

*“ . . . intelligence . . . is in plentiful supply
. . . the scarce commodity is systematic training
in critical thinking.” --Carl Sagan*

*“The true critical thinker accepts what few
people ever accept -- that one cannot routinely
trust perceptions and memories.” --James Alcock*

*“Truth gains more . . . by the errors of one who,
with due study and preparation, thinks for himself
than by the true opinions of those who only hold them because
they do not suffer themselves to think.” --John Stuart Mill*

A Problem

Imagine you are in charge of airport security at an international airport in Florida. An American Airlines counter-clerk calls to inform you that a person scheduled to get on Flight 1304 to Dallas has refused to board the plane, claiming that she is psychic and she senses that there is a bomb on board. You meet with the psychic and recognize her from the Larry King and Montel Williams shows. You vaguely remember her claiming to have used her psychic ability to solve several important criminal investigations. Aside from being agitated about the bomb, she seems normal. You order everyone off the plane and call in a crew to do a bomb search. No bomb is found but the flight has to be cancelled because some crew members have exceeded their work hours by the time the search is finished. Your action causes hundreds of people to miss their flights. The airline loses money because it has to arrange other flights for the passengers, including one for the psychic. Did you do the right thing? In your defense you claim, “In these times, we can’t ignore anything.” Your boss disagrees. She tells you that to her knowledge no psychic anywhere has ever discovered a bomb using psychic powers. She says that you should not have been impressed that the psychic seemed normal or was famous and had appeared on entertainment programs. She tells you that you should have had the psychic detained and questioned. Your boss considers firing you and sending word to Dallas to have the psychic arrested for making threats against a flight. Who is the better critical thinker, you or your boss? Why?

1. What does it mean to think critically?

Why are some people better than others at solving problems and making decisions? The answer seems obvious: Some people are smarter than others. But being smart isn’t enough. People who follow broad rules like “We can’t ignore anything” are playing it too safe. We should ignore some things because they are improbable. It is unreasonable to do a bomb search on the advice of a psychic tip because there is no evidence that psychic tips are any more reliable than flipping a coin or throwing darts at a board. What if the psychic said that her parrot told her—telepathically—that there was a bomb on the plane? Would you do a search on such evidence? If you would, you are not thinking very critically. Had you detained the psychic, you might have interrogated her while having her investigated. Has she made these kinds of claims before? What about her claim to have solved crimes using only her psychic powers? Do you think that Larry King or Montel Williams had her claims investigated? (In fact,

your boss gets on the Internet and within five minutes finds a Web site that notes that a reputable investigative journalist has dug into the psychic's claims about solving crimes and found that none of her claims were true.)

Why are some people better than others at supporting their beliefs and actions with good reasons? Again, the answer seems obvious: Some people have more knowledge or are more eloquent than others. Still, two equally intelligent people can be equally articulate and knowledgeable, but not be equally good thinkers. If only one of them is thinking critically, that one will be better at analyzing and evaluating facts and opinions, sources and claims, options and alternatives. The critical thinker will be a better problem-solver and better decision-maker.

When we're thinking critically, we're using our knowledge and intelligence effectively to arrive at the most reasonable and justifiable position possible. When we're thinking uncritically--no matter how intelligent or knowledgeable we are--we'll make unreasonable decisions and arrive at unreasonable beliefs or take unjustifiable actions, *unless we are lucky and end up making the right choice for the wrong reasons!* For example, imagine that the search crew finds a bomb. You're vindicated, right? Not necessarily. If it turns out that the psychic planted the bomb herself in order to make it look like she really had psychic powers so she could advance her career, but you had the plane searched because you thought a psychic might actually be able to know such things by paranormal means, then you made the right decision by pure luck. You should have had the plane searched, but you should have held and interrogated the psychic. If a bomb is found, it would be reasonable to infer that the psychic had non-psychic information about the bomb and might even have been involved in planting it. It would not be reasonable to infer that the "psychic" is really psychic. As your boss said, there is little, if any, evidence that any psychic anywhere has ever correctly predicted when a bomb had been placed on a plane. On the other hand, there are plenty of examples where people have lied and deceived in order to advance their careers or to get attention.

The goal of thinking critically is simple: to guarantee, as far as possible, that one's beliefs and actions are justifiable and can withstand the test of rational analysis. Just what do we do when we're thinking *critically*? In general terms, we can say that *to think critically is to think clearly, accurately, knowledgeably, and fairly while evaluating the reasons for a belief or for taking some action.* This is sometimes easier said than done. Later in this chapter we will review some of the main factors that will limit or hinder even the most diligent and intelligent among us from being successful critical thinkers. But first, let's look at the standards that guide a critical thinker.

2. Standards of critical evaluation

From its beginnings in Greece over 2,500 years ago, Western philosophy and science have been primarily public activities. Some of the best minds of each generation have presented their views on important issues for their fellow citizens to accept or reject. Using only the forces of reason and eloquence to persuade, rather than torture or threats of death or damnation, the critical thinkers of the past developed rules and guidelines for determining beliefs and actions. Their predecessors or contemporaries relied on the authority of ancient texts and customs, or on the power granted them by their social position, to coerce agreement. Critically thinking philosophers and scientists used evidence available to all as they sought to discover the truth and to persuade others to accept their discoveries.

It is true that often the arguments and disputations of philosophers have been over questions that are unanswerable in any final sense. It is also true that there is no universal agreement about the methods and standards of evaluation used in these disputes. Nevertheless, much progress has been made in understanding not only the scope and limits of possible knowledge, but also the bases for reasonable belief. Three of the most important areas of philosophy relevant to critical thinking are *logic*, *epistemology*, and *ethics*. The first two have long and important histories of making significant contributions to the methods and standards of evaluation now prevalent in science, law, and philosophy. *Ethics* is most important for its contributions to the standards for evaluating the morality of actions. *Logic* studies the *principles of valid and invalid reasoning*. The domain of

logic is narrower than the domain of critical thinking, which is concerned with evaluating the justification of beliefs and actions. *Epistemology* studies the *origin, nature, and limits of knowledge*.

2.1 Socrates

One philosopher stands out as having had the greatest influence on our critical thinking standards: the Socrates (469?–399 BCE) of Plato (470–347 BCE). “The unexamined life is not worth living,” says the Socrates of Plato’s *Apology*. The Socrates known to us is a figure from Plato’s dialogues. For centuries, Socrates has stood as a model of intellectual integrity and inquiry: the ideal critical thinker. It is not any particular *idea* that earned him this reputation. It is his *method of questioning and cross-examination of positions* that is taken as an ideal for critical thinking. The technique is known as the Socratic Method—named after the technique he used in Plato’s earliest dialogues such as *Gorgias*, *Euthyphro*, *Apology*, and the first part of the *Republic*. In those dialogues, Socrates takes up such issues as the nature of virtue, piety, or justice, and through a series of questions examines the meanings and implications of various views expressed by others. In each case, Socrates is depicted as confronting someone who claims to be an expert. Each expert is depicted as arrogant and self-righteous, without the slightest self-doubt. Socrates leads his antagonists not to the answer but to confusion. What Plato seemed to admire about Socrates was not only his method of cross-examination, but also his humble and skeptical attitude. That attitude was in stark contrast to the arrogance of the priest Euthyphro or the sophist Thrasymachus. Socrates meaning is clear. *The arrogant do not examine their views. They are not worth imitating.*

Of all Plato’s works, perhaps the best known is his *Apology*, the account of Socrates’ trial for impiety and corrupting the youth of Athens. Nothing else Plato wrote has had a more profound effect on the intellectual attitude of philosophers who came after him. In the *Apology*, Socrates is depicted as defending his way of life, rather than defending himself against the charges against him. In one of the most eloquent works in Western literature, Socrates defends a life of constant inquiry and examination of beliefs and actions. Finally, Socrates assures his accusers that the death sentence handed down to him would guarantee that he would be known to history as a heroic figure, one who died for the “crime” of thinking for himself and for encouraging others to do likewise.

Socrates may have been put to death over two thousand years ago, but his spirit of critical inquiry lives on. One of Socrates’ main critical concerns was *clarity*. Of course, standards of clarity change. As we have become more aware of the power and functions of language, we have become both more demanding in our quest for clarity and more understanding of the limits of language. Simultaneously, those who would like to manipulate the thoughts and deeds of others (advertisers, politicians, con artists, evangelists, talk show hosts, lawyers, cult recruiters, and the like) continue to use their creative powers to persuade us to believe or do things that remain unclear to us. Today, the study of clarity requires a companion study of the persuasive techniques of modern propagandists, especially their attempts to manipulate thought and action through the clever use and abuse of language. Chapter Two will examine these and other issues concerning language and critical thinking.

Socrates was not concerned with clarity for its own sake, however. He knew that without clarity we couldn’t understand what it is we are being asked to believe or to do. But he also recognized that clarity is not enough to base any belief or action on. Today we recognize that in addition to being based on clear claims, a critical thinker’s beliefs and actions should be based on *accurate* information. Information can only be as accurate as the source from which it comes. Chapter Three examines the issue of *sources*. If we can’t discover something for ourselves, what criteria should we use to determine the accuracy and reliability of sources, especially sources who claim some sort of special expertise or knowledge? How accurate is the mass media, one of the main sources of information for many of us?

Other chapters will concern such questions as what makes a reason a *good* reason for believing something or for taking some action. Or, what makes any reason or set of reasons *adequate* to justify believing something or

taking some action. Since, at the very least, a good reason must be *relevant* to justifying a belief or action, the issue of relevance is one we must take up. Good reasons must also be *sufficient* to warrant accepting a belief or taking some action. Hence, the criteria by which we judge the sufficiency of evidence are going to be examined in detail, including how much weight should be given to each piece of evidence. We'll also consider the *completeness* requirement: that pertinent evidence not be suppressed or ignored, that everything relevant to the issue be presented. It was good that you, as our hypothetical airport safety manager, took every bomb threat seriously. But you should have considered *all* the relevant evidence, including the fact that people sometimes lie to further their own ends. You should have made some effort to get more information about the source of the tip. Relying on the psychic's self-proclaimed talent on a television show is not sufficient.

Knowing and adhering to the standards of critical thinking will take us a long way toward becoming a critical thinker. But if we don't have the right *attitude*, we may fail despite our knowledge of the standards.

