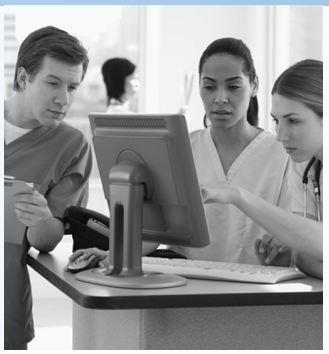
CHAPTER

1

What Is Critical Thinking, Clinical Reasoning, and Clinical Judgment?



This chapter at a glance

Critical Thinking: Behind Every Healed Patient
Critical Thinking: Not Simply Being Critical
Rewards of Learning to Think Critically
How This Book Helps You Improve Thinking
- Brain-Based Learning
- Organized for Novices and Experts

What's the Difference between Thinking and Critical Thinking?
Critical Thinking: Some Different Descriptions
- A Synonym: Reasoning
- Common Critical Thinking Descriptions

Critical Thinking, Clinical Reasoning, and Clinical Judgment
- Applied Definition

Problem-Focused Versus Outcome-Focused Thinking
What about Common Sense?
What Do Critical Thinkers Look Like?
Critical Thinking Indicators (CTIs)
What's Familiar and What's New?
- What's Familiar
- What's New

4-Circle CT Model: Get the Picture?
Thinking Ahead, Thinking-in-Action, Thinking Back (Reflecting)
Putting It All Together
Critical Thinking Exercises
Key Points/Summary

PRECHAPTER SELF TEST

Decide where you stand in relation to the learning outcomes.

Learning Outcomes

After completing this chapter, you should be able to:

1. Describe critical thinking (CT), clinical reasoning, and clinical judgment in your own words, based on the descriptions in this chapter.
2. Give at least three reasons why CT skills are essential for students and nurses.
3. Explain (or map) how the following terms are related to one another: critical thinking, clinical reasoning, clinical judgment, decision-making, problem-solving, and nursing process.
4. Identify four principles of the scientific method that are evident in CT.
5. Compare and contrast the terms *problem-focused thinking* and *outcome-focused thinking.*
6. Clarify the term *critical thinking indicator* (CTI).
7. Use CTIs, together with the 4-circle CT model, to identify five CT characteristics you'd like to improve.
8. Explain why knowing the nursing process is needed for clinical reasoning and passing the NCLEX® and other standard tests.
9. Identify the relationships among healthy workplaces, learning cultures, safety cultures, and CT.
10. Compare and contrast the terms *thinking ahead, thinking-in-action,* and *thinking back.*

CRITICAL THINKING: BEHIND EVERY HEALED PATIENT

A powerful quote from an online BLOG sets the stage for this chapter: "Behind every healed patient is a critical thinking nurse."[1]

Critical thinking—your ability to focus your thinking to get the results you need in various situations—makes the difference between whether you succeed or fail. Whether you need to set patient priorities, figure out how to collaborate with a difficult doctor, or develop a plan of care, critical thinking—deliberate, informed thought—is the key.

The journey to developing critical thinking starts with having a good understanding of what it IS. Too many nurses believe that critical thinking is like an "amorphous blob" that you can't describe—something that you're "just supposed to *do*."[2] This approach is not helpful. You must be specific about exactly what's involved when thinking critically in various contexts.

Thinking is a skill, just like music or tennis. It flows and changes depending on current conditions, and it requires gaining specific knowledge, skills, experience, and hands-on practice.

This chapter helps you begin the journey to improving thinking in two steps: (1) First you learn why health care organizations and nursing schools stress the need for critical thinking. (2) Secondly, you examine exactly what critical thinking is and how it relates to clinical reasoning and clinical judgment.

CRITICAL THINKING: NOT SIMPLY BEING CRITICAL

Before going on to examine what critical thinking in nursing entails, it's important that you realize one thing: critical thinking doesn't mean simply being critical. It means not accepting information at face value without carefully evaluating it. Consider the following description:

> Critical thinking clarifies goals, examines assumptions, uncovers hidden values, evaluates evidence, accomplishes actions, and assesses conclusions. "Critical" as used in "critical thinking" implies the importance or centrality of thinking to an issue, question, or problem of concern. It does not mean "disapproval" or "negative." Nurses often use critical thinking to imply thinking that's critical to be able to manage specific problems. For example: "We're working with our nurses to develop the critical thinking needed to identify people at risk for infection early."
>
> There are many positive uses of critical thinking—for example, formulating workable solutions to complex problems, deliberating about what courses of action to take, or analyzing the assumptions and quality of the methods used in scientifically arriving at a reasonable level of confidence about a hypothesis. Using critical thinking, we might evaluate an argument—for example, whether it's worthy of acceptance because it is valid and based on true premises. Upon reflection, we may evaluate whether an author,

speaker, or Web page is a credible source of knowledge on a given topic. **Source:** Adapted from http://en.wikipedia.org/wiki/Critical_thinking. Retrieved January 6, 2011.

RULE

Critical thinking—which centers not only on answering questions, but also on questioning answers—requires various types of thought (e.g., creative, reflective, and analytical thinking).[3] It also requires specific skills such as questioning, probing, and judging.

REWARDS OF LEARNING TO THINK CRITICALLY

Learning what critical thinking is—what it "looks like" and how you "do it" when circumstances change—helps you:

- **Gain confidence**, a trait that's crucial for success; lack of confidence is a "brain drain" that impedes thinking and performance.
- **Be safe and autonomous**, as it helps you decide when to take initiative and act independently, and when to get help.
- **Improve patient outcomes and your own job satisfaction** (nothing's more rewarding than seeing patients and families thrive because you made a difference).

Yet thinking isn't "like it always was." Health care delivery is increasingly complex and dynamic, requiring very specific thinking and workplace skills (Box 1-1). Consider how the following points relate to the importance of developing sound thinking skills:

- A high-performance workplace requires workers who have a solid foundation in thinking skills, and in the personal qualities that make workers dedicated and trustworthy.[4]
- In all settings, nurses must take on new responsibilities, collaborate with diverse individuals, and make more independent decisions.
- Critical thinking is the key to preventing and resolving problems. If you can't think critically, you become a part of the problems.
- Nurses' roles within the context of the entire workforce, the nursing shortage, societal issues, and new technology continue to evolve. As a nurse, you must be a key player in designing and implementing more effective and efficient health care systems.[5,6]
- The complexity of care today requires knowledgeable individuals who are thought-oriented rather than task-oriented. For the public to value the need for nurses, we must change our image from being simply "a caring, helpful hand" to one that shows that we have specific knowledge that's vital to keeping patients safe and helping them get and stay well. We must "wear not only our hearts, but also our brains on our sleeves."[7]
- Critical thinking is crucial to passing tests that demonstrate that you're qualified to practice nursing—for example, the National Council Licensure Examination (NCLEX), the Canadian Nurse Registered Examination (CNRE), and other certification exams.

