Introduction

The Design of the Book

This Handbook has one basic objective: to demonstrate that it is possible and practical to integrate instruction for critical thinking into the teaching of all subjects. We focus on language arts, social studies, and science, but we believe that the range of sample before and after lessons we provide will prove to any open-minded person that teaching so as to cultivate the critical thinking of students is eminently practical. We also believe that it should be given the highest priority, for it is necessary if we genuinely want our students to be prepared for the real world which awaits them personally, politically, and vocationally.

Of course, to say that it is practical is not to say that it is simple and easy. To teach for critical thinking requires that teachers themselves think critically, and very often teachers have not been encouraged to do so. Furthermore, sometimes they do not feel competent to do so. Every teacher interested in fostering critical thinking must be prepared to undergo an evolutionary process over an extended period of time. Mistakes will be made along the way. Many didactic teaching habits have to be broken down, to be replaced by ones more in line with coaching than lecturing. In any case, there are many dimensions of critical thinking, and one needs to be patient to come to terms with them. Of course, since critical thinking is essential in the life of adults as well as children, teachers will find many uses for their emerging critical thinking abilities in their everyday life outside the classroom: as a consumer, citizen, lover, and person.

We have divided this handbook into two parts: "Putting Critical Thinking into Instruction," and "Achieving the Deeper Understandings." We have put a good deal of the theory of critical thinking instruction in Part Two because most teachers like to get a good look at application before they spend much time on theory. In a way this makes good sense. Why learn a theory if you're not happy with what the theory makes possible? On the other hand, it is sometimes hard to understand and appreciate the application if one is not clear about the theory that underlies it. How
and why are often deeply intertwined. We hope therefore that the reader will feel free to move back and forth between parts one and two, as needed. It would probably be a good idea to thumb through the book as a whole, familiarizing yourself with what’s there, so that when you run into a problem you will be apt to remember sections of the book that are likely to shed light upon it. For example, notice that the glossary of critical thinking terms may be of use if you run across a term in critical thinking whose use and importance is not perfectly clear to you. In fact, reading randomly in the glossary is a good way to stimulate your sense of what critical thinking is.

Each of the chapters makes the transition from a didactic paradigm of education to a critical one a little easier. For example, it is important that we get a clear idea of what education is and is not (chapter 8, “Thinking Critically About Teaching: From Didactic to Critical Teaching”). Too often it has been unwittingly assumed that any kind of learning is educational. We forget that in school we learn bad habits as well as good ones, absorb misconceptions and prejudices as well as truths and insights. Or again, if we want instruction to accentuate and stimulate independent student thought, we need to design the curriculum with this in mind (chapter 9, “Redesigning Curriculum”). We need a clear articulation of critical thinking principles along with their applications (chapter 3, “Strategies”). We need to get a rich sense of the teacher as a questioner, including a variety of questioning strategies (chapter 2, “Global Strategies: Socratic Questioning & Role-Playing”). We need to stimulate students to analyze their personal experiences and relate that analysis to subject matter learning (chapter 2, “Global Strategies: Socratic Questioning & Role-Playing”). We need to provide for the affective life of the student, for feelings, values, and emotions are as essential to education as they are to all human life and activities (the Affective strategies, chapter 3, “Strategies”). We need to get a sense of how different teachers can articulate their own unique understandings of critical thinking while at the same time all capture the essence of the idea (chapter 12, “What Critical Thinking Means to Me: Teachers’ Own Formulations”). We need a host of staff development strategies so that school districts can take advantage of some of the many practical ideas being developed for facilitating staff development in critical thinking (chapters 10 and 11, “Remodelling: A Foundation For Staff Development,” and “The Greensboro Plan: A Sample Staff Development Plan”). Finally, the vocabulary of critical thinking needs to be organized and made available for easy reference (chapter 14, “Glossary: Educators’ Guide to Critical Thinking Terms and Concepts”).

Why Critical Thinking Is Essential to Education

If we consider some of the many complaints of classroom teachers concerning their pupils and then contrast them with what we look for in the ideal student, we will recognize that the fundamental missing element in schooling today is thinking students, or, more precisely, critically thinking students.

Here are some of the many complaints we hear from teachers:

✓ “Most students aren’t motivated; they don’t want to study or work. They look for chances to goof off, clown around, disrupt class. They’d rather talk about music, clothes, cars....”
✓ “Students forget what they’ve learned. We have to keep going over the same points, reminding them of what they’ve learned, rather than building on past learning. Each class begins at square one.”
✓ “Most students are obsessed with grades and don’t care about learning.”
"They’re impatient. They want clear simple answers and they want them fast."
"They make the same mistakes over and over again. They don’t learn to correct their own mistakes."
"They don’t use what they’ve learned."
"They need to be told every little thing. They don’t even try to figure things out. They want us to do all of their thinking for them."
"When I ask if there are questions they don’t have any; but they haven’t understood."
"When assigned position papers, many students just write facts. The rest simply state and repeat their feelings."
"They hate to read. (It’s boring.)"
"They hate to write. (It’s too hard.)"
"Instead of explaining or developing their ideas, they just repeat themselves."
"They can’t seem to stay on topic for long without going off on tangents."

The kind of students teachers would like to have are equally easy to describe:

✓ Students who are motivated to learn, get excited by ideas, don’t need to be reprimanded, pay attention by choice.
✓ Students who remember what they learned yesterday, last month, last year; who don’t have to be reminded over and over again what was covered before.
✓ Students who see grades as a by-product of learning; who put learning on a par with grades.
✓ Students who recognize that they can’t completely understand everything at once, who are willing to delve; who are unsatisfied with pat answers.
✓ Students who learn from their mistakes, correct themselves.
✓ Students who use what they’ve learned.
✓ Students who can and will try to figure things out for themselves and don’t expect me to do all of the thinking.
✓ Students who recognize when they don’t understand something and can ask questions for clarification.
✓ Students who can get beyond the facts and the surface to explore their meaning; students who respond thoughtfully, go beyond knee-jerk reactions and first impressions.
✓ Students who like to read and talk about what they’ve read.
✓ Students who recognize the need to write in order to develop their ideas.
✓ Students who know the difference between explaining themselves and repeating themselves.
✓ Students who can and do stick to the point.