3. Attitude of a critical thinker: open-minded, skeptical, and tentative

A critical thinker is neither dogmatic nor gullible. The most distinctive features of the critical thinker's attitude are *open-mindedness* and *skepticism*. These characteristics may seem contradictory rather than complementary. On the one hand, a critical thinker is expected to consider viewpoints different from his or her own. On the other hand, a critical thinker is expected to recognize which claims do not merit investigation. Also, sometimes what looks like

**"A broad mind is no substitute for hard work."
--Nelson Goodman**

open-mindedness is simply gullibility and what looks like skepticism is really closed-mindedness. To you, you are being open-minded when you take at face value the psychic's tip about a bomb on the plane. To your boss, you are being gullible. On the other hand, if you had dismissed the psychic's

claim out-of-hand and written her off as deluded despite her offering to prove her psychic ability by reading your mind, then you would have crossed over from a healthy skepticism to closed-mindedness.

To be skillful and fair in evaluating beliefs and actions, we need to seek out various views and positions on the issues we intend to judge. Being open-minded means being willing to examine issues from as many sides as possible, looking for the good and bad points of the various sides examined.¹

One's goal in examining the positions and reasoning of others must be to get at the truth rather than to find fault. To be open-minded doesn't mean simply listening to or reading viewpoints that differ from one's own. It means accepting that someone else might have thought of something we've overlooked or that we could be in error ourselves. It may be painful, but you must admit that your boss has brought up a good point when she reminded you that there is no evidence for psychics using paranormal powers to discover bombs planes. You must admit that you were wrong in not considering this fact.

Most of us have little difficulty in being open-minded about matters that are unimportant to us. In such cases, the possibility that we may be wrong is not very threatening. If we're wrong, we can change our minds without feeling embarrassed or humiliated. But if the issue is ingrained in us or is one we feel strongly about, it becomes more difficult to be open-minded. It becomes harder to accept the fact that we might be wrong or that other views might be more reasonable than our own.

How can we overcome the tendency to be closed-minded on important issues? First, we must overcome the feeling of being threatened when a cherished belief is opposed. One way to overcome this feeling is to *commit*

"Both teachers and learners go to sleep at their post as soon as there is no enemy in the field." --John Stuart Mill, *On Liberty*

oneself to search for the most reasonable beliefs and the most reasonable ways to act.

Approaching all-important issues with a view to improving your beliefs does *not* mean that you must think that your views are wrong. It does imply that you must be able to step back

from your beliefs to evaluate them along with other views. Certainly, everyone needs a basic set of

beliefs in order to live a meaningful life. Yet, if those beliefs are inflexible and unchangeable, their very rigidity may work against you when you need them most, namely, in times of personal crisis. Becoming a critical thinker, in other words, requires more than mastering a set of skills; it requires a certain spirit or attitude. Sometimes this spirit is mistakenly thought to be negative only. Indeed, the primary use of the word ‘critical’ is to note an inclination to find fault or to judge severely. But uncovering faults and errors in one’s own and other’s reasoning is only a part of critical thinking. One must cultivate a *healthy skepticism* along with an ability to be open-minded, especially when considering viewpoints contrary to one’s own. Too much skepticism leads to doubting everything and committing oneself to nothing; too little skepticism leads to gullibility. We need not be so demanding that we will commit ourselves to a belief or action only if we can be absolutely certain we are right. On the other hand, we should not accept claims simply because the person making the claim seems “normal” or because the majority or the experts or some witty talk-show host makes them.

On the other hand, being open-minded does not mean that one has an obligation to examine every crackpot idea or claim made. For example, I have studied occult and supernatural claims for many years. When someone says aliens have abducted him, but he has no physical evidence of his abduction, I feel no need to investigate the issue further. If someone claims to have alien body parts or vehicle parts, by all means let’s examine the stuff. But if the only proof for the abduction is that the alleged abductee can’t remember what happened to him for a few hours or days and he has some marks on his body he can’t account for--common claims by alleged abductees--then my hunch is that there is a natural explanation for the memory loss and the marks. He may be lying because he doesn’t want anyone to know where he really was; or he passed out from natural or self-induced causes and then dreamt or hallucinated. Many of us have scrapes and bruises we can’t account for. Am I closed-minded? I don’t think so. However, many years ago, when I heard about UFOs and alien abductions for the first time, I would have been closed-minded had I not investigated. Once a person has studied an issue in depth, to be open-minded does not mean you must leave the door open and let in any idea that blows your way. Your only obligation is not to lock the door behind you.

An open-minded person who is inexperienced and uninformed will need to be willing to investigate issues that an experienced and informed person need not pursue. A critical thinker must find things out for herself, but once she has found them out she does not become closed-minded simply because her opinion is now informed! So, the next time you hear some defender of astral projection, past-life regression, or alien abductions accuse a skeptic of being “closed-minded,” give thought to the possibility that the skeptic isn’t closed-minded. Perhaps she has arrived at an informed belief. It is also possible that the accuser is a clever arguer who knows that charging an opponent with being closed-minded is often a successful tactic in the art of persuasion.

There are some issues about which it is not possible for a given person to be open-minded. I am thinking of issues that are not, in the words of William James, *living options*.² It is not possible for me to seriously consider that Muhhamad was a prophet of God, any more than it is possible for a devout Muslim to consider that Siddhartha Gautama was a divine incarnation. Before anyone can be open-minded in the sense we are talking about here, an issue must be *alive* for that person. It must be within the realm of possible belief for that person. Nevertheless, even if a belief is not a living option for you, it should be possible to be open-minded enough to try to understand what it is for someone to have that belief. It may not be possible for me to believe that Muhhamad was a prophet of God, but it is possible for me to understand what such a belief consists of. I can study Islam, listen to Muslims, and try to understand their beliefs.

I’ll try to clarify this complex relationship between open-mindedness and skepticism with one more example, taken from a teacher of critical thinking, Connie Misimer. She told this story at a critical thinking conference. A student believed that chanting a

**“...if opponents of all-important truths do not exist, it is indispensable to imagine them and supply them with the strongest arguments which the most skillful devil’s advocate can conjure up.” -
-John Stuart Mill, *On Liberty***

“Be open-minded, but not so open-minded that your brains fall out.” --Jacob Needleman

mantra (repeating some phrase, e.g., “Gopaugovinda, Gopaugovinda...”) as she drove around looking for a parking space always resulted in her finding a parking space. Most teachers of critical thinking would be skeptical of the claim that a chant would have any effect on traffic or parking spaces. We would not investigate such a claim because we would consider it absurd or trivial on its face: absurd if the claim is that chanting causes parking spaces to open up; trivial if it means that she always finds a place to park her car. Some teachers might ridicule the student for being so gullible. Ms. Misimer, however, took another approach. She advised the student to set up a controlled experiment to test the claim. The student might, for example, chant every other day and keep a record of whether she is more successful on the days she chants. She might get several other students to do the same thing. They can compare notes after a few weeks and see if there is any difference in success rates. I need not go into all the details here about how this leads the student to clarify her claim, critically examine it, and find out for herself why the claim is either false or trivial. The key point is that the student needs to be open-minded enough to be willing to test her belief. Others with more experience and knowledge are not closed-minded, however, simply because they don't test her claim themselves. Furthermore, to simply impose one's views on others by fiat or ridicule, no matter how correct those views are, would hinder the development of critical thinking.

One must be careful, however, that one does not become so in love with one's own beliefs that one becomes incapable of recognizing when it is time to change. Remember that it was the Swiss who invented the quartz watch but failed to patent it because they were sure the world would always want only the traditional mechanical devices the Swiss were so expert at producing. The failure to be open-minded enough to consider the possibility that the quartz watch would become popular cost the Swiss billions of dollars and thousands of jobs.

Finally, the attitude of the critical thinker should be characterized by *intellectual humility*. Whatever we come to believe must be adhered to *tentatively*. We must always be ready to examine new evidence and arguments, even if our examination leads us to discover that a cherished belief is in error. In short, arrogance, as Socrates noted, does not befit the critical thinker. However, as we shall see, having the right attitude is not sufficient. There are many factors that can limit and hinder our desire to be a critical thinker.

Exercises 1-1

1. Define critical thinking and describe how it is related to intelligence and knowledge.
2. List the standards of evaluation used by the critical thinker. Where did they originate?
3. What are the main characteristics of the critical thinking attitude? Why is this kind of attitude important in critical thinking?
4. What does it mean to be open-minded, and why is open-mindedness essential to critical thinking? How does open-mindedness differ from being gullible?
5. What is meant by ‘healthy skepticism,’ and why is having a healthy skepticism important to critical thinking? How does having a healthy skepticism differ from being closed-minded?

4. Sense perception

Having the right attitude and knowing the standards of evaluation are not enough to guarantee that one will always succeed at critical thinking. Human beings are subject to a number of limitations and hindrances that forever get in the way of our best intentions.

“To doubt everything or to believe everything are two equally convenient solutions; both dispense with the necessity of reflection.” --Jules Henri Poincaré

Aristotle advised that we should not demand more certainty than the subject allows (*Nichomachean Ethics*, I, iii.). That was good advice 2,500 years ago and it's good advice today. Most of the subjects that concern us in our daily

lives are incapable of absolute certainty. The most we can hope for is a reasonable certainty that we've arrived at the best possible beliefs. Infallibility and absolute certainty are beyond our reach. Think, for example, about the source of most of our beliefs: *sense perception*. Each of the senses is limited in extent: Each sense has a threshold beyond which we cannot perceive. We can extend those thresholds by using instruments such as telescopes and microscopes. But those instruments have thresholds, too. Our instruments enhance our knowledge but they, too, are limited.

Furthermore, each perception must also be interpreted. With each interpretation there is the possibility of error. Each of us has been mistaken about something we thought we saw or heard. Although we often treat *facts* as if they were infallibly certain, they aren't. Facts are those things we don't have any doubts about. We call something a fact if we consider it grossly unreasonable to deny it. But, since our grasp of facts is based on sense perception, we should not claim to know any facts with infallible certainty.