BOX 1-1 KEY LEARNING AND WORKPLACE SKILLS

To succeed in the workplace and as learners, you must know how to:

- Be a self-starter and take initiative, ownership, and responsibility.
- Work independently and in groups to solve problems and develop plans.
- Teach yourself and others; advocate for yourself and others.
- Use resources: allocate time, money, materials, space, and human resources.
- Establish positive interpersonal relationships: work on teams, lead, negotiate, and work well with diverse individuals.
- Access, evaluate, and use information (organize and maintain files, interpret and communicate information, use computers to process data, and apply information to current situations.
- Assess social, organizational, and technologic systems.
- Apply professional and ethical standards to guide decision-making.
- Monitor and correct performance; design and improve systems.
- Use technology: select equipment and tools; apply technology to tasks; maintain and troubleshoot equipment.

Accomplishing the Above Requires You to Have the Following:

- Basic skills: reading, writing, speaking, listening, mathematics
- Thinking skills: knowing how to learn, reason, and think creatively, generate and evaluate ideas, see things in the mind's eye, make decisions, and solve problems
- Personal qualities: responsibility, self-esteem, self-confidence, self-management, sociability, and integrity

Source: Compiled from many documents on learning and working in the 21st century

- Patients and families must be active participants in making decisions; as the saying goes, "Nothing about me, without me." Knowing how to advocate and how to teach and empower patients and families to manage their own care requires highly developed critical thinking and interpersonal skills.
- Critical thinking skills are key to establishing the foundation for lifelong learning, a healthy workplace, and an organizational culture that's more concerned with reporting errors and promoting safety than "pointing fingers" and "blaming" (Box 1-2).

HOW THIS BOOK HELPS YOU IMPROVE THINKING

To keep your interest and help you understand and remember what you read, this book is designed based on principles of brain-based learning.[8,9] The following section explains brain-based learning and how this book helps both novices and experts improve thinking.

Brain-Based Learning

Brain-based learning uses strategies that help your brain get "plugged in to learning." For example:

BOX 1-2 HEALTHY WORKPLACE AND SAFETY AND LEARNING CULTURES

Healthy Workplace Environment

Healthy workplace standards form the foundation for a climate that fosters critical thinking by providing an atmosphere that's respectful, healing, and humane. These standards stress the need for: (1) effective communication, (2) true collaboration, (3) effective decision making, (4) appropriate staffing, (5) meaningful recognition, and 6) authentic leadership. A safe and respectful environment requires each standard to be maintained, because studies show that you don't get effective outcomes when any one standard is considered optional.

Safety Culture

When a group has a culture of safety, everyone feels responsible for safety and pursues it on a regular basis. Patient safety is top priority. To identify main causes of mistakes and build systems to prevent them, there's more concern about reporting errors than placing blame, Nurses, physicians, and technicians look out for one another and feel comfortable pointing out unsafe behaviors (e.g., when hand sanitation has been missed or when safety glasses should be worn). Safety takes precedence over egos or pressures to complete tasks with little help or time. The organization values and rewards such actions.

Learning Culture

In a learning culture, teaching and learning are key parts of daily activities. Everyone is encouraged to create learning opportunities and share information freely. Leaders, teachers, and staff are approachable and promote self-esteem and confidence by treating learners with kindness and showing genuine interest in them as people. Learners are encouraged to feel that they belong to the team. Teaching strategies to individuals, not tasks. Promoting research and improving care quality is "everyone's job."

References

American Association of Critical Care Nurses. Healthy Work Environments Initiatives. Retrieved Jan 11, 2011, from: http://www.aacn.org/WD/HWE/Content/hwehome.pcms?menu=Practice&lastmenu=

The Joint Commission. National Patient Safety Goals. Retrieved Jan 11, 2011, from: http://www.jointcommission.org/PatientSafety/NationalPatientSafetyGoals/

Hand, H. (2006). Promoting effective teaching and learning in the clinical setting. Nursing Standard, 20(39), 55-63.

Source: © 2011 R. Alfaro-LeFevre. www.AlfaroTeachSmart.com.

1. **You learn best when there's logical progression of content** and you're engaged by a conversational style that gives lots of examples, strategies, and exercises to help you apply content to the "real world."
2. **Gaining deep understanding requires intensive analysis,** which means thinking about the same topics in various ways.
3. **Understanding and retaining what you read requires that you make learning meaningful** by using your own unique way of processing how content relates to you personally, rather than trying to memorize a bunch of facts.
4. **Humor reduces stress, keeps your interest, and helps you learn.**

5. **Thinking is like any skill (e.g., music, art, athletics)**—We each have our own styles and innate or learned capabilities. We can all improve by gaining insight, acquiring instruction and feedback, and deliberately working on the skills in real and simulated situations.

Organized for Novices and Experts

Whether you're a novice or an expert, the following organization helps you connect with what you already know, and move on to developing the complex skills you need to succeed today.

- **This chapter and Chapter 2 build the foundation for developing critical thinking, clinical reasoning, and clinical judgment.** Here, with specific examples and strategies, you learn exactly what it takes to improve your ability to think your way through nursing and personal challenges.
- **Chapters 3 and 4 help you gain the knowledge and skills required to succeed in six common nursing situations:** 1) clinical reasoning and judgment, 2) moral and ethical reasoning, 3) research and evidence-based practice, 4) teaching ourselves, 5) teaching others, and 6) test-taking. Beginning students sometimes like to jump to Chapter 4, where *teaching others, teaching ourselves,* and *taking tests* are discussed, before reading other chapters. This is a good example of making learning meaningful. Read what you're most interested in first.
- **Chapter 5 helps you develop specific clinical reasoning skills by working with case scenarios that are based on real incidents.** In this section, you gain a deep understanding of nursing process skills, such as assessing systematically, identifying patient-centered outcomes, and setting priorities. You learn not only *how* to accomplish these skills, but *why* they are essential to developing sound clinical reasoning and judgment.
- **Chapter 6 helps you develop communication, interpersonal, teamwork, and self-management skills** (e.g., managing your time). When you know how to communicate effectively, manage your emotions, organize your time, and build positive relationships with patients and team members, you spend less time getting sidetracked by interpersonal and "human nature" problems—and more time fully engaged in progress. Here, in the section titled *How to Prevent and Deal with Mistakes Constructively,* you also learn how to meet quality and safety standards and keep patients, caregivers, and yourself safe. The skills in this section are often considered to be leadership skills. Today, every nurse must be a leader. Advocating for your patients, yourself, your peers, and your community requires highly developed interpersonal and communication abilities.

You'll find many helpful Internet resources throughout this book. For direct links to all listed URLs, go to http://evolve.elsevier.com/Alfaro-LeFevre/CT.

WHAT'S THE DIFFERENCE BETWEEN THINKING AND CRITICAL THINKING?

The main difference between thinking and critical thinking is *purpose and control.* Thinking refers to any mental activity. It can be "mindless," like when you're daydreaming or doing routine tasks like brushing your teeth. Critical thinking is controlled and purposeful, using well-reasoned strategies to get the results you need.

