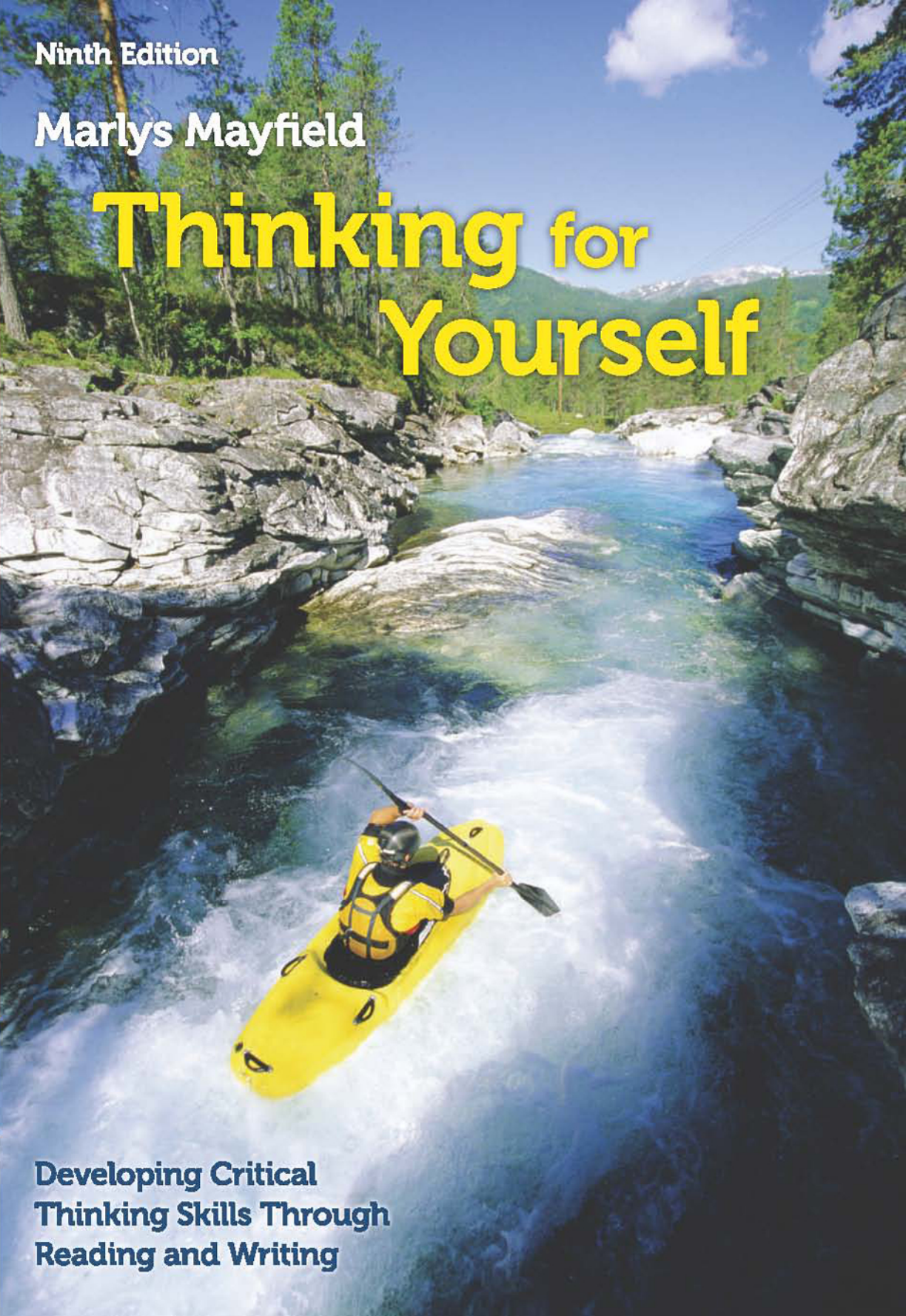


Ninth Edition

Marlys Mayfield

Thinking for Yourself

Developing Critical
Thinking Skills Through
Reading and Writing



N I N T H E D I T I O N

Thinking for Yourself

*Developing Critical Thinking Skills
Through Reading and Writing*

Marlys Mayfield

College of Alameda



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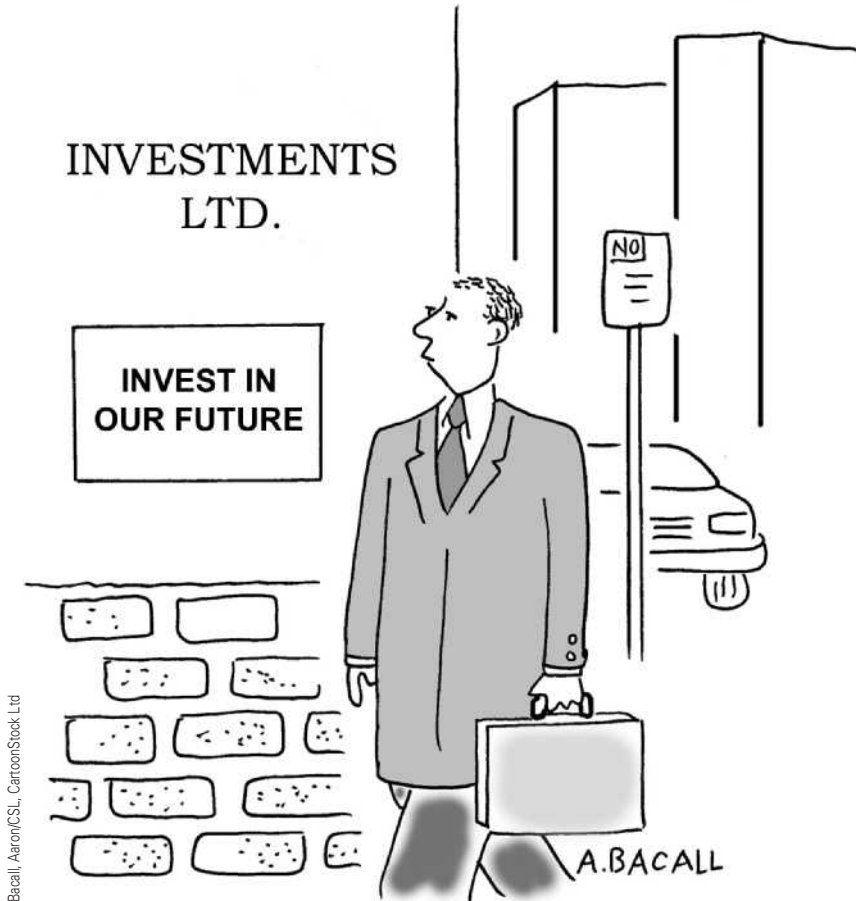
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P R E F A C E



Like the man in this cartoon, we may pause to study the words in this sign. If “future” means greater prosperity, then is *our* future limited solely to “Investments Ltd.,” or does it include its investors as well? This is the kind of question critical thinkers would ask.

Whether instructor or student, you have made an investment in *our common future* by committing to teach or learn the skills taught in

Thinking for Yourself: Developing Critical Thinking Skills through Reading and Writing. Now more than ever, the world needs people who can think skilfully both individually and collectively. More than ever, we need to be able to approach our problems and settle our conflicts through a common reference to the arbiter of critical thinking standards. More than ever, in times of chaos, we need the anchors and the guidance of clear minds.

“An investment in knowledge always pays the best interest.”
(Benjamin Franklin)

About the Text

The purposes of this text, first published in 1986, were and remain unique in five respects:

- To truly integrate the teaching of thinking, reading and writing skills.
- To teach English composition through an emphasis on the perceiving-thinking process.
- To teach critical thinking, not as a subject, but as a set of skills improved and tested through writing applications.
- To teach critical reading as an application of critical thinking standards.
- To provide a text that could be used either in an English or philosophy or social sciences course.

Features, Approach and Coverage

For students, the most appealing features of *Thinking for Yourself* are the following:

- Learning from a text they enjoy reading
- Learning both English composition and critical thinking through a more aware focus on the perceiving-thinking process.
- Learning through unique discovery and writing exercises
- Learning on a step-by-step gradient with reinforcements that make learning mastery possible.
- Learning how word and concept clarity results in thinking clarity
- Learning a method for lifelong self-directed improvement in thinking, writing, and reading skills.