4.1 Apophenia and pareidolia

In statistics, *apophenia* is called a Type I error, perceiving patterns where there are none. Some people do not just see birth marks on a lamb; they see the word "Allah" spelled out in Arabic and interpret this as a sign. They spontaneously perceive connections and meaningfulness in unrelated phenomena. They see a mark on a pizza box and are sure it is a pentagram, signifying that the pizza parlor is run by worshippers of Satan. According to neuroscientist Peter Brugger, "The propensity to see connections between seemingly unrelated objects or ideas most closely links psychosis to creativity ... apophenia and creativity may even be seen as two sides of the same coin" (Brugger 2001).³

While such creativity may be desired sometimes, it can also lead us astray. Some people see patterns in such things as the entrails of animals, the stars, thrown dirt or sticks, folded paper, the lines on the palm of the hand, and so on. They believe that the patterns they perceive are magically connected to the empirical world past, present and future. This belief is known as *sympathetic magic* and is the basis for most forms of divination. It is also the basis for such practices as sticking needles into figurines representing enemies, as is done in voodoo. The pins and needles stuck in a doll are supposed to magically cause pain and suffering in the person the doll represents.

Apophenia and magical thinking at one time may have represented a significant improvement in human evolution, but these pre-scientific ways of seeing and responding to the world of perception can be major hindrances to critical thinking and lead us to many illusory beliefs.

Pareidolia is a type of illusion or misperception involving a vague or obscure stimulus being perceived as something clear and distinct (Schick and Vaughn 2001). For example, a water stain on a window or the discoloration in tree bark is clearly perceived to be the Virgin Mary. While it is useful for any perceiving animal to be able to quickly interpret vague or obscure stimuli, we must be careful or we will delude ourselves with our interpretations, especially if others confirm them (see *communal reinforcement*, below). Pareidolia helps explain such things as sightings of Elvis, Bigfoot, or the Loch Ness Monster. And it may explain many religious apparitions and visions.

4.2 Autokinetic effect

The autokinetic effect refers to perceiving a stationary point of light in the dark as moving. Psychologists attribute the perception of movement where there is none to "small, involuntary movements of the eyeball" (Schick and Vaughn 2001). The autokinetic effect can be enhanced by the power of suggestion: If one person reports that a

light is moving, others will be more likely to report the same thing (Zusne and Jones). Some, but not all, UFO sightings are attributable to the autokinetic effect while perceiving bright stars or planets such as Venus (Schick and Vaughn 2001).

4.3 Hypersensory perception, the Clever Hans phenomenon, and ideomotor action

Hypersensory perception (HSP) is what some people call intuition (Schick and Vaughn 2001). A person with HSP is very observant and perceptive. She may be adept at reading body language or simply be more attentive to detail than most people. She may pick up subtle behavioral cues unconsciously, cues that are also unconsciously given. Because others are not so adept at reading such signs, someone with hypersensory perception may seem psychic.

Nonverbal influence can be quite profound and has been demonstrated in a number of psychological experiments (Rosenthal 1998). One of the more interesting examples of nonverbal influence is the *Clever Hans phenomenon*, named after a horse that responded to subtle visual cues when asked questions such as “What is 3 plus 2?” The horse would respond by tapping his hoof five times. He appeared to be capable of understanding human language and doing simple mathematics. However, “Hans was responding to a simple, involuntary postural adjustment by the questioner, which was his cue to start tapping, and an unconscious, almost imperceptible head movement, which was his cue to stop” (Hyman 1989: 425). Hans’s master, William Von Osten, was unaware of his own movements that were signaling the horse. Such unconscious movements are known as *ideomotor action*. The term was coined by William B. Carpenter in 1852 in his explanation for the movements of rods and pendulums by dowzers, and some table turning or lifting by spirit mediums (the ones that weren’t accomplished by cheating). “Carpenter argued that muscular movement can be initiated by the mind independently of volition or emotions. We may not be aware of it, but suggestions can be made to the mind by others or by observations. Those suggestions can influence the mind and affect motor behavior” (Carroll 2003: 172). “The movement of pointers on Ouija boards is also due to the ideomotor effect” (Carroll 2003: 172).

4.4 Inattentional blindness

So, we sometimes perceive things that are not there and sometimes we perceive things that *are* there, but we are unaware of them. It may seem surprising, but we sometimes do not perceive things that are there right before our eyes. Psychologists call this *inattentional blindness*. A number of studies have shown that if we are focusing our attention on one thing, we may completely miss other things that are present. For example, a pilot has flown to see a recently discovered crop circle near Stonehenge. After visiting the site, he flies back to the airport to refuel before setting off on a trip that will take him back over the site he had just visited. On the return flight he notices another crop circle near the one he had visited and swears that the new circle was not there just forty-five minutes earlier. The new circle is very elaborate and could not have been produced by human hoaxers in such a short time. He concludes that some mysterious force is at work. Perhaps, but it seems more likely that the pilot experienced inattentional blindness when he was flying to the airport. He was focused on other tasks when he flew over the site and didn’t notice what was right beneath him all the time.

5. Worldviews

We each have a set of basic values and beliefs about the world. These values and beliefs are filters through which we perceive the world and interpret experience. A person’s values may affect not only how much importance she gives to facts, but also what she takes to be the facts. Moral and religious beliefs are part of a person’s worldview

and they often clash with the views of others.

Some worldviews include the notion that other worldviews must be extinguished and that theirs should become the dominant worldview. Such worldviews do not accept compromise and view those who would plead for tolerance of other worldviews as being part of a conspiracy to undermine them by encouraging free thinking. Ultra-conservative religious groups are characterized by such a worldview.

You may think that encouraging self-esteem is a proper value for education and raising children. Someone else might consider this the work of Satan and consider you a threat. Some, like the worldview advanced by Christian evangelists Jerry Falwell and Pat Robertson (*The New Millennium*, 1990), would consider the encouragement to become a critical thinker to be part of a liberal conspiracy. Some worldviews think diversity and tolerance are virtues; others consider them vices. Some worldviews are purely secular. As they do not include religious values, such worldviews hinder the ability to understand the motivations and behaviors of those whose worldviews are primarily religious. Most Americans, whether their worldviews are religious or secular, have a difficult time understanding the motivations of terrorists who intentionally kill civilians, especially if the acts are carried out by suicide bombers. To us, such behavior seems insane and we are apt to think that only deranged people could commit such atrocities. But to many people such acts are considered heroic and virtuous.

Sometimes people with clashing worldviews, like ultra-conservative Christians and ultra-liberal atheists, might use the same words to mean something quite different. Both might claim to value *freedom*, but the one may mean freedom from sinful and wicked influences, while the other may mean freedom to do what the other thinks is sinful or wicked. When some worldviews clash, there may be no middle ground; agreement may be impossible. The best one can hope for in such cases is that each side will try to understand where the other is coming from.

Our fallibility and bias, as well as our disagreements about fundamental values and principles, must limit the expectation that critical thinking will resolve all our disputes. This should be obvious since some worldviews are contradictory and some discourage critical thinking in favor of mindless obedience to some ancient text or modern guru.

6. Memory

If you're not convinced that absolute certainty and universal agreement on what to believe and do are impossible goals for critical thinking, consider *memory*. How accurate and reliable is memory? We're often wrong about how accurately we've remembered things. Studies on memory have shown that we often construct our memories after the fact and that our memories are susceptible to suggestions from others (Loftus 1980b, 1987; Schacter 1996). Those suggestions blend with our memories of events and fill in memory-gaps. That is why, for example, a police officer investigating a crime should not show a picture of a single individual to a victim and ask if the victim recognizes the assailant. If the victim is then presented with a lineup and picks out the individual whose picture the victim had been shown, there is no way of knowing whether the victim is remembering the assailant or the picture.

“There is no such thing as absolute certainty, but there is assurance sufficient for the purposes of human life.” -- John Stuart Mill

Furthermore, studies have shown that there is no significant correlation between the accuracy of a memory and the subjective feeling of certainty a person has about the memory. Child psychologist Jean Piaget, for example, claimed that his earliest memory was of nearly being kidnapped at the age of two. He remembered details such as sitting in his baby carriage, watching the nurse defend herself against the kidnapper, scratches on the nurse's face, and a police officer with a short cloak and a white baton chasing the kidnapper away. The nurse, the family, and others who had heard it reinforced the story. Piaget was convinced that he remembered the event. However, it never happened. Thirteen years after the alleged kidnapping attempt, Piaget's former nurse wrote to his parents to confess that she had made up the entire story. Piaget later wrote: “I therefore must have heard, as a

child, the account of this story...and projected it into the past in the form of a visual memory, which was a memory of a memory, but false.”

6.1 Confabulation

A confabulation is a fantasy that has unconsciously replaced events in memory. A confabulation may be based partly on fact or be a complete construction of the imagination. The term is often used to describe the “memories” of mentally ill persons, memories of alien abduction, and false memories induced by careless therapists or interviewers (Carroll 2003: 81).

6.2 Hypnosis and repressed memory

Contrary to what many people believe, hypnosis does not significantly aid memory’s accuracy. Because subjects are extremely suggestible while hypnotized, some states do not allow as evidence in a court of law testimony made while under hypnosis (Loftus 1980a).⁴ Minnesota’s Supreme Court was the first state court to rule that recollections under hypnosis would not be admissible as evidence in court. The American Medical Association (AMA) agrees. An AMA committee reported that there was “no evidence to indicate that there is an increase of only accurate memory during hypnosis.” Martin Reiser, director of behavioral science services for the Los Angeles Police Department, disagrees. He thinks that hypnosis is a natural human ability anyone can use to improve memory. Defenders of hypnosis cite cases such as the bus driver who, while under hypnosis, recalled most of the license plate number of a van he saw. This helped break the Chowchilla kidnapping case. (On July 15, 1976, a busload of school children and their bus driver were abducted on their way back from a swim outing.) Opponents point to the fact that people can have vivid memories under hypnosis that are false and that a hypnotized person, because of being very suggestible, runs a great risk of using the imagination to fill in memory-gaps. But even if some hypnotic memories are accurate, there is no significant probability that a memory is any more reliable simply because it has been hypnotically induced.

Even more controversial is the case of *repressed memory*. Some psychologists believe that a person can experience something extremely unpleasant and then almost immediately forget it. Many years later another experience may trigger a recollection of the horrible event. Many people forget things and *intentionally* repress memories of unpleasant experiences. But all the evidence on memory supports the notion that the more traumatic an event, the more likely one is to remember it. The only exceptions are when one is rendered unconscious and when one is too young to process the experience in terms of language (Schacter 1996).