CRITICAL THINKING: SOME DIFFERENT DESCRIPTIONS

Critical thinking is a complex process that's highly influenced by emotions and changes depending on context—what you're trying to accomplish. For these reasons, there is no one *right* definition for critical thinking. Many authors (including me) develop their own descriptions to complement and clarify someone else's (which is, by the way, a good example of thinking critically: critical thinking requires you to "personalize" information—to analyze it and decide what it means to you rather than simply memorizing someone else's words). Think about the following synonym and commonly seen descriptions.

A Synonym: Reasoning

A good synonym for critical thinking is *reasoning*. *Reasoning* is a good synonym because it implies careful, deliberate thought (as compared to *thinking,* which can be random and uncontrolled). Today, schools stress "four *R*s": reading, 'riting, 'rithmetic, and *reasoning*.

Common Critical Thinking Descriptions

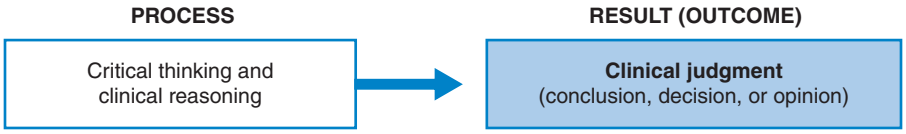
Consider the following commonly seen descriptions of critical thinking:

- "Knowing how to learn, reason, think creatively, generate and evaluate ideas, see things in the mind's eye, make decisions, and solve problems"[10]
- "Reasonable, reflective thinking that focuses on what to believe or do"[11]
- "The ability to solve problems by making sense of information using creative, intuitive, logical, and analytical mental processes … and the process is continual"[12]
- "The process of purposeful, self-regulatory judgment … the cognitive engine that drives problem solving"[13]
- "Thinking about your thinking, while you're thinking, to make it better, more clear, accurate, and defensible"[14]
- "Knowing how to focus your thinking to get the results you need (includes using logic, intuition, and evidence-based practice)"[15]

CRITICAL THINKING, CLINICAL REASONING, AND CLINICAL JUDGMENT

The terms *critical thinking, clinical reasoning,* and *clinical judgment* are often used interchangeably. But there is a slight difference in how nurses use these terms:

- **Critical thinking**—a broad term—includes reasoning both outside and inside of the clinical setting. Clinical reasoning and clinical judgment are key pieces of critical thinking in nursing.
- **Clinical reasoning**—a specific term—usually refers to ways of thinking about patient care issues (determining, preventing, and managing patient problems). For reasoning about other clinical issues (e.g., teamwork, collaboration, and streamlining work flow), nurses usually use the term *critical thinking*.
- **Clinical judgment** refers to the result (outcome) of critical thinking or clinical reasoning—the conclusion, decision, or opinion you make.



American Nurses Association (ANA) standards state that the nursing process—*assessment, diagnosis, outcome identification, planning, implementation,* and *evaluation*—serves as a critical thinking model that promotes a competent level of care.[16] (Using the nursing process as a critical thinking/clinical reasoning tool is discussed in depth in Chapters 3 and 5, after you learn the basic principles of critical thinking).

To clarify your understanding of the relationship of critical thinking to reasoning inside and outside of the clinical setting, study Figure 1-1. This figure also highlights requirements of ANA standards, Quality and Safety Education for Nurses (QSEN), and Institute of Medicine (IOM) competencies.

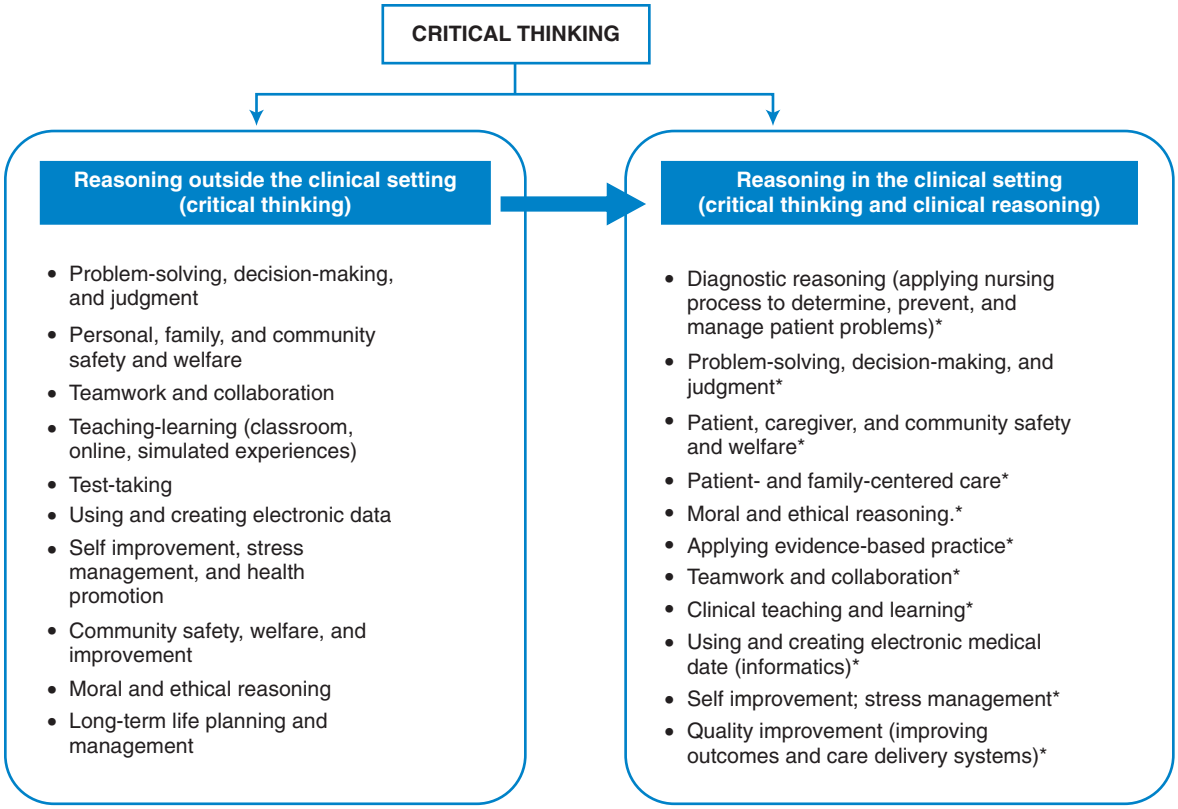
Applied Definition

To understand what's involved in thinking critically in the clinical setting—a setting that's challenging, complex, and regulated by laws and standards—study the following definition.

Applied Definition

Critical thinking in nursing—which includes clinical reasoning and clinical judgment—is purposeful, informed, outcome-focused thinking that:

- **Is guided by standards, policies, ethics codes, and laws** (individual state practice acts and state boards of nursing).
- **Is based on principles of nursing process, problem-solving, and the scientific method** (requires forming opinions and making decisions based on evidence).
- **Focuses on safety and quality,** constantly re-evaluating, self-correcting, and striving to improve.
- **Carefully identifies the key problems, issues, and risks involved,** including patients, families, and key stakeholders in decision-making early in the process.*
- **Applies logic, intuition, and creativity** and is grounded in specific knowledge, skills, and experience.



