What Is Thinking?

We are such stuff as thoughts are made on.
—ADAPTED FROM SHAKESPEARE

OUR CULTURAL LEGACY

In this book we encourage you to engage your mind and plunge into thinking. But first, let’s meet some powerful thinkers who have preceded us.

Humans were speaking, and thus thinking, many millennia before the Sumerians, the Egyptians, and the Phoenicians learned to write their thoughts. The Greeks took their alphabet and burst forth into song, literature, philosophy, rhetoric, history, art, politics, and science. Corax of Syracuse, perhaps the first rhetorician, taught us how to use words to pierce into other minds. The sophists, skeptics, and cynics asked us to question everything, including our own questioning. Socrates probed and prodded the Athenians to think: “The unexamined life is not worth living,” he said. And he threw down to us the ultimate gauntlet: “Know thyself.” Plato was so caught up with Socrates and with the pure power of the mind that he thought we were born with ideas and that these innate ideas were as close as we could come to divinity. Plato’s pupil, Aristotle, sharpened his senses to make impressive empirical observations that climbed toward first principles; then he honed his mind into the absolute logic of the syllogism that stepped inexorably, deductively downward.
The Roman rhetoricians Cicero, Tertullian, and Quintilian built massive structures of the mind and legal mentalities that rivaled Rome’s architectural vastness.

The medieval thinkers, mental to a point that matched their ethereal goals, created mental structures mainly based on Plato, fortified with the logic of Aristotle. Aquinas, in his Summa, forged an unmatched mental creation that, if one grants his premises, still stands as an unassailable mountain of the mind. In contrast to much of this abstraction was the clean cut of Ockham’s razor, slicing off unnecessary entities, and the welcome freshness of Anselm, who preempted Descartes by stating, “I doubt, therefore I know.”

The Renaissance thinkers turned their minds and energies to earthly navigation, sidereal science, art, pleasure, and empire. Some of these thinkers, like Leonardo da Vinci, returned to the Greeks (Archimedes); some like Montaigne recovered rich ore in the Romans, sifted by the skepticism described on a medal around his neck: Que sais je? (“What do I know?”).

Pascal called his whole book of aphorisms Thoughts. Descartes echoed Anselm—“I think, therefore I am”—and challenged our pride by telling us that “it is not enough to have a good mind. The main thing is to use it well” (Les Discours, Vol. 1). Those were the French rationalists.

No less rational, the British empiricists progressed from Locke’s Aristotelian focus on the senses (the mind as a tabula rasa), to Berkeley’s idea that we can be sure only of our perceptions to Hume’s radical skepticism.

Hegel looked on all history as an idea unfolding, and Marx concretized and capitalized that idea.

Twentieth-century thinkers like Wittgenstein, Whorf, and Chomsky all enter the open, unfolding, and marvelous arena of the mind. They welcome us to come, enter with them, and think. . . .

**WHY THINK?**

Is anything more important than thinking? Is anything important that is not connected with thinking? STOP! Did you think about the first question before you read the second one? Our guess is that many of you kept reading; consequently, you may have missed a chance to think.

**THINKING ACTIVITY 1.1**

**Things More Important Than Thinking**

Let’s start thinking now. Can you list anything more important than thinking?

1. 
2. 

(continued)
Thinking Activity 1.1 (continued)

Things More Important Than Thinking

3. 

4. 

What is on your list? How did you determine its value?

Thoughts Richer Than Gold

Take a look at the following very different lists. Are the items on any one list more important than thinking?

List A  List B  List C
1. money  breathing  goodness
2. good job  eating  life
3. nice house  exercising  love
4. new car  mating  truth

Think about list A. Although money is high on the list of American dreams, it cannot be earned or spent without the ability to think. Imagine a chimpanzee (limited ability) or a mannequin (no ability) trying to earn money or even spend it. Thinking is often behind the making of money. Larry Ellison, one of computer software’s financial giants, says: “I observe and I plan and I think and I strategize.” (Ramo, 1997, p. 58) Clearly, the ability to think is more important than money, jobs, houses, or cars.

What about list B? Is breathing more important than thinking? At this point we need to think more sharply and define the word *important*. If *important* means a sequentially first or necessary condition for something else to exist, then breathing is more important than thinking, for without oxygen the thinking brain quickly dies. But if *important* means a higher order or value, then thinking is of a higher order than breathing because breathing “serves” the brain (which, by the way, uses a disproportionately large amount of the oxygen). Rarely, however, does the cerebral cortex “serve” breathing, such as when one is studying to be a respiratory therapist.