What is the evidence, then, that repressed memories are *accurate*? San Francisco psychiatrist Lenore Terr believes that traumatic memories can be “far clearer, more detailed and more long-lasting” than ordinary memory.⁵ That may be true but the real issue is the *accuracy* of the memory. Being clearer or more detailed does

We should not expect critical thinking to lead to universal agreement on all issues, even on important issues about which there is abundant information and general agreement about the facts. We should reflect on the limitations imposed by perception, memory, our worldviews, and the testimony of others. But we need not become *entirely* skeptical regarding beliefs based on observation, memory, and testimony. Such reflection ought to encourage us to cultivate a healthy skepticism toward our pet theories and ideas. As long as we stand ready to argue for and defend our beliefs publicly, and are open-minded enough to hear out contrary arguments and change our position if need be, we will stand a good chance of avoiding unreasonable and unjustified beliefs.

not mean the memory is more accurate. The myth of the accuracy of vivid repressed memories is the basis for a number of popular works on child abuse by self-proclaimed experts such as Ellen Bass, Laura Davis, Wendy Maltz, Beverly Holman, Beverly Engel, Mary Jan Williams and E. Sue Blume.⁶ A whole industry has been built up out of the hysteria that inevitably accompanies charges of the sexual abuse of children. Therapists who are supposed to help children recover from the trauma of child abuse are hired to interrogate children to find out if they've been abused. All too often the therapist suggests the abuse to the child and then the child has "memories" of being abused. No rational person should find a parent or caretaker guilty on the basis of such tainted testimony.⁷ Since March 1992, the False Memory Syndrome (FMS) Foundation in Philadelphia has collected 2,700 cases of parents who report false accusations that were the result of "memories" recovered in therapy.⁸ The FMS Foundation claims that these cases include about 400 families who have been sued or threatened with suits for child abuse.⁹

A variant of the memory of non-experiences is the notion that a person can remember experiences from past lives. This myth has been perpetuated primarily by accounts of people who in dreams or under hypnosis recall experiences of people who lived in earlier times. A classic example of a false memory of a past life is the case of Bridey Murphy. In 1952, Morey Bernstein hypnotized Virginia Tighe, who then began speaking in an Irish brogue and claimed that she had been Bridey Murphy from Cork, Ireland, in a previous incarnation. While under hypnosis, Tighe sang Irish songs and told Irish stories, always as Bridey Murphy. *The Search for Bridey Murphy* (Tighe is called Ruth Simmons in the book) was a best seller. Recordings of the hypnotic sessions were translated into more than a dozen languages. The recordings sold well, too. The reincarnation boom in America had begun. Never again would an American publisher lose money on a book dealing with reincarnation, past life regression, channeling, life after life, or any occult topic appealing to the human desire to live forever.

Newspapers sent reporters to Ireland to investigate. Was there a redheaded Bridey Murphy who lived in Ireland in the nineteenth century? Who knows, but one paper--the *Chicago American*--found her in Chicago in the 20th century. Bridie Murphey Corkell lived in the house across the street from where Elizabeth Tighe grew up. What Elizabeth reported while hypnotized were not memories of a previous life but memories from her early childhood. Many people were impressed with the vivid details of her memories, but details are not evidence of authenticity. Tighe engaged in *confabulation*

As Martin Gardner says, "Almost any hypnotic subject capable of going into a deep trance will babble about a previous incarnation if the hypnotist asks him to. He will babble just as freely about his future incarnations....In every case of this sort where there has been adequate checking on the subject's past, it has been found that the subject's unconscious mind was weaving together long-forgotten bits of information acquired during his early years" (Gardner 1977).¹⁰

7. Testimony

For much of what we believe, we have to rely on what other people tell us. Their reports are as liable to error as our own. Still, we can be reasonably certain of some people's reports and reasonably doubtful of others. In chapter three, we'll present some rules for deciding which reports are trustworthy. Here we will simply raise a few cautionary concerns about relying on testimonials.

Testimonials are often very vivid and detailed, making them appear very believable. They are often made by enthusiastic people who seem trustworthy and honest and who lack any reason to deceive us. They are often made by people with some semblance of authority, such as those who hold a Ph.D. in psychology or physics.

To some extent, testimonials are believable because people *want* to believe them [See *wishful thinking*, below.]. Often, one anticipates with hope some new treatment or instruction. One's testimonial is given soon after the experience while one's mood is still elevated from the desire for a positive outcome. The experience and the testimonial it elicits are given more significance than they deserve. (Carroll 2003: 375).

Because it is easy for people to deceive themselves (see *self-deception*, below), scientists do not usually rely on testimonials or anecdotes, except perhaps to stimulate them to design controlled experiments to test hypotheses. (Designing controlled experiments is discussed below in the chapter on causal reasoning.)

The testimonial of personal experience in paranormal or supernatural matters has no scientific value. If others cannot experience the same thing under the same conditions, then there will be no way to verify the experience. If there is no way to test the claims made, then there will be no way to tell if the experience was a delusion or was interpreted correctly. If others can experience the same thing, then it is possible to make a test of the testimonial and determine whether the claim based on it is worthy of belief.

Testimonials regarding paranormal experiences are scientifically worthless because selective thinking and self-deception must be controlled for. Most psychics do not even realize that they need to do a controlled test of their powers to rule out the possibility that they are deceiving themselves. They are satisfied with their experience as psychics. Controlled tests of psychics will prove once and for all that they are not being selective in their evidence gathering, that is, that they are counting only the apparent successes and conveniently ignoring or underplaying the misses. Controlled tests can also determine whether other factors, such as cheating might be involved. (Carroll 2003: 375).

Thus, while testimonial evidence is sometimes essential—as in telling your physician your symptoms—it is easy to overvalue other people's experiences, especially if they are put forth enthusiastically and authoritatively.

8. Ignorance

Perhaps the greatest hindrance to thinking critically is ignorance: the lack of essential background knowledge on the subject at hand. Ignorance is not the same as stupidity, which has to do with lack of, or incompetent application of, *intelligence*. Ignorance has to do with lack of *knowledge* or *information*. Perhaps nothing hinders critical thinking more than lack of adequate vocabulary. Using a good dictionary is often a quick and efficient way to overcome one of the main hindrances to critical thinking. After all, if you don't understand what a person means, you can't very well evaluate that person's claims or arguments.

Without a firm understanding of the basic principles and accepted beliefs in a particular field, it is impossible to judge the truth, relevance, or sufficiency of evidence put forth to support positions in that field. Without adequate background knowledge of a subject, one can't tell whether claims are clear enough or whether relevant material has been omitted. In short, one can be a master of critical thinking skills, but without knowledge those skills won't do you much good.

A good critical thinker knows that conclusions, decisions, or actions should be knowledgeable ones. He or she knows that the best thinking is done when *all* pertinent data is presented. Critical thinking requires the ability to do skillful reading and research. This will require hard work, and, as the saying goes, there really is no substitute for it. A critical thinker must know how to use the library and computer data banks to get needed information. And since it is often impossible to do one's own research, a critical thinker must be skilled at evaluating the claims of experts and authorities in various fields. These are topics we will take up in chapter three.

Exercise 1-2

As you read the material on limitations and hindrances to critical thinking, keep a notebook and list each hindrance. Later, review your list and select one or more areas that you believe you need to work on most. Commit yourself to conquering at least one hindrance you think is likely to prevent you from becoming a better critical thinker. Suggestions on ways to overcome the hindrances to critical thinking are discussed in section 6 of this chapter.

9. Beliefs

Some beliefs can hinder critical thinking. If you believe you will fail at trying to solve a problem, you probably won't try. If you don't try, you won't avail yourself of the opportunity to learn and develop your talents, including your critical thinking talents. Surprisingly, much research has found that believing that intelligence is something you are born with, and is fixed for life by your genes, hinders people in several ways that might affect their ability to think critically. "One of the dumbest things people do with the fixed view of intelligence is to sacrifice important learning opportunities when those opportunities contain a risk of revealing ignorance or making errors" (Dweck 2002: 29). Why? Because people who believe intelligence is completely fixed tend to fear failure more than people who view intelligence as largely a potential that can be developed. They seem to fear failure because they tend to measure their self-worth by their intelligence. They interpret any failure as a sign that they lack intelligence. They thus tend to play it safe. People who believe intelligence is malleable tend to interpret any given failure as a sign that they lack a specific skill or bit of knowledge. Instead of being put off by failure, they are often inspired by it to take action and even take more risks. Without risks, learning is impossible. Dweck puts it this way: "Students who hold a fixed view of their intelligence care so much about looking smart that they act dumb...."(2002: 31).

Another belief that can hinder critical thinking is the belief that only dumb people have to work hard or that intelligent people learn effortlessly (Dweck 2002: 31). This phenomenon is called self-handicapping (Berglas 1990), and it is the tendency to do things that will prevent you from looking like you have low ability, even if these are things that will jeopardize your performance. When people self-handicap, it means that they care more about looking smart (or avoiding looking dumb) than about accomplishing something (Dweck 2002: 32). Unfortunately, self-handicapping is something intelligent people who believe in fixed intelligence tend to do because they tend to believe things should come easy to them. The moral of the story seems to be: Even if there is some limit to intelligence imposed by biology, believing that intelligence is largely a potential to be developed, will often be the main difference between two equally intelligent people who are unequal critical thinkers.

Exercise 1-3

There are many beliefs that could hinder the development of critical thinking. Create a list of five beliefs that you believe would hinder critical thinking and explain why you think so.

10. Wishful thinking and self-deception

Wishful thinking is interpreting facts, reports, events, perceptions, etc., according to what one would like to be the case rather than according to the actual evidence. For example, I am convinced that my girlfriend is faithful even though several of my friends have told me they've seen her being intimate with another guy. *Self-deception* is the process or fact of misleading ourselves to accept as true or valid what is false or invalid. Self-deception, in short, is a way we justify false beliefs to ourselves. When I convince myself that my girlfriend is unfaithful to me because she loves me and is just trying to make me jealous, I'm deceiving myself.

Ninety-four percent of university professors think they are better at their jobs than their colleagues.

Twenty-five percent of college students believe they are in the top 1% in terms of their ability to get along with others.

Seventy percent of college students think they are above average in leadership ability. Only two percent think they are below average.