*Relates to ANA practice standards, The Joint Commission Standards, Quality and Safety Education for Nurses competencies, and Institute of Medicine competencies

FIGURE 1-1 The above shows that *critical thinking* is an "umbrella term" that includes many aspects of reasoning inside and outside of the clinical setting. The terms *clinical reasoning, critical thinking, problem-solving,* and *decision-making* are often used interchangeably. *Clinical reasoning* usually refers to reasoning about patient care issues (applying the nursing process to determine, prevent, and manage patient problems). For reasoning about other clinical issues (e.g., teamwork, collaboration, and streamlining work flow), the term *critical thinking* is usually used. Your ability to reason *outside of the clinical setting* affects your ability to reason *in the clinical setting*. (**Source:** © 2011 R. Alfaro-LeFevre. www.AlfaroTeachSmart.com.)

- **Is driven by patient, family, and community needs,** as well as nurses' needs to give competent efficient care (e.g., streamlining charting to free nurses for patient care).
- **Calls for strategies that make the most of human potential** and compensate for problems created by human nature (e.g., finding ways to prevent errors, using technology, and overcoming the powerful influence of personal views).

**Stakeholders* are the people who will be most affected (patients and families) or from whom requirements will be drawn (e.g., caregivers, insurance companies, third-party payers, health care organizations).

PROBLEM-FOCUSED VERSUS OUTCOME-FOCUSED THINKING

Problem-focus thinking and outcome-focused thinking are closely related. You must have excellent problem-solving skills to get the results you need. But, keep the following points in mind.

- **There are many ways to solve a problem.** There are quick fixes, "one-size-fits-all" solutions, temporary and long-term solutions, and solutions that are satisfactory but could be better. Outcome-focused thinking aims to fix problems in ways that get you *the best results.*
- **Sometimes there are so many problems that the best approach may be to focus on *outcomes* rather than *problems.*** For example, if you work on a team with many interpersonal problems, your manager might say, "We have a long history of problems, and it will take forever to fix them. I want to see us all working as a team. I'm asking you to put the problems aside and get agreement on roles, responsibilities, and behavior, so that our patients get good care and we enjoy coming to work."

RULE

Critical thinking requires excellent problem-solving skills, as well as the ability to look ahead and decide exactly what outcomes (results) must be achieved.

WHAT ABOUT COMMON SENSE?

Some people believe that critical thinking is simply *common sense,* something that can't be taught. However, this belief is grounded on superficial understanding of what critical thinking is and how you get common sense. Although some people are born with common sense, a lot of it is *learned from experience*. You can put someone with great common sense in a new or stressful situation, and you're likely to see behaviors that don't seem at all sensible. Think about the following scenario.

Scenario
CRITICAL THINKING: SIMPLY COMMON SENSE?

As an evening supervisor, I stopped to check on a new graduate who was in charge for the first time. She appeared to be "in over her head," nervous and running around. Calmly, I asked how things were going. She replied, "Fine, except for the man in Room 203. His temperature was 104° an hour ago. We drew blood cultures, gave aspirin, and started him on antibiotics." I asked, "What's the temperature now?" She replied, "He's not due until 8 pm" (3 hours later). It seemed common sense to me that you would check the temperature more frequently when it was that high. Wanting to set a collaborative tone, I stressed the need to check it more frequently, and asked her to keep me informed. I also made sure I came back frequently to see how things were going. At the time, I believed this nurse had no common sense, but she went on to be an excellent clinician with a track record of success. She was simply inexperienced, nervous, and overwhelmed in a new situation. She may even have been subconsciously defending an oversight.

Scenario
CRITICAL THINKING: SIMPLY COMMON SENSE?—Cont'd

Common sense may be innate, but it also comes from knowledge, experience, and an ability to focus on what's important. What may be common sense to you, based on your upbringing, schooling, or experience, may not be so to someone else. If you encounter someone who seems to have no common sense, don't jump to conclusions. Dig a little deeper to determine the real problems: Is there a knowledge, confidence, communication, or organizational skills problem? Is the person simply inexperienced or stressed by a new environment? Has the person become complacent? Could a learning disability be contributing to the problem? Like critical thinking, common sense often can be taught if you determine the underlying problems and do something about them.

WHAT DO CRITICAL THINKERS LOOK LIKE?

Research shows that most critical thinkers have high foreheads and furrowed brows, probably because of all the thinking they do. If you're not questioning this statement, then you're not thinking critically about what you're reading. When I ask, "What do critical thinkers look like?" I mean, "What characteristics do we see in someone who thinks critically?" Consider the following description:

The ideal critical thinker is habitually inquisitive, self-informed, trustful of reason, open-minded, flexible, fair-minded in evaluation, honest in facing personal biases, prudent in making judgments, willing to reconsider, clear about issues, orderly in complex matters, diligent in seeking relevant information, reasonable in selecting criteria, focused in inquiry, and persistent in seeking results that are as precise as the subject and the circumstances of inquiry permit.[17]

CRITICAL THINKING INDICATORS (CTIs)

Studying *behavior*—what good thinkers *do and say*—helps you get a picture of what critical thinkers "look like." Page •• shows personal critical thinking indicators (CTIs). CTIs are brief descriptions of behaviors/attitudes usually seen in individuals who are critical thinkers). These behaviors are called *critical thinking indicators* because they *indicate* characteristics of critical thinkers. To gain an understanding of these indicators, review the box and rate where you stand in relation to each indicator, using the following 0 to 10 scale:

0 = This indicator is not easy for me

10 = This indicator is pretty much a habit for me

As you evaluate yourself, keep in mind that no one is perfect—there's no ideal critical thinker who demonstrates *all* of the characteristics. Realize that even the best thinkers' characteristics vary, depending on circumstances such as confidence level and previous experience. What matters are *patterns of behavior* over time (is the behavior usually evident?). Remember that some of you, due to your nature, will be harder on yourselves than others (and vice versa). If you have some trusted friends, peers, or family members,

ask them how they see your behavior. Ask them to focus on *usual patterns of behaviors* (not single incidents), and to give you specific examples. The results of this exercise may reaffirm or surprise you.

PERSONAL CRITICAL THINKING INDICATORS (CTIs)

PERSONAL CTIs are brief descriptions of behaviors, attitudes, and qualities often seen in individuals who are critical thinkers.