If we look closely at how teaching is typically structured, we will see that at the root of it are conceptions of knowledge, learning, and teaching that unwittingly take the motivation to think away from students. In most of the classes most of the time, teachers are talking and actively engaged, while students are listening passively. Most teacher utterances are statements, not questions. When teachers ask questions, they typically wait only a couple of seconds before they answer their own questions. Knowledge is taken to be equivalent to recall, so that when students can repeat what the teacher or text said, they are thought to have knowledge. Attempt is continually made to reduce the complex to the simple, giving students formulas, procedures, and algorithms to memorize and practice in hopes that understanding will emerge at the same time.
Schoenfeld reports on an experiment in which elementary students were asked questions like this, "There are 26 sheep and 10 goats on a ship. How old is the captain?" 76 of the 97 students "solved" the problem by adding, subtracting, multiplying or dividing. (Schoenfeld, 1989.) They felt they were expected to do so as quickly and "correctly" as possible. They did not feel they were expected to make sense of the problem. Instruction and practice had not emphasized understanding the problem.

Schoenfeld cites many similar cases, including a study that demonstrated that "word problems" in math tend to be approached by students using the key word algorithm, that is, by reading problems like "John had eight apples. He gave three to Mary. How many does John have left?" and looking for the words like 'left' to tell them what operation to perform. As Schoenfeld puts it, "... the situation was so extreme that many students chose to subtract in a problem that began 'Mr. Left ...'" (Schoenfeld, 1982.) Giving students such short cuts as indicator words, though it appears to help by making learning easier, actually interferes with learning in a deeper sense. Students are, in effect, taught that problems can be solved by circling data, and going through steps practiced before ('I'm supposed to do this, then this, then this.'); that they shouldn't slow down and think things through. They have had much more practice going through the steps than they have at thinking things through.

This tendency toward robotic, mindless responses becomes obsessive in many students. Hence, in their minds, history class becomes a place where they hear names, dates, events, and judgments about them, and try to repeat what they have heard on tests. Literature becomes uninteresting stories to remember along with what the teacher said is important about them, such as, foreshadowing.

Consider how students are generally taught factual detail. Students are continually presented with easily retainable facts (for example, foreign countries' main exports), and merely expected to reiterate them. They do not clearly understand why they should remember these facts. The collections of facts become merely sets of words in their heads, with no meaning, significance, or use. However, they can have meaning to students, can become intelligible to students, when they tell students something important, something students make sense of or want to know. If, when trying to understand a country's economic problems, students realize they need to know its chief exports, then that fact isn't just sitting there in the student's head as a bunch of words, it has meaning. It has a place in a broader picture; it has consequences; it helps that student understand that country's problem. It is context, not the mere fact itself, that gives it meaning, that makes it intelligible.

Values and principles tend to be treated as though they were facts. They are stated, and students are expected to reiterate them. This sort of process does not produce understanding. Principles (such as, "Write clearly!" and, "Stick to the point!") have their meaning, their justification, their very life in application, in use. I may know that I'm supposed to stick to the point, but this principle is little more than words to me if I don't know how to stick to the point, if I don't learn how to recognize for myself when I'm focused and when I stray. I can only learn how by practice, by thinking — by trying, sometimes succeeding, sometimes failing, by seeing for myself when I succeeded, when I failed, and by understanding the differences between the successes and failures. Present instructional practices rarely allow this kind of process.

A Critical model of education, then, acts to reverse these patterns at every point. Students are continually asked to think about what they learn, to try to apply their new ideas, to compare their own ideas with what they are presented in school, to practice explaining what they learn and what they think by listening to their peers as they try to understand new ideas.
The underlying assumption in present education is that knowledge consists of bits of information, concepts, and skills which, by being verbally presented to students, enable students to learn and know them. Educators assume that students automatically replace ignorance with knowledge, misconception with truth. We reject this assumption. We suggest it be replaced by the notion that beliefs are interdependent; that individual beliefs make up larger systems of which they are parts; that, in order to learn, students must actively reshape these systems.

One main consequence of this idea is that being told something, however clear the explanation, does not guarantee understanding. If you tell me something that contradicts or is incompatible with my present system of beliefs, I'm unlikely to replace my whole belief system with that new idea. I will often distort what you've said so that it fits my belief system; I may simply "tack it on" to my beliefs, ignoring the incompatibility between old and new, bouncing back and forth between them, sometimes using one, sometimes the other, willy-nilly; or I may simply fail to take it in at all. To really learn the new idea, I have to struggle through the problems the idea creates for me, build a new mental structure or system of beliefs. This process requires me to make my present beliefs explicit (figure out what I really think), and slowly reshape the old system into a new and better body of thought. Hence, to understand the new idea, concept, or principle, I have to think my way through to it, internalize it. I can do so through extended discussion, talking and listening to others as they internalize new knowledge. Consider how this conception of learning works.

