used within a context of meaningful learning situations.

The power of writing as a tool for critical thinking is often overlooked because of the overemphasis on writing to evaluate one's learning as in tests, or writing as an exercise to demonstrate one's ability to write, as in writing a paper on an assigned topic. Often the topic is assigned with little concern for whether or not an individual student has any interest in or knowledge of the topic. In addition, the audience for such writing is usually the teacher, who reads the paper as an evaluator of the mechanics of writing rather than as one who is interested in the content the author wishes to convey. Often the paper is returned to the student weeks later marked only with corrections and a grade. The author receives little meaningful feedback and experiences the task as an exercise rather than as a means of conveying ideas. Writing of this type has disassociated writers to the task of writing leaving them with little desire to write.

Teachers who wish to use writing as a tool for thinking must recognize the negative attitude many students have toward writing and demonstrate through their words and actions a different view. Some basic understandings are necessary as guides to using writing effectively as a tool for thinking. First, it is essential to understand what writing is. James Moffett speaks of writing as "someone talking to someone about something." In this conception of writing the person writing is writing about something they have chosen to write about to an audience which is interested in what the author has to say. When teachers' conceptions of writing change to understand writing in this way, students are allowed

to select their own topics for writing and real audiences for student writing are provided.

Moffett (1968) provides a schema depicting the major elements in his conception of writing.

Writer

Audience

Subject
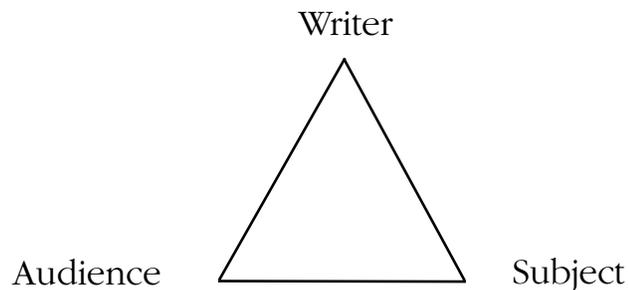
As discussed above and demonstrated in this schema, effective writers write about what they wish to an interested audience. Often the audience in a classroom setting is other students in the class or writing group. Sometimes the audience may be a single individual as in the writing of a letter. Other times the audience may be a general population group as in writing a short story for the school magazine or newspaper. But always the elements of writer, subject, and audience should be considered in the context of "someone talking to someone about something" as teachers plan writing experiences and organize their classrooms for writing. From such classrooms come students who understand the power of writing.

Writing for Oneself

In the case of writing for thinking, the audience is oneself. The author writes to understand, to clarify, to remember, to organize, in short, to think about ideas or information. It is this conception of writing, in which writers write for themselves, that is an essential element in facilitating critical thinking.

Specific teaching principles are important in creating classrooms where writing for critical thinking flourishes. First, writing for thinking is not graded. The focus of such writing is on the free flow of ideas. To accomplish this, writers must be allowed to write freely without concern for mechanics of writing such as grammar and spelling. Often, since students are accustomed to writing being evaluated, it takes time for students to believe that their teacher is truly interested in ideas and in helping their students develop writing to think critically.

The second point is that writers must feel free to take risks. They must feel they can express their thinking freely and that their thinking will be respected. Further, they must understand that there is more than one right answer to questions, that their ideas or solutions to problems are just as important as those of anyone else. To establish this environment teachers must create learning situations where open-ended questions are used and where teachers and students alike seek answers and solutions to real learning problems.

Finally, if writing for critical thinking is to occur, learners must be provided with responses to their thinking and should be granted many opportunities to discuss their own responses to reading or learning experiences. When students write about their responses they should be given opportunities to discuss their ideas with their fellow learners.

Clustering

Clustering is a teaching strategy which encourages students to think freely and openly about a topic. It entails only enough structure to stimulate thinking about the connections between ideas. It is a nonlinear form of thinking more closely associated with how our minds work.

Clustering can be used in both the evocation stage and the reflection stage. It can be used to stimulate thinking before a topic is more thoroughly studied. It can also be used as a means of summarizing what has been studied, as a way of building new associations, or as a way of graphically representing new understandings. It is a writing activity which can serve as a powerful tool for introducing the writing process, especially to reluctant writers. Mostly it is a strategy for gaining access to one's own knowledge, understandings, or beliefs about a topic. Because it is a writing activity, it also serves to inform the writer of knowledge and connections the writer may not have been aware of holding at a conscious level.