For instructors, here are the advantages of teaching through *Thinking for Yourself*:

- Its versatile course suitability.
- The simplicity of a chapter organization that fosters clarity and awareness of basic thinking concepts.

- A critical thinking text that begins on a more fundamental level than most others, yet proceeds to a more advanced level than most.
- A text that constantly provokes and engages its readers in active thinking.
- It begins with non-verbal problems, using photographs, cartoons, narrative and descriptive assignments, then progresses into verbal problems in a rhetorical sequence of increasing cognitive complexity.
- It offers thirty-six readings to reinforce understanding of each concept and stimulate deeper thinking through with writing and discussion questions.
- It uses practical, everyday examples, connecting the concepts learned about thinking to everyday problems as well as current political and social issues.
- It uses multiple means to assure-learning mastery through discovery exercises, summaries, quizzes and many types of writing application assignments.

New to this 9th Edition

Since this edition represents the most extensive revision thus far, the list is necessarily long. Here is a summary of some general characteristics followed by chapter-by-chapter specifics.

- Entirely new is a boxed chapter series: Critical Thinking Heroes about those who put their thinking into action for the benefit of humanity. They include whistleblowers, scientists, environmentalists, farmers, investigative journalists, soldiers, ministers, corporate executives, and grassroots leaders.
- There are now 21 new short readings in the text with a total of 28. Some of the authors are famous, some obscure, some from the past, some contemporary. All have relevance for our times, yet point beyond them.
- Out of 22 cartoons, 17 are new, and out of 20 photos, 8 are new.
- New controversial topics include Bisphenol A, genetically-modified foods, advertising pharmaceuticals, land mines, racism, criminalization of poverty, public school reform, compassion in animals, war trauma, bailout of banks, slain journalists, tax inequality, corporations as persons.
- The path of teaching of argument skills now has a clearer presence leading up to Chapter 8 Argument with new text exposition, new assignments, and a Building Arguments series containing a wider variety of historical speeches.

- Extensive new coverage and exercises appear in Word Precision, Assumptions, Opinion, Viewpoints, Arguments, and Inductive Reasoning.
- For a generation now accustomed to Internet usage, this edition includes many links for further research that allow the text to expand beyond its borders of space and time.

Chapter by Chapter Specifics

- Chapter 1: New cartoons and photos. New reading by an M.I.T. professor on multi-tasking that contrasts with the chapter's emphasis on unitary focus.
- Chapter 2: Additional online dictionary exercises. More on denotation and connotation. New: words that hide meaning: vague, ambiguous and abstract words. New: clustering diagram model student paper, and definition essay by Frances Moore Lappé
- Chapter 3: New photos and cartoons. New discussion on facts and reality and the standards used to judge facts. New readings show the role of facts in argument by Princess Diana, an advertising executive, and a woman farmer with a PhD in sustainable agriculture.
- Chapter 4: New cartoons and photos with updating of discovery exercises. There is new descriptive writing by Chris Ketcham and fiction by Socorro Venegas.
- Chapter 5: New student writing, expanded treatment of hidden and value assumptions, readings on racism with story by Kate Chopin, and argument by George Wallace.
- Chapter 6: Chapter expanded to contain former evaluations chapter and embrace more aspects of opinions and their connection to argument. The letter of complaint assignment has been moved to this chapter. New sections and exercises appear on standards for evaluating opinions, opinions and facts, public opinion, and opinions as beliefs in the life of Galileo. Opinion as argument is illustrated through a speech by Barack Obama and new essay on poverty by Barbara Ehrenreich.
- Chapter 7: New opening discovery exercises on connection between viewpoint and critical thinking and the context of source. New chart on print publications ranked according to reputations for reliability. New section on hidden viewpoints: propaganda and vested interest. New readings: a change of viewpoint about public school reform and a Louisiana slapstick comedy. Opposing viewpoints appear in whistleblower films. The power of image as persuader is illustrated through a vintage revolver ad.