When I put things into words, and hear myself, I think again about what I'm saying, realize that this isn't saying what I mean; I think of a new example; I put the point in a slightly better way, or different way, and thus come to see new sense to it. When I have to convince others, (such as classmates), I have to communicate convincing grounds for thinking as I do. The people I'm talking to react: understanding some parts of what I've said better than others, forcing me to rephrase my point and so think it through again in a slightly different way, with the result that I understand it more clearly. My audience says things in response that had never occurred to me; they ask questions, raise objections, and so on. As I answer, I find myself saying things I hadn't realized I believed. Sometimes I say things I know are wrong, and so I have to change my original idea somewhat. My audience may suggest new examples, or expand on my ideas in a new way. In short, while I'm discussing things with my classmates I am learning. By listening to me, reacting, and hearing my replies, my classmates are learning. We're all thinking things through together. As a group, we know more, can figure out more, and have more and better ideas than any one of us individually. Having done our own thinking and produced our own knowledge, we understand deeply; the knowledge becomes part of us rather than bunches of words we have collected and which we may easily lose.

This is at the heart of education for critical thought. Students learn to think by thinking, learn to learn by learning, learn to judge by judging and by assessing their thinking, learning, and judging. (Does this make sense? Is this clear? Is it true? Is it well reasoned?) Students come to use the power of their minds to clarify, judge, and reason.

When teachers begin to integrate critical thinking into their instructional practice, they have experiences like the following (taken from *The Greensboro Plan: Infusing Reasoning and Writing into the K-12 Curriculum*):

Beth:

I teach North Carolina History and 8th grade English, and I am always trying to bridge the gap and use an interdisciplinary approach. What critical thinking helps me do is go
beyond the textbook and find things we can really discuss using the Socratic method — to go beyond just the facts and try to analyze the situation — to put ourselves in the other person's shoes — to look at a lot of different components.

Here is an article on slavery which I have copied and brought with me to show how you do not have to rewrite all your lesson plans to infuse critical thinking into your curriculum. Instead, you go further and bring in other things to enhance what you're teaching and give opportunities for discussion. This article is about slavery and slave trading. I have the students become one of the slaves on the ship and write a diary about how it would feel to be a slave. Later on in English, students write an essay on whether or not the ship captains should have been tried as criminals. This asks students to look at ideas from different viewpoints. For a final activity, I asked students to assume that they were a member of the English Parliament of 1807 and to write a persuasive essay on whether or not slavery should be banned and why.

Mandy:
Since I have taken part in this project, I have become a much more critical thinker. That's helped me tremendously in my classroom.

I always explain to my students how all our subjects are overlapping; this helps them in real life. One revised science lesson we used this year was building a rain forest in our room in a terrarium. We turned it into a vivarium by adding an anole, a small lizard.

The students decided they wanted to write a book about the anole, and the first thing they wanted to do was go to the library to copy information. Instead of this, we brainstormed to find out what we already knew and what we could learn just by observation. All my students became motivators for others while we worked with words.

After the pre-writing exercises, I took them to the media center for research. Again, they wanted to fall into the trap of copying from the encyclopedia. But I allowed them only to write down words — single words or maybe a phrase, rather than copying down sentences. It was difficult for them — it was difficult for me, too.

They came back from the media center with ideas rather than with things they had copied. We talked about the ideas and categorized — and then I told them to write down ideas in their own words. It was amazing what happened! If I had given this assignment a year ago, a description of the anole would be only a few sentences long. My students this year wrote pages — they really did — and they were excited. This was their work; this was their description; it was not World Book's description. And it made it much more real to them — and of course real to me too.

In the first example, notice how students had to grapple again and again with the concept of slavery from different angles: What was it like? In what ways were different people partly responsible? What do I think of it? How can I convince others to agree with me? Each time students explored the issue, they were learning and using facts, probing and clarifying values, using principles, and were putting these pieces together.

The second example above illustrates the difference between merely taking statements in and giving them back, and restructuring belief systems. Students first publicly shared their original beliefs, ideas, and suggestions. Then, when they consulted resources, they wrote only the barest bones of the information, and were thus forced to reconstruct the new knowledge. Notice that, though this process was more difficult, the students themselves produced more writing and were more pleased with the results.

Finally, consider two more experiences of teaching students to learn deeply.

Sylvia
My involvement in the Reasoning and Writing project came about because I believe the following: 1) students are faced with an explosion of information; 2) given a limited time in which learn, students must choose what information they need and learn how to acquire it; 3) to make intelligent choices, students must exercise good judgment; 4) successful living in today's world requires high order thinking and reasoning skills; 5) writing can be used as a tool to improve thinking and reasoning skills in all curriculum areas. ...
I have incorporated two new ideas this year: Socratic questioning and writing to aid concept development. I have worked primarily with one class, using questioning techniques to encourage students to think critically. The results have been encouraging: class discussions became more animated, students offered ideas freely, criticism was constructive, helpful, and resulted in better ideas. I believe that the entire class benefitted.

One high school teacher tried to focus on critical thinking in a sophomore English class. This teacher designed small group and paired discussions only to have the students complain, “You’re supposed to use the grammar book. You’re supposed to start on the first page and give us the sentences to do and then check them and then we do the next sentence ...”

The students insisted that “doing the sentences” was the top priority. One of the students said, in defense of this method, “We learned about prepositions.” However, when the instructor asked the class what they had learned about prepositions, the class went silent. When asked, “Do you remember what prepositions are? Can you name some?” nobody could. Though this teacher continued her emphasis on critical thinking, she also gave students “sentences to do” for part of the class time. After the fourth day, no students objected when she neglected to assign more sentences. On their final exam, these students were asked, “Why is it better for a school to teach you how to find answers than to teach you the answers?” Among their responses were the following:

✔ So you can get in the habit of doing it yourself and not depend on someone else.
✔ When you teach people the answer, they will never try to find the answer themselves. They will look for somebody to give them the answer instead of looking for it because they don’t know how to find it.
✔ When you get a job, they will expect you to find the answers yourself.
✔ Because it makes you feel good about yourself when you can look up something by yourself and get the answer correct. You feel more independent in school.
✔ School is not going to be with you all your life.
✔ So you can learn how to find the answers to your problems because one day you’re going to have to find the answers yourself. Nobody is going to be able to give you the answers.
✔ Because it won’t help you to know the answers and not know what they mean.
✔ Because in the future there won’t be a teacher to hold your hand or to tell you everything you should know. You should learn on your own.

