

CHAPTER 5

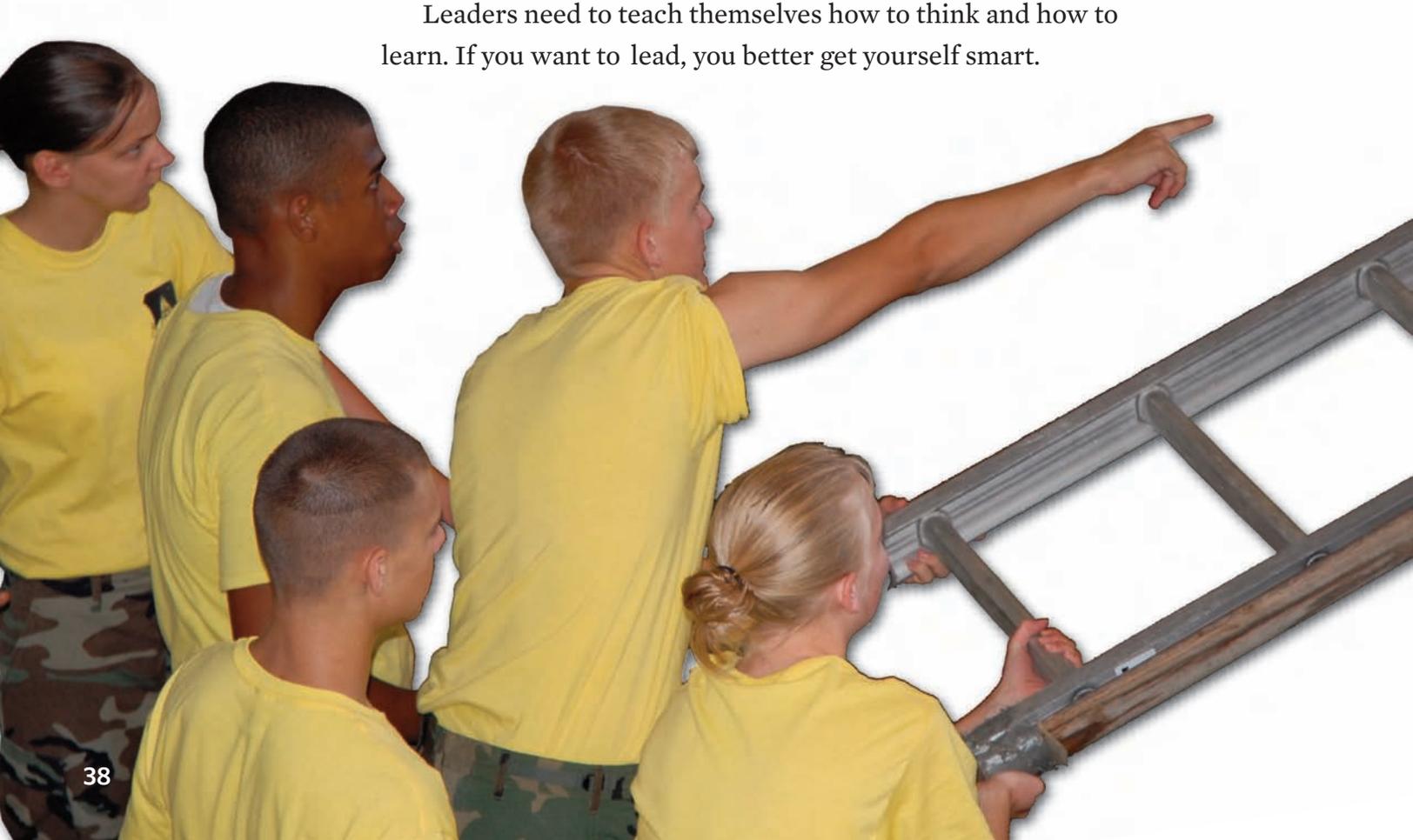
BRAINPOWER *for* **LEADERSHIP**

LEADERSHIP IS AN INTELLECTUAL ACTIVITY. It requires brainpower. Developing your brainpower can only make you a more effective leader.

Recognizing this fact, the U.S. military, the most professional force in the world, requires all officers to be college graduates. Moreover, even after commissioning, officers will attend four or more graduate-level schools on their way to the grade of colonel and above. Top NCOs receive a rigorous education, too.

Moreover, a leader's overall brainpower will affect his or her success. In this chapter, we look at critical thinking, creativity, and teaching – three aspects of leadership that speak to the need for serious study and the application of brainpower.

Leaders need to teach themselves how to think and how to learn. If you want to lead, you better get yourself smart.



CRITICAL THINKING

“To every complex question there is a simple answer, and it is wrong.”

H.L. MENCKEN
Journalist and social critic

OBJECTIVE:

1. Defend the claim that critical thinking has a direct impact on a leader’s effectiveness.

If leadership requires careful study and reflection, as we discussed in chapter three, then *a leader’s critical thinking skills have a direct influence on his or her effectiveness*. The good news is that everyone can develop better critical thinking skills through study and practice.