Another way to understand that thinking is of a higher order than breathing is to realize that many philosophers since Aristotle have defined humans as “thinking animals.” In other words, horses and horseflies breathe, but thinking makes us human; if humans are of a higher order than animals, it is our thinking that makes us so. As a quality of a higher order, thinking is more important than eating, mating, or breathing.

And what do we think about list C? Are not goodness, life, love, and truth vast concepts of great importance? To weigh their importance against that of
thinking would take many pages and much thought; but to judge quickly the worth of thinking, we can again ask the question, is anything important that is not connected with thinking?

If we have thought of anything, we have just used our thinking process; thus we have connected thinking to the item we thought of, regardless of how important the item is. Similarly, love, life, truth, and goodness are necessarily connected with thinking. We may be able to mate without much thinking, like two fireflies, but we cannot love without thinking. Thus we think as we live life.

Just how important is thinking in relation to life? Since we think largely with language, consider how Wittgenstein connects life and thinking: “The limits of my language are the limits of my life.” Is this an accurate statement? Does language limit life so strictly? If so, does this limitation show the importance of language and thinking? We will meet this idea again in chapter 5, “Language: Our Thinking Medium.”

**Thinking as Possibility**

Our life at this moment, as we read this book and make choices about our actions today, is strictly limited by how much we have learned and by the thinking patterns we have developed. We can only choose to do what we know; for example, we simply cannot search for a sunken treasure unless we know that it sank. And the more we know and the better we can think with our knowledge, the more successful we are likely to be. If we know that a Spanish galleon, laden with Inca gold, sank in the Caribbean, and if we can think about the route it might have followed, the ocean currents, and its last reported sighting, then we might find the gold. More importantly, by thinking we might find the gold in our own lives.

**Thoughts Accumulate**

Tennyson tells us that “we are a part of all that we have met.” Likewise, we are also part of all that we have thought; to a degree, we have become what we have thought about, and who we will become is limited by how and what we think. If we reflected earlier about language limiting life, we probably realized that our thinking has set the boundaries for our past choices in life. We have chosen from what we have known and how we have been able to think about our knowledge.

**Life Without Thinking**

What if we acquired no new thoughts for the next ten years? Could we hold our jobs? What would we think about quarks and nanotechnology? How well would we talk to people?
What Is Thinking?

Right now you are thinking. Think about it. What exactly are you doing now? What is happening in your head as you think? Can you figure out how you have just processed these words into meaning? Simply put, how does your brain work?

The Mystery

Do not feel bad if you do not know the answer because neither do the experts. Humans have learned much about areas of the brain and neuroelectrochemical processes, but much is still to be discovered. We know more of the basic principles of the universe, of the atom, and of our bodies than we do of our brains. Newton drew the lines of forces connecting the earth to the stars, Einstein formulated the energy in matter, Watson and Crick cracked the genetic code, but the model for the brain has not yet been found. (Some possible models include tabula rasa, or blank tablet, memory grooves, a computer, a hologram, and recently the metaphor itself.) The brain remains a mystery.

Toward a Definition: Thinking as Communicating

If we do not understand the workings of the brain, if we cannot enter its inner sanctum and unfold its mystery, then how can we define thinking? One way to reach a definition is by observing the results of thinking as expressed in human communication. But what if some people claim that they do “thinking” that is totally internal and can never be externally communicated? We will not argue with them, but if they cannot talk about it or share it with us, their thinking cannot be useful to us. Therefore we can define thinking as the activity of the brain that can potentially be communicated. The media of communication are

The Centrality of Thinking

You have only to look at the diagram below to see the importance of, the centrality of, thinking. Much of the stimuli around you enters your mind, you process it, or think, and then, if you choose, you respond.

INPUT OUTPUT

Listen → Speak
Observe → THINKING → Act
Read → Write

COMMUNICATING: THE MIRROR OF THOUGHT

How do we think about our thinking? That's not an easy question because we are caught in a circle: trying to know our mind with our mind is analogous to trying to see our eyes with our eyes. The eyes need a reflector such as a mirror or a still pond to see themselves. Similarly, to understand our thinking we need a
mirror for our mind. Writing or talking can provide just such a mirror. Expressing our thoughts allows us to look at them more objectively; others, then, can share their ideas about our thinking, and so, ultimately, we can think better.

Writing records our thinking on a piece of paper so that we can then examine it. Try writing for sixty seconds as fast as you can on whatever comes to your mind without censoring any thought. In that way you will be able to externalize some of your thinking.

This externalization will probably not give us an exact replication of our thinking but will generate a cloudy mirror. The clouds will begin to clear if we repeat this activity often and learn to chart our thinking with our pen. Penning our thoughts is a challenge because the brain moves much faster than the pen, much faster than a “rapper” rapping 300 words per minute. The exact speed of the brain is not known, but let us guess that it is about 500 to 700 words per minute. Often the brain moves even faster because it does not think every word. Sometimes it leaps over phrases and whole groups of ideas to jump to almost instant insight.

