



WHAT'S TO COME

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Nazi war criminal Adolf Eichmann was tried in Israel in 1960 for crimes against humanity. Despite his claim that he was just following the orders of his superiors when he ordered the deaths of millions of Jews, the court found him guilty and sentenced him to death. Was Eichmann an inhuman monster? Or was he, as his defense lawyer claimed, just doing what many of us would do—following orders from our superiors?

To address this question, social psychologist Stanley Milgram of Yale University conducted, between 1960 and 1963, what has become a classic experiment. Milgram placed an advertisement in a newspaper asking for men to take part in a scientific study of memory and learning.¹ Those chosen to participate were told that the purpose of the experiment was to study the effects of punishment on learning—and that their job was to give electric shocks as punishment when the learner gave a wrong answer. The participants were instructed that the shocks would be given at the direction of the experimenter and would range in intensity from 15 volts to 450 volts. In fact, no shocks were actually being given, but the participants didn't know this.

THINKING WHY IT'S IMPORTANT,

Think FIRST >>

- What are the characteristics of critical thinking?
- What are the three levels of thinking?
- What are some of the barriers to critical thinking?



As the intensity of the shocks “increased,” the learner (actually an actor) responded with increased anguish, screaming in pain and pleading with the participant delivering the shocks to stop. Despite the repeated pleas, all the participants gave shocks of up to 300 volts before refusing to go on. In addition, 65 percent continued to deliver shocks of 450 volts simply because an authority figure (a scientist in a white lab coat) told the participants to continue. Most who continued were clearly disturbed by what they were doing. However, unlike the participants who refused to continue, they were unable to provide logical counterarguments to the scientist’s insistence that “the experiment requires that you must continue.”

How could this happen? Were the results of Milgram’s study some sort of aberration? As it turns out, they were not.



Milgram Experiment Scene from the Milgram experiment on obedience. The “learner” is being hooked up to the machine that will deliver bogus electric shocks each time he gives a wrong answer.

Several years later, in 1971, the U.S. Navy funded a study of the reaction of humans to situations in which there are huge differences in authority and power—as in a prison. The study was administered under the direction of psychologist Philip Zimbardo, who selected student volunteers judged to be psychologically stable and healthy.² The volunteers were randomly assigned to play the role of either “guard” or “prisoner” in a two-week prison simulation in the basement of the Stanford University building in which the psychology department was located. To make the situation more realistic, guards were given wooden batons and wore khaki, military-style uniforms and mirrored sunglasses that minimized eye contact. The prisoners were given ill-fitting smocks without underwear and rubber thongs for their feet. Each prisoner was also assigned a number to be used instead of a name.

The guards were not given any formal instructions; they were simply told that it was their responsibility to run the prison.

The experiment quickly got out of control. Prisoners were subjected to abusive and humiliating treatment, both physical and emotional, by the guards. One-third of the guards became increasingly cruel, especially at night when they thought the cameras had been turned off. Prisoners were forced to clean toilets with their bare hands, to sleep on concrete floors, and to endure solitary confinement and hunger. They were also subjected to forced nudity and sexual abuse—much like what would happen many years later at Abu Ghraib prison in Iraq. After only six days, the Stanford prison experiment had to be called off.

These experiments suggest that many, if not most, Americans will uncritically follow the commands of those in authority. Like the Milgram study, the Stanford prison experiment demonstrated that ordinary people will commit atrocities in situations where there is social and institutional support for behavior that they would not do on their own and if they can put the blame on others. Milgram wrote:

Ordinary people, simply doing their jobs and without any particular hostility on their part, can become agents in a terrible destructive process. Moreover, even when the destructive effects of their work become patently clear, and they are asked to carry out actions incompatible with fundamental standards of the majority, relatively few people have the resources needed to resist authority.³

What are these resources that people need to resist authority? Good critical-thinking skills are certainly one. Those who refused to continue in the Milgram study were able to give good reasons for why they should stop: for example, “it is wrong to cause harm to another person.” In contrast, those who continued, even though they knew what they were doing was wrong, simply deferred to the authority figure even though he was making unreasonable demands of them.⁴

Although most of us may never be in a situation

in which our actions have such grim consequences, a lack of critical-thinking skills can still have negative consequences in our everyday decisions. When it comes making to personal, educational, and career choices, we may defer to our parents or cave in to pressure from friends rather than think through the reasons for our decisions. When major life decisions are not carefully thought out, there can be long-lasting consequences, such as dropping out of school or choosing a career in which we are ultimately