- **SELF-AWARE:** Identifies own learning, personality, and communication style preferences; clarifies biases, strengths, and limitations; acknowledges when thinking may be influenced by emotions or self-interest.
- **GENUINE/AUTHENTIC:** Shows true self; demonstrates behaviors that indicate stated values.
- **EFFECTIVE COMMUNICATOR:** Listens well (shows deep understanding of others' thoughts, feelings, and circumstances); speaks and writes with clarity (gets key points across to others).
- **CURIOUS AND INQUISITIVE:** Asks questions; looks for reasons, explanations, and meaning; seeks new information to broaden understanding.
- **ALERT TO CONTEXT:** Looks for changes in circumstances that warrant a need to modify approaches; investigates thoroughly when situations warrant precise, in-depth thinking.
- **ANALYTICAL AND INSIGHTFUL:** Identifies relationships; expresses deep understanding.
- **LOGICAL AND INTUITIVE:** Draws reasonable conclusions (if this is so, then it follows that …because…); uses intuition as a guide; acts on intuition only with knowledge of risks involved.
- **CONFIDENT AND RESILIENT:** Expresses faith in ability to reason and learn; overcomes problems and disappointments.
- **HONEST AND UPRIGHT:** Looks for the truth, even if it sheds unwanted light; demonstrates integrity (adheres to moral and ethical standards; admits flaws in thinking).
- **AUTONOMOUS/RESPONSIBLE:** Self-directed, self-disciplined, and accepts accountability.
- **CAREFUL AND PRUDENT:** Seeks help as needed; suspends or revises judgment as indicated by new or incomplete data.
- **OPEN AND FAIR-MINDED:** Shows tolerance for different viewpoints; questions how own viewpoints are influencing thinking.
- **SENSITIVE TO DIVERSITY:** Expresses appreciation of human differences related to values, culture, personality, or learning style preferences; adapts to preferences when feasible.
- **CREATIVE:** Offers alternative solutions and approaches; comes up with useful ideas.
- **REALISTIC AND PRACTICAL:** Admits when things aren't feasible; looks for useful solutions.
- **REFLECTIVE AND SELF-CORRECTIVE:** Carefully considers meaning of data and interpersonal interactions; asks for feedback; corrects own thinking; alert to potential errors by self and others; finds ways to avoid future mistakes.
- **PROACTIVE:** Anticipates consequences; plans ahead; acts on opportunities.
- **COURAGEOUS:** Stands up for beliefs; advocates for others; doesn't hide from challenges.
- **PATIENT AND PERSISTENT:** Waits for right moment; perseveres to achieve best results.
- **FLEXIBLE:** Changes approaches as needed to get the best results.
- **HEALTHY:** Promotes a healthy lifestyle; uses healthy behaviors to manage stress.
- **IMPROVEMENT-ORIENTED (SELF, PATIENTS, SYSTEMS): SELF**—Identifies learning needs; finds ways to overcome limitations, seeks out new knowledge. **PATIENTS**—Promotes health; maximizes function, comfort, and convenience. **SYSTEMS**—Identifies risks and problems with health care systems; promotes safety, quality, satisfaction, and cost containment.
  NOTE: The above is the ideal—no one is perfect.

Source: Alfaro-LeFevre, R. (2011). Evidence-based critical thinking indicators. All rights reserved. No use without permission. Available at www.AlfaroTeachSmart.com.

Box 1-3 (page ••) shows how other authors describe critical thinking traits. These traits were incorporated into the CTIs using simpler terms. Table 1-1 (page ••) gives examples of what critical thinking is and what it's *not*.

TABLE 1-1 **CRITICAL THINKING: WHAT IT IS AND WHAT IT'S NOT**

Critical Thinking	Not Critical Thinking	Example of Critical Thinking
Organized and explained well by using words, examples, pictures, or graphics	Disorganized and vague	Persisting until you find a way to make your ideas easy to understand; using examples and illustrations to facilitate understanding
Critical for the sake of improvement, new ideas, and doing things in the best interest of the key players involved	Critical for the sake of attacking without being able to suggest new ideas and alternatives; critical for the sake of having it your way	Determining key players affected, and then looking for flaws in the way something is done and figuring out ways to achieve the same outcomes more easily or better
Inquisitive about intent, facts, and reasons behind an idea or action; thought- and knowledge-oriented	Unconcerned about motives, facts, and reasons behind an idea or action; task-oriented, rather than thought-oriented	Raising questions to deeply understand what happened, why it happened, and what was being attempted when it happened
Sensitive to the powerful influence of emotions, but focused on making decisions based on what's morally and ethically the right thing to do	Emotion-driven	Finding out how someone feels about something, then moving on to discuss what's morally and ethically right
Communicative and collaborative with others when dealing with complex issues	Isolated, competitive, or unable to communicate with others when dealing with complex issues	Seeking multidisciplinary approaches to planning care as indicated by client needs

BOX 1-3 HOW OTHER AUTHORS DESCRIBE CRITICAL THINKING TRAITS

Scheffer and Rubenfeld's Habits of the Mind[1]

- **CONFIDENCE:** Assurance of one's reasoning abilities
- **CONTEXTUAL PERSPECTIVE:** Consideration of the whole situation, including relationships, background, and environment relevant to some happening
- **CREATIVITY:** Intellectual inventiveness used to generate, discover, or restructure ideas. Imagining alternatives.
- **FLEXIBILITY:** Capacity to adapt, accommodate, modify, or change thoughts, ideas, and behaviors
- **INQUISITIVENESS:** An eagerness to know, demonstrated by seeking knowledge and understanding through observation, and thoughtful questioning to explore possibilities and alternatives
- **INTELLECTUAL INTEGRITY:** Seeking the truth through sincere, honest processes, even if the results are contrary to one's assumptions and beliefs
- **INTUITION:** Insightful sense of knowing without conscious use of reason
- **OPEN-MINDEDNESS:** A viewpoint characterized by being receptive to divergent views and sensitive to one's biases
- **PERSEVERANCE:** Pursuit of a course with determination to overcome obstacles
- **REFLECTION:** Contemplation upon a subject, especially on one's assumptions and thinking for the purposes of deeper understanding and self-evaluation

Facione's Critical Thinking Dispositions[2]

- **TRUTHSEEKING:** A courageous desire for the best knowledge, even if such knowledge fails to support or undermines one's preconceptions, beliefs, or self-interest
- **OPEN-MINDEDNESS:** Tolerance of divergent views; self-monitoring for possible bias
- **ANALYTICITY:** Demanding the application of reason and evidence; alert to problematic situations; inclined to anticipate consequences
- **SYSTEMATICITY:** Valuing organization; focusing; being diligent about problems of all levels of complexity
- **CRITICAL THINKING SELF-CONFIDENCE:** Trusting one's own reasoning skills; seeing oneself as a good thinker
- **INQUISITIVENESS:** Curious and eager to acquire knowledge and learn explanations even when the applications of the knowledge are not immediately apparent
- **MATURITY:** Prudence in making, suspending, or revising judgment; awareness that multiple solutions can be acceptable; appreciation of the need to reach closure even in the absence of complete knowledge

Paul and Elder's Intellectual Traits[3]

- **INTELLECTUAL HUMILITY:** Consciousness of limits of your knowledge; willingness to admit what you don't know
- **INTELLECTUAL COURAGE:** Awareness of the need to face and fairly address ideas, beliefs, or viewpoints to which you haven't given serious hearing
- **INTELLECTUAL EMPATHY:** Consciousness of the need to imaginatively put yourself in the place of others to genuinely understand them
- **INTELLECTUAL AUTONOMY:** Having control over your beliefs, values, and inferences; being an independent thinker
- **INTELLECTUAL INTEGRITY:** Being true to your own thinking; applying intellectual standards to thinking; holding yourself to the same standards you hold others; willingness to admit when your thinking may be flawed
- **CONFIDENCE IN REASON:** Confidence that, in the long run, using your own thinking and encouraging others to do the same gets the best results
- **FAIR-MINDEDNESS:** Awareness of the need to treat all viewpoints alike, with awareness of vested interest

[1]Scheffer, B., and Rubenfeld, M. (2000). A consensus statement on critical thinking in nursing. Journal of Nursing Education. 39 (8): 353.