After all, great ideas rarely go out and find someone. It’s up to leaders to exercise their brainpower better than their competitors. Lazy thinkers get left behind. In contrast, as leaders become better at thinking critically, their rewards grow. They imagine better ideas and solve problems more quickly.

The World War I “Ace” Eddie Rickenbacker had the right idea when he said, “I can give you a six-word formula for success: think things through, then follow through.”¹

CHAPTER GOALS

1. Explain why and how leaders try to be critical thinkers.
2. Appreciate the value of creativity in leadership.
3. Develop an understanding of some fundamentals in teaching and training.

CHAPTER OUTLINE

In this chapter you will learn about:

- Critical Thinking
 - Universal Intellectual Standards
 - Modes of Thinking
 - Logical Fallacies
- Creative Thinking
 - Unappreciated Geniuses
 - Monuments to the Status Quo
 - Victories Through Creativity
 - Tools for Creative Thinking
- Teaching & Training People
 - The Trainer’s Goalposts
 - Learning Styles
 - Teaching & Training Methods
 - Evaluating Learning
- Drill & Ceremonies

PRINCIPLES OF CRITICAL THINKING

OBJECTIVE:

2. Define the term, "critical thinking."

*Critical thinking is self-guided, self-disciplined thinking which attempts to reason at the highest level of quality in a fair-minded way.*² Put another way, critical thinkers value reason and they work hard to avoid letting their own prejudices, assumptions, or emotions cloud their logic. But don't be confused by the word "critical" because in this context it does not mean to nitpick someone else's idea or always try to find something wrong just to prove the other person isn't perfect. Rather, ***critical thinking is the habit of being guided by universal values of logic and a deep respect for the truth.***

As with other aspects of leadership, becoming a critical thinker is more a journey than a destination. Everyone is subject to lazy thinking or irrational thought from time to time. Therefore, ***developing the ability to think critically is a lifelong endeavor, a never-ending process.*** The great philosopher Socrates expressed this idea when he said, "The unexamined life is not worth living."³ Taken together, many unexamined lives result in an uncritical, unjust, and dangerous world.⁴

"Critical thinkers try to prevent prejudices and emotions from clouding their logic."

"[Critical thinking] is a desire to seek, patience to doubt, fondness to meditate, slowness to assert, readiness to consider, carefulness to dispose and set in order; and hatred of every kind of imposture."

SIR FRANCIS BACON

One of the first thinkers to use the scientific method

SOCRATES: THE THINKER AS HERO



"The unexamined life is not worth living."

The ancient Greek philosopher Socrates fiercely advocated that every person use their brainpower to seek truth, consider what is good, and promote justice. For his teachings, he was sentenced to death.

In the painting, "The Death of Socrates," we see Socrates heroically asserting that no evil can ever truly

harm a moral person, although his followers scream and wail in anguish.

The painting's harmony, simplicity, and proportion, reflect qualities that Socrates himself found virtuous. Here is a portrait of a man who valued brainpower.

"The Death of Socrates" shows why so many celebrate Socrates as a hero of critical thinking.⁵

UNIVERSAL INTELLECTUAL STANDARDS

OBJECTIVE:

3. Describe the seven universal intellectual standards.

What are the universal values of logic that all leaders must respect if they are to be considered critical thinkers? Here are seven:⁶

Clarity. “What exactly do you mean by that point? Can you say that again in a different way to help me better understand?” *The principle of clarity calls for critical thinkers to express their ideas such that people will know exactly what thoughts are racing through their brains.* If we cannot clearly understand what someone is saying, we cannot honestly evaluate whether their point makes sense.

Accuracy. “Every Spaatz cadet is guaranteed admission into the U.S. Air Force Academy.” That sounds too good to be true. *The principle of accuracy demands that critical thinkers back up their claims and that other people be allowed to double-check those claims.* Someone might challenge the accuracy of that claim by noting, “The Academy’s website doesn’t promise Spaatz cadets admission, and there’s nothing in the cadet regulations to support that claim.”

Precision. “Give or take a million bucks, most cadets are millionaires.” This statement tells us nothing because it lacks precision. On the other hand, “a survey of 20 of the 28 cadets in our squadron reveals that the average cadet is 15.2 years old,” is a fairly precise statement *Precise statements mean what they say and say what they mean.*

Relevance. A statement may be clear, accurate, and precise, but not relevant to the issue. *The principle of relevance calls for all supporting claims to advance the overall argument.* “Cadet NCOs often hold leadership positions, and the capitol of Idaho is Boise.” Because those two points are not related, one of them cannot be relevant to the overall topic. Emotional pleas are often irrelevant. A cadet may want to be promoted very, very badly, but wanting something is different from deserving it. The want is irrelevant.

Depth. Anyone who has listed to classmate deliver a report on a book they didn’t read knows about depth. Such a report will be superficial, barely skimming the surface and totally ignoring the main issues. In contrast, *good critical thinking is marked by depth, the willingness to examine every imaginable complexity or factor bearing on an issue.* Only someone who has closely read a novel can discuss it in depth.