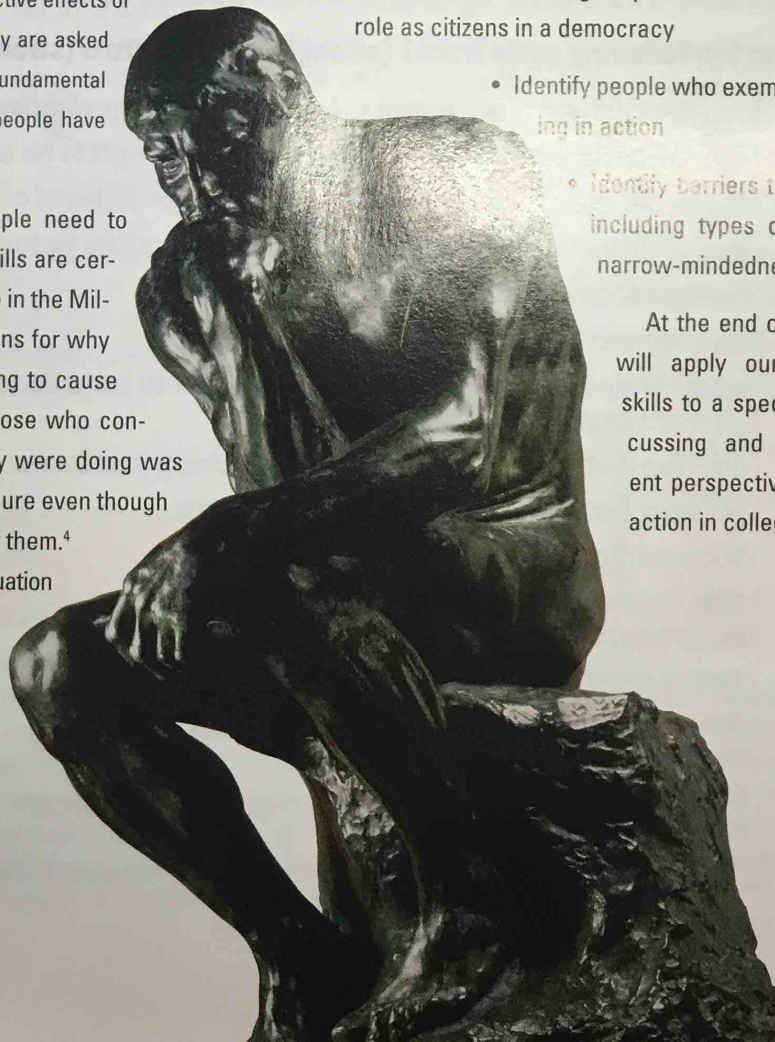
unhappy. In addition, because critical-thinking skills are transferable across disciplines, improving these skills can have a positive impact on our success in college. In this chapter we’ll be looking at some of the

components of critical thinking as well as the benefits of developing good critical-thinking skills. We’ll conclude by examining some of the barriers to critical thinking. Specifically, we will:

- Define *critical thinking* and *logic*
- Learn about the characteristics of a good critical thinker
- Distinguish between giving an opinion and engaging in critical thinking
- Explain the benefits of good critical thinking
- Relate critical thinking to personal development and our role as citizens in a democracy
- Identify people who exemplify critical thinking in action
- Identify barriers to critical thinking, including types of resistance and narrow-mindedness

At the end of the chapter, we will apply our critical-thinking skills to a specific issue by discussing and analyzing different perspectives on affirmative action in college admissions.

These experiments suggest that many, if not most, Americans will uncritically follow the commands of those in authority.



WHAT IS CRITICAL THINKING?

Critical thinking is a collection of skills we use every day that are necessary for our full intellectual and personal development.

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logic The study of the methods and principles used to distinguish correct or good arguments from poor arguments.

opinion A belief based solely on personal feelings rather than on reason or facts.

Critical thinking, like logic, requires good analytical skills. **Logic** is part of critical thinking and is defined as “the study of the methods and principles used in distinguishing correct (good) arguments from incorrect (bad) arguments.”⁵ Critical thinking involves the application of the rules of logic as well as gathering evidence, evaluating it, and coming up

with a plan of action. We’ll be studying logical arguments in depth, in Chapters 5 through 8.

Critical Thinking in Everyday Life

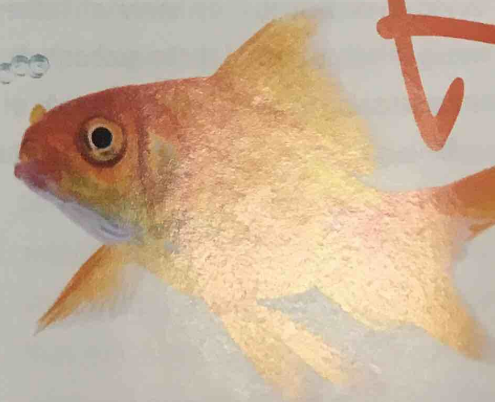
Critical thinking provides us with the tools to identify and resolve issues in our lives. Critical thinking is not simply a matter of asserting our opinions on issues. **Opinions** are based on personal feelings or beliefs, rather than on reason and evidence. We are all certainly entitled to our own opinions. Opinions, however, are not necessarily reasonable. While some may happen to turn out to be correct, opinions, no matter how deeply and sincerely held, may also be mistaken. As a critical thinker you need to be willing to provide logical support for your beliefs.