[2]Facione, P. Critical Thinking: What it is and why it counts (2010 Update). Retrieved June 1, 2010, from http://www.insightassessment.com/pdf_files/what&why2007.pdf

[3]Paul, R., and Elder, L. Valuable intellectual traits. Retrieved December 4, 2010, from http://www.criticalthinking.org/articles/valuable-intellectual-traits.cfm.

WHAT'S FAMILIAR AND WHAT'S NEW?

We understand something best by comparing it with things we already know: How is it the same, and how is it different? Let's examine what's familiar and what's new about critical thinking.

What's Familiar

Problem-solving. Knowing specific problem-solving strategies is a key part of critical thinking. For example, if you're caring for someone after heart surgery, you must know strategies to prevent and treat complications. Be aware, however, that using *problem solving* interchangeably with *critical thinking* can be a "sore subject." *Problem solving* is missing the important concepts of prevention, creativity, improvement, and aiming for the best results. Even if there are no problems, you should be thinking creatively, asking, "What could we do better?" and "How can we prevent problems before they happen?"

Analyzing. Although being analytical is important, critical thinking requires more than analyzing. It requires coming up with new ideas (right-brain thinking) and judging the worth of those ideas (left-brain thinking). Some overly analytical people suffer from "analysis paralysis," over-thinking problems when they should be taking action.

Decision-making. *Decision-making* and *critical thinking* are sometimes used interchangeably. Making decisions is an important part of critical thinking.

Scientific Method. This is an excellent tool for critical thinking, as it has been well studied and applies the following principles of scientific investigation:

- **Observing:** Continuously observing and examining to collect data, check for changes, and gain understanding
- **Classifying data:** Grouping related information so that patterns and relationships emerge
- **Drawing conclusions** that follow logically: "If this is so, then…."
- **Conducting experiments:** Performing studies to examine hypotheses (hunches or suspicions) and identify ways to improve
- **Testing hypotheses (hunches):** Determining whether we have factual evidence to support our hunches, assumptions, or suspicions

What's New

Emotional Quotient (EQ). EQ—the ability to recognize and manage your own emotions and help other do the same— is as important to critical thinking as IQ (intelligence quotient).

So-called "Soft Skills" Aren't Soft. For years, we called communication and interpersonal skills the "soft skills" of nursing, implying that clinical skills such as managing intravenous lines are the most important skills. We now know that communication and interpersonal skills such as engaging patients, dealing with difficult people, and resolving

conflicts are crucial to critical thinking. These types of skills take considerable knowledge and practice and must be as good as clinical skills.[18,19]

Right and Left Brain Thinking. Critical thinking requires right-brain thinking (generating new ideas) and left-brain thinking (analyzing and judging the worth of those ideas).

Maximizing Human Potential. We're only just beginning to identify ways to maximize the human potential to think critically. For example, new brain imaging techniques show us what parts of the brain are being used in various thinking and tasks, helping us learn how individuals use their brains. People survive brain injuries that used to be fatal, and we continue to learn from their rehabilitation. For example, some people who have had strokes cannot speak, but they can sing words. We're learning how to use brain techniques not only to learn, but also to promote healing, stress reduction, and wellness.

Mapping as a Strategy to Teach and Learn. Maps and decision trees created by experts guide seasoned and new nurses. Maps developed by learners promote deep personal understanding. They help learners make connections between concepts and information in their own unique way. You can find the "how to's" of concept mapping in Appendix A (page ••).

Changing How We View Mistakes. We now know that being allowed to make mistakes in safe situations (e.g., simulations) is a powerful way to learn. Experts also agree that "to err is human" and that most errors happen because of multiple factors and system problems (e.g. look-alike drugs or inadequate staffing or staff preparation). Humans are vulnerable to making mistakes due to "human factors" (e.g. stress, fatigue, information overload). Reducing errors related to human factors (e.g., using computers and decision support systems) is now the norm.[20]

"What-if" Scenarios—Being Prepared. Today, we have greater emphasis on developing detailed policies and procedures to address "what-if" scenarios (e.g., bioterrorism or pandemics) and be prepared.

Evidence-Based Thinking Stressed. Clinicians are expected to provide evidence that supports opinions, solutions, and courses of action. We must be confident when we're asked questions like, "What evidence do you have that this will work?" or "What data are you using to support that this is the problem or that this is a good solution?"

Measuring Outcomes (Results). Critical thinking makes it necessary to develop very specific ways to measure progress and results. For example, in the case of pain management, you don't ask a general question like, "Are you more comfortable?" You ask, "Can you rate your pain on a scale of 0 to 10, with 0 meaning pain-free, and 10 meaning the worst possible pain?"

Collaborative Thinking. The workforce is diverse. We must find ways to facilitate "meetings of the minds" to get the collaborative approaches we need today.

Relating on a "Human Level" Matters. Understanding personal interests and passions and showing your "human side" helps build the relationships needed for critical thinking.

Showing your human side and using humor can help you connect with patients.

4-CIRCLE CT MODEL: GET THE PICTURE?

Whereas CTIs give verbal descriptions of behaviors that promote critical thinking, the 4-circle CT model shown on the inside front cover *creates a picture* of what critical thinking involves. Study the four circles. Note that critical thinking (CT) requires a blend of CT characteristics, theoretical and experiential knowledge, interpersonal skills, and technical skills. Realize that the top circle—CT characteristics—corresponds with the CTIs listed on page ••. Use a highlighter or pencil to shade in that top circle. Then, put into the circle some of the CTIs from page •• that you'd like to develop. In the next chapters, we'll address the other circles in more depth. For now, remember that if you develop the CT characteristics and attitudes in the *top* circle (e.g., confidence, resilience, and being proactive), developing the skills in the other *three* circles of the model will be easier.

THINKING AHEAD, THINKING-IN-ACTION, THINKING BACK (REFLECTING)

Critical thinking is contextual, which means it changes depending on circumstances. The saying "one size doesn't fit all" applies. Let's finish this chapter by addressing the

importance of looking at critical thinking from three perspectives: *thinking ahead, thinking-in-action,* and *thinking back (reflective thinking).*

Consider the following descriptions, and think about the differences in each circumstance.