- Chapter 8: Chapter centers on argument analysis together with the new issue of the mandatory labeling of GM foods with two new pro and con arguments as readings. There is more discussion about missing information with the example of Bisphenol A.
- Chapter 9: Fewer fallacies are covered with more study examples and exercises for each. Final quiz expanded and simplified. Reading is the so-called “Checkers Speech” by Richard Nixon.
- Chapter 10: Inductive reasoning is demonstrated in readings regarding science, investigative and war reporting through Anna Politkovskaya, *Scientific American*, Committee of Protect Journalists, and Kurt Vonnegut. New material includes more coverage of causal reasoning with exercises, standards, and an advanced causal reasoning writing assignment.
- Chapter 11: There is a new opening discovery exercise, more examples and discussion of all fallacies and a simplified but longer chapter quiz.
- Chapter 12: There are new writing/discussion exercises based on critical thinking heroes M. Gandhi and M.L. King Jr. together with a classic deductive argument by Susan B. Anthony. New aphorisms appear in the deductive argument assignment.
- Appendix: There has been some general updating with a new model student paper analyzing the two mandatory GM foods labeling arguments from Chapter 8.

Ancillaries

Thinking For Yourself Instructor’s Manual

Written by Marlys Mayfield, the *Instructor’s Manual* for the 9th edition contains the answers to tests and exercises in the text, tests for Parts I and II, content and essay questions for each chapter. There are additional tests on dictionary skills, fallacies, reasons, and conclusions; additional in-class final exams. There is a list of media resources, an article about how to use Moodle and a class blog, and a teaching thinking skills bibliography. This manual is now available online at the Instructor Companion website.

Thinking For Yourself Student and Instructor Companion Websites

Thinking for Yourself has a companion website to accompany the 9th edition textbook. Resources for students include chapter summaries, tutorial quizzes, a glossary and a final exam. The Instructor’s Companion Site also includes the Instructor’s Manual. Students can access the companion site at www.cengagebrain.com and instructors at sso.cengage.com.

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In terms of reviewers, my thanks go first to those of this ninth edition:

Maureen Girard, Monterey Peninsula College; Annette Holba, Plymouth State University; Sunita Lanka, Hartnell College; Rhea Mendoza, Hartnell College; Ioan Muntean, Indiana University-Purdue University Fort Wayne; Lawrence Pasternack, Oklahoma State University; N. Mark Rauls, College of Southern Nevada; Bart Rawlinson, Mendocino College; Rick Walters, Great Bay Community College; and Raquel Wanzo, Laney College

Since the list of reviewers has become so long, I will now only give my thanks to the reviewers from the seventh and eighth editions.

Reviewers for the seventh edition were Alice Adams, Glendale Community College; Jerry Herman, Laney College; Deborah Jones, High-Tech Institute; Carmen Seppa, Mesabi Community College; and Cisley Stewart, State University of New York.

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Marlys Mayfield

Introduction to Critical Thinking



"This really is an innovative approach, but I'm afraid we can't consider it. It's never been done before."

Bacall, Aaron/CSL, CartoonStock Ltd

Learning How You Think

The purpose of this text is to *engage* you in critical thinking. It will not tell you *what* to think, nor teach you *everything* there is to know about critical thinking. What it will show you is how to make your own thinking more aware and more skilled.



David Lok/Purestock/SuperStock

The discovery exercises that serve as chapter openers in this text are intended to show you how you usually think. What you learn there might surprise you, raise your curiosity, and motivate you to learn more.

Even this Introduction to Critical Thinking will begin with a Discovery Exercise. Thus before continuing to read this book, you are asked to first complete the exercise that follows. After the class discusses this exercise, you will be prepared to appreciate the remainder of this Introduction as it defines **critical thinking** and discusses its relationship to standards, to creative thinking, and the habits and values of a critical thinker.

DISCOVERY EXERCISE

Experiencing How We Actually Think: An Exercise for the Whole Class to Complete Together

This is an exercise designed for thinking in two stages: first quietly alone and then only afterwards with others. Look at the photograph. Based on what you see there, rate each of the following statements as either true,

false, or can't answer. Write your answers without discussing either the questions or your replies with anyone else.

- _____ 1. This is graduation day for the Johnson family.
- _____ 2. The parents are proud of their daughter.
- _____ 3. The little brother is also proud.
- _____ 4. This is a prosperous family.
- _____ 5. This photo was taken on campus right after the ceremony.