Uninformed opinions can lead you to make poor decisions in your life and act in ways that you may later come to regret. Sometimes uninformed opinions can negatively impact society. For example, even though antibiotics kill bacteria and have no effect on cold viruses, many people try to persuade their doctors into prescribing them for cold symptoms. Despite doctors telling patients that antibiotics

SELF-EVALUATION QUESTIONNAIRE

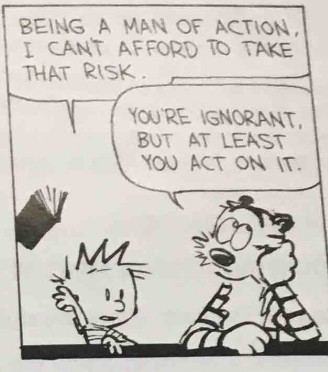
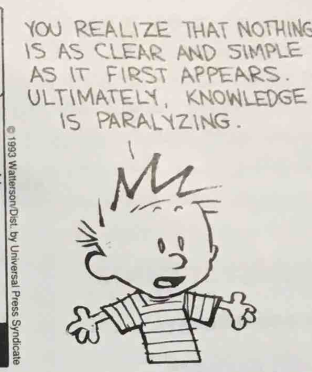
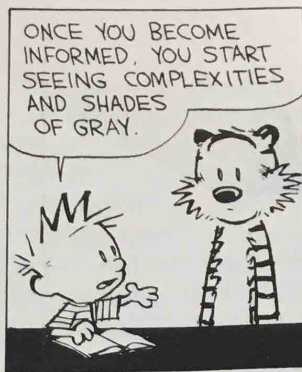
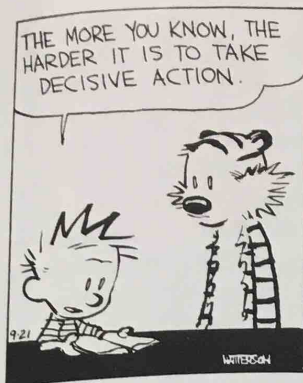
Rate yourself on the following scale from 1 (strongly disagree) to 5 (strongly agree)

- 1 2 3 4 5 There are right and wrong answers. Authorities are those who have the right answers.
- 1 2 3 4 5 There are no right or wrong answers. Everyone has a right to his or her own opinion.
- 1 2 3 4 5 Even though the world is uncertain, we need to make decisions on what is right or wrong.
- 1 2 3 4 5 I tend to stick to my position on an issue even when others try to change my mind.
- 1 2 3 4 5 I have good communication skills.
- 1 2 3 4 5 I have high self-esteem.
- 1 2 3 4 5 I would refuse to comply if an authority figure ordered me to do something that might cause me to hurt someone else.
- 1 2 3 4 5 I don't like it when other people challenge my deeply held beliefs.
- 1 2 3 4 5 I get along better with people than do most people.
- 1 2 3 4 5 People don't change.
- 1 2 3 4 5 I have trouble coping with problems of life such as relationship problems, depression, and rage.
- 1 2 3 4 5 I tend to sacrifice my needs for those of others.
- 1 2 3 4 5 Men and women tend to have different communication styles.
- 1 2 3 4 5 The most credible evidence is that based on direct experience, such as eyewitness reports.



Think Tank

Keep track of your results. As you read this book and gain a better understanding of critical thinking, you'll find out what your responses to each of these statements mean. A brief summary of the meaning of each rating can also be found at the back of the book.



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“ALL OR NOTHING” THINKING DISCUSSION QUESTIONS

1. Discuss Calvin’s claim that seeing the complexities of knowledge is “paralyzing.”
2. Think back to a time when you felt, as does Calvin in the cartoon, that life is easier if you can think in dualist terms of black and white rather than “seeing the complexities and shades of gray.” Referring back to this and other similar experiences, what are some of the drawbacks of making decisions or taking action on the basis of all-or-nothing thinking? Be specific.

have no effect on viral infections, studies show that about half of doctors give in to patient pressure for antibiotics for viral infections.⁶ Such overuse of antibiotics makes bacteria more drug resistant and has led to a decline in the effectiveness of treatment in diseases where they are really needed.⁷ This phenomenon has been linked to the emergence of new, more virulent strains of drug-resistant tuberculosis. In addition, the incidence of some venereal diseases such as syphilis, which was once treatable by penicillin, is once again on the rise.⁸

The ability to think critically and to make effective life decisions is shaped by many factors, including our stage of cognitive development, the possession of good analytical communication, and research skills and such characteristics as open-mindedness, flexibility, and creativity.