1. **Thinking Ahead:** Anticipating what might happen and being proactive by identifying what you can do to be prepared. For novices, thinking ahead is difficult and sometimes restricted to reading procedure manuals and textbooks. An important part of being proactive is asking questions like "What can I bring with me to help jog my memory and stay focused and organized?"
2. **Thinking-in-Action:** Rapid, dynamic reasoning that considers several things at once, making it difficult to describe. For example, suppose you find your stove on fire. As you spring into action, your mind races, thinking about many things at once (How can I put this out? Where's the fire extinguisher? Should I call the fire department?). Thinking-in-action is highly influenced by previous knowledge and hands-on experience. To keep safety first, in all important situations, keep experts nearby who have extensive experiential knowledge stored in their brains. If you encountered a fire, wouldn't you like to have a fireman standing at your side? Thinking-in-action is prone to "knee-jerk" responses and decisions. To use the fire example again, an untrained person may throw water on a grease fire, which can make it worse.
3. **Thinking Back (Reflective Thinking):** Analyzing the reasoning you used to look for flaws, gain more understanding, and correct and improve it. Experienced nurses double-check their thinking in dynamic ways during thinking-in-action. However, this doesn't replace reflective thinking that happens after the fact. Deliberate, methodical reflective thinking that happens *after the fact,* using specific strategies and tools (e.g., journaling, chart reviews, honest dialogue with others) brings new insights, more depth, and greater accuracy; you can more objectively identify "lessons learned" from experience.

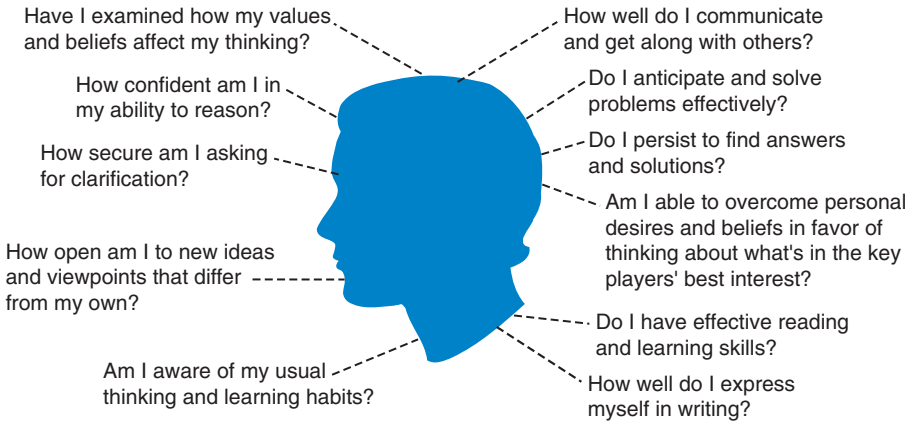
Considering all three of the above phases of thinking helps you examine thinking in a holistic way. If you look only at *one phase,* you'll miss important parts of thinking.

PUTTING IT ALL TOGETHER

By now, you should have an idea of what critical thinking, clinical reasoning, and clinical judgment entail. To solidify your understanding of this chapter, take a few moments to decide where you stand in relation to "Questions to Evaluate Your CT Potential" (page ••).

Then study the instructions on completing the exercises throughout this book (page ••), and complete the end-of-chapter exercises.

Questions to Evaluate Your CT Potential



CRITICAL MOMENTS

GOOD QUESTION!

Socrates learned more from questioning others than he did from reading books. Learn to be confident asking questions. Seek other opinions, and question deeply to gain understanding. Don't think you have to know all the answers. Simply saying "Good question!" often sparks great critical thinking.

LOOK FOR AHAS!

We say "Aha!" when we suddenly realize something or have our suspicions confirmed. We say, "Aha!" when we connect with something that was in the back of our minds but never put into words. As you read this book, look for "ahas." These moments of "light bulbs going off in your head" are energizing. They bring new ideas and stimulate you to learn more.

OTHER PERSPECTIVES

HOW TO THINK LIKE EINSTEIN

"It's not that I'm smart, it's just that I stick with problems longer."

—*Albert Einstein*

CRITICAL THINKING TRIGGERED BY POSITIVE EVENTS, NOT JUST PROBLEMS

In some hospitals, when a baby is born, everyone shares in the celebration. With each birth, the public address system plays Brahms' Lullaby. Patients love it—even oncology patients, who say it lifts their spirits and allows them to share someone else's joy. Parents who have just lost their baby are given the option of playing the lullaby or not. Many of them choose to have it played for their baby. "Playing the music is a simple thing that can be done for patients and families that costs nothing and brings a great deal of pleasure."

—Jean Young, Patient Care Manager

Making the Most out of the Exercises in This Book

All exercises, except for the ones labeled *Think, Pair, Share* (see last point here) have example responses listed in the *Response Key* beginning on page ••. Compare your responses with the responses of others and those in the *Response Key*. Remember that these are *example* responses, not the *only* responses. You may have a response that's different but equally as good as the example response. The main point is that you learn by evaluating the thinking you put into completing the exercise and the content in each chapter. If you have questions about whether your responses are appropriate, check with your instructor.

Apply strategies that use your own learning style preferences (page ••). Consider drawing pictures, diagrams, and maps to make connections between concepts. If you need help with mapping, see *Concept Mapping: Getting in the "Right" State of Mind* (page ••).

When writing responses, at first be more concerned with substance than grammar (as you would if you were writing a diary). However, as you progress, apply grammar rules, and make your responses clear to others. Making your responses clear to others helps you clarify your thoughts. Following grammar rules improves clarity and gives you practice for writing other important papers and communications.

Don't be afraid to paraphrase. Paraphrasing helps you gain understanding because you explain what you read using familiar language (your own). To avoid concerns of plagiarism, cite the page numbers you're paraphrasing.

Consider how the exercises can be improved: Give suggestions to your instructor, and send them to us by clicking on "Contact Us" at www.AlfaroTeachSmart.com. If your suggestion is unique, we will post it on the Web and cite you as the contributor of the exercise.

THINK, PAIR, SHARE*: This strategy promotes efficient, cooperative learning, and has three main steps: (1) Think about a question or issue independently, jotting down three thoughts or questions that seem important to you. (2) Pair off with a partner: discuss what you each jotted down; write down things your partner listed that you did

not; together with your partner, choose 1 to 3 of the most important points you want to share with the group. (3) Share these in a group discussion. You can find a template for completing *Think, Pair, Share* exercises at www.AlfaroTeachSmart.com or http://evolve.elsevier.com/Alfaro-LeFevre/CT.