THE 7 UNIVERSAL INTELLECTUAL STANDARDS

Clarity
Accuracy
Precision
Relevance
Depth
Breadth
Logic

Precision.

So much is riding on this cadet’s precision with a compass. If his bearing is imprecise, he will be off course down range. The same principle applies to critical thinking. Imprecise arguments can lead you way off target.



Breadth. Depth concerns how deeply a critical thinker is willing to dig into an issue. *Breadth, on the other hand, concerns how far across either side he or she is willing to look when considering an issue.* For example, one could talk about summer encampment in great detail, describing what happens there on a minute-by-minute basis, but if the overall question is “What’s the Cadet Program all about?” their argument will lack breadth, having ignored other aspects of cadet life.

Logic. Finally, critically thinking is supposed to be logical. “Does this really make sense? First you said cadets have to be 12 to join CAP, and now you say some cadets are ten?” *When one point supports the next and the conclusions flow naturally, an argument is logical.* If one point contradicts another or the argument doesn’t “make sense,” the argument is illogical. (We’ll return to logic later in this chapter.)

truth·i·ness n.

Comedian Stephen Colbert famously coined the word “truthiness” to describe the squishy quality of truth in a leader’s thinking.⁷ Truthiness comes from the gut, not the brain, and is supposedly exempt from the rules of logic.

Colbert explains: “What I say is right and [nothing] anyone else says could possibly be true. It’s not only that I *feel* it to be true, but that *I* feel it to be true. There’s not only an emotional quality, but there’s a selfish quality, too.”⁸

The zany feeling of truthiness is what results when leaders forget universal intellectual standards.

ELEMENTS OF THOUGHT

OBJECTIVE:

4. Describe the eight elements of thought.

Eight basic structures are present in all thinking. Critical thinking generates purposes, raises questions, uses information, utilizes concepts, makes inferences, makes assumptions, generates implications, and embodies a point of view. The checklist below can be helpful as you work to develop good habits of critical thinking.⁹

1. Reasoning has a purpose.

- ★ What’s your purpose?
- ★ Can you state it clearly?

2. Reasoning is an attempt to figure something out.

- ★ Precisely state the question.
- ★ Express the question in several ways to clarify its meaning and scope.
- ★ Break the question into sub-questions.

3. Reasoning is based on assumptions or beliefs you take for granted.

- ★ What assumptions are you making? Are they justifiable?
- ★ How might your assumptions be shaping your point of view?

4. Reasoning has a point of view.

- ★ What is your particular point of view?
- ★ How might your point of view influence how you see a problem?

5. Reasoning is based on data, information, and evidence.

- ★ Are your claims backed up by data?
- ★ Have you searched for information that contradicts your assumptions?
- ★ Is the data trustworthy and relevant?

6. Reasoning is expressed through and shaped by concepts and ideas.

- ★ Identify key concepts and express them clearly.
- ★ Consider alternative concepts or alternative definitions of your concepts.

7. Reasoning contains inferences by which we draw conclusions.

- ★ Are you inferring only what the evidence implies?
- ★ Do all your inferences point to the same or different conclusions?

8. Reasoning leads somewhere and has consequences.

- ★ What does your answer really mean? So what?
- ★ What surprises might result from your ideas?

IMPLICATIONS FOR LEADERS

What do the principles of critical thinking mean for leaders? To become a stronger critical thinker, expose yourself to other good thinkers. Read a serious newspaper, a challenging novel, or a work of non-fiction that has something important to say. Hang around the smartest people you know and ask them lots of questions. Sign up for challenging math courses to stretch your mental muscles. Become a leader who has a habit of thinking sharply.

MODES OF THINKING

OBJECTIVE:

5. Explain four different modes of thinking.

Leaders' critical thinking skills take on several different forms. Call these the modes of critical thinking. Some of these modes include big picture thinking, focused thinking, realistic thinking, shared thinking, and creative thinking. A summary of each is included below (though creative thinking will be discussed later).

BIG PICTURE THINKING

“You can find many big-picture thinkers who aren’t leaders,” reports one expert, “but you will find few leaders who are not big-picture thinkers.”¹¹ Put simply, ***big-picture thinking is the practice of stepping back from an issue or problem so as to take more of it in.*** Big-picture thinkers see the full breadth of the situation. Philosopher and Roman Emperor Marcus Aurelius showed his respect for big-picture thinking when he wrote, “Look always at the whole.”¹²

“You’ve got to think about ‘big things’ while you’re doing small things,” says one leadership theorist, “so that all the small things go in the right direction.”¹³ ***Big-picture thinking helps leaders stay on target. Further, it promotes teamwork.*** When looking at the big-picture, it’s only natural that you will notice how the various members of a team support one another and help fulfill the mission. Finally, ***big-picture thinkers are able to synthesize or mesh together their learning.*** Instead of locking away every individual thing they learn into its own drawer, big picture thinkers look for ways to synthesize their learning. An average student may do okay in two different subjects at school – history and English, for example – but the big-picture thinkers become outstanding students because they see how what they learn in history connects with what they study in English, or what they learn in physics relates to what they learn in algebra.