> **Clustering is a nonlinear brainstorming method that should be planned in small groups.**

To introduce clustering it is important to do 5 things:

1. Describe the activity and present the steps for clustering.
2. Pick a topic of interest for participants and model the process as a group process.

3. Pick a second topic of interest to the group and allow time for individuals to do a cluster on the topic.
4. Allow time for four or five participants to share their clusters with the group.
5. Discuss in grade-level or content-specific pairs how participants would use the cluster in class tomorrow. Then discuss as a group and review with the group the stages of the framework and how clustering can be used.

The steps for clustering are simple and easy to remember:
1. Write a nucleus word or phrase in the center of a piece of paper, overhead transparency, chalkboard, or other writing surface.
2. Begin to write down words or phrases that come to mind on the selected topic.
3. As the ideas come to mind and are written down, begin to draw connections between ideas that seem appropriate.
4. Write as many ideas as come to mind until either time is up or all thoughts are exhausted.

There are just a few basic rules to follow when using clustering:
- Write everything that comes to mind. Make no judgments about the thoughts, just put them down.
- Do not be concerned about spelling or other writing constraints.
- Do not stop writing until enough time has elapsed to get all ideas out. If ideas stop flowing for a time, then doodle on the paper until new ideas come.
- Let as many connections build as possible. Do not restrict the amount of ideas or the flow and connections.
- When introducing clustering for the initial group cluster, select a topic that the entire group can relate to. For demonstration purposes it can be a topic such as their country, the year 2000, gardening, or something generic. The sample in Figure 2 is a cluster done by a group on Slovakia.

After the group has clustered and experienced it firsthand they are ready to cluster individually. This is an important next step as it is through this that they can see the power and value of the process. The

Figure 2 Sample Cluster

topic is important here, as it will need to be something familiar so they will have enough information for a full cluster.

One topic that is usually successful is to have each person cluster on a loved one. They could choose to cluster on their spouse, a parent, sibling, or friend. They could also cluster on their pet if they have one. Recite the steps and rules again. Allow them 5 to 7 minutes and tell them to begin.

While the group is clustering the presenters should cluster as well. This models two important things. First, it shows that you take the process and assignment seriously. Second, it models for them the teacher's role in the classroom. If the teacher is also clustering then students see that it is an activity which is considered important. It also prevents students from interrupting to ask questions that disrupt the thinking of others.

After the participants have completed the exercise, have several share their cluster with the group or have them share in pairs. When this is done speak about the uses for clustering and have participants discuss how they will use clustering in their classroom tomorrow or as soon as possible.

As Steele and Steele (1991) have described, clustering is a flexible strategy. It may be done individually or as a group activity. As a group activity, it can serve as a framework for the group's ideas, which provides students with exposure to the associations and relationships other students draw from the prompt. Whether done in groups or individually, it is important to remember the three rules: a) never stop writing during the specified time, b) do not make judgments about what you are thinking, and c) do not be concerned with spelling. We have found individual clustering to be a nice break from group brainstorming since it is quick and permits all students, not just the ones who always put their hands up first, to engage actively in the thinking process. Experience has taught us, however, that when clustering individually the topic should be one students know a fair amount about since they will not have the shared experience of the group from which to draw information. After completion, individual clusters can be shared in pairs or with the entire group.

There are only basic rules for clustering.

Cinquains

The capacity to summarize information, to capture complex thoughts, feelings, and beliefs in a few words is an important skill. It requires thoughtful reflection based on rich understandings. A cinquain is a poem which requires the synthesis of information and materials into concise expressions which describe or reflect on the topic.

A cinquain is a five-line poem.

Cinquain comes from the French word for five, and a cinquain is a five-line poem. When introducing cinquains, first present

the guidelines for writing the poem. Then offer some samples (a few are provided later in this section). Then have the group write cinquains.