As you consider the rest of the material in this book, we ask you to apply these basic ideas to each facet of the task of incorporating critical thought into instructional practice. Just as students must struggle through a process of restructuring their thought to incorporate new facts, skills, and principles, so must teachers grapple with the problems of restructuring their conceptions of education, and learn to apply principles underlying it. We encourage you to work your way through our ideas — reading, explaining, listening, questioning, writing, applying, assessing — figuring out what you think about what we say.

The Spirit of Critical Thinking

Before we introduce you to the remodelling process, you may want to read through this section on the spirit of critical thinking. It provides an introduction to our concept of critical thinking. However it freely uses the vocabulary of critical thinking — assumption, reason, argument, contradiction, relevant, point of view, conclusion, ... — and is somewhat abstract. So if it doesn’t seem perfectly clear to you at the outset, don’t be discouraged. Simply come back to it later on after you have had more exposure to concrete examples. Indeed, you should keep in mind throughout that we have designed this handbook with the thought that teachers will want to
return to various sections of it over time for deeper understandings. It is definitely not the kind of book that a person can simply absorb at one reading.

The term 'critical,' as we use it, does not mean thinking which is negative or finds fault, but rather thinking which evaluates reasons and brings thought and action in line with our evaluations, our best sense of what is true. The ideal of the critical thinker could be roughly expressed in the phrase 'reasonable person.' Our use of the term 'critical' is intended to highlight the intellectual autonomy of the critical thinker. That is, as a critical thinker, I do not simply accept conclusions (uncritically). I evaluate or critique reasons. My critique enables me to distinguish poor from strong reasoning. To do so to the greatest extent possible, I make use of a number of identifiable and learnable skills. I analyze and evaluate reasons and evidence; make assumptions explicit and evaluate them; reject unwarranted inferences or "leaps of logic;" use the best and most complete evidence available to me; make relevant distinctions; clarify; avoid inconsistency and contradiction; reconcile apparent contradictions; and distinguish what I know from what I merely suspect to be true.

The uncritical thinker, on the other hand, doesn't reflect on or evaluate reasons for a particular set of beliefs. By simply agreeing or disagreeing, the uncritical thinker accepts or rejects conclusions, often without understanding them, and often on the basis of egocentric attachment or unassessed desire. Lacking skills to analyze and evaluate, this person allows irrelevant reasons to influence conclusions, doesn't notice assumptions and therefore fails to evaluate them, accepts any inference that "sounds good;" is unconcerned with the strength and completeness of evidence, can't sort out ideas, confuses different concepts, is an unclear thinker, is oblivious to contradictions, and feels certain, even when not in a position to know. The classic uncritical thinker says, "I've made up my mind! Don't confuse me with facts." Yet, critical thinking is more than evaluation of simple lines of thought.

As I evaluate beliefs by evaluating the evidence or reasoning that supports them (that is, the "arguments" for them), I notice certain things. I learn that sometimes I must go beyond evaluating small lines of reasoning. To understand an issue, I may have to think about it for a long time, weigh many reasons, and clarify basic ideas. I see that evaluating a particular line of thought often forces me to re-evaluate another. A conclusion about one case forces me to come to a certain conclusion about another. I find that often my evaluation of someone's thinking pivots around the meaning of a concept, which I must clarify. Such clarification affects my understanding of other issues. I notice previously hidden relationships between beliefs about different issues. I see that some beliefs and ideas are more fundamental than others. As I think my way through my beliefs, I find I must orchestrate the skills I have learned into a longer series of moves. As I strive for consistency and understanding, I discover opposing sets of basic assumptions which underlie those conclusions. I find that, to make my beliefs reasonable, I must evaluate not individual beliefs but, rather, large sets of beliefs. Analysis of an issue requires more work, a more extended process, than that required for a short line of reasoning. I must learn to use my skills, not in separate little moves but together, coordinated into a long sequence of thought.

Sometimes, two apparently equally strong arguments or lines of reasoning about the same issue come to contradictory conclusions. That is, when I listen to one side, the case seems strong. Yet when I listen to the other side, that case seems equally strong. Since they contradict each other, they cannot both be right. Sometimes it seems that the two sides are talking about different situations or speaking different languages, even living in different "worlds." I find that the skills which enable me to evaluate a short bit of reasoning do not offer much help here.
Suppose I decide to question two people who hold contradictory conclusions on an issue. They may use concepts or terms differently, disagree about what terms apply to what situations and what inferences can then be made, or state the issue differently. I may find that the differences in their conclusions rest, not so much on a particular piece of evidence or on one inference, as much as on vastly different perspectives, different ways of seeing the world, or different conceptions of such basic ideas as, say, human nature. As their conclusions arise from different perspectives, each, to the other, seems deluded, prejudiced, or naive. How am I to decide who is right? My evaluations of their inferences, uses of terms, evidence, etc. also depend on perspective. In a sense, I discover that I have a perspective.

I could simply agree with the one whose overall perspective is most like my own. But how do I know I’m right? If I’m sincerely interested in evaluating beliefs, should I not also consider things from other perspectives?

As I reflect on this discovery, I may also realize that my perspective has changed. Perhaps I recall learning a new idea or even a system of thought that changed the way I see myself and the world around me in fundamental ways, which even changed my life. I may remember how pervasive this change was — now I began to interpret a whole range of situations differently, continually used a new idea, concept or phrase, paid attention to previously ignored facts. I realize that I now have a new choice regarding the issue under scrutiny.