Cognitive Development in College Students

Becoming a critical thinker is a lifelong process. Education researcher William Perry, Jr. (1913–1998) was one of the first to study college students’ cognitive development and their style of understanding the world.⁹ His work has gained wide acceptance among educators. Although Perry identified nine developmental positions, later researchers have simplified his schemata into three stages: dualism, relativism, and commitment. These three

stages are represented by the first three questions in the self-evaluation questionnaire in the Think Tank feature on page 4.

Stage 1: Dualism. Younger students such as freshmen and many sophomores tend to take in knowledge and life experiences in a simplistic, “dualistic” way, viewing something as either right or wrong. They see knowledge as existing outside themselves and look to authority figures for the answers.

This dualistic stage is most obvious when these students confront a conflict. Although they may be able to apply critical-thinking skills in a structured classroom environment, they often lack the ability to apply these skills in real-life conflicts. When confronted with a situation such as occurred in the Milgram study of obedience,¹⁰ they are more likely to follow an authority figure even if they feel uncomfortable doing so. In addition, a controversial issue such as affirmative action, where there is little agreement among authorities and no clear-cut right or wrong answers, can leave students at this stage struggling to make sense of it. We’ll be studying some perspectives on affirmative action at the end of this chapter.

Connections

How do you determine if the statistics found in the results of a scientific experiment are credible?
See Chapter 12, p. 388.

When researching an issue, students at the dualistic stage may engage in **confirmation bias**, seeking out only evidence that supports their views and dismissing as unreliable statistics that contradict it.¹¹ The fact

confirmation bias At the dualistic stage of research, seeking out only evidence that supports your view and dismissing evidence that contradicts it.

HIGHLIGHTS

COGNITIVE DEVELOPMENT IN COLLEGE STUDENTS

Stage 1: Dualism There are right and wrong answers. Authorities know the right answers.

Transition to Stage 2 There are some uncertainties and different opinions, but these are temporary.

Stage 2: Relativism When the authorities don't have the right answers, everyone has a right to his or her own opinion; there are no right or wrong answers.

Transition to Stage 3 All thinking is contextual and relative but not equally valid.

Stage 3: Commitment I should not just blindly follow or oppose authority. I need to orient myself in an uncertain world and make a decision or commitment.

► **APPLICATION:** Identify an example of thinking at each of three stages in the text.

Adapted from Ron Sheese and Helen Radovanovic, "W. G. Perry's Model of Intellectual and Ethical Development: Implications of Recent Research for the Education and Counseling of Young Adults," paper presented at the annual meeting of the Canadian Psychological Association (Ottawa, Ontario, June 1984).

that their "research" confirms their views serves to reinforce their simplistic, black-and-white view of the world.

Students at this stage may also be unable to recognize ambiguity, conflicting values, or motives in real-life situations. In light of this, it is not surprising that young people are most likely to fall victim to con artists, financial fraud, and identity theft, despite the stereotype that the elderly are more vulnerable to scam artists.¹²

As students mature, they come to realize that not all thinking is equally valid.

the third stage accept responsibility for their interactions with their environment and are more open to challenges and more accepting of ambiguity.

Students are most likely to make the transition to a higher stage of cognitive development when their current way of thinking is challenged or proves inadequate. During the transition they come to recognize that there is uncertainty in the world and that authorities can have different positions. Some educators called this period of disorientation and doubting all answers "sophomoritis."¹³

Stage 2: Relativism. Rather than accepting that ambiguity and uncertainty may be unavoidable and that they need to make decisions despite this, students at the relativist stage go to the opposite extreme. They reject a dualistic worldview and instead believe that all truth is relative or just a matter of opinion. People at this stage believe that stating your opinion is the proper mode of expression, and they look down on challenging others' opinions as "judgmental" and even disrespectful. However, despite their purported belief in relativism, most students at this stage still expect their professor to support his or her opinion.

Having their ideas challenged, grappling with controversial issues, encountering role models who are at a higher stage of cognitive development, and learning about their limits and the contradictions in their thinking can all help students move on to the next stage of cognitive development.

Stage 3: Commitment. As students mature, they come to realize that not all thinking is equally valid. Not only can authorities be mistaken but also in some circumstances uncertainty and ambiguity are unavoidable. When students at this stage experience uncertainty, they are now able to make decisions and commit to particular positions on the basis of reason and the best evidence available. At the same time, as independent thinkers, they are open to challenge, able to remain flexible, and willing to change their position should new evidence come to light.

As we mature and acquire better critical-thinking skills, our way of conceptualizing and understanding the world becomes increasingly complex. This is particularly true of older students who return to college after spending time out in the "real world."

Unlike people at the first stage who look to authority for answers, people at

the third stage accept responsibility for their interactions with their environment and are more open to challenges and more accepting of ambiguity.