Cinquains can be difficult for some people when they first begin, so an effective means of introducing them is to have the group divided into pairs. Give a topic for the cinquain. Each person will have 5 to 7 minutes to write their cinquain. Then they will turn to their partner and the two will take from each cinquain to write a single cinquain they both agree on. This prompts conversation about why they wrote what they did, allowing for further reflection and critical review of the topic. It also requires listening to others and pulling from the work of others ideas they both can relate to and agree with. These paired cinquains can then be shared with the group. If transparencies and an overhead are available it is often useful to have the paired cinquain written on the overhead and presented by the pair to the group. This can engender further discussion.

The guidelines for writing a cinquain are as follows:

1. The first line is a one-word description of the topic (usually a noun).

2. The second line is a two word description of the topic (two adjectives).

3. Line three is three words expressing action of the topic (usually three *ing* words).

4. The fourth line is a four word phrase showing feeling for the topic.

5. The last line is a one word synonym that restates the essence of the topic.

Sample cinquains:

Volcanoes	Teaching
Red Hot	Complex, tough
Erupting from within	Challenging, invigorating, rewarding
Nature's furnace of fire	Tying new to known
Inferno	Educating

Reading
Fluid, active
Participating, sharing, learning
Glow in the dark
Illuminating

How to write a cinquatin using fill in the blanks:

Title (usually a noun) _____

Describe (usually adjective) _____ _____

Action (usually *ing* words) _____ _____ _____

Feeling (phrase) _____ _____ _____ _____

Restatement of essence _____

After the groups have presented their cinquains, have them discuss in pairs how they will use this in their classrooms, emphasizing that cinquains are excellent for and serve well as a tool for synthesizing complex information, a means of evaluating student understanding, and a means for creative expression. Cinquains are quick yet powerful tool for reflecting, synthesizing, and summarizing concepts and information.

Cubing

Cubing (Cowan & Cowan, 1980) is a teaching strategy which facilitates looking at a topic from varying perspectives. It involves the use of a cube with different prompts for thinking and writing on each side of the cube. The cube can be made by covering a small box, preferably 15 to 20 centimeters on a side, with paper. Write one of the following six prompts on each side of the cube: Describe It, Compare It, Associate It, Analyze It, Apply It, and Argue For or Against It.

Teachers lead students through the process of cubing by having students freewrite for a brief period (2 to 4 minutes) on a given topic. Give the topic first. Then direct students to think of the topic and Describe It, that is, look at the subject closely and describe what they see, including colors, shapes, or signs. With the directions in mind students freewrite for the specified period of time on the topic. The process continues as above through all six sides of the cube. The directions for the six sides are

Describe It. Look at the subject closely (perhaps only in your mind) and describe what you see, including colors, shapes, or sizes.
Compare It. What is it similar to? What is it different from?

Associate It. What does it make you think of? What comes into your mind? It can be similar things or different things, places, or people. Just let your mind go and see what associations you have for this subject.

Analyze It. Tell how it is made. You don't have to know; you can make it up.

Apply it. How can it be used?

Argue For Or Against It. Go ahead and take a stand. Use any kind of reasons you want—logical, silly, or anywhere in between.

Following the writing period, students share their responses to each side of the cube. Often this sharing is done first with a partner. Each person selects three sides of the cube to share and read their writing to their partner.

There are no set rules of how this sharing must go but we have found it worked extremely well to share as follows.

After one partner read, the other responded giving praise or *p*'s and questions or *q*'s. We stressed responding to specific thoughts and that students not just say for example, "that was good" but say specifically what they liked and why they liked it. Questions were modeled such as "I liked the way you described your vision, I did not think of it looking like that," or "I did not understand …," or "I would like to know more about this."

Finally, the whole group went through each of the perspectives. We asked for volunteers to read their writing to the whole group. Usually one partner volunteered the other partner, saying, "read yours, it was good." Even though we have used this technique many times with teachers and students the quality and diversity of ideas and thoughts from this process always surprises us.

Debriefing About Cubing

What follows are some quotes and comments from the participants as we debriefed about cubing. We had one of the interpreters take notes and one of us took notes as well. We present it here as an example of the richness of the debriefings with the group.

In response to the question, "How did you respond to the strategy?"