Wait when you have finished this quiz without talking to anyone else about your choices. Sharing too soon could spoil the results of this experiment. When all have finished, the instructor will poll your answers to each statement. Then you will be asked to break up into two or more groups to defend your answers. Each group will try to arrive at a consensus, functioning somewhat like a jury.

After the Discussion

Review the following questions through discussion or writing. You will notice that some of these questions will already have been raised in your groups.

1. What are your definitions of the following terms?
True False Can't Answer
2. Can a statement be rated *true* if it contains an assumption?
3. Is it possible to determine whether a written statement is *true* if it contains ambiguous words or phrases?
4. Should a statement be rated *true* if it is highly probable?
5. What makes a statement *true* or *false*?
6. Did you find yourself reluctant to choose the option of *can't answer*? Why or why not?
7. How can we know whether or not something is *true*?
8. What did this exercise teach you?

Learning from Sharing How We Think

A surprise can lead us to more learning.

Your work on this last assignment took you from thinking alone to thinking with others. You may have been surprised to discover that there were such different perceptions of a simple photograph.

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If your discussion moved your thinking from certainty into uncertainty, you may feel somewhat confused or unsettled at this time. The term we will use for this unsettled state is *disequilibrium*. We feel this kind of discomfort when we need more time to integrate something unfamiliar. Moreover, we feel vulnerable when our thinking is exposed. Even in school, where we are committed to learning, it is not always easy to say, “I don’t know,” “I am confused,” or “I was wrong.” We have to ascertain first if it is safe to be so honest.

Yet if we want to learn new skills, we have to be willing to feel awkward at times. We have to expose our thinking before we can review it. Such a process requires humility, sensitivity, kindness, and humor from everyone involved—from instructors as well as from students. Indeed, if we are not feeling awkward, we may not be really learning.

In review, this assignment was meant to remind you:

- What occurs when you think on your own
- How we can further our thinking together in groups
- How such a process can teach us more about thinking

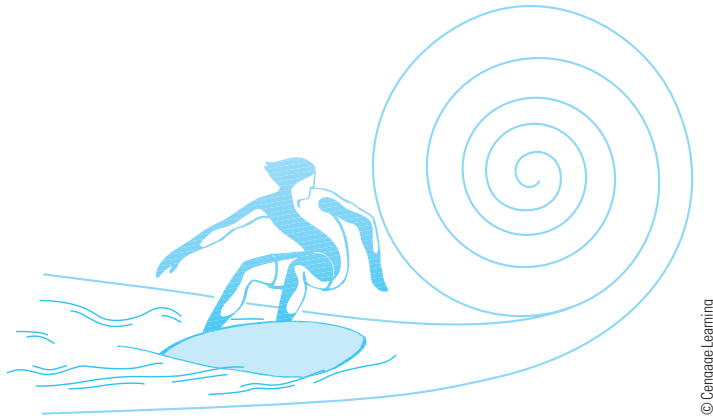
What Is Critical Thinking?

Critical thinking brings conscious awareness, skills, and standards to the process of observing, analyzing, reasoning, evaluating, reading, and communicating.

Thinking is purposeful mental activity.

Critical means to take something apart and analyze it on the basis of standards. The word *critical* comes from the Latin word *criticus*, the Greek words, *krinein* = to judge, decide, and *kriterion* = a standard for judging. All these terms are derived from the Indo-European root words *skeri*, meaning to sieve or cut, and *krei*, meaning to discriminate or distinguish.

When we look up the word *thinking* in a dictionary, we find it covers nineteen different mental operations. These range from reasoning to solving problems, to conceiving and discovering ideas, to remembering, to daydreaming. Some of these forms are conscious and directed, whereas others seem to operate on their own without control or awareness. When



We learn critical thinking skills like a surfer who moves in spirals.

we need to solve a math problem, we focus and concentrate. When we relax, thoughts and fantasies can come and go without direction. In this book, we will be using the word *thinking* in the sense of *purposeful mental activity*.

What, then, is critical thinking? Most of us associate the word *critical* with negativity or habitual fault-finding. Yet if we look at the history of the word, we can see that connotation was not in its original meaning. The root of *critical* comes from *skeri*, which means to cut, separate, or sift; thus, its original idea was to take something apart or to analyze it. Moreover, *critical* is also related to the Greek word *kriterion*, which means a standard for judging. Putting together these two original ideas, we see that the word *critical* means *analyzing on the basis of a standard*. When we are critical in the negative sense of blaming and fault-finding, our standards may not be clear, nor our intent constructive.