HOW FACTS CHANGE EVERYTHING

(If You Let Them)

How can leaders present their critical thinking in an age where PowerPoint’s natural “selling” style of presentations has corrupted our ability to consider problems thoughtfully?¹⁰

- ★ Concentrate on delivering facts, not cute slogans or unsupported claims.
- ★ Deliver as many of those facts as you can.
- ★ Respect your audience’s intelligence.
- ★ Look to serious journalism for examples of solid reporting and analysis. Good journalism, like rigorous thinking, is grounded in facts and describes how one event caused the next.
- ★ Use good teaching as your metaphor when presenting a proposal. Try to “teach” your audience why your idea works.
- ★ Remember that Powerpoint does not persuade, only great critical thinking persuades.

If you explain your idea clearly and support your claims, your argument should sell itself.



FOCUSED THINKING

The tougher the problem, the harder you have to think about it. “No problem,” according to the writer Voltaire, “can withstand the assault of sustained thinking.”¹⁴ **Focused thinking is the practice of intensely studying an issue, trying to see it clearly, and not becoming distracted by other issues that are somewhat related to, but different from, the specific question at hand.** Focused thinking is more about deep concentration than unlimited imagination. “The immature mind hops from one thing to another,” according to one philosopher who clearly appreciated focused thinking; “the mature mind seeks to follow through.”¹⁵



One way to put focused thinking into practice is by using the 80/20 rule. That is, devote 80% of your time and energy to the top 20 percent of the issues you face.¹⁶ Spending your brainpower on the biggest challenges you face should yield the biggest results. Moreover, the principles of focused thinking run counter to how many youth live their lives in the 21st century. Instead of switching from task to task all the time – watching TV while chatting online, while writing a term paper, while petting your dog – focused thinking demands you put every ounce of your brainpower toward one single issue. **Researchers have found focused thinking is more efficient because it allows the brain to work better, while unfocused thinking can actually lower a person's IQ.**¹⁷

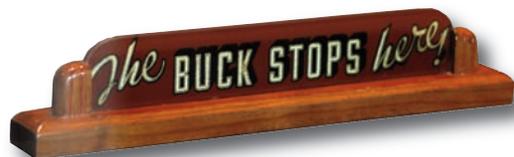
“There’s nothing like staring reality in the face to make you see the need for change.”

REALISTIC THINKING

If you are the type of leader who is naturally optimistic, perhaps you sometimes need to be brought back to the real world. **Realistic thinking is an approach where the leader tries to see the world for how it actually is, not how we might wish it to be.**¹⁹ Accuracy, common sense, and feasibility are some of the key values in realistic thinking. One realist put it this way: “There’s nothing like staring reality in the face to make a person recognize the need for change.”²⁰

Another way to understand realistic thinking is to consider the leader’s never-ending need to balance shortfalls. Air Force General Stephen Lorenz explains:

Shortfalls occur in our professional and personal lives. We never seem to have enough time, money, or manpower. The essence of this “scarcity principle” lies in accepting the reality of limited resources and becoming adept at obtaining superior results in less-than-ideal situations. Equally important, once people acknowledge the scarcity of resources, then they



Realistic & Responsible.

“I never give ‘em hell. I just tell the truth and they think it’s hell.”²¹

PRESIDENT HARRY S. TRUMAN

Are you a dreamer or a realist?

Dreamers imagine the world as it could be. Realists insist on seeing the world as it is. Which is the better approach for a leader? Can you be both?

need not bemoan the situation any longer. In other words, they should “deal with it.” Leaders must carry out the mission with the resources they have. They have to make it happen!²²

To become better at thinking realistically, begin by getting all the facts. Are they accurate and relevant? Then picture the worst case scenario and use realistic thinking to prepare for it. Seek out great minds and ask for their help. **Leaders who are realists gain credibility because they operate in the real world and are prepared for whatever curve balls come their way.**²³

SHARED THINKING

Shared thinking involves valuing the thoughts and ideas of others.²⁴

It is a mode of thinking that comes from an appreciation for teamwork and the belief in **synergy**. One of its principles is that all of us working together are smarter than any one of us working alone. Shared thinking is faster than other forms of critical thinking, too. When you need to understand a complex issue, it’s usually quicker to ask a trusted expert than to go research the issue from scratch.²⁵

In chapter one, we discussed the shortcomings of “leadership by committee.” At first glance, shared thinking seems to have similar drawbacks. But in 1787, fifty-five men demonstrated the greatest example of shared thinking as they worked together to craft the Constitution of the United States. Instead of a constitution that served only individual interests, shared thinking made for a lasting republic.²⁶