---Thomas Gilovich *How We Know What Isn't So*

We often believe things not because we have good evidence for them but because we *want* to believe them. We tend to construe things in our own favor, to look for evidence that fits with what we already believe or want to believe. Too often, we are easily deceived when it suits our

purposes. We allow loyalty or hostility to control how we think about those we love and hate. Too often, we see only what we want to see and believe only what we want to believe. For example, when mail with money for our daughter is found opened and empty or when money is stolen from our house, we don't want to believe that it is our own son who is doing the stealing, so we accept his claims of innocence at face value. When he suggests that it might have been one of his friends or a friend of a friend, we are all too ready to put the blame elsewhere. We don't need any evidence of guilt; our wish not to believe our own son is a thief is sufficient to deceive us into thinking we know who the guilty party really is.

"We are never deceived; we deceive ourselves." --Goethe

"We like to be deceived." --Blaise Pascal

**"...delusions are always more alluring than facts."
--Clarence Darrow**

Our desire to succeed at some task may make us blind to our faults or inadequacies, resulting in our putting blame for our own lack of ability on others. The most perverted form of this type of self-deception occurs in those who refuse to face facts about their own lack of intelligence, ambition, or skill, and so blame other races, ethnic groups or religions for their own troubles. No failure in their lives is due to any action or inaction on their own part. The fault is

always with some other group: Catholics, Jews, Muslims; Protestants, Republicans, Democrats; Africans, Asians, Mexicans; Serbs, Croatians, Americans; Arabs, Iranians, Israelis, or dead white European males.

10.1 The Forer Effect

People have a tendency to accept a vague and general personality description as uniquely applicable to themselves without realizing that the same description could be applied to just about anyone. Psychologist B. R. Forer gave a personality test to his students, ignored their answers, and gave the same assessment to each student. He asked them to grade their assessment on a scale of 0 to 5, with 5 being *very accurate*. The evaluation average was 4.26. The test has been repeated hundreds of time and the average remains around 4.2.

The Forer effect may be why many people believe in astrology, biorhythms, fortune telling, graphology, palm reading, and other such methods of character analysis. Forer thought that *gullibility* could account for the

customers' tendency to accept identical personality assessments. It seems more complicated than that and may involve not only gullibility, but self-deception, wishful thinking, and confirmation bias (see below).

People tend to accept claims about themselves in proportion to their desire that the claims be true rather than in proportion to the empirical accuracy of the claims as measured by some nonsubjective standard. We tend to accept questionable, even false statements about ourselves, if we deem them positive or flattering enough. We often give very liberal interpretations to vague or inconsistent claims about ourselves in order to make sense out of the claims. (Carroll 2003: 147).

The Forer effect is sometimes referred to as *the Barnum effect*, after P.T. Barnum who claimed to have something for everybody.

11. Suggestibility, conformity, and admiration for experts and authorities

In many areas of inquiry, having an open mind and possessing a healthy skepticism won't be sufficient to produce the most reasonable beliefs. In areas where we are not competent to make reasonable judgments, we must rely on experts and authorities. It is essential, therefore, that we learn how to use intelligently the claims of authorities and experts. This may be difficult since we may be vulnerable to certain tricks of persuasion. Psychologist Robert Thouless writes:

"The despotism of custom is everywhere the standing hindrance to human advancement..."
--John Stuart Mill, *On Liberty*

The psychological fact of suggestion is the fact that if statements are made again and again in a confident manner, without argument or proof, then their hearers will tend to believe them independently of their soundness and of the presence or absence of evidence for their truth. More particularly will his hearers tend to accept the suggestions of a speaker if he has what we may call 'prestige'--the acknowledged dignity of authority possessed by senators, bishops, prize fighters, successful authors, and other famous men (Thouless 1950: 57-58).

If I said in an impressive tone of voice, on my authority as a psychologist, that there are or are not such things as ghosts, or that our souls are or are not immortal, I could succeed in influencing a great many suggestible people, although a moment's reflection should convince them that I have exactly the same right to an opinion on such subjects as they have themselves and no more (Thouless 1950: 70-71).

Authorities themselves do much to perpetuate their power and convince the rest of us that it is a good thing to accept their claims uncritically. One reason we tend to accept claims solely on the authority of experts is that the experts themselves have repeatedly asserted that it is good for us to do so.

Another writer on the subject of the mind's susceptibility to suggestion, Giles St. Aubyn, writes

Susceptibility to suggestion is one of the consequences of man's gregariousness. He tends to accept statements and opinions that are constantly repeated, whether there are grounds for believing them or notOur suggestibility involves us in a great deal of illogical thinking because it encourages us to accept ideas and opinions uncritically, without examining the evidence for or against them. Human suggestibility arises from a deeply rooted instinct to respond to the herd. If several wolves are to maneuver as one, every wolf must instantly conform to the needs of the pack. The individual's sensitivity to such requirements is the essence of gregariousness. But man's instinctive desire to conform is fundamentally unreasonable, because it encourages him to accept as self-evident ideas prevalent in the community in which he happens to live (St. Aubyn 1962: 57).

If we have a strong inclination to conform, then we would tend to desire agreement rather than disagreement with others. Desiring agreement with others, we would be less likely to challenge them than if we had a

stronger inclination to get at the truth. On the other hand, desiring agreement would also lead us to devise ways to keep others from disagreeing with us. There seems to be a strong connection between the tendency to conform and the tendency of authorities and those with power to encourage us to think and act uncritically. We're all aware of how parents, teachers, and friends, use fear and guilt to persuade and manipulate us when reason and evidence are lacking. We've all seen the effects of stating publicly a viewpoint that is not popular.

Still, despite St. Aubyn's claim that the desire to conform is fundamentally unreasonable, conformity is essential for social creatures to co-exist peacefully. As children, for example, we had to put our trust in our parents, teachers, and leaders in order to survive and grow into mature adults. The problem, in other words, is not suggestibility, authority, prestige, or conformity. The problem is in the *perversion* of the need to trust authorities and to conform. The problem is finding the right point at which we should become an independent thinker.

The natural and usually beneficial tendency to conform can, when misdirected or unreflectively applied, lead us to accept uncritically the ideas of friends, colleagues and relatives. Accepting their views makes us acceptable to them: *to believe is to belong*. Accepting their views makes us one of them: *to believe is to become more prestigious in our own eyes*. Accepting their views means we can stop thinking or worrying about one more thing: *to believe is to be more comfortable*.

Exercise 1-4

List several ways that each of the following professionals use their authority to keep us in an uncritical state: *scientists, physicians, teachers, lawyers, military and religious leaders, journalists and politicians*.

12. Laziness and pride

Laziness plays a role in encouraging us to conform and to kowtow to authority. Combined with the common desire for quick results and simplicity, laziness also leads to the tendency to think in terms of stereotypes and slogans. A stereotype (e.g., "the woman driver," "the redneck," "the teenager," "the liberal") is a classification, and a slogan is a generalization ("Love it or leave it," "Make love not war," "Skepticism is a virtue") or an oversimplification ("Darwin's theory is that we all come from monkeys;" "Freud said everything is sex," "Atheists believe life is meaningless") based not on evidence but on prejudice or unexamined beliefs. Gordon Allport called stereotyping "the principle of least effort" (1954: 173). Thouless calls it "tabloid thinking" (1950: 91-101).

Pride, too, plays a part in hindering us from thinking critically. Most of us want to appear knowledgeable and right, rather than ignorant or wrong, so we don't object to or challenge claims made by others, especially authorities. We pretend we understand things for fear of appearing foolish. Or we let false or stupid remarks go by without saying anything because we don't want to cause a scene.

13. Communal reinforcement

Communal reinforcement is the process by which a claim becomes a strong belief through repeated assertion by members of a community. The process is independent of whether or not the claim has been properly researched or is supported by empirical data significant enough to warrant belief by reasonable people.

Communal reinforcement accounts for the popularity of unsupported claims regarding repressed memory and child abuse, which was discussed above. It accounts for such beliefs that children have memories that are completely accurate, that children rarely says things that aren't true, that you can rid yourself of cancer by visualization or humor, that Jews control all the power and money of the world, and so on.

Communal reinforcement explains how entire nations can believe in such things as witchcraft or demonic possession. It also explains how testimonials reinforced by other testimonials within the community of therapists, sociologists, psychologists, theologians, politicians, talk show aficionados, and so on, can be more powerful than scientific studies or accurate gathering of data by unbiased parties.

14. Bias or prejudice

Bias is a predisposition to tackle a problem or react to people or situations in a certain way. Referring to the “liberal bias” of the media means one thinks the media has a predisposition to present stories and information in ways that favor the liberal, as opposed to a conservative, viewpoint. Whether this is a fair charge is something we will examine in chapter three.

Prejudice refers to judgments that are not based on evidence or study, but are preformed opinions about a person, group, or issue. Prejudicial views can be either favorable or unfavorable.

Everybody’s worldview includes some biases and prejudices, not the least of which is the general tendency to see oneself as the center of the universe and one’s culture as the standard by which to measure all others. We interpret new experiences through our worldviews and if they are in error, it seems we will be hopelessly locked into a lifetime of more error. The only way out seems to be to make a conscious effort to be open-minded, to reflect on our experience and use our intelligence as best we can to correct our errors and overcome our biases and prejudices.

The unexamined life is not worth living.
--Socrates

Overcoming the effects of preconceived notions is very difficult. The philosopher René Descartes (1596-1650) believed that the only way to be successful with this hindrance would be to doubt everything one believes and start over by developing a method that would guarantee absolute certainty. While there have been attempts since to realize Descartes’ ideal,¹¹ we are more likely to be successful if we abandon the goal of absolute certainty in most matters and settle for reasonable probabilities. The idea of doing an inventory of one’s beliefs, trying to identify personal prejudices, is certainly a good one. Awareness of one’s prejudices will not guarantee overcoming them, but ignoring them will guarantee not making any progress in this area. The best advice may well be that given by Socrates at his trial over two thousand years ago: always be willing to examine your beliefs and actions. The unexamined life is not worth living.

If we cannot master our *egocentrism* and our *ethnocentrism*--the tendency to think that oneself and one’s culture are the standards of truth and reality--we will never become critical thinkers. Every society, however, promotes ethnocentrism and discourages the disputing of traditional beliefs and values. Thus, critical thinking is likely to be more rare than common, more difficult than easy to achieve.