STOP AND ASSESS YOURSELF

1. Imagine that you are a participant in Milgram's study of obedience. What would you have done if you protested and the experimenter in charge answered, "The experiment requires that you continue"? Discuss your answer in light of the stages of cognitive development. Discuss also what you might do to make it less likely that you would obey an authority figure in a situation such as the Milgram study.
2. College professor Stephen Satris maintains that the relativism of the second stage of development is not a genuine philosophical position but a means of avoiding having one's ideas challenged. Student relativism, he writes, "is primarily a method of protection, a suit of armor, which can be applied to one's own opinions, whatever they may be—but not necessarily to the opinion of others. . . . It is an expression of the idea that no one step forward and judge (and possibly criticize) one's own opinion."¹⁴ What is your "suit of armor"? Discuss strategies you might take to break out of this "suit of armor." Relate your answer to your own stage of cognitive development.
3. Most college students do not make the transition to the third, or commitment, stage of cognitive development. Why do you think this is so? Discuss ways in which the curriculum and college life in general might be restructured to encourage cognitive growth in students.
4. Today, more people are returning to college after having children and/or having worked for several years. This phenomenon is especially prevalent in community colleges, where the average age is 29.¹⁵ Discuss whether there are differences in how students of different ages in your class think about the world, and how interaction among students at different stages might enrich our thinking.
5. The first three questions of the "Self-Evaluation" in the Think Tank feature represent the three stages of cognitive development. Which stage, or transition between stages, best describes your approach to understanding the world? What are the shortcomings and strengths of your current stage of cognitive development? Develop a plan to improve your skills as a critical thinker. Put the plan into action. Report on the results of your action plan.

CHARACTERISTICS OF A GOOD CRITICAL THINKER

Critical thinking is a collection of skills that enhance and reinforce each other. In this section we'll be discussing some of the more important skills for effective critical thinking.

Analytical Skills

As a critical thinker, you need to be able to analyze and provide logical support for your beliefs rather than simply rely on your opinions. Analytical skills are also important in recognizing and evaluating other people's arguments so that you are not taken in by faulty reasoning. We'll be studying logical argumentation in more depth in Chapter 2 and in Chapters 5 through 9.

Effective Communication

In addition to analytical skills, critical thinking requires communication and literacy skills.¹⁶ Communication skills include listening, speaking, and writing skills. Being aware of your own communication style, as well as of cultural variations and differences in the communication styles of men and women, can also go a long way toward improving communication in a relationship. We'll be learning more about communication in Chapter 3, "Language and Communication."

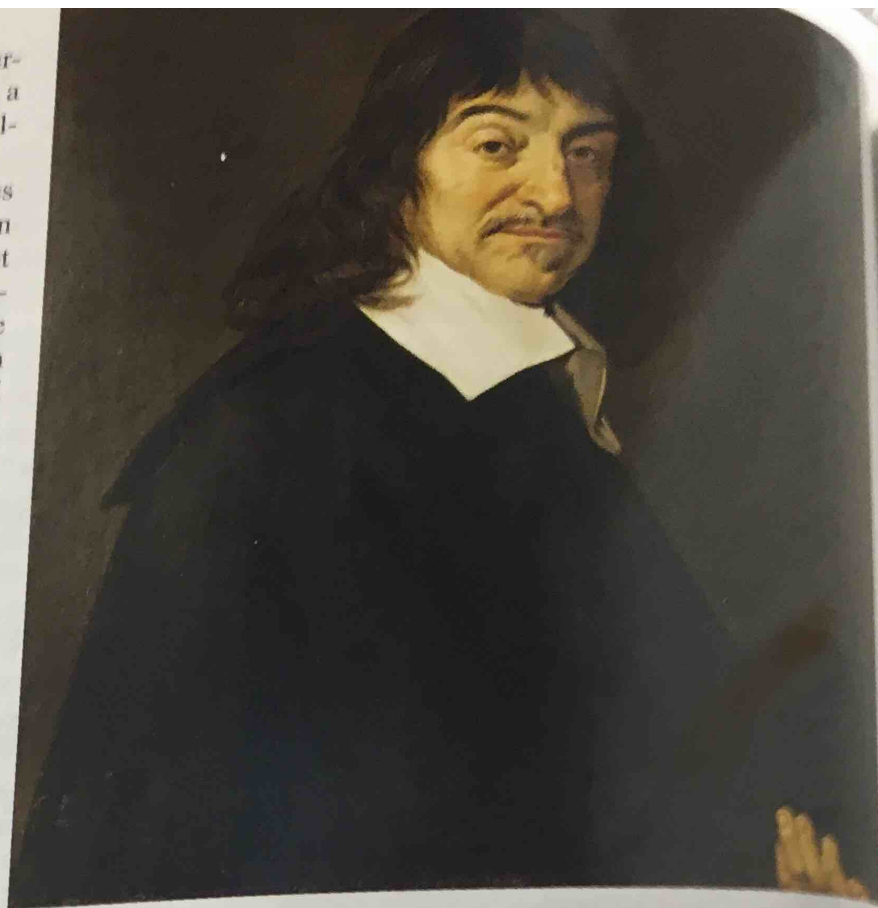
Research and Inquiry Skills

Understanding and resolving issues requires research and inquiry skills such as competence in gathering, evaluating, and pulling together supporting evidence. For example, in researching and gathering information on what would be the best major or career path for you, you need to identify your interests and talents first and then evaluate possible majors and careers in light of these interests and talents.