We can also find out much about ourselves by looking for patterns in those sixty-second sketches: what are the topics that occupy our thoughts (people? things? money? work? home?) What is on our sixty-second list? How much time do we spend rehashing the past, processing the present, planning the future, or daydreaming about our fantasies? Placing a percentage alongside those time frames (past, present, future) might amaze us.

Attempt these sixty-second snapshots at different times and in different places to get other sketches of your mind. They will change greatly with your environment and your feelings.

**Thinking as Writing: Clarity, Exactness, Awareness, Richness**

*Print allows you to hold another’s mind in your hand*

—James Burke

Writing does more than mirror our mind, it can clarify it, sharpen our thinking, and enrich our mind with an understanding that was not there before we wrote.

Clarity is a gift writing gives to our thinking. Although many of us can “think on our feet,” few humans can continually think crystal clearly. Our brains rarely function continually at a high level of clarity. With writing we have a chance to achieve some of that clarity. We can put our thinking on paper and excise the ambiguity. This sentence, for instance, has been reworked until several readers approved of its clarity. And this clarity achieved in writing might even influence the type of person we are becoming: Francis Bacon tells us that writing makes an “exact” person.
Besides bringing clarity and exactness to our thinking, writing can intensify our physical and mental awareness. Just the attempt to describe what we are seeing, feeling, and thinking can allow us to see sharply, feel deeply, and think more clearly. Later we explore these areas more thoroughly, but a warm-up activity is given below.

Writing then, can mirror the mind, focus it into a state of clarity, and present new awarenesses. Beyond these gifts, writing offers another rich gift that is a paradox: when we pour water out of a glass we are emptying the glass, but when we pour thoughts out of our mind onto paper we are filling our mind. As we assemble those thoughts into a new written structure, we are writing a new combination of words that was not in our mind before we wrote it down; hence, this

**THINKING ACTIVITY 1.2**

**Thinking, Sensing, Writing**

Look around the room. In the first column quickly make a list of what you see.

1. 
2. 
3. 

Now in the second column make a list of what you did not see before. You can become aware of what you missed by looking between the items on your first list. If, for instance, your first item is a blackboard and your second item a student, notice what is between the blackboard and the student that you overlooked. Go ahead now and make a second list of overlooked items.

These two lists can tell you a lot about what kind of data you are putting into your mind. The first list might contain your usual observations, your usual “input” to your brain. The second list might contain items that you usually pass over. Now for the third list, try to see the most minute details of what you again overlooked. Try to see reflections of light, surface undulations, scratches and dents so small and so specific that they become hard to describe because there may not be exact words for them in our language. In the third column make a third list of small, sharp details that you see. To help you achieve this microscopic awareness, you may wish to peer into objects very close to you.

Has this third list helped you see new things? If you begin to record what you see, you will grow more alert and see what you never saw before. Try this looking activity in different places. And then attune yourself to your other senses of hearing, smell, touch, and taste. Respond with your feelings to what you sense. Finally, think about what you have sensed and felt. What does it mean?
powerful paradox: as we write something we create it both on the paper and in our mind. Thus, as we write we grow richer.

The poet Byron expresses this paradox in words that challenge our thinking:

'Tis to create, and in creating live
A being more intense, that we endow
With form our fancy, gaining as we give
The life we image.

Because writing is important as expressed thought, throughout this book you should take time to write out your thinking, especially when you wish clarification or feedback.

Thinking as Dialogue: Validation and Insight

Thought and speech are inseparable from each other.

—CARDINAL JOHN HENRY NEWMAN

We have seen that writing is a way to know, clarify, and enrich our thinking. Dialoguing is another way to attempt to know and understand our thinking. Dialoguing is simply talking with and listening to other people. They become the sounding boards, the graveyards, and the launching platforms of our thoughts. As we will see in a later chapter, dialoguing is crucial to test our thoughts.

While we talk (expressing our thoughts) we can watch what effect our words have on others. Do people wrinkle their foreheads and repeatedly ask us, “What do you mean?” Or do our words quickly and easily get our ideas across? Do people lose interest in what we are saying, or do our words have the power, precision, and logic to gain attention, to hold attention, and to convince others? Their reactions give us information that helps us to judge and adjust our thinking.

As we read these reactions of others we need to interpret them, but sometimes we get direct, focused comments from friends, students, or fellow learners who specifically critique our thinking as expressed in dialogue. One cautionary note concerning unrecorded dialogue is that it is gone as soon as it is spoken: “To base thought only on speech is to try nailing whispers to the wall” (Rosenthal, 1994). At the end of this chapter, some activities provide practice in critiquing dialogue.