I could simply accept the view that most closely resembles my own. But I realize that I cannot reasonably reject the other perspective unless I understand it. To do so would be to say, “I don’t know what you think, but whatever it is, it’s false.” The other perspective, however strange it seems to me now, may have something both important and true, which I have overlooked and without which my understanding is incomplete. Thinking along these lines, I open my mind to the possibility of change of perspective. I make sure that I don’t subtly ignore or dismiss these new ideas; I realize I can make my point of view richer, so it encompasses more. As I think within another perspective, I begin to see ways in which it is right. It points out complicating factors I had previously ignored, makes useful distinctions I had missed, offers plausible interpretations of events I had never considered, and so on. I become able to move between various perspectives, freed from the limitations of my earlier thought.

One of the most important stages in my development as a thinker, then, is a clear recognition that I have a perspective, one that I must work on and change as I learn and grow. To do this, I can’t be inflexibly attached to any particular beliefs. I strive for a consistent “big picture.” I approach other perspectives differently. I ask how I can reconcile the points of view. I see variations between similar but different perspectives. I use principles and insights flexibly and do not approach analysis as a mechanical, “step one, step two” process. I pursue new ideas in depth, trying to understand the perspectives from which they come. I am willing to say, “This view sounds new and different; I don’t yet understand it. There’s more to this idea than I realized; I can’t just dismiss it.”

Looked at another way, suppose I’m rethinking my stand on an issue. I re-examine my evidence. Yet, I cannot evaluate my evidence for its completeness unless I consider evidence cited by those who disagree with me. Similarly, I find I can discover my basic assumptions by considering alternative assumptions, alternative perspectives. I use fairmindedness to clarify, enhance, and improve my perspective.

A narrowminded critical thinker, lacking this insight, says, not, “This is how I see it,” but, “This is how it is.” While working on pieces of reasoning, separate arguments, and individual beliefs, this person tends to overlook the development of perspective as such. Such thinking consists of sepa-
rate or fragmented ideas and the examination of beliefs one at a time without appreciation for connections between them. While conscious and reflective about particular conclusions, this type of thinker is unreflective about his or her own point of view, how it affects his or her evaluations of reasoning, and how it is limited. When confronted with alternative perspectives or points of view, this person assesses them by their degree of agreement with his or her own view and lumps together similar, though different, perspectives. Such an individual is given to sweeping acceptance or sweeping rejection of points of view and is tyrannized by the words he or she uses. Rather than trying to understand why others think as they do, he or she dismisses new ideas, assuming the objectivity and correctness of his or her own beliefs and responses.

As I strive to think fairmindedly, I discover resistance to questioning my beliefs and considering those of others. I find a conflict between my desire to be fairminded and my desire to feel sure of what I think. It sometimes seems a lot easier to avoid the confusion, frustration, and embarrassment that I feel when reassessing my beliefs. Simply trying to ignore these feelings doesn’t make them go away. I realize that without directly addressing these obstacles to critical thought, I tend to seek its appearance rather than its reality, that I tend to accept rhetoric rather than fact, that without noticing it, I hide my own hypocrisy, even from myself.

By contrast, the critical thinker who lacks this insight, though a good arguer, is not a truly reasonable person. Giving good-sounding reasons, this person can find and explain flaws in opposing views and has well-thought-out ideas, but this thinker never subjects his or her own ideas to scrutiny. Though giving lip service to fairmindedness and describing views opposed to his or her own, this thinker doesn’t truly understand or seriously consider them. One who often uses reasoning to get his or her way, cover up hidden motives, or make others look stupid or deluded is merely using skills to reinforce his or her own views and desires, without subjecting them to scrutiny. Such people are not truly reasonable. By cutting themselves off from honestly assessing their own perspectives or seriously considering other perspectives, these people are not using their mental capacities to their fullest extent.

To sum up, the fully reasonable person, the kind of critical thinker we want to foster, contrasts with at least two other kinds of thinkers. The first kind has few intellectual skills of any kind and tends to be naive, easily confused, manipulated, and controlled, and so easily defeated or taken in. The second has skills, but only of a restricted type, which enable pursuit of narrow, selfish interests and effective manipulation of the naive and unsuspecting. The first we call ‘uncritical thinkers’ and the second ‘weak sense,’ or selfish, critical thinkers. What we aim at, therefore, are “strong sense” critical thinkers, those who use the fullest powers of their minds in the service of sincere, fairminded understanding and evaluation of their beliefs.

**Introduction to Remodelling: Components of Remodels and Their Functions**

The basic idea behind lesson plan remodelling as a strategy for staff development in critical thinking is simple. Every practicing teacher works daily with lesson plans of one kind or another. To remodel lesson plans is to critique one or more lesson plans and formulate one or more new lesson plans based on that critical process. To help teachers generalize from specific remodelling moves, and so facilitate their grasp of strong sense critical thinking and how it can be taught, we have devised a list of teaching strategies. Each strategy highlights an aspect of critical thought.
Each use illustrates how that aspect can be encouraged in students. In the chapter, "Strategies," we explain the thirty-five strategies illustrated in the remodels. Each is linked to the idea of strong sense critical thinking, in the "Principle" section. For each we explain some ways the aspect of critical thought can be encouraged, in the "Application" section.

Complete remodelled lessons have three major components: an Original Lesson, or statement of the Standard Approach (which describes the topic and how it is covered, including questions and activities); the Critique (which describes the significance of the topic and its value for the educated thinker, evaluates the original, and provides a general idea of how the lesson can be remodelled); and the Remodelled Lesson (which describes the new lesson, questions to be posed to students and student activities, and cites the critical thinking strategies by number). The strategy number generally follows the questions or activities it represents. When an entire remodel or section develops one dimension of critical thought in depth, the number appears at the top of the remodel or section. Complete remodel sets also include a list of Objectives which integrate the objectives of the original with the critical thinking goals; and the list of critical thinking Strategies applied in the remodel (listed in order of first appearance). Note the functions of these parts in the example below. Each component can serve some purpose for both the writer and the reader.