Is shared thinking easy to do? **The biggest obstacle to shared thinking is emotional insecurity.**²⁷ One expert explains, “People who lack confidence and worry about their status, position, or power tend to reject the ideas of others, protect their turf, and keep people at bay. It takes a secure person to accept another’s ideas.”²⁸

LEADERS THINK CRITICALLY

Universal intellectual standards, the elements of thought, and modes of thinking help explain what critical thinking is and how leaders practice it. What we know about critical thinking reinforces the principle that the work of the leader includes maximizing his or her brainpower. Those who fail to realize this, or those who prefer lazy thinking, make the madman’s dreams come true. As Hitler wrote, “What luck for rulers that men do not think!”²⁹



Make the Nazis Suffer. Hitler once exclaimed, “What luck for rulers that men do not think!” If the worst thugs in human history hated it, critical thinking must be an incredible force for freedom.



Humble Leaders Use Shared Thinking. President Ronald Reagan must have understood the need for emotional security when he said, “There is no limit to what you can accomplish if you don’t care who gets the credit.”³⁰

Synergy.

The belief that a team is greater than the sum of its parts. See chapter 2.



Shared Thinking Works.

Fifty-five leaders, working together, produced the greatest political document in world history: The Constitution of the United States of America.

THE TWISTED THINKING OF LOGICAL FALLACIES

OBJECTIVES:

6. Explain what logical fallacies are and how they affect leaders.
7. Give examples of at least five different types of logical fallacies.

A logical fallacy is an error of reasoning.³¹ When someone makes an argument based on bad reasoning, they are said to commit a **fallacy**. Weak, twisted, fallacious thinking keeps us from knowing the truth. Therefore, to be good critical thinkers, leaders must study logical fallacies, both so they can avoid using them and spot them in others.

Fallacies are so common (even among the brightest minds) that philosophers have been able to define these recurring mistakes and give each a name. Here are ten of the most common logical fallacies:³²

Ad Hominem (Latin, literally “to the man”). Have you ever see someone who is losing an argument make a personal attack on their opponent? That’s an *ad hominem* attack. **Instead of focusing on the logic of an opposing argument, an ad hominem attacks the other person.** In addition to being logical fallacies, *ad hominem* are simply rude.

EXAMPLES:

- “What can our new math teacher know? Have you seen how fat she is?”
- “Why would I listen to that moron?”
- “So I’m ugly. So what? I never seen anyone hit with his face.” (Baseball great Yogi Berra, in response to an *ad hominem*)³³

Appeal to Authority. Perhaps the weakest of all fallacies, **an appeal to authority tries to prove a claim by asserting that some smart person believes the claim to be true and therefore it must be true.** Anyone who has ever spent time on the playground has seen kids try to win arguments with the devastating, “Ya-huh! My big brother said so!”

EXAMPLES:

- “The purpose of the Cadet Program is not to recruit for the Air Force.”
REPLY: “Yes it is. Cadet Curry said so and he outranks you.”
- “I admire the president for being a good role model.”
REPLY: “But the *New York Times* says he’s a lousy role model, so you’re wrong.”

Post Hoc Fallacy. *Post hoc ergo propter hoc* (Latin: After this, therefore because of this). Something happens and then something else happens. Does that mean that the first thing caused the second? Not necessarily. **The post hoc fallacy illustrates the difference between correlation (two things being related somehow) and causation (one event causing another event, like a chain reaction).**

EXAMPLES:

- Shortly after MySpace became popular, U.S. soldiers found Saddam Hussein.
- Michael Jackson, Kurt Cobain, and Jimi Hendrix were rock stars who died young. Therefore, if you become a rock star, don’t expect to live a long life.

Fallacy.

A mistake in logic; bad reasoning that corrupts a line of thought.

Note: These explanations have been simplified, but are accurate enough for our purposes.

THINK

It is one of leadership’s all-time greatest slogans: THINK.

Thomas J. Watson, the first president of computer giant IBM, coined the powerfully simple motto a century ago. He reasoned:

“Thought has been the father of every advance since time began. ‘I didn’t think’ has cost the world millions of dollars.”³³

You’ll find THINK displayed in IBM offices and factories, on their websites and annual reports and everywhere in between.

Watson valued clear thinking and innovation. How would he get his team to understand his vision? THINK.

Appeal to Tradition. It's the "We've always done it that way" response. One of the quickest ways to lose credibility as a leader is to commit the fallacy of the appeal to tradition. ***This fallacy makes the assumption that older ideas are better, and that the leader's job is to prevent change.***

EXAMPLES:

- "If we allow cadets to apply for encampment online, we'd save everyone lots of headaches."

REPLY: "No. We've always made cadets apply using a paper form."

- "We should offer movies on our company's website."

REPLY: "No, we've built our company's fortune by renting movies only through our stores."

Red Herring. One of the most seductive fallacies, the red herring is a distraction. ***And while a given line of thought may indeed be true, it is a red herring if it is not relevant to the issue at hand.*** Their truthfulness makes red herrings particular effective at derailing someone's successful argument.