Because human interaction is so important to our thinking, throughout this book we present activities that can be discussed, and we analyze the validity of dialogue in chapter 13, “Evaluating.” Besides validating our thinking, dialoguing can stimulate our thinking. Our thoughts can resound and rebound with
new shape and vigor from the thoughts of others. Our ideas can intermingle, cross-fertilize, and become the seeds for whole new species of thoughts. A single head is a lonely thinker; however, we can seek out classmates, friends, colleagues, and new acquaintances who can excite our mind.

MISTHINKING

The opposite of clear thinking is confusion, and it can lead to costly conclusions. A young American inventor appeared before Napoleon and offered him a means to defeat the British navy: a ship that could sail against the wind and waves and outmaneuver the British fleet. Napoleon scorned his offer, called the American a crackpot, and sent him away. That young man was Robert Fulton. Napoleon had just turned down the steamship.

Napoleon’s thinking error was common to most of us: he was blinded by the past. In addition, he was blinded by his quick temper. Instead of opening his mind and asking “how,” his imperial temper may have cost him the war. In chapter 2, “Personal Barriers,” we will examine our personal thinking tendencies and barriers that could blind us from thinking clearly.

Think About It: We are not emperors, but we have mental blinders and habitual filters that block our thinking. Think for a moment about how we could make serious blunders. What are some of the topics we just will not listen to, the people whom we will not hear, the books we will not touch? How could our own thinking patterns lead us to costly conclusions?

SUMMARY

We have thought about the enormous importance of our thinking and how it can greatly impact our future. We have even had the audacity to rate thinking as more important than money. Although much of thinking remains a mystery in the vast, unexplored realm of our brain, writing and speaking can provide an entry into our unknown selves. Writing can be a mirror of our thoughts, a mirror that can give us clarity, exactness, awareness, and richness. The opposite, cloudy thinking, can miss its mark and cost us dearly.

We have just begun to probe the mystery of thinking. In coming chapters we will look more deeply into our thinking patterns and the way our language, beliefs, and values influence those patterns. We will then look at some of our ma-
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ior thinking “bases”: sensing, feeling, creating, organizing, reasoning, scientific thinking, persuading, and problem solving; finally, we will look at evaluation, decision, and action.

THINKING CHALLENGES

We have already suggested several thinking activities that can begin to help you to understand the thinking process. The following thinking challenges are designed to stimulate your thinking about issues related to this chapter. Your responses to the activities and questions that conclude each chapter might take various forms:

- A simple reflection
- A journal entry
- A chat with a friend
- A dialogue with a student
- A class discussion
- A group discussion
- A formal paper
- A research project
- An individual or group presentation

1. How do you think differently from other people? Does your mind seem to move quickly or slowly. Do your thoughts come out in jumbles or clear steps? Are there certain times of the day that are better for certain types of thinking?

2. Write as you did for the 60-second snapshots of your thinking but for a longer time. Then look into your writings as the mirror of your mind. Gradually, see if you can wipe some of the fog off the glass and begin to get some understanding of what is in your mind.

3. Is Wittgenstein accurate when he says that “the limits of my language are the limits of my life”?

4. How might you think differently ten years from now according to the books you’ve read and the words you have written and spoken? What if you have not read any books?

5. Record a trip into your mind in any way you wish. You might try a stream-of-consciousness account like the novelist James Joyce, who often just lets the impressions of his mind pour out; you might make a list of associative thinking (for example black—white—snow—snowman—bully who knocked mine down . . . ). Enter a fantasy, a daydream, or any kind of thinking. The point is to attempt to become more aware of what you think about and how you think.
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6. Look around, in different places, and describe what you don’t usually see or hear. Think about why you do not usually see those things. What does this tell you about the interests of your mind?

7. Talk with someone else, and attempt to read the reactions your words are having on that person. Judge your thinking processes accordingly.

8. How might your particular thinking patterns lead you into costly errors? For instance, do you quickly accept what you read or hear? Do appearances of things or feelings of others strongly sway you?

9. Have you ever approached a problem, thought it through, and reached a decision that worked well for you? What were the thinking steps you took to produce those satisfactory results?

10. Have you ever jumped too quickly to a conclusion? Why? Have you ever been “absolutely certain” and then discovered you were wrong? What had you overlooked in your thinking?

11. If, as Tennyson says, “I am a part of all that I have met,” what are the main events, persons, and places that have formed you? How have they formed your mind?

12. Before we go further into this book, take some time to reflect upon the mystery of thinking. Ask yourself some questions that you would like to find answers to as you think through this book.