Research skills are also important in understanding and moving toward a resolution of a complex issue such as affirmative action in college admissions.

Inquiry and gaining greater insight requires asking the right questions, as Milgram did in designing his study of obedience. While most people were asking what sort of twisted monsters the Nazis were or why the German people allowed Hitler to have so much power, Milgram asked the more basic question: How far would ordinary citizens go in obeying an authority figure? Despite the fact that experiments such as Milgram's were declared unethical by the American Psychological Association in 1973 because of long-term psychological distress suffered by many of the participants, his scientific experiments still stand as classics in the field.

As critical thinkers we need to avoid confirmation bias and the tendency to selectively see and interpret data to fit into our own world-views, a practice that often leads to stalemates and conflict in personal as well as in political relations. Our research should also be accurate and based on credible evidence. We'll be learning more about researching and evaluating evidence in Chapter 4.



Rene Descartes (1596–1650) proposed the Method of Doubt in which we never accept anything as true without evidence and reason to support our conclusion.

Flexibility and Tolerance for Ambiguity

Too many people defer to others or fail to take a position on a controversial issue simply because they are unable to

evaluate conflicting views. As we mature, we become better at making decisions in the face of uncertainty and ambiguity. Effective decision making includes setting clear short-term and long-term goals in our lives and developing a realistic strategy for achieving these goals. Critical thinkers also build flexibility into their life

plans so that they can adapt to changes, especially since most of us haven't had sufficient experience to finalize our life plan during our first few years of college. We'll be discussing the process of developing a life plan in more depth later in this chapter.

Open-Minded Skepticism

Critical thinkers are willing to work toward overcoming personal prejudices and biases. They begin with an open mind and an attitude of reflective skepticism. The point is not simply to take a stand on an issue—such as What career

is best for me? Is abortion immoral? Does God exist? What should be the role of women in the family?—but rather to critically examine the evidence and assumptions put forth in support of different positions on the issue before coming to a final conclusion. In doing so, effective critical thinkers are able to balance belief and doubt.

First put forward by French philosopher and mathematician René Descartes (1596–1650), the **method of doubt** suspends belief. This method of critical analysis, which has traditionally been preferred in fields such as science and philosophy, begins from a position of skepticism in which we put aside our preconceived ideas. Descartes wrote regarding the rules for using the method of doubt:

The first of these [rules] was never to accept anything as true if I did not have evident knowledge of its truth: that is to say, carefully to avoid precipitate conclusions and preconceptions, and to include nothing more in my judgments than what presented itself to my mind so clearly and distinctly that I had no occasion to doubt it.¹⁷

It is especially important that you be willing to adopt a position of doubt or skepticism when critically examining your own cherished beliefs and the claims of authority figures. Albert Einstein (1879–1955), in developing his theory of relativity, used the method of doubt regarding the generally accepted belief that time is “absolute”—that is, fixed and unchanging.

How do scientists identify a problem and develop a hypothesis for studying a problem?

See Chapter 12, p. 373

Connections

The **method of belief**, in contrast, suspends doubt. Becoming immersed in a good book, movie, or a play often involves what English poet Samuel Taylor Coleridge (1772–1834) called the “willing suspension of disbelief.” This approach is also productive when we are discussing issues on which we hold strong views and are not as open as we should be to opposing viewpoints. In dialogues between people who are pro-choice and pro-life, for example, a pro-choice critical thinker, in order to compensate for his or her biases, should be genuinely open to believing what the pro-life person is saying, rather than start from the traditional position of doubt. This task requires empathy, active listening skills, and intellectual curiosity.

Creative Problem Solving

Creative thinkers can view problems from multiple perspectives and come up with original solutions to complex problems. They use their imagination to envision possibilities, including potential future problems, and to develop contingency plans to effectively deal with these scenarios.