**Advertising**

**Objectives of the remodelled plan**

The students will:
- practice listening critically by analyzing and evaluating T.V. commercials
- exercise fairmindedness by considering advertisements from a variety of perspectives
- analyze and evaluate the arguments given in ads
- practice using critical vocabulary to analyze and evaluate ads
- clarify key words
- distinguish relevant from irrelevant facts in ads
- examine assumptions in ads
- develop insight into egocentricity by exploring the ways in which ads appeal to unconscious desires

**Standard Approach**

Very few texts actually address the issue of advertising. Those that do touch upon indicators to watch for which signal the use of some sort of reasoning — such indicators as "if ... then," "because," "since," "either ... or," and "therefore." Students are to decide if the reasoning presented is logical or illogical. Some lessons on ads focus on finding and decoding the factual information regarding sales. Students are often asked to write their own ads.
Critique

We chose this lesson for its subject: advertising. Ads are a natural tie-in to critical thinking, since many are designed to persuade the audience that it needs or wants a product. Ads provide innumerable clear-cut examples of irrelevance, distortion, suppressed evidence, and vague uses of language. Analysis of ads can teach students critical thinking micro-skills and show their use in context. Practice analyzing and evaluating ads can help students develop ability to listen critically. The standard approach, however, is not done in a way which best achieves these results.

Such lessons often focus more on writing ads than critiquing them. They tend to treat neutral and advertising language as basically equivalent in meaning, though different in effect, rather than pointing out how differences in effect arise from differences in meaning. They downplay the emptiness, irrelevance, repetition, questionable claims, and distortion of language in most ads. Their examples bear little resemblance to real ads. By rarely addressing ads aimed at students, texts minimize useful transfer.

Since most students are exposed to more television commercials than other ads, we recommend that students discuss real commercials aimed at them. We also provide suggestions for using ads to practice use of critical vocabulary and to discuss the visual and audio aspects of commercials.

Strategies used to remodel

S-22  listening critically: the art of silent dialogue
S-9  developing confidence in reason
S-18  analyzing or evaluating arguments, interpretations, beliefs, or theories
S-14  clarifying and analyzing the meanings of words or phrases
S-16  evaluating the credibility of sources of information
S-3  exercising fairmindedness
S-31  distinguishing relevant from irrelevant facts
S-2  developing insight into egocentricity or sociocentricity
S-29  noting significant similarities and differences
S-28  thinking precisely about thinking: using critical vocabulary
S-35  exploring implications and consequences
S-30  examining or evaluating assumptions

Remodelled Lesson Plan s-22

Due to the number of ads to which students are exposed, and their degree of influence, we recommend that the class spend as much time as possible on the subject. As students learn to approach ads thoughtfully and analytically, and practice applying critical insight to their lives, they develop confidence in their reasoning powers and their ability to see through attempts to irrationally manipulate them. S-9

To focus on ads and language, begin by having students give complete descriptions of what is said in a variety of television commercials. Put the quotes on the board. For each commercial, the class can evaluate the arguments presented in ads by discussing the following questions: What ideas does it give you about the product (or service) and owning or using it? Does it give reasons for buying the product? If so, what reasons? Are they good reasons?
What are the key words? Do they have a clear meaning? What? S-14 What other words could have been chosen? Who made this ad? Why? Do they have reason to distort evidence about the worth of the product? S-16 How might someone who wasn't trying to sell the product describe it? How might a competitor describe it? S-3 What would you need to know in order to make a wise decision about whether to buy it? Does the commercial address these points? S-31 Why or why not? Has anyone here had experience with the product? What? S-18

When the commercials have been discussed, have students group them by the nature of the ads (repetition, positive but empty language, etc.) or of the appeals made (to the desires to have fun, be popular, seem older, etc.) Have students fill out the groups by naming similar commercials not previously discussed. Students could discuss why these appeals are made. "How do ads work? Why do they work? Do they work on you? On whom? Why? What are slogans for? Jingles? Why are running stories and continuing characters used? Why are the various techniques effective?" S-2

The teacher interested in developing students' critical vocabulary can have students practice while critiquing ads. Use questions like the following: What does the ad imply? S-35 Does the ad make, or lead the audience to make, any assumptions? Are the assumptions true, questionable, or false? S-30 Does the ad contain an argument? If so, what is the conclusion? Is the conclusion stated or implied? Does the ad misuse any concepts or ideas? To judge the product, what facts are relevant? Are the relevant facts presented? S-31 Does it make any irrelevant claims? S-28

The class could also compare different ads for the same product, aimed at different audiences (e.g., fast food ads aimed at children, and at adults). S-29 The class could compare ads for different brands of the same or similar products; compare ads to what can be read on ingredients labels; or design and conduct blind taste tests. S-18

To gain further insight into listening critically, the class could also discuss aspects of the ads other than use of language. What does the ad show? What effect is it designed to achieve? How? Why? What is the music like? Why is it used? Do the actors and announcers use tone of voice to persuade? Facial expression? How? Are these things relevant to judging or understanding the product? S-22

The teacher may also have the class critique ads for any stereotyping (e.g., sexual stereotyping). S-2

For further practice, if a VCR is available, watch and discuss taped commercials. Students could jot notes on critical points and share their insights.

The Standard Approach (or Original Lesson) describes how the subject is treated. As a summary, it provides focus for the critique and remodel. Teachers who share their work can better follow the remodel when the original is clearly described. The critical thinking infused is better highlighted — for both the writer and the reader — when the original is available for contrast with the remodel.
The Critique generally begins by explaining the use of having students study the subject, the role such study has in the life of the critical thinker, and how critical thinking applies to the topic. It then provides a critique of the original from the point of view of education for critical thinking. Given the reasons for studying the topic, and the role such study should have for the critical thinker, the ways the original fosters and fails to foster such understanding is explicated. Thus, the analysis of the significance of the topic provides a focus for and basis of the evaluation. The evaluation, then, mentions parts of the original that can be kept, and parts that should be changed or dropped, and why. The critique often includes a general statement suggesting what must be added to raise deeper issues and develop insight into the material.