EXAMPLES:

- "We should present Cadet Curry with our squadron's cadet of the year award. He's the most active and highest-performing cadet we have."

REPLY: But Cadet Arnold has been in CAP longer.

- "I know you want to imprison me for having murdered my parents, but judge, have mercy on me, I'm an orphan!"

Weak Analogy. It's "apples and oranges." People often make analogies or comparisons. They see how one situation or one thing is similar to another, and indeed they are. ***But the fallacy of the weak analogy arises because no matter how similar two things are, they are never exactly alike,*** and therefore, the argument breaks down.

EXAMPLES:

- Hybrid cars are like solar power, full of promise but too expensive. We'll never be able to build affordable hybrid cars.

- Encampment is like basic training. It's CAP's equivalent to Boot Camp.

Straw Man Fallacy. The most persuasive debaters fearlessly attack the opposing argument in its *strongest* form. To truly show their solution is superior, they try to demonstrate that the opposition cannot compete even on its best day. In contrast, some shrink from a fair quest for the truth by setting up a straw man argument. ***Instead of attacking the opposition head-on, a straw man fallacy misrepresents the opposing position, making it seem weaker than it is.***

EXAMPLES:

- We should prohibit all cadets from assisting on emergency services missions. Some cadets are so immature they won't ever stop goofing around.

- Senator Curry is against the new F-99 laser fighter. I'm for it because I don't want to leave America defenseless.

DO LITERAL THINKERS BAKE YUMMY CAKES?

Precision, clarity, accuracy. Logic asks us to focus intently on what is being said. But maybe we shouldn't focus *too* closely, like these cake decorators did.



Begging the Question / Circular Reasoning. *If your argument's conclusion is the same as one of your premises, you're begging the question.* Your reasoning is running in circles. The only people likely to be persuaded by circular reasoning are those who already agree with the original premise. When someone tries to support a statement by restating it again and again, they are said to be begging the question or using circular reasoning.

EXAMPLES:

- "You can't give me a C. I'm an A student!"
- "Honesty is defined as always being honest."
- "My door must have been locked. I always lock my door."

False Dilemma. *The premise behind the false dilemma is that we are faced with two, but only two choices, and both are not very good.* It's an "either / or" situation; you can have either X or Y, but not both, and you certainly cannot have Z. This fallacy often arises because of the inability to think creativity and see an acceptable third way to a solution.

EXAMPLES:

- "Are you going to do well in school, or are you going to succeed as a cadet?"
- "We can give cadets awards for doing well, or we can have a disciplined squadron. We can't do both."

What is Logic?

Logic is the art and science of reasoning. It's a branch of philosophy that's concerned with the quest to know what must or might be the case.³⁵

*"Logic is the anatomy of thought."*³⁶

JOHN LOCKE, British philosopher

*"But logic never could convince the heart."*³⁷

COLIN RAYE, country singer

"False dilemmas arise because of a failure to think creatively."

HELL WAS IN SESSION, BUT HE HAD OTHER PLANS



Rear Adm. Jeremiah Denton USN
Recipient of the Navy Cross
Author of *When Hell Was In Session*

"You're going to betray America on TV, or we're going to kill you."

Can an honorable military officer encounter a worse dilemma? If a dilemma is the choice between two equally disastrous options, Commander Jerry Denton, USN, sure was facing a dilemma while held as a prisoner of war in the infamous Hanoi Hilton during the Vietnam War.

What would he do? What would you do?

As a highly-educated officer, CDR Denton knew something about critical thinking and the fallacy of the false dilemma. He knew that he had to reject the two choices being forced upon him by his captors, but how?

Denton recalled, "My only firm conviction was that I would die of starvation before I would [make] a confession."

As he was being pushed in front of TV cameras, his eyes blinked under the bright lights. That was it! He found a third way, a way out of his false dilemma. Denton kept blinking his eyes rhythmically, but with a purpose. In Morse code he spelled "t-o-r-t-u-r-e, t-o-r-t-u-r-e, t-o-r-t-u-r-e."³⁴

It was the first clear message that American officials received that the POWs were being tortured. Through his ingenuity, CDR Jerry Denton retained his honor and found a way to tell America what was really going on in the Hanoi Hilton.

Slippery Slope. *If the idea that one thing leads to another is fixed in your mind, you may travel down the slippery slope.* Pull the trigger, and the gun fires. Indeed, one thing is apt to cause another, but in critical thinking, causation must be shown, it can't be assumed.

EXAMPLES:

- Major in English in college, start reading poetry, and next thing you know you'll become an unemployed pot-smoking loser.
- Never be kind and generous to the poor. They'll come to expect your help always and never learn to contribute to society.