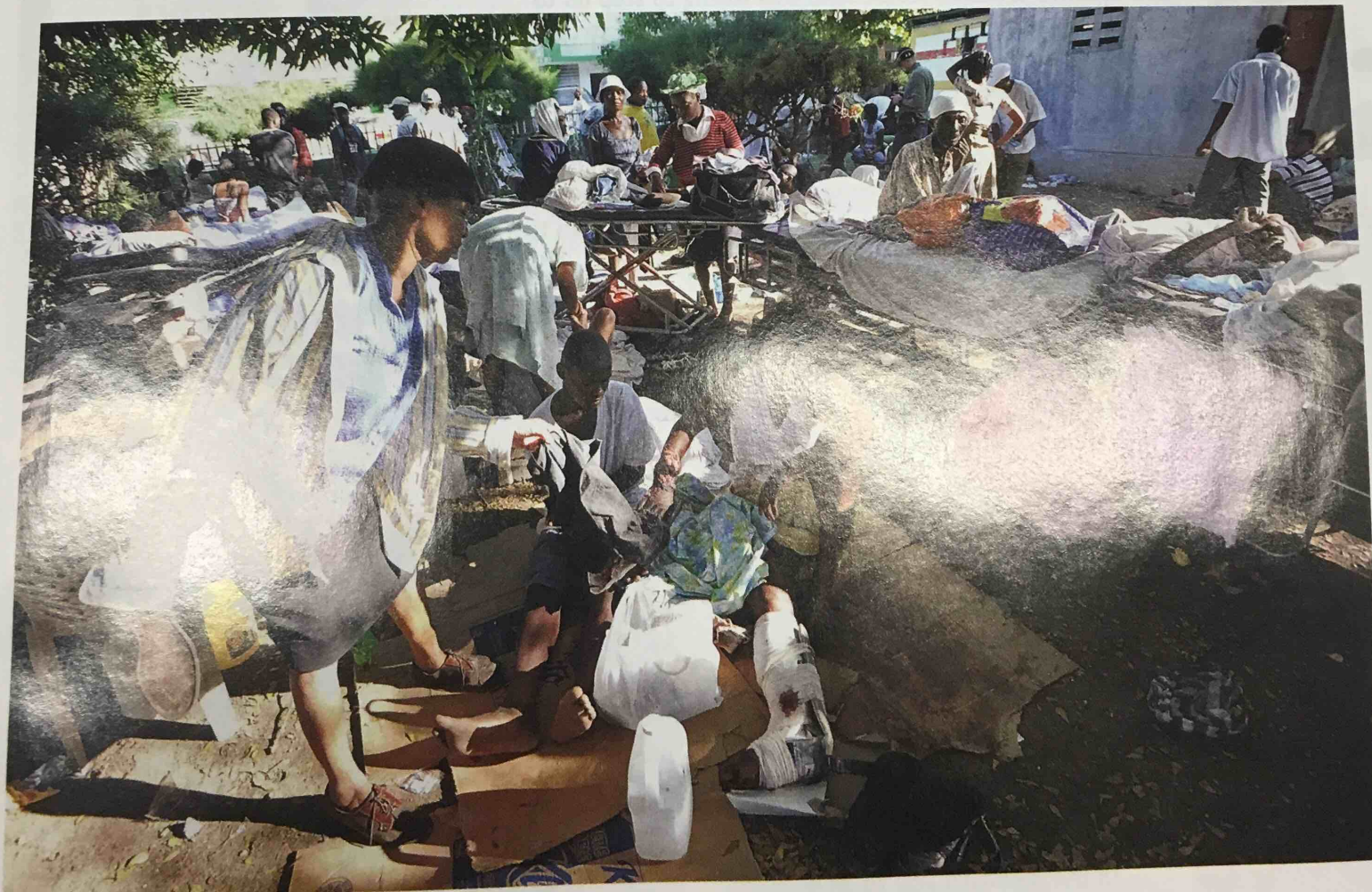
When staff members of the U.S. Department of Homeland Security put together a handbook of possible disaster scenarios, they failed to foresee the possibility of civil unrest and social breakdown following a disaster. Because of lack of preparedness for such occurrences as Hurricane

Katrina, which struck the Gulf Coast in 2005, hundreds of people died who might have been saved and thousands of others were left homeless and living in chaotic and squalid conditions for weeks and months. Practice in problem-solving for disasters enabled the United States to respond quicker and more effectively when Haiti was devastated by an earthquake in 2010.

Creativity also involves “a willingness to take risks, to cope with the unexpected, to welcome challenge and even failure as a part of the process to arrive at a new and deeper understanding.”¹⁸ Instead of giving up when times are difficult or resources are lacking, creative critical thinkers are able to make creative use of available resources. In 1976 when he was only 21, Steve Jobs built the first Apple personal computer in his family’s garage.

method of doubt A method of critical analysis in which we put aside our preconceived ideas and beliefs and begin from a position of skepticism.

method of belief A method of critical analysis in which we suspend our doubts and biases and remain genuinely open to what people with opposing views are saying.



Unlike when Hurricane Katrina struck the Gulf Coast in 2005, the United States responded quickly and more effectively with aid to Haiti after a devastating earthquake struck in early 2010.

His innovative idea of user-friendly software changed the way people perceived computers and heralded the age of personal computing. He later went on to introduce the iPod, which revolutionized portable music players.