15. Confirmation Bias

Confirmation bias refers to a type of selective thinking whereby one tends to notice and look for what confirms one’s beliefs, and to ignore, not look for, or undervalue the relevance of what contradicts one’s beliefs. For example, if someone who works in a hospital emergency room believes that during a full moon there is an

increase in admissions, she will take notice of admissions during a full moon. However, she will be inattentive to the phase of the moon when accidents occur during other times of the month. A tendency to do this over time unjustifiably strengthens one's belief in the relationship between the full moon and emergency room admissions.

Most people don't seem to realize how easy it is to find supportive evidence for almost any belief. By ignoring

"It is the peculiar and perpetual error of the human understanding to be more moved and excited by affirmatives than by negatives."
--Francis Bacon

contrary evidence or by making no effort to find such evidence, one can convince oneself of almost anything. For example, when Joseph Banks

Rhine, one of the pioneers in ESP research, found that some test subjects failed to do better than would be expected by chance, he explained the data away as being due to unconscious direction to avoid the target. Parapsychologists have even given this alleged phenomenon a name: *psi-missing*. (*Psi* is a word used in parapsychology to refer to any kind of paranormal phenomena.) Rhine even claimed that subjects who weren't performing in such a way as to support his ESP hypothesis didn't like him and were consciously guessing incorrectly to spite him (Park 2000: 42). When skeptics could not replicate ESP experiments, parapsychologists attributed this to *the experimenter effect*, which they defined to mean that believers in ESP got positive results, while non-believers get negative results because their *telepathic effect is different on the subjects*. When the laws of chance predict that over a long period of time a person will guess at something at a chance rate, parapsychologists take doing better than chance over a short period as a time when ESP was working. If a psychic is caught cheating, the defender of the paranormal will say that that doesn't mean she *always* cheats and that some of her feats may still be genuinely psychic. If you are clever enough, you will be able to rationalize any data that seem to contradict your belief and find *more* support in the data rather than less.

This tendency to give more attention and weight to data that support our preconceptions and beliefs than we do to contrary data is especially pernicious when our beliefs are little more than prejudices. If our beliefs are firmly established upon solid evidence and valid confirmatory experiments, the tendency to give more attention and weight to data that fits with our beliefs should not lead us astray. Of course, if we become blinded to evidence truly refuting a favored hypothesis, we have crossed the line from reasonableness to closed-mindedness.

Numerous studies have demonstrated that people generally give an excessive amount of value to confirmatory information, i.e., data which is positive or which supports a position (Gilovich 1993). Thomas Gilovich speculates that the "most likely reason for the excessive influence of confirmatory information is that it is easier to deal with cognitively." It is much easier to see how a piece of data supports a position than it is to see how it might count against the position. Consider how dowsers are convinced that they have paranormal powers that guide them in finding water with a bent stick. The belief in their power is based upon remembering the times they found water. However, dowsers and their advocates don't keep track of failures. When tested under controlled conditions, they have failed to perform at anything better than a chance rate. (Controlled experiments are discussed in chapter eight.)

This tendency to give more attention and weight to the positive and the confirmatory has been shown to influence memory. When digging into our memories for data relevant to a position, we are more likely to recall data that confirm the position (Gilovich).

Researchers are sometimes guilty of confirmation bias by setting up experiments or framing their data in ways that will tend to confirm their hypotheses. They compound the problem by proceeding in ways that avoid dealing with data that would contradict their hypotheses. For example, American anthropologists generally accept what is known as the "Clovis model." Some 11,000 years ago, according to this model, people from Northeast Asia entered the Americas and spread across the Great Plains, the Southwest, and eventually to the East. These peoples are considered to be the ancestors of today's Native Americans. Anthropologists had no problem piling up the evidence in support of the Clovis model. However, few bothered to look for anything older and did not excavate for sites beneath the Clovis limit. Recently, excavations at Monte Verde in Chile and Meadowcroft Rockshelter in Avella, Pennsylvania, have led to discoveries that may set back the time of the earliest settlers from one to several thousand years. Even more interesting is that skulls that had been assumed to be of the stock from which Native American descended are being re-examined and there is now some doubt as to the racial origins of the skulls.¹²

Experimenters might avoid or reduce confirmation bias by collaborating with colleagues who hold contrary hypotheses. By jointly working on the design of an experiment and on the analysis of the resulting data, the experimenters might keep each other from inadvertently biasing the study. For example, Peter Brugger, a neuroscientist who is skeptical of ESP claims, joined with noted parapsychologist John Palmer to conduct a series of studies to test, among other things, Brugger's hypothesis that some individuals who seem to show paranormal abilities in experiments on telepathy are actually subconsciously recognizing hidden patterns. The two-year project was funded by the Cogito Foundation on condition that both a parapsychologist and a skeptic be involved. (Results will not be available until after 2006.)

16. Physical and emotional hindrances

Physical or emotional stress, fatigue, and certain drugs can severely affect our ability to think clearly and critically. Hospital interns complain of the inability to do their medical duties to the best of their ability because they are required to serve thirty-six hour or longer shifts. Air traffic controllers and airline pilots complain of the inability to make good judgments when they are fatigued after long hours on duty. Add the stress of immense responsibility and it is easy to see why we make bad judgments when we are fatigued.

How often have you stayed up all night studying for an exam? Usually, however, you can think well if you are rested. Any benefit from all-night cramming will be more than offset by the disadvantages of being tired. The problem can be compounded if the student is ingesting copious quantities of caffeine and nicotine, or other more potent stimulants as well. It should be obvious that drugs, even certain medically prescribed and legal ones, can severely hamper an individual's ability to reason well. (Of course, not all drugs are hindrances to critical thinking. Some drugs have a calming or healing effect, and are necessary for some people to enable them to think critically.)

And just as stress or drugs can adversely affect our ability to think critically, so too can being under the influence of any strong emotion. It is true that some people do their best thinking under pressure, but usually we can neither perceive clearly nor make good judgments while terrified, angry, jealous, etc. If we cannot learn to control our emotions, we might at least try to avoid making any decisions while emotionally upset. Wait, if possible, until a calmer moment arrives.

17. Censorship

Certain political liberties are essential to the development of critical thinking. The repression of free speech is a major hindrance to critical thinking. Without adequate information, judgments and evaluations of issues will be slanted and biased. The main reason for censorship is to control the thoughts and actions of people. When information is controlled, thought is controlled. When thought is controlled, actions are controlled.

Every parent knows that there are times when censorship is justified for the good of one's child. Graphic violence or sex, depictions of cruelty and the like, are reasonably excluded from children's books and television programming. However, no child will ever learn to think for herself if she is only allowed to see or hear what her parents want her to see or hear. Some nations treat their adult citizens as children and prohibit such material to everybody. They assume their citizens not only *should not* but *cannot* think and act for themselves.

"Give me the liberty to know, to utter, and to argue freely according to conscience, above all liberties."

John Milton (1608-1674), *Areopagitica*.

Freedom of speech, however, is sometimes repressed in “free” countries. Three examples should suffice: the censoring of books in our public schools; the censoring of art by public programs such as the National Endowment for the Arts; and the censoring of information by the military.

Each year in hundreds of school districts around the country, there are attempts to ban certain books from the public schools. In 1990-1991 there were over 200 such book-banning confrontations between the “protectors of decency and truth” and “the defenders of liberty.” Some of the works the protectors wanted to ban were *The Grapes of Wrath*, *One Hundred Years of Solitude*, *Huckleberry Finn*, *Lord of the Flies*, and *Webster’s Ninth Collegiate Dictionary*. The justification for banning the books varied, but usually the protectors cited items such as offensive language, pictures, or ideas. The would-be censors range from religious conservatives wanting to ban stories about witches, to political liberals wanting to ban stories that depict women or minorities in “demeaning” ways. Some found offense with Bible stories; others were offended by scientific theories. Some wanted to censor anything sexual; others wanted to censor sexual material that reflected disdain for homosexuality.

Another group of censors, led by Sen. Jesse Helms of North Carolina, wanted to ban public funding of “indecent” art. The National Endowment for the Arts agreed to require the signing of a “decency document” by any person or group applying for funds. Some prior beneficiaries, such as the Ashland Shakespeare Festival, refused to sign the document and became ineligible for a grant. Those who refused to be censored did so not out of a desire to be indecent, but out of concern for the loss of liberty. Those who defended the censorship did so out of concern for spending public money on art that offended certain Christians. The American censors reminded the art community that things could be worse. Irate Muslims, led by the Iranian Ayatollah Khomeini, were calling for the execution *by anyone at anytime* of Salman Rushdie for having written *Satanic Verses*, a book that is said to blaspheme Muhammad.

Finally, the United States military has become more and more controlling of information regarding its invasions of such countries as Grenada, Panama, and Iraq. Military censorship and control of information reached unprecedented heights during the Gulf War. The Gulf War was a television war, but not in the sense that many journalists and much of the public had hoped for. It was a Nintendo War for the deaf. We did not get to see and hear live coverage of bloody battles. We never got a ground level video of bombs being dropped, of explosions in our ears. What we got instead were soundless videos taken from airplanes or from bombs as they entered buildings. No loud explosions. No screams. No dead bodies. We did see a few thousand burned out vehicles.

We didn’t see many pictures taken from the ground. Many of those we did see were censored by the Iraqis. Especially dramatic was the film of the bombed out building that became the tomb for hundreds of Iraqi women and children. U.S. officials called the building a military headquarters; Iraqi officials called it a bomb shelter. There was also the video of the bombed out factory which Iraqi officials say was a baby formula factory, while U.S. officials insist it was a chemical warfare plant.

The first video of ground damage, including pictures of charred and dismembered Iraqi soldiers, was released on March 27, 1991, long after the war had ended. The U.S. military released the videos to the mass media, not the other way around. Other videos of damage done by bombs dropped on Iraq, such as the one narrated by former U.S. attorney general Ramsey Clark, have not been shown by the major networks.

What television brought us was a highly censored view of war. What wasn’t censored by the military was censored by the networks themselves. We saw, for the most part, only what the U.S. government wanted us to see.