INTEGRITY & THE CRITICAL THINKER

OBJECTIVE:

8. Discuss the concept of intellectual honesty.

Why do many of the fallacies described above seem so familiar? Despite fallacies being examples of twisted thinking, sometimes they sneak past us and we get duped by them. That fact shows the need for every leader (or every responsible citizen for that matter) to be familiar with the most common fallacies. ***Those who search for the truth need to be on guard against logical fallacies, both in their own arguments and in the arguments of others.***

These principles of integrity comprise something called ***intellectual honesty – honesty in the acquisition, analysis, and transmission of ideas.***³⁸ Or to put it more simply, intellectual honesty means you exercise your brainpower with integrity. One professor's view on intellectual honesty is worthy quoting at length:

...Human beings are more than mere purveyors of logic. We inherently generalize, categorize, prioritize and harmonize what we see, and most of this takes place without [us realizing what we're doing]. While these aspects of thinking are of valuable, they also possess certain dangers. For example, they can lead us into hasty judgments, and cause selective "blindness" toward new information. Intellectual honesty is one [way to watch out for those] prejudices, by forcing us to examine how we arrived at them... Once we become aware of these pitfalls in thinking, it then becomes a matter of choice as to whether we attempt to compensate for them.³⁹

In other words, even *how* we think has moral consequences. The job of the leader just got that much tougher.

Try Lifting This.

If anyone speaks of God, whether they profess a certain faith or not, they're speaking of an all-powerful being. There is nothing this God can't do, right? Well, if he's so powerful, can he make a rock that's so humongous even he can't lift it? This tricky old question is a *paradox*, a line of reasoning that points to an impossible answer.

RUSSIAN SELF-DECEPTION

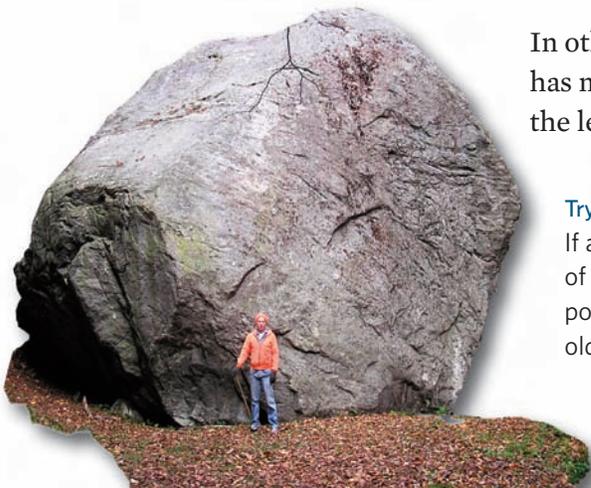
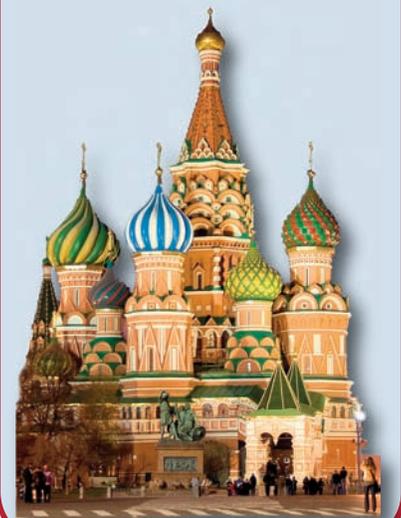
If you turn a blind eye to critical thinking, what happens?

Can you be so good at lying to yourself that you begin to believe your own lies? The great Russian novelist Fyodor Dostoevsky thought so.

from

THE BROTHERS KARAMAZOV:

"Above all, do not lie to yourself. A man who lies to himself and listens to his own lie comes to a point where he does not discern any truth either in himself or anywhere around him, and thus falls into disrespect towards himself and others."⁴⁰



CREATIVE THINKING

OBJECTIVE:

9. Explain what “creative thinking” means in your own words.

Creative thinking is concentration plus imagination. It is the habit of trying to see ideas or objects in a new context. Creative thinking is an attempt to grab hold of an invisible thread connecting two concepts. It requires us to overcome how we are constrained by culture, tradition, or circumstance. But for creativity to be meaningful, it must produce results. One expert contends that creativity must produce “work that is both novel and appropriate.”⁴¹ Therefore, a creative leader will have contempt for the “we’ve always done it that way” attitude. ***In CAP, our Core Value of Excellence requires us to think creatively.***



Note: Throughout this section, we focus on creative thinking and how creativity impacts leadership. We won't consider creativity from an artistic point of view.

Some outstanding creative thinkers have this to add:

“A foolish consistency is the hobgoblin of little minds . . . Speak what you think now in hard words, and tomorrow speak what tomorrow thinks in hard words again, though it contradict everything you said today. – ‘Ah, so you shall be sure to be misunderstood.’ – is it so bad, then, to be misunderstood? Pythagoras was misunderstood, and Socrates, and Jesus, and Luther, and Copernicus, and Galileo, and Newton. To be great is to be misunderstood.”⁴²

RALPH WALDO EMERSON

“The reasonable man adapts himself to the world; the unreasonable one persists to adapt the world to himself. Therefore all progress depends on the unreasonable man.”⁴³

GEORGE BERNARD SHAW

“Think left and think right and think low and think high. Oh, the thinks you can think up if only you try!”⁴⁴