Creative thinking is a much sought-after skill in the business world.¹⁹ Because young people are usually less invested in traditional ideas and ways of doing things than are people who have been working in a field for years, they tend to be more open to new ideas. Being able to recognize creative solutions to a problem and to

generate and communicate new ideas requires not just creative thinking but also being open-minded, confident, intellectually curious, and an effective communicator.

Attention, Mindfulness, and Curiosity

Critical thinkers are intellectually curious. They are attentive and mindful to what's going on around them and to their own thoughts and feelings. The Buddhist concept of the "beginner's mind" is closely related to the Western concept of the critically open mind, or mindfulness. Zen master Shunryu Suzuki defined the beginner's mind as "wisdom which is seeking for wisdom." He wrote:

The practice of Zen mind is beginner's mind. The innocence of first inquiry—what am I? ... The mind of the beginner is empty, free of the habits of

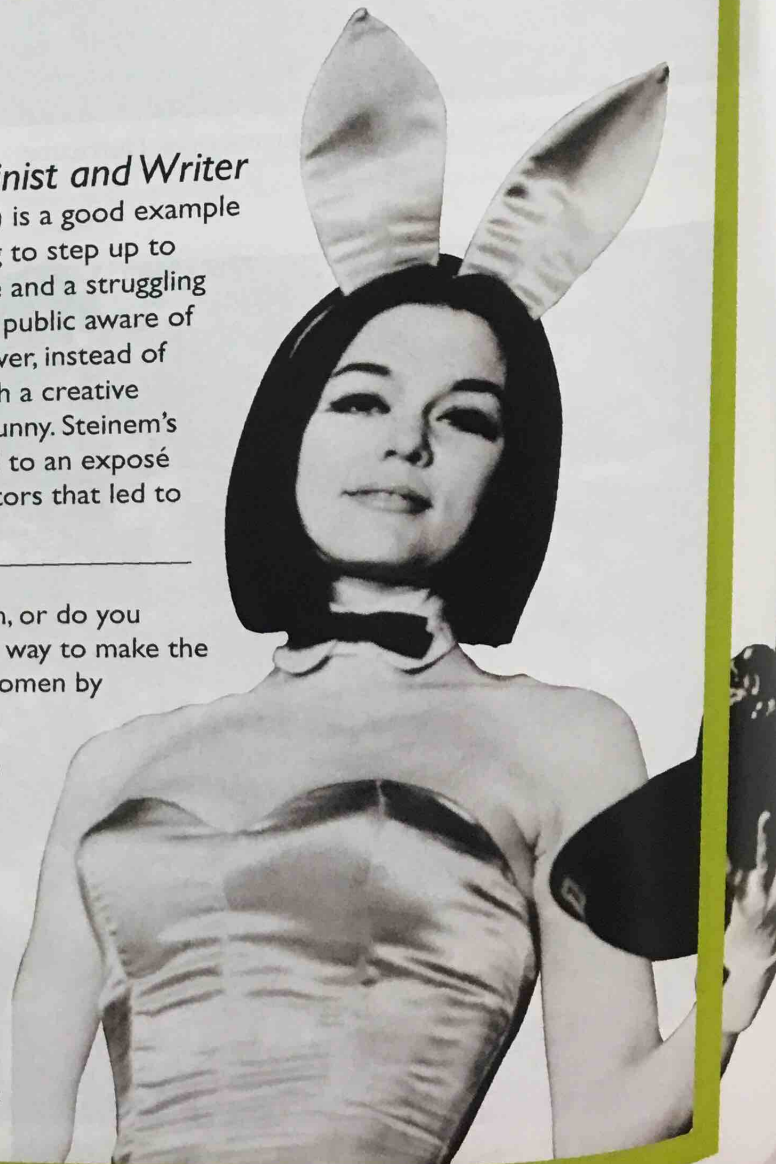
Outside the Box

GLORIA STEINEM, *Feminist and Writer*

Feminist and writer Gloria Steinem (b. 1934) is a good example of a creative problem solver who was willing to step up to a challenge. Steinem, who was 29 at the time and a struggling journalist, wanted to find a way to make the public aware of how Playboy Clubs degraded women. However, instead of just writing another article, she came up with a creative solution by going undercover as a Playboy Bunny. Steinem's persistence and willingness to take a risk led to an exposé of the Playboy Clubs and was one of the factors that led to the eventual closing down of the clubs.

DISCUSSION QUESTIONS

1. Do you agree with Steinem's solution, or do you think there might have been a better way to make the public aware of the degradation of women by Playboy Clubs? Support your answer.
2. Think of an injustice on your campus or in the world that is of concern to you. Come up with a creative action you might take to make others more aware of this injustice or to change public policy. Share and evaluate your plan of action with others in the class. Discuss how, if at all, working with others helped you come up with a better plan. If appropriate, modify your plan in light of the feedback you receive.



Thinking