“If kids don’t run up against ideas that are disquieting, or challenging, or different from what they’ve always believed, or different from what their parents believe, how will they ever grow as human beings?...Banning books shows you don’t trust your kids to think and you don’t trust yourself to be able to talk with them.”
--Anna Quindlen

There were a few dramatic exceptions. There was the reporter in Israel showing us a map of Tel Aviv with a clear marking where a Scud missile had landed. Back in Baghdad they might have thought this report interesting, if not valuable, from a military perspective. However, it doesn’t appear that the Iraqi military leaders were watching too much television. After the ground fighting ceased, we were informed by the Pentagon that the only information that might have been vital to the enemy had passed through the military

censors’ hands and was reported on television. Several of our reporters figured out General Schwarzkopf’s plan

from a piece of information about engineers working in the western Saudi Arabian town of Rahra. The reporters voluntarily kept silent about it. They even encouraged their bosses to keep silent about it. So, it was self-censorship, rather than military censorship, which proved more important in the end at keeping vital information from the enemy.¹³

What television brought us during the Gulf War was what the U.S. Military information managers wanted us to see. The military set up a pool system whereby a select number of reporters were taken by the military to designated places in the war zone. What they saw and who they had contact with was strictly controlled by the military. But the reporters were then free to pass out what information they had garnered to other reporters waiting at the home base. The military flew reporters with cameras out to sea so they could make stunning visuals of the preparation for the massive amphibious landing. The assault from the sea never took place, of course. That was a ruse, a feint. Television was used to help dupe Hussein into thinking we were planning a massive attack from the sea. (See how busy we are sweeping those Iraqi mines in the harbors. See how concerned we are about all that oil which might be ignited and burn to death our marines as they try to make their way through heavy seas to the coast of Kuwait.)¹⁴

Despite the furor such debates cause, much of the debate over books in the schools, government-supported artists, and press coverage of military operations is not about censorship per se. It is about the *appropriateness* of certain materials for certain age groups, or the *appropriateness* of government-funded art that is irreligious or unpatriotic, or the *appropriateness* of releasing information which might prove harmful to the national interest. Still, a good part of the debates is about censorship per se. There are many people in our society who do not want anyone to be allowed to express certain ideas or use certain language. Such people, whether they are conservative or liberal, are always a danger to critical thinking. They are a danger not because of the ideas they defend or express, including the idea of censorship. They are a danger because often what they want to suppress is offensive to many of us and, as a result, we will be less likely to challenge them. Unchallenged, the censors will get their way and the result will be stifling. It is inevitable that freedom of speech will be abused. The price of preventing abusive speech is to censor it; the additional cost will be a severe reduction in critical and creative thinking.

There is, however, a benefit to the existence of would-be censors: they can serve as a stimulus to the defenders of liberty and critical thinking. They make us reflect on our beliefs and argue to defend them. That is always valuable. Furthermore, sometimes the censors make us aware of what is happening in the schools or in the world of art or on the battlefield. Maybe we are introducing children to inappropriate materials. Such dialogue can be healthy. Maybe the government is too influential in the content of the art it supports. Maybe the military is censoring information because they have a lot to hide about their own incompetence or evil. The censors, at least, initiate a dialogue on the issue.

17.1 Lawsuits and the law as forms of censorship

One way to stifle speech is to frighten people into silence by threatening to sue them for millions of dollars if they speak up. That is what happened to James Randi when he wrote that Uri Geller, who claims to have psychic powers, is a fraud, a magician, and con artist. That is what happened to several people who have publicly criticized Scientology. That is what happened to journalist Andrew Skolnick for his investigative report on health fraud by the Maharishi Mahesh Yogi and his Transcendental Meditation Movement. The purpose of the lawsuits is to harass and intimidate critics.

Shortly after the ratification of the first amendment, Congress passed a sedition act that made it illegal to criticize the government. Such uses of the law continue in our own day. Florida made it illegal to criticize their citrus crops. Presumably this was done to protect a vital economic interest, but environmentalists fear they can be sued or arrested for writing about pesticides in foods. Whatever the goal of such legislation, it has the effect of censorship. Several states have followed Florida's example, including Texas, which has a "perishable food disparagement law." Celebrity Oprah Winfrey was sued by some cattle ranchers for libeling beef on her television program. She had said that she'd eaten her last burger after a guest on her show stated that American cattle could

be infected with bovine spongiform encephalopathy (BSE), the so-called mad cow disease. Winfrey won the lawsuit, but one wonders what chilling effect on free speech such suits will have on others.

Harassment lawsuits have led the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP) to form a Legal Defense Foundation. What does that say to us? We pride ourselves in being the freest country in the world. Yet, the expression of skeptical opinions or truthful observations critical of psychics, occultists, and paranormals are in danger of being stifled. The Legal Defense Foundation, says CSICOP, is “the best way to blunt this frightening new weapon of the apostles of nonsense.”¹⁵ I’m not so sure. California and New York have passed laws to provide relief for victims of harassment lawsuits. That seems to me to be a better way to deal with this type of censorship. Make the plaintiffs in frivolous defamation suits pay all the legal costs and make it easy for defendants in such cases to collect their legal expenses. I would also like to see the defendants awarded damages in the amount of the original suit, should it be declared to be frivolous. So, if the scientologists sue me for \$20,000,000 for calling Scientology the rankest pseudoscience of the twentieth century, and the court decides their suit is frivolous, intended to harass and intimidate me, then the scientologists pay me \$20,000,000. Sounds fair to me.

18. Overcoming limitations and hindrances to critical thinking

The only way to overcome the lack of essential background knowledge in a field is to do the necessary reading and studying in that field.

Overcoming the social pressure to conform is difficult. The first step toward conquering this hindrance is to recognize that it is a problem. Ask yourself if it is conformity that is motivating you to believe something.

Awareness of the problem won’t eliminate it and challenging one’s friends (or one’s boss, etc.) is not always to one’s advantage. You must know your priorities. If challenging the boss might mean the loss of a job you desperately need, then it may be wise to keep your ideas to yourself. The critical thinker must ask “do I believe this only because of fear of being rebuked or of being thought disagreeable?” The question itself (or one like it) shows an awareness of the power of the desire to

“Men are disturbed not by things, but by the views they take of things.” --Epictetus

conform. It is difficult to know, however, whether one’s answer to the question is honest or reflects self-deception and wishful thinking. One thing is certain, though; if you’re not aware of this hindrance and don’t remind yourself of it, you will never overcome it to any degree.

The tendency to be uncritical of claims made by authorities, experts, and people we admire is also difficult to overcome. One method professional journals use to prevent prejudice from clouding a referee’s judgment is to send out a paper for evaluation without letting the referees know who wrote the paper. Some teachers have their students use codes rather than their names on their essays. We will return to this subject in detail in chapter three, so here we will only say that awareness of the problem is a necessary step toward overcoming it.

Overcoming laziness and the desire for quick results, and thinking in terms of slogans and stereotypes, can only occur if one makes a conscientious effort to do so. This is true also of those physical hindrances that are in our power to control, such as the use of brain-altering drugs. Controlling the stress in one’s life, however, is more complex. Stress-causing events are often beyond one’s control, e.g., the death or serious injury or illness of a loved one. Other stressful events are partly in one’s control, but may be necessary, e.g., a divorce or separation, or caring for an elderly parent. In any case, whatever the source of the stress, what is important is how one deals with it. You may not be able to change yourself or an external source of stress, but you may be able to change how you respond to the stress. Instead of seeing obstacles and troubles, you might force yourself to see challenges and opportunities.

While it would be unreasonable to expect us to control our emotions all of the time, we should be able to control ourselves enough so that we do not make important decisions while angry, upset, jealous, etc. For example, you might leave the room to avoid saying something you might later regret.

Overcoming social or political repression of information and ideas is often difficult because we may find the repressed ideas repulsive. Since we don't like the ideas being repressed, we don't object to the repression. We may regret our inaction later, when it is *our* ideas that are being repressed.

19. Personal benefits of critical thinking

Self-confidence and a sense of control over one's life are the two main personal benefits of being a critical thinker. Once one commits oneself to a lifelong search for the most reasonable beliefs and actions, and one learns how to conduct that search properly, self-confidence and self-respect begin to flourish. Also, the better one is at evaluating and constructing arguments, the more likely one will be in control of situations where decisions need to be made or problems solved.

Another benefit of critical thinking is that one should notice an improvement in one's studying and course work. It is possible--perhaps even likely--that many students will become more efficient at using their intelligence because of becoming more critical in their thinking. Whatever benefits accrue to you because of using this text, the benefits will be due mainly to your efforts. The text is merely a guide. It points you in the right direction. Where you arrive is largely up to you. What a critical thinker hopes for is to become free from the tyranny of those who would rather see obedient servants than thoughtful, independent thinkers. We should also hope to become free from our own tyranny--the tyranny of self-deception and wishful thinking. Only by becoming free from these tyrannies can we hope to think clearly and accurately so that we might judge fairly what we ought to believe and do. We will still make mistakes, but they will be *our* mistakes.

20. Drawbacks to Critical Thinking

There can be drawbacks to being a critical thinker. Some people are offended by being challenged. They do not like being questioned or they can't tolerate people who disagree with them. Some people's worldviews are antithetical to critical thinking. Such people may be friends or family members, and critical thinking may alienate you from them. People who love you may think you are being corrupted by critical thinking. The more critically you think, the more likely it is that you will change your views on many important issues. These changes may not only cause friction with others; they may cause some discomfort in your own life as you try to adjust to giving up attitudes and beliefs you've held since childhood. You may even find yourself coming to believe things that once seemed obviously false to you. Many of you will have been encouraged to think critically all of your lives and there will be few drawbacks to developing your skills even further. Others, however, may have a more difficult time of it. You will have to decide for yourself what you value more: being an independent thinker or having the approval of people who do not value independent thinking.

Exercises 1-5

1. Describe each of the following hindrances to critical thinking and suggest ways to overcome them: the pressure to conform; prejudice or bias; lack of adequate background knowledge (ignorance); the tendency to accept claims made by experts and authorities; fatigue or stress; confirmation bias; communal reinforcement; anger; laziness; pride; self-deception and wishful thinking; censorship.
2. Pick one of the professions mentioned by Thouless in the passage quoted on page 15 and discuss how the members of that profession exercise their power in ways that encourage us to be uncritical, passive recipients of their claims. Do these professions have the same influence today that they had in Thouless' day (ca. 1950)? What professions, if any, would you add to this list today?