The Remodelled Lesson then follows, based on the analysis and evaluation of the topic and its treatment in the original. It reflects the reasoning given in the critique. It includes teacher questions and student activities designed to overcome the problems in the original. Citing the strategy numbers helps make the critical thinking infused explicit, and offers cross-referencing for others to better see what is being done in the new lesson and why. Readers of the remodel can refer to the strategy descriptions given in the Strategy chapter, if the function of the strategy is unclear to them. Furthermore, citing the strategy provides a check for the writer, who, during the writing and revision process, can evaluate the questions and activities to make sure that they do in fact engage the students in that particular dimension of critical thought.

The list of Strategies used to remodel helps readers who want to better understand a particular strategy, or want ideas for applying it, to easily find examples. As the readers read the Remodelled Plan, they can easily refer to this list for the names of the strategies cited.

The Objectives provide an opportunity for writers of remodels to summarize their work, and show the readers how the strategies apply to the content, that is, to show the relationship between the content and critical thought. Writing objectives, and looking at what you've written, making the goals explicit as a list of what students will do, helps the writer ensure that the remodel does achieve the goals as stated. If not, the goals should be added to the remodel or dropped from the objectives. (Does the activity as described really have students carefully and fairlymindedly evaluate these assumptions?) Objectives can also show relationships between the strategies as they apply to that lesson, they make explicit that, in this case, this one strategy is (or these three strategies are) used in the service of this main strategy. Reading through objectives of other people's remodels can make it easier to find ideas in them to use in one's own work. When confronted with a particular remodelling problem, reading objectives of other remodels is an easy way of finding out which remodels can provide help or inspiration.

The finished form of the complete remodel sets, and separation and order of their elements, is not intended to suggest the precise order in which the elements are developed or written. Generally, the three major components are begun in rough form: an initial statement of key parts of the original and their functions, its most obvious strengths and weaknesses, and provisional revisions are usually jotted down first.

The writer can then step back and evaluate these rough ideas and begin to analyze the situation more deeply. Does my critique really get at the heart of the matter? Is the evaluation fair, accurately stated, and properly justified? Does my remodel really address the flaws I've identified? Could I add something to take the lesson more deeply into the subject? Am I missing a good opportunity to encourage careful honest thought? Are the main points of the remodel explained or justified by what I've said in the critique?
The remodelers may also want to review pertinent strategies, skim other remodels for ideas, and share their work with colleagues for comments and ideas before beginning a final rewrite. When the three main components are in relatively finished form, the writer can list the strategies used. The final version of the Objectives is usually written last, and checked to ensure that it reflects the remodel.

Although going through an extended process like this may seem like a lot of unnecessary work, and you needn’t write up every instance of infusing critical thinking in polished form, we encourage you to put at least some of your work in this form for the following reasons:

- First impressions and initial ideas about what to do may be misleading and are rarely as valuable for either students or colleagues as a finished product which has been carefully evaluated and revised.

- The evaluation, revision, double-checking, and analysis provide crucial opportunities for teachers to develop the ability to engage in careful critical thought.

- Having to organize one’s ideas and express them clearly helps the writer to more thoroughly probe those ideas, and discover other ideas.

- An extended process creates a finished product which is clearer and more helpful to colleagues with whom it is shared, than rough notes and scattered ideas would be.

- The objectives most worthwhile to pursue in the remodel will rarely be apparent until after the analysis and critique of the original material and plan, and development of a remodelled lesson.

- Revision after further analysis can correct such mistakes as failing to include crucial points, or covering the material in a superficial or tangential way. It’s remarkably easy to blast a critique for missing an important opportunity for developing critical thought, but then neglect to take advantage of the opportunity oneself. It’s easy to miss the main point, purpose, or context of a topic, principle, or skill, when first considering it. It’s easy to write wonderful sounding objectives and then fail to fulfill them.

We therefore recommend a more extended process of producing remodels, with the elements given above, whether done in that order or not. (For example, the first step might be to confer with colleagues. With some lessons, one might have to review some strategies, remodels, or the subject introduction, before being able to come with remodel ideas.) Whatever process you use, we strongly encourage you to gain some experience in the careful and complete analysis and evaluation required to produce well written, complete remodel sets.

How To Use This Book

You may choose to read this book as you would any other book, but if you do, you will probably miss a good deal of the benefit that can be derived from it. There are no algorithms or recipes for understanding or teaching critical thinking. Although we separate aspects of critical thinking, the global concept of the truly reasonable person is behind each aspect, and each aspect relates to it and the other dimensions. Thus, to develop critical thought, one must continually move back and forth between the global ideal of the rational and fairminded thinker and the details describing such a thinker. Similarly, although we separate the aspects of staff development for integrating critical thinking into the curriculum (understanding the concept, critiquing present practice, formulating remodels), teachers must continually move back and forth between these activities.

If you are a high school teacher and you want to improve your ability to teach for critical thinking, this book can help you develop the ability to remodel your own lesson plans. Your own
teaching strategies will progressively increase as your repertoire of critical thinking strategies grows. As you begin, try to develop a baseline sense of your present understanding of critical thinking and of your ability to critique and redesign lesson plans. The critiques and remodels that follow, and the principles and strategies that precede them, may provide an immediate catalyst for you to take your lesson plans and redesign them. But the longer critiques and remodels here might seem intimidating. Some of the strategies may seem unclear or confusing, and you may bog down as soon as you attempt to redesign your own lessons. Keep in mind that in some of our remodels, we put as many ideas as we could, in order to provide as many examples and varieties of applications as possible. Thus, some of the remodelled plans are longer and more elaborate than you might initially be willing to produce or teach. The purpose of this book is not to simply give you lesson ideas, but to encourage you to develop your own.