- It is a difficult, marvelous technique, demanding, you get a feeling that you have said everything but you can always say more.
- A very strong method, it woke me up. I was amazed with the all the different views we had.
- I was stunned by it, after I finished I had a feeling of "clozeness," I got it all out of me.
- I surprised myself with all the ideas, I am a math teacher and I learned I can think in many different ways not only as a mathematician.
- I heard such a variety of ideas, seeing how the brain works, I know the method opens the brain.
- The genius moment was the sharing and praising, the child will overcome the fear to read first reading with partner, then can have the joy of reading it.
- Expressing the ideas and having such rich ideas really supports one's positive self-concept.
- Responding as we did managed to create a good atmosphere. It's very different if you say, "I am sorry, I did not quite understand, could you explain?"
- When we had to praise, we also had to listen carefully, which was good.

When we turned to look at the method from a pedagogical point of view the following questions arose:

How can you explain to children the difficult words like *Apply*?

With small children you use different words, for example:

- What does it look like? for Describe It.
- What is it similar to and different from? for Compare It.
- What does it make you think of? for Associate It.
- What is it made of? for Analyze It.
- How could you use it? for Apply It.
- Is it good or bad? Why? for Argue For or Against It.

Do you have to go through all six sides with small children?

No, often three sides are enough with small children, but it depends upon the topic and the group.

Do you have to do the sides of the cube in the order, or can you just roll the cube?

When you do these perspectives it is good to do them in this order which moves from less to more complex thinking. The thinking that takes place in the process of cubing follows closely the thinking in Bloom's taxonomy. However, sometimes you may use different perspectives where the order does not matter. For example, we have used cubing after reading a play and the sides of the cube were characters from the play. In this example, the play students read was about a teenager who became pregnant. Sides of the cube were the young girl, the boy, the mother, the friend, the father, and the teacher. The sides of the cube can be changed as you wish depending upon the perspectives you wish to have your students consider.

To which stage(s) of the framework does it apply?

After discussion we agreed that is can be used well at either the evocation or the reflection stage. We discussed the importance of cubing on something that you know about, so you should pick topics carefully. We gave the example we have used in a science class where we used cubing in evocation and reflection. The topic was photosynthesis. To introduce the unit the teacher asked each student to bring a green leaf with them to school the next day. They cubed on that leaf in the evocation stage. After learning about photosynthesis they cubed on photosynthesis. This example helped them to understand the need to pick the topic carefully when using cubing in the evocation stage. The topic must be something about which one knows a lot.

How do you control children who try to be the center of attention and often interrupt?

We had a productive discussion about this and shared some ideas. One thing we have found is that the teacher must also write during the cubing activity. First it models the teacher as a writer in the class community of writers and thinkers, but also, it is an excellent management device. If students interrupt during writing the teacher may say, "Not now, please do not interrupt, I am writing." We also discussed talking privately with the child who continues to interrupt, by taking the student outside the class and discussing the need to work differently. We modeled some ways to talk with such students. One of our participants

shared openly that he was the one who was a problem when he was a student and that taking him aside was the only way he was able to stop.

Other Writing-for-Thinking Strategies

Often writing for thinking occurs in content classrooms where students are confronting ideas, working to understand and learn them. For example, to facilitate evaluating and reacting to a lesson, after seeing a presentation, watching a film, or reading or discussing something, teachers can provide writing time, perhaps writing about: "What was most important?" or "What was new in this to me?" or "How did I feel about...?" Student reactions would then be shared and discussed in small groups. Finally the main reactions of each small group would be shared with the whole group.

The following are suggestions for general types of writing that can be done in content classes. Certainly the list which is adapted from Smith (1978) is not exhaustive and it is hoped that other ideas will be sparked from these suggestions.

- At the end of the period, have students write a paragraph describing what they believe to be the most interesting or important idea or concept discussed that day. Tell them at the beginning of the class that they will have this assignment at the end of the class. Do this often, perhaps once or twice a week.
- Following a lesson in which instructions for a procedure have been taught, give students a list of the directions in scrambled order and have them rewrite them in proper sequence. This can be adopted for any material that explains a process in steps.
- Have students listen to a paragraph and write the meaning in their own words. This is good practice for notetaking. If they have difficulty with the activity, have them tell another student first—then write.
- Show students a picture related to the content they are studying and ask them to write an idea suggested by the picture. For example, a picture of an area that has been strip mined after a discussion of the problem of this method of mining for the ecology.
- Have students communicate with each other in writing using a question-answer strategy. First, have each student formulate in writing a question based on the content material being learned.