3. Imagine that you are on the local Library Board and some citizens have complained that a newspaper which you allow to be distributed in the lobby of the library often contains material with graphic sexual descriptions. They say that they are concerned that the material can be easily obtained by children. You must vote on whether or not to allow the paper to continue to be distributed in the library lobby. How would you vote and what arguments would you make to persuade the other board members to agree with you?

4. Write a short essay, describing what you hope to gain by becoming a more critical thinker.

Chapter One Self-test: true or false? (Check your answers in Answers to Selected Exercises.)

1. Critical thinking is clear and accurate thinking which aims at evaluating the justification of beliefs and actions.
2. Two equally intelligent people can be equally articulate and informed, but not be equally critical thinkers.
3. The standards of evaluation used by critical thinkers originated at the First International Conference on Critical Thinking at Sonoma State University.
4. Self-confidence and a sense of being in control of one's beliefs are the two main personal benefits of being a critical thinker.
5. Having the proper attitude is sufficient to guarantee the development of critical thinking.
6. To be open-minded means accepting that we could be in error.
7. Studies on memory have shown that we often construct our memories after the fact.
8. Authorities themselves, in all areas, do much to perpetuate their power and convince the rest of us that it is a good thing to accept their claims uncritically.
9. Facts are those things that are infallibly certain.
10. Being open-minded means believing that all ideas are equally reasonable: there can be no justification for believing one idea over another.
11. *Confirmation bias* is a kind of prejudice one develops from seeking to confirm beliefs one knows to be false.
12. Developing the proper attitude toward experts and authorities comes naturally to most people.
13. A person's skepticism is healthy if it leads him or her to doubt everything said by anyone who is an expert or authority in some field.
14. An option is a *living option*, in William James's sense of the expression, when it is possible to seriously consider believing that option.
15. Because scientists are trained in scientific methods, they are not subject to *confirmation bias*.
16. We should expect critical thinking to lead to universal agreement on important issues.
17. Studies have shown that under hypnosis a person's memory accuracy increases 100%.
18. The fact that a person remembers something very vividly in clear detail is sufficient proof that the memory is accurate.
19. Critical thinking demonstrates that ultimately no viewpoint is better than any other; all viewpoints are equally reasonable and justifiable.
20. There are many sets of values and principles by which reasonable people can and do live.
21. Ethnocentrism is the belief that our own culture is the standard of truth and reality.
22. Every society discourages ethnocentrism and encourages challenging traditional beliefs and values.
23. Critical thinking is not concerned with evaluating the justification of beliefs and actions.
24. Most people can usually perceive clearly and make good judgments while terrified, angry or jealous.
25. Overcoming the social pressure to conform is easy for most people.
26. A person's worldview is his or her basic view about the state of the world.
27. *Communal reinforcement* is support given to a community for its unpopular views.
28. Every observation is an interpretation of one's perceptions.
29. The psychological fact of suggestion is the fact that if statements are made again and again in a confident manner, without argument or proof, then their hearers will tend to believe them quite independently of their soundness and of the presence or absence of evidence for their truth.
30. The Socratic Method refers to a method of questioning and cross-examination of positions.
31. According to Giles St. Aubyn, human beings have an instinctive desire to conform.
32. Perhaps the greatest hindrance to the ability to think critically is ignorance, the lack of essential background knowledge.
33. The better one is at critically evaluating arguments, the less self-confidence one will have.

34. The philosopher Descartes believed that the only way to overcome personal prejudices and preconceived notions would be to doubt everything one believes and start over by developing a method that would guarantee absolute certainty.
35. A critical thinker is able to solve all problems and arrive at absolute certainty in all matters.

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Notes - Chapter One

¹Many bad decisions are made because leaders surround themselves with clones who all think alike or who are afraid to rock the boat by offering viewpoints that differ from the leader's or the majority's position. Another major cause of poor decision-making is the practice of not consulting people who will be affected by the decision.

Remember when Congress had to rescind its legislation on Social Security catastrophic health insurance after millions of dollars and countless hours had been spent by advocates--particularly by the American Association of Retired Persons--for a policy that was supposed to benefit the elderly. The people who were to be 'helped' most by this legislation weren't adequately consulted, and they let their representatives know how they felt *after* the bill was passed!

On our campus, a few years ago the administration put in a system which was supposed to make all buildings accessible to the handicapped. To get into a building, a person had to punch a large rubber box, which then activated the door. If you had the strength or agility needed to punch the box, but were in a wheelchair, you then had to wheel back so the door wouldn't knock you over. Then, you had to wheel forward quickly to get through before the door closed. Apparently, no handicapped person was consulted before the decision was made to install this particular system which, of course, had to be replaced at no expense to the decision-makers.

²See his famous essay, "The Will to Believe." The essay has been reprinted many times and is available in many editions. *The Will to Believe and Other Essays in Popular Philosophy* (New York: Longmans Green, 1896).

³Brugger's research indicates that high levels of dopamine affect the propensity to find meaning, patterns, and significance where there is none, and that this propensity is related to a tendency to believe in the paranormal. According to Françoise Schenk from the University of Lausanne in Switzerland, dopamine "is an important chemical involved in the brain's reward and motivation system, and in addiction. Its role in the reward system may be to help us decide whether information is relevant or irrelevant." See "Paranormal beliefs linked to brain chemistry," *New Scientist*, July 27, 2002.

⁴See also two articles in the *Skeptical Inquirer*, Vol. XII No. 2, Winter 1987-88: "The Power of Suggestion on Memory" by Robert A. Baker and "Fantasizing Under Hypnosis: Some Experimental Evidence" by Peter J. Reveen. Three witnesses to a staged armed robbery were hypnotized by Reveen. Their accounts were very detailed, but neither agreed with the other and none was close to the actual facts of the event.

⁵*Newsweek*, February 11, 1991, p. 58. Dr. Terr was the prosecution's expert witness in the trial of George Franklin Sr. who was found guilty of murdering a child twenty years earlier. The only witness against him was his 30-year-old daughter who says she repressed the memory of the murder until one day when she looked into her own daughter's eyes. Suddenly, she remembered her father molesting her 8-year-old girl friend and smashing the child's skull with a rock. Eileen Franklin-Lipsker also says she remembers her father threatening to kill her if she told anyone. She now remembers that her father sexually abused her numerous times. She says that she learned to protect herself by "forgetting" what had happened. Maybe. Or maybe the idea of being abused and forgetting it were suggested to her by her therapist. Defense lawyers argued that the daughter could have unconsciously fabricated the whole story out of anger and fear of her father. They even suggested she may have made up everything for the \$500,000 book and movie deal she's signed. Maybe. However, it is possible that the daughter's account is accurate. Still, I would hope that a jury would require some corroborating evidence that would prove beyond a reasonable doubt that the repressed memory was accurate.

⁶Carol Tavris, "Hysteria and the incest-survivor machine," *Sacramento Bee*, Forum section, January 17, 1993, p. 1. Tavris is the author of several works in psychology, including *The Mismeasure of Woman* (New York: Simon & Shuster, 1992). She is also the editor of *Every Woman's Emotional Well-being* (Garden city, N.Y.: Doubleday, 1986).

⁷Yet, it has happened. In a modern version of the Salem witch hunts, the McMartin pre-school case exemplifies the very worst in institutionalized injustice in the hunt for child molesters. See Mary Ann Mason, "The McMartin case revisited: the conflict between social work and criminal justice," [on evaluating the credibility of children as witnesses in sexual abuse cases] *Social Work*, v. 36, no. 5 (Sept, 1991), pp. 391-396, and Marion Zenn Goldberg, "Child witnesses: lessons learned from the McMartin trials," *Trial*, v. 26, no. 10 (Oct, 1990), pp. 86-88. See also Richard Lacayo, "The longest mistrial; the McMartin Pre-School case ends at last," *Time* (August 6, 1990), p. 28; Frank McConnell, "The trials of television: the McMartin case," *Commonweal* (March

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⁸"Trauma searches' plant the seed of imagined misery," Joseph de Rivera, *The Sacramento Bee*, May 18, 1993. De Rivera is a professor of psychology at Clark University in Worcester, Massachusetts, and is a consultant to the False Memory Syndrome Foundation.

⁹*The Sacramento Bee*, March 18, 1993, p. B4. The article, "Repressed-memory lawsuits spur backlash from accused," by Claire Cooper outlines the legal battleground where son and daughter sue mother and father who in turn sue their children and their children's' therapists.

¹⁰The reader should understand that I am not claiming that reincarnation does not occur or that Martin Gardner's say-so on an issue proves anything. My claim is narrower. I am saying that in those cases which have been examined by people such as Gardner the evidence points more to fraud or error than to genuine reincarnation or past-life regression.

¹¹The attempt to find absolute certainty is notable in the development of phenomenology by Edmund Husserl (1859-1938) and his collaborators. Husserl's link to Descartes is obvious in his *Cartesian Meditations* (1929).

¹²See "The First Americans," *Newsweek*, April 26, 1999, pp. 50-57.

¹³See "How press kept lid on military's plan," by Thomas B. Rosensteel, *Los Angeles Times*, reprinted in *The Sacramento Bee*, March 2, 1991. The account of the engineer's activity was in a pool account by a *Los Angeles Times* reporter which had the approval of military censors. CBS Pentagon correspondent David Martin recognized that allied troops were secretly moving much farther west than anyone had thought. Most experts expected the allied assault to occur about 200 miles east of Rahfa. NBC correspondent Fred Francis also figured out Schwarzkopf's plan. Military officials pleaded with Francis "to not emphasize the activity you are seeing in the west." The dutiful Francis even warned his network against inadvertently disclosing the plan after one of NBC's expert military commentators speculated about cutting off the enemy near Nasiriyah.

¹⁴Of course, censorship in wartime is justified. We must censor information to protect our troops, journalists and civilians. Remember Bob Simon and his camera crew who went off on their own and were captured by the Iraqis and treated as spies. Remember Tel Aviv. The issue here, however, is not censorship *per se*, but the *kind* and *extent* of censorship.

¹⁵See *Skeptical Inquirer*, vol. 17, No. 3, Spring 1993, p. 226 and the article by Andrew Skolnick, "Free Speech and SLAPP Suits," pp. 244-246. SLAPP is an acronym for *strategic lawsuits against public participation*.