We therefore suggest alternative approaches and ways of conceiving the process:

- Read through the strategies and a couple of remodels, then write critiques and remodels of your own. After you have attempted a critique and remodel, read our critique and remodel of a similar lesson. By using this procedure, you will soon get a sense of the difficulties in the critique-remodel process. You will also have initiated the process of developing your own skills in this important activity.

- Another way of testing your understanding of the critical insights is to read the principle section of a strategy, and write your own application section.

- You could review a remodel of ours and find places where strategies were used but not cited and places where particular moves could be characterized by more than one strategy.

- You may want to take several strategies and write a passage about their interrelationships.

- Or you might take a subject or topic and list significant questions about it. Share and discuss your lists with colleagues.

- If, when reviewing a remodel, you find a particular strategy confusing, review the principle and application in the strategy chapter. If, when reading the strategy chapter, you feel confused, review the critiques and remodels of the lessons listed below it. If you are still confused, do not use the strategy. Review it periodically until it becomes clear.

- When remodelling your own lessons, you will probably find that sometimes you can make more drastic changes, or even completely rewrite a lesson, while at other times you may make only minor adjustments. Some of your remodels may make use of many strategies, say, two or more affective strategies, and a macro-ability requiring coordinated use of several micro-skills. For other remodels, you may use only one strategy. It is better to use one clearly understood strategy than to attempt to use more than you clearly understand.

- You may want to begin remodelling by using only one or two strategies clearest to you. After remodelling some lessons, you will likely find yourself spontaneously using those strategies. You could then reread the strategy chapter and begin infusing additional strategies with which you feel comfortable. Thus, as the number of strategies you regularly use grows, your teaching can evolve at the pace most comfortable to you.

- If students don’t grasp a critical idea or skill when you introduce it, don’t give up. Critical insight must be developed over time. For instance, suppose the first attempt to get students to fairly-mindedly consider each others’ views fails. It is likely that students are not in the habit of seriously considering each other’s positions, and hence may not listen carefully to each other. If you make restating opposing views a routine part of discussion, students will eventually learn to prepare themselves by listening more carefully.
• Although the main function of this book is to help you remodel your lesson plans, we have not restricted our suggestions to the remodelling process. We strongly urge you to apply the insights embedded in the strategies to all aspects of classroom experience (including discussions, conflicts, and untraditional lessons — for instance, movies.) You may also use our remolds, or sections of them. Though many of our lessons are too long for one class period, we did not suggest where to break them up. Nor did we provide follow-up questions. If you decide to experiment with any of our remolds, you will probably have to remodel them somewhat to take your own students and text into account.

• We urge you to apply your growing critical insight to the task of analyzing and clarifying your concept of education and the educated person. Of each subject you teach, ask yourself what is most basic and crucial for an educated person to know or to be able to do. Highlight those aspects and teach them in a way that most fosters in-depth and useful understanding.

• Texts often have the same features — whether problems or opportunities for critical thought — occurring over and over again. Hence, remodelling a couple of lessons from a text can give you a basic structure to use many times over the course of the year.

• When comparing your work to ours, keep in mind that this is a flexible process; our remodel is not the only right one. Any changes which promote fairminded critical thought are improvements.

However you use what follows in this book, your understanding of the insights behind the strategies will determine the effectiveness of the remolds. Despite the detail with which we have delineated the strategies, they should not be translated into mechanistic, step-by-step procedures. Keep the goal of the well-educated, fairminded critical thinker continually in mind. Thinking critically involves insightful critical judgments at each step along the way. It is never done by recipe.
Diagram 1

Three Modes of Mental Organization
(expressed in exclusive categories for purposes of theoretical clarity)

The Uncritical Person

The Self-Serving Critical Person
(weak sense)

The Fairminded Critical Person
(strong sense)

Non-Culpable Culpable

Non-Culpable Culpable

admitting to a range of sophistication

from childlike, awkward rationalizations to highly sophisticated, creative, and intellectually resourceful egocentric and sociocentric rationalizations

critical thinking skills internalized in the service of one's vested interests and desires

admitting to a range of developmental levels

from the fairmindedness that a child is able to exercise to that of the most profound thinkers

critical thinking skills internalized in the service of balanced truth, rationality, autonomy, and self insight

Note

Children enter school as fundamentally non-culpable, uncritical and self-serving thinkers. The educational task is to help them to become, as soon as possible and as fully as possible, responsible, fairminded, critical thinkers, empowered by intellectual skills and rational passions. Most people are some combination of the above three types; the proportions are the significant determinant of which of the three characterizations is most appropriate. For example, it is a common pattern for people to be capable of fairminded critical thought only when their vested interests or ego-attachments are not involved, hence the legal practice of excluding judges or jury members who can be shown to have such interests.
Diagram 2

Critical Thinking Lesson Plan Remodelling

An original lesson plan or a standard approach is transformed via critique into a remodelled lesson plan based on integrating one or more critical thinking strategies derived from critical thinking principles which reinforce a unified concept of critical thinking.
The Perfections and Imperfections of Thought

- clear _____________ vs _____________ unclear
- precise _____________ vs _____________ imprecise
- specific _____________ vs _____________ vague
- accurate _____________ vs _____________ inaccurate
- relevant _____________ vs _____________ irrelevant
- consistent _____________ vs _____________ inconsistent
- logical _____________ vs _____________ illogical
- deep _____________ vs _____________ superficial
- complete _____________ vs _____________ incomplete
- significant _____________ vs _____________ trivial
- adequate (for purpose) _____________ vs _____________ inadequate
- fair _____________ vs _____________ biased or one-sided