Collect papers, redistribute them randomly, and have each student answer in writing the question received.

- Have students write their own opinion about something learned in class. Accept all opinions. Students must give at least one reason for their opinion.
- Review a concept learned in class and have students write at least one way the concept can be applied.
- Have students write questions that they would like the teacher to answer at a future time. Give a statement explaining the background the student brings to the information. For example, after studying about sharks a student might write a question asking the teacher if sharks eat people. The background might be that the child had an uncle who went scuba diving and told her that he saw a shark but it just swam by him, so now the student wonders "Do sharks eat people?"

Teachers in all content areas can improve students' subject learning and give them practice in the basic cognitive operations of summarizing, clarifying ideas, examining relationships, seeing errors, and remembering. In addition, basic thinking processes that call upon more than one operation, including inferencing, interpreting, thinking like experts, making multiple comparisons, and forming concepts are enhanced through the use of specific writing techniques such as those discussed above.

There are many other strategies that promote critical thinking, some of which will be included in subsequent guidebooks. Many others are already being implemented by teachers in their classrooms. What is important is to implement these startegies systematically, purposefully, and within a coherent instructional framework. When this is done learning and thinking become a transparent process accessible to all—not mysterious or elusive processes that only the fortunate uncover. In making processes transparent students are learning both content and learning how to learn.

Evaluation of Course: Methods for Promoting Critical Thinking

Date and place:

Questions:

1. What in the course was most valuable to you?

2. What would have made this course more meaningful?

3. What will change in your teaching as a result of this course?

4. What was your overall impression of the course?
1	2	3	4	5
little value				great value

5. Suggest topics you would be interested in discussing in future meetings.

6. Please make any comments you would like on the course.

Planning for Follow Up

Participants will need support and feedback for their implementation efforts. It is important to plan for discussion and feedback sessions between workshop programs. Specific dates for these activities should be identified. Participants should plan when they will implement this program and set a date for reconvening with the group for discussion. They should be prepared to discuss the following questions:

- In general how did the implementation go?
- What were the successes or most successful parts?
- What failures or difficulties were encountered?
- How did students respond?
- How might you do it differently next time?
- How would you gauge the level of student interest in learning?
- How did the lesson feel? Did it feel right or were there times that felt difficult or cumbersome?
- How many times was implementation attempted?

Participants should be encouraged to work in small groups again to share their experience then share with the larger group. Discussion should be encouraged regarding successes and failures and how procedures might be modified to fit local culture, circumstances, or teacher preferences.

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GLOSSARY

Analysis question	A question that invites students to examine sub-parts of a topic in light of general understandings, and with an awareness of the thinking process.
Application question	A question that invites students to solve a problem or generalize an idea to new situation.
Bloom's Taxonomy	Benjamin Bloom and his colleagues developed a taxonomy, or ordered scale, of levels of thinking. This taxonomy is widely used to describe different kinds of questions that proceed from "lower order" to "higher order" thinking. (See Bloom, B.S., Englehart, M.D., Furst, E.J., Hill, W.H., & Krathwohl, D.R., 1977, *Taxonomy of educational objectives: The classification of educational goals: Handbook I: Cognitive domain.* New York: Longman Green).
Cinquain	A five-line unrhymed form poem, used as a device to encourage students to reflect on a topic.
Clustering	Sometimes referred to as cognitive or semantic mapping, clustering is a strategy for displaying the relations between parts of a topic.
Critical thinking	Having ideas that go beyond what was given; seeing new dimensions in a topic; finding and solving problems; also discrimination among ideas, as in argumentative writing or debate.
Critical writing	The use of writing as an aid to reflection and learning.
Cubing	An instructional technique that invites students to ask six different kind of questions about a

topic. The questions correspond to the levels of questions in Bloom's Taxonomy.

Evaluation question   A question that invites students to form judgments or opinions according to the application of some system of values to their understanding of the topic.

Evocation   A phase in a lesson in which students are asked to think about what they already know about a topic, to raise questions about the topic, and to set purposes for learning.