*Developed by Frank Lyman at the University of Maryland. For more on this strategy, visit http://www.eazhull.org.uk/nlc/think,_pair,_share.htm

Critical Thinking Exercises

1. When you form an opinion, you draw a conclusion from *facts* (evidence).
   a. What's the difference between facts and opinions?
   b. How can you determine if an opinion is valid?
2. What is the relationship between achieving outcomes and identifying problems, issues, and risks involved?
3. What is the relationship between CTIs (page ••) and behavior?
4. Compare and contrast the traits of confidence, critical thinking self-confidence, and confidence in reason listed in Box 1-3 (page ••)
5. If you are in a new or uncomfortable situation, what is likely to happen to your ability to demonstrate the CTIs (page ••)?
6. What do the following "five *C*'s" (context, confident, courage, curious, committed) have to do with critical thinking?
7. Why is it important to consider thinking from the following perspectives: *thinking ahead, thinking-in-action,* and *thinking back?*

Think, Pair, Share

With a partner, in a group, or in a journal entry:

1. Complete the following sentences, and then compare your responses with those of others:
   - If I were to explain to someone else what critical thinking is, I would say that…
   - I do my best thinking when…
   - I do my worst thinking when…
2. Study Table 1-1 (page ••). Discuss times when you've experienced some of the descriptions listed under "Not Critical Thinking." How did it affect your thinking?
3. Consider the CTIs listed on page ••. Identify five indicators that are especially challenging for beginning nurses.
4. Discuss your thoughts on the *Other Perspectives* and *Critical Moments* on page ••.

5. Study *Key Brain Parts Involved in Thinking* (page ••). Decide how thinking ability would be affected by brain damage in the frontal lobe or hippocampus.
6. Discuss the implications of the *Critical Moments* and *Other Perspectives* on page ••.
7. Decide where you stand in relation to outcomes on page ••.

KEY POINTS/SUMMARY

- Thinking critically doesn't mean simple criticism. It means not accepting information at face value without evaluating whether is factual and reliable.
- *Critical thinking* is like an "umbrella term" that includes the terms *clinical reasoning* and *clinical judgment.* Page •• maps the relationships among key aspects of reasoning inside and outside of the clinical setting.
- This book applies brain-based learning, using strategies that help you get your brain "plugged in" to learning.
- Because critical thinking (CT) changes with context and is a complex process, there's no one right definition—there are several that complement and clarify one another.
- Having a healthy workplace, a learning culture, and safety culture forms the foundation for developing CT skills. (Box 1-2, page ••).
- CT in nursing makes patient and caregiver safety and welfare top priorities.
- *Critical thinking* refers to purposeful, focused, informed, results-oriented thinking in any situation. The term is often used interchangeably with *clinical reasoning, clinical judgment, problem solving,* and *decision making.*
- Reasoning in the clinical setting is challenging, complex, and regulated by laws, standards, and policies and procedures.
- Page •• (Applied Definition) delineates the major points of critical thinking, clinical reasoning, and clinical judgment.
- Pages •• to •• summarize what's familiar and what's new about CT.
- CT requires right-brain thinking (generating new ideas) and left-brain thinking (analyzing and judging the worth of those ideas).
- Communication and interpersonal skills such as engaging patients, knowing how to collaborate, and resolving conflicts are crucial to CT.
- Page •• shows CTIs—behaviors that demonstrate characteristics that promote CT. Ability to demonstrate these behaviors varies, depending on circumstances such as familiarity with the people and situations at hand. These are the behaviors that you should work to develop.
- The 4-circle CT model shown on the inside front cover gives you "a picture" of what it takes to think critically. If you demonstrate CT characteristics (top circle), you will easily develop skills related to the other circles.
- CT is like any skill (e.g., music, art, athletics). We each have our own styles and innate or learned capabilities. We can all improve by gaining awareness, acquiring instruction, and consciously practicing to improve.
- Because CT is contextual (it changes with circumstances), consider it from three different perspectives: thinking ahead, thinking-in-action, and thinking back (reflective thinking).
- Scan this chapter to review all highlighted rules.

REFERENCES

1. Behind every healed patient is a critical thinking nurse. Retrieved January 6, 2011, from http://www.medplusstaffing.cc/blog/?p=188.
2. Hansten, R. (January 2011). E-mail communication.
3. Darlington, R. How to think critically. Retrieved January 6, 2011, from http://www.rogerdarlington.co.uk/thinking.html.
4. Secretary's Commission on Achieving Necessary Skills (SCANS). Learning a living: a blueprint for high performance. U.S. Department of Labor. Retrieved January 4, 2011, from http://wdr.doleta.gov/SCANS/lal/.
5. Institute of Medicine. Robert Wood Johnson Foundation Initiative on the Future of Nursing. Retrieved January 6, 2011, from http://www.iom.edu/Activities/Workforce/Nursing.aspx.
6. Institute of Medicine. The Future of Nursing: leading change, advancing health. Retrieved October 6, from http://www.nap.edu/catalog/12956.html.
7. Gordon, S. (2006). What do nurses really do? *Topics in Advanced Nursing eJournal*, 6(1). Retrieved January 6, 2011, from http://www.medscape.com/viewarticle/520714.
8. Brain-based learning. Retrieved January 8, 2011, from http://www.funderstanding.com/content/brain-based-learning.
9. Caine, R., Caine, G. (2002). Making connections: Teaching and the human brain. Reading, MA: Addison-Wesley.
10. Secretary's Commission on Achieving Necessary Skills (SCANS). Learning a living: a blueprint for high performance. U.S. Department of Labor. Retrieved January 4, 2011, from http://wdr.doleta.gov/SCANS/lal/.
11. Ennis, R., Milman, J. (1985). Cornell tests of critical thinking: Theory and practice. Pacific Grove, CA: Midwest Publications.
12. Snyder, M. (1993). Critical thinking: A foundation for consumer-focused care. *The Journal of Continuing Education in Nursing*, 24(5), 206-210.
13. Facione, P. (2010 Update) Critical thinking: what it is and why it counts. Retrieved January 1, 2011, from http://www.insightassessment.com/pdf_files/what&why2007.pdf.
14. Paul, R., Elder, L. (2005). Critical thinking: tools for taking charge of your learning and your life (2nd ed.). Upper Saddle River, NJ: Prentice Hall.
15. Alfaro-LeFevre (In Press). Applying nursing process: a clinical reasoning tool (8th ed.). Philadelphia: Lippincott Williams & Wilkins.
16. American Nurses Association (2010). Nursing scope and standards of performance and standards of clinical practice Washington, DC: American Nurses Publishing.
17. The Delphi Report. (1990). Retrieved January 14, 2011, from www.insightassessment.com/pdf_files/DEXadobe.PDF.
18. Arnold, E., Boggs, K. (2011). Interpersonal relationships: professional communication skills for nurses St. Louis: Saunders.
19. Pagana, K. D. (2010). The nurse's communication advantage: How business-savvy communication can advance your career Indianapolis, IN: Sigma Theta Tau International.
20. Institute of Medicine. (2000). To err is human: Building a safer health system. Washington, DC: National Academies Press. Retrieved January 5, 2011, from http://www.nap.edu/openbook.php?record_id=9728&page=1.