At present there is not one common definition of critical thinking agreed upon by all teachers in this field. The *Instructor's Manual* that accompanies this text lists more than 20 different definitions. Some come from authors of critical thinking textbooks, some from philosophy professors, and a few from dictionary lexicographers. These definitions differ mainly in the skills, actions, and traits they choose to emphasize. Most would agree that critical thinking is a constructive and deliberate mental activity used to analyze and assess thought and experience. All would also agree that critical thinking hinges upon the ability to understand and apply certain **standards**.

What Are The Standards of Critical Thinking?

Standard: A model, ideal, norm, rule or principle used as a basis for comparison.

1. **Accuracy:** Information verified for exactness and free from errors, lies, and distortions.
2. **Clarity:** A thought refined for simplicity expressed in words that convey its intended meaning. A communication that is intelligible, explicit, and transparent.
3. **Completeness:** A presentation of the most relevant information without over-simplification or avoidance of the complex.
4. **Currency:** Up-to-date information.
5. **Fairness:** To seek to be just, reasonable and impartial without distortions, exaggerations, or bias.
6. **Precision:** Economy, specificity, and accuracy in thought and word.
7. **Relevance:** To select information pertinent to the topic under discussion and exclude material that is irrelevant and distracting.
8. **Reliability:** Information or a source that proves to be consistently dependable and trustworthy in meeting critical thinking standards.
9. **Soundness:** Claims that are both verifiably true, and flawlessly reasoned.
10. **Transparency:** Information that is both open and accountable in that its truth, accuracy, and ethics can be verified by public inspection.

This list is adapted in part from the list of Universal Intellectual Standards compiled by Linda Elder and Richard Paul. See their booklet *Intellectual Standards*, published by the Foundation for Critical Thinking, 2008.

The standards of critical thinking are the same intellectual standards scientists and scholars have used for centuries to evaluate the reliability of reasoning and information. All these standards help us to aim to come as close to truth as we can.

When we study critical thinking, we gain **knowledge** of norms and rules for clear and effective thinking. The **norms** exemplify the standards; the **rules** help us measure them. Each chapter of this text explains norms through rules and examples that compare skilled to unskilled forms of thinking.

What is most important about learning critical thinking, however, is that it cannot be mastered through knowledge of norms and rules alone. Becoming more skillful in critical thinking requires your active involvement in *unlearning* old habits and standards in order to make room for better ones. Such a process is needed in order to fully integrate critical thinking skills into your life.

Yet this is not a linear learning process but one that might be better understood in terms of spirals of repetition and expansion. What we learn about knowledge and standards will better help us understand the skills required. And developing these skills will help us better appreciate the knowledge and standards required. Thus, we will progress through this text not like mountain climbers, but more like surfers, sometimes rising with the waves, sometimes falling, and sometimes balancing in new spirals.

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Relationship to Creative Thinking

Critical thinking analyzes and evaluates given material; creative thinking invents something new.

It is beyond the scope of this book to teach creative thinking, but a brief comparison can help us understand critical thinking better. In brief, whereas critical thinking analyzes and evaluates ideas, creative thinking invents new ideas. To engage in critical thinking, we depend more on the brain's verbal, linear, logical, and analytical functions. Creative thinking also includes these functions but can rely even more on our intuitive-holistic-visual ways of knowing. In the past, these different functions were described as stemming from either the left or right hemispheres of the brain. Recent discoveries in neuroscience have called the simplicity of this distinction into question. Nonetheless, no matter how complex our brains may be, most of us would agree that we experience very different mental states when playing tennis, singing a song, writing a letter, doing math or making a drawing. Moreover, some of us learn how to enhance our performance in these different activities through **heuristics**, or techniques that help us access the appropriate mental state.

In writing, for instance, we can draw from hidden reserves of creativity by using free writing or clustering. In order to free write or cluster, we need to maintain a more relaxed, nonjudgmental state of mind willing to *receive* and welcome whatever feelings, symbols, memories, or images

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may emerge. As we relate to this material, new patterns and insights may arise that would not have resulted from many hours of “hard thinking.”