Interpretation question   A question that invites students to discover relations among ideas, facts, and values.

Memory question   A question that invites recognition and recall of information.

Realization of meaning   A phase in a lesson in which students inquire and search for knowledge, and, as a result of their activity construct or, realize meaning.

Reflection   A phase in a lesson in which students look back over the ideas they have encountered and the meaning they have realized, and question, interpret, apply, debate, challenge, and extend that meaning to new areas of endeavor.

Synthesis question   A question that invites students to reconstruct ideas into unique or original forms.

Translation question   A question that invites students to change information into new forms.

APPENDIX

Liam O'Flaherty, born in 1897, certainly may be ranked as one of the outstanding Irish literary figures of modern times. Some of his works, such as *The Assassin* (1928), *Famine* (1937), and *Land* (1946), have been translated into several languages. Collections of his stories best known in the United States are *The Mountain Tavern and Other Stories* (1929), *Spring Sowing* (1924), and *Two Lovely Beasts* (1948). His numerous works include also verse, plays, biographies, a travel sketch based on a trip to Russia, novels, a tourist's guide to Ireland, and two autobiographical accounts, *Two Years* (1930) and *Shame the Devil* (1934). One of his most famous stories is "The Informer" (1925), which in 1935 was made into a movie that has since become a classic. In 1949 a one-act-play version of the story was prepared, and it has been performed with considerable success. The civil war in Ireland that flared during the second decade of this century made a deep impression on O'Flaherty. Many of his best-known writings reflect his experiences during that period of terror and bitterness.

The Sniper

The long June twilight faded into night. Dublin lay enveloped in darkness but for the dim light of the moon that shone through fleecy clouds, casting a pale light as of approaching dawn over the street and the dark waters of the Liffey. Around the beleaguered Four Courts the heavy guns roared. Here and there through the city, machine guns and rifles broke the silence of the night, spasmodically, like dogs barking on lone farms. Republicans and Free Staters were waging civil war.

First stop

On a rooftop near O'Connell Bridge, a Republican sniper lay watching. Beside him lay his rifle and over his shoulders were slung a pair of field glasses. His face was the face of a student, thin and ascetic, but his eyes had the cold gleam of the fanatic. They were deep and thoughtful, the eyes of a man who is used to looking at death.

He was eating a sandwich hungrily. He had eaten nothing since morning. He had been too excited to eat. He finished the sandwich, and, taking a flask of whiskey from his pocket, he took a short draught. Then he returned the flask to his pocket. He paused for a moment, considering whether he should risk a smoke. It was dangerous. The flash might be seen in the darkness, and there were enemies watching. He decided to take the risk.

Placing a cigarette between his lips, he struck a match, inhaled the smoke hurriedly and put out the light. Almost immediately, a bullet flattened itself against the parapet of the roof. The sniper took another whiff and put out the cigarette. Then he swore softly and crawled to the left.

He rolled over the roof to a chimney stack in the rear, and slowly drew himself up behind it, until his eyes were level with the top of the parapet. There was nothing to be seen—just the dim outline of the opposite housetop against the blue sky. His enemy was under cover.

Just then an armored car came across the bridge and advanced slowly up the street. It stopped on the opposite side of the street, fifty yards ahead. The sniper could hear the dull panting of the motor. His heart beat faster. It was an enemy car. He wanted to fire, but he knew it was useless. His bullets would never pierce the steel that covered the gray monster.

Then round the corner of a side street came an old woman, her head covered by a tattered shawl. She began to talk to the man in the turret of the car. She was pointing to the roof where the sniper lay. An informer.

The turret opened. A man's head and shoulders appeared, looking toward the sniper. The sniper raised his rifle and fired. The head fell heavily on the turret wall. The woman darted toward the side street. The sniper fired again. The woman whirled round and fell with a shriek into the gutter.

Suddenly from the opposite roof a shot rang out and the sniper dropped his rifle with a curse. The rifle clattered to the roof. The sniper thought the noise would wake the dead. He stopped to pick the rifle up. He couldn't lift it. His forearm was dead. "I'm hit," he muttered.

Dropping flat onto the roof, he crawled back to the parapet. With his left hand he felt the injured right forearm. The blood was oozing through the sleeve of his coat. There was no pain—just a deadened sensation, as if the arm had been cut off.