DR. SEUSS, THEODOR GEISEL

“There’s a party in my mind and I hope it never stops.”⁴⁵

TALKING HEADS

COME ON IN, WE'RE PLANNING THE AIR CAMPAIGN

It was a military strategist’s dream come true. The phone rings and the general who will lead the Persian Gulf War is on the other end. Col John Warden was being asked to develop an air campaign for the coming fight, but he’d have only two days to do the job. What would you do? Lock yourself into a room to limit distractions and get to work? Not John Warden. He realized the need for open planning:

“I briefly considered gathering a very small group of people around me, closing the doors, and doing it all in great secrecy. Quickly, however, I realized that this didn’t make much sense – I was certainly no expert on Iraq, I needed a lot of help, but I didn’t even have a way of knowing who or what I needed.

I decided to open the doors of a very big briefing room we had in the basement of the Pentagon and gather as many people as possible. Right from the start, everyone in the group was involved in almost everything that took place. This way, everybody understood not only the decision, but also the thinking and

discussions associated with them. So they were able to do most of their work without reference to any higher authority, secure in the knowledge they were doing the right thing.”⁴⁶

Because of Warden’s success in envisioning and planning the Gulf War air campaign, he’s been called one of the leading air power theorists in Air Force history.



UNAPPRECIATED GENIUSES

OBJECTIVE:

10. Discuss why creative leaders do not always win.

Even if you develop the habit of thinking creatively, there is no guarantee that your ideas will be welcomed. People often resist change, and the **status quo** is a comfortable place in which to live. The experiences of Billy Mitchell, Galileo, Emily Dickinson, Martin Luther King, and others illustrate this point. Again we return to Emerson: “To be great is to be misunderstood.” Here are two examples of failed genius from the world of business:

Apple vs. IBM. In the 1980s and early days of the home computer, Apple was battling IBM for control of the market. The experts agreed that Apple’s product was superior. After all, it was the first to use a mouse, the first to offer a friendly interface like today’s computers (to run the IBM, you had to physically type complex commands), and Apple’s graphics were clearly better. Objectively speaking, Apple offered a superior product. But did that matter? No. By allowing other companies to make IBM-compatible computers (Dell, Compaq, HP, Gateway, etc.), the IBM system quickly dominated the market. Apple was lucky to survive.⁴⁷

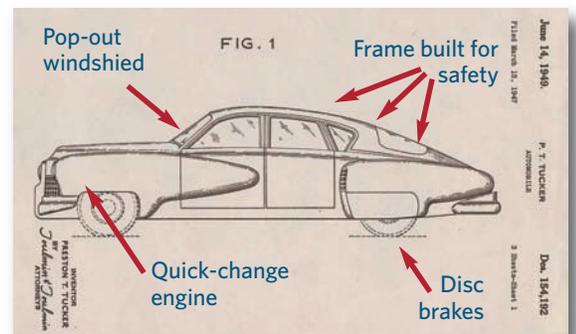
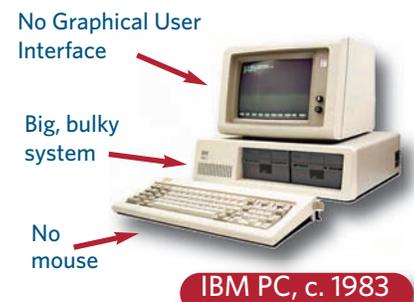
Tucker vs. Corvair. In 1948, inventor Preston Tucker envisioned a new kind of car. Disc brakes, fuel injection, and overhead valves made the Tucker years ahead of the competition. If your Tucker broke down, no problem. Your mechanic would simply swap-out the engine and lend you a new motor. Directional headlights, a pop-out windshield and a padded dashboard were some other wonders that made the Tucker obviously superior to the cars of its day. Despite its awesome features, Tucker sold only 51 cars in 1948.⁴⁸

The Chevrolet Corvair of 1960-65 was perhaps the Tucker’s evil twin. One safety critic famously labeled it “unsafe at any speed.”⁴⁹ The Corvair was prone to roll-overs. Maintaining tire pressure was crucial. Drive too long and you might die from carbon monoxide poisoning. Even the battery had problems – sometimes it emitted hydrogen! Despite its terrible safety and reliability record, Chevy sold over one million Corvairs.⁵⁰

Lesson for Leaders. What can leaders learn from the stories of Apple vs. IBM, Tucker and Corvair? It’s tough to be innovative, to think creatively. Even more, *the most creative leader isn’t guaranteed to win.* Wonderful ideas are nothing without strong execution. Creativity, then, involves learning from mistakes.

Status Quo.

The existing state of affairs; the way something’s always been done.



Tucker, 1948

MONUMENTS TO THE STATUS QUO

OBJECTIVE:

11. Give examples of how majorities can discourage creativity.

“I know of no country in which there is so little independence of mind and real freedom of discussion as in America.”⁵¹ – ALEXIS DE TOCQUEVILLE