We think critically when we organize, edit, or outline the raw material gained from such a process. Yet we may need to return to a more creative mode of thinking, called **imagination**, should we sense the need to develop new ideas, spot assumptions, assume unfamiliar points of view, formulate multiple inferences, make predictions, and see consequences and implications. Afterwards we may return to analytical thinking again. Bit by bit through such a process, a final work may emerge from this synthesis of critical and creative thinking skills.

We learn to make more conscious use of our critical and creative thinking abilities as we respect their different ways of functioning. If we need to analyze a situation, we sit down in the posture of Rodin’s statue *The Thinker*, remain still, and concentrate. When we need to think creatively, we maintain a quality of concentration while also listening to, and following, impulses from within ourselves that we might otherwise censor. Even when we stop concentrating—in deep sleep or while taking a walk—our minds can continue to work creatively on a problem. Once the process is complete, a fresh solution to a complex problem can occur in a sudden flash of insight; it can surprise us while we are doing something entirely mundane and unrelated, such as washing the car, patting a dog, or opening the refrigerator door.

While working with our creative and critical abilities, we need to remember that different standards apply. Critical thinking is concerned mainly with truth, while creative thinking also loves beauty; it wants its designs, ideas, or solutions to be not just adequate, but elegant. Albert Einstein was the model of a scientist who worked quite consciously with his capacities for both creative and critical thinking. He conceived theorems with a simplicity that proved to be both practical and beautiful. Einstein himself valued the creative process so highly that he once said, “Imagination is more important than knowledge.”

If you are interested in learning more about the traits and skills of creative thinking, many good books are available, such as *Creative Thinkering* by Michael Michalko, *Creating Minds* by Howard Gardner, *Sparks of Genius* by Robert and Michele Root-Bernstein, and *Uncommon Genius* by Denise Shekerjian. Edward de Bono has also written dozens of books about creative thinking.

In this text you will also meet a number of authors who demonstrate well-integrated critical and creative thinking abilities. Such authors are able to develop original and complex ideas, yet present them with a simplicity that results from many hours of thinking and writing; such work can inspire their readers to think more deeply as well. In addition, most illustrate the virtues, values, and habits of critical thinkers as listed in Table I.1 on the last page of this Introduction.

Why Learn Critical Thinking?

All of us already know how to do many complex kinds of thinking, for many purposes. We solve problems, using “street smarts” and common sense or even trial and error. Yet what we already know can be substantially strengthened by conscious attention, just as those who already know how to walk or fight can greatly improve their abilities by studying dance or karate.

Critical thinking isn’t the only form of clear thinking, nor is it always appropriate. If you are just hanging out, swapping stories, sharing feelings, and speculating, every term need not be defined, every fact supported, or every speculation qualified. You don’t use an electric saw to slice every piece of bread, but when preparing a turkey dinner, it can be invaluable.

Critical thinking skills are powerful tools. They can empower those who use them more than anything else you learn in college. They can’t be picked up on the run; they require careful, disciplined, systematic study. But such study will pay off not only in the short run by improving performance in every single course, but also in the long run by:

- Providing protection from manipulation and propaganda
- Helping you exercise more awareness and self-control
- Lessening the likelihood of making serious mistakes
- Helping you reason better and argue persuasively
- Helping you with personal and group decision making

Although the study of critical thinking leads to mental independence, it is also a path to more productive work with others. It helps people to openly share the workings of their minds: to recognize and direct inner processes for understanding issues, to express ideas and beliefs, to make decisions, and to analyze and solve problems. Critical thinking allows us to welcome life’s problems as challenges to be solved. And it gives us the confidence that we can make sense and harmony out of a confusing world.

The Habits of a Critical Thinker

Many of the habits depicted in Table I.1 may already be part of your life; others may be as yet undeveloped. Because this book is about learning through your own discoveries, these habits will not be fully explained at this time. As you grow in your ability to recognize, monitor, and reshape your own critical thinking habits, you will begin to assimilate your own list. Once you have finished studying this book, you might return to the habits listed here in order to see how far you have come.

The goal is now clear; the time has come to start down its path.