Quickly he drew his knife from his pocket, opened it on the breastwork of the parapet, and ripped open the sleeve. There was a small hole where the bullet had entered. On the other side there was no hole. The bullet had lodged in the bone. It must have fractured it. He bent the arm below the wound. The arm bent back easily. He ground his teeth to overcome the pain.

Then taking out his field dressing, he ripped open the packet with his knife. He broke the neck of the iodine bottle and let the bitter fluid drip into the wound. A paroxysm of pain swept through him. He placed

the cotton wadding over the wound and wrapped the dressing over it. He tied the ends with his teeth.

Then he lay still against the parapet, and, closing his eyes, he made an effort of will to overcome the pain

In the street beneath all was still the armored car had retired speedily over the bridge, with the machine gunner's head hanging lifeless over the turret. The woman's corpse lay still in the gutter.

Second stop

The sniper lay still for long time nursing his wounded arm and planning escape. Morning must not find him wounded on the roof. The enemy of the opposite roof covered his escape. He must kill that enemy and he could not use his rifle. He had only a revolver to do it. Then he thought of a plan.

Taking off his cap, he placed it over the muzzle of his rifle. Then he pushed the rifle slowly upward over the parapet, until the cap was visible from the opposite side of the street. Almost immediately there was a report, and a bullet pierced the center of the cap. The sniper slanted the rifle forward. The cap slipped down into the street then catching the rifle in the middle, the sniper dropped his left hand over the roof and let it hang, lifelessly. After a few moments he let the rifle drop to the street. Then he sank to the roof, dragging his hand with him.

Crawling quickly to the left, he peered up at the corner of the roof. His ruse had succeeded. The other sniper, seeing the cap and rifle fall, thought that he had killed his man. He was now standing before a row of chimney pots, looking across, with his head clearly silhouetted against the western sky.

The Republican sniper smiled and lifted his revolver above the edge of the parapet. The distance was about fifty yards—a hard shot in the dim light, and his right arm was paining like a thousand devils. He took a steady aim. His hand trembled with eagerness. Pressing his lips together he took a deep breath through his nostrils and fired. He was almost deafened with the report and his arm shook with the recoil.

Then when the smoke cleared he peered across and uttered a cry of joy. His enemy had been hit. He was reeling over the parapet in his death agony. He struggled to keep his feet, but he was slowly falling forward, as if in a dream. The rifle fell from his grasp, hit the parapet, fell over, bounded off the pole of a barber's shop beneath and then clattered on the pavement.

Then the dying man on the roof crumpled up and fell forward. The body turned over and over in space and hit the ground with a dull thud. Then it lay still.

The sniper looked at his enemy falling and he shuddered. The lust of battle died in him. He became bitten by remorse. The sweat stood out in beads on his forehead. Weakened by his wound and the long summer day of fasting and watching on the roof, he revolted from the sight of the shattered mass of his dead enemy. His teeth chattered, he began to gibber to himself, cursing the war, cursing himself, cursing everybody.

He looked at the smoking revolver in his hand, and with an oath he hurled it to the roof at his feet. The revolver went off with the concussion and the bullet whizzed past the sniper's head. He was frightened back to his senses by the shock. His nerves steadied. The cloud of fear scattered from his mind and he laughed.

Third stop

Taking the whiskey flask from his pocket, he emptied it at a draught. He felt reckless under the influence of the spirit. He decided to leave the roof now and look for his company commander, to report. Everywhere around was quiet. There was not much danger in going through the streets. He picked up his revolver and put it in his pocket. Then he crawled down through the skylight to the house underneath.

When the sniper reached the laneway on the street level, he felt a sudden curiosity as to the identity of the enemy sniper whom he killed. He decided that he was a good shot, whoever he was. He wondered did he know him. Perhaps he had been in his own company before the split of the army. He decided to risk going over to have a look at him. He peered around the corner into O'Connell Street. In the upper part of the street there was heavy firing, but around here all was quiet.

The sniper darted across the street. A machine gun tore up the ground around him with a hail of bullets, but he escaped. He threw himself face downward beside the corpse. The machine gun stopped.

Then the sniper turned over the dead body and looked into his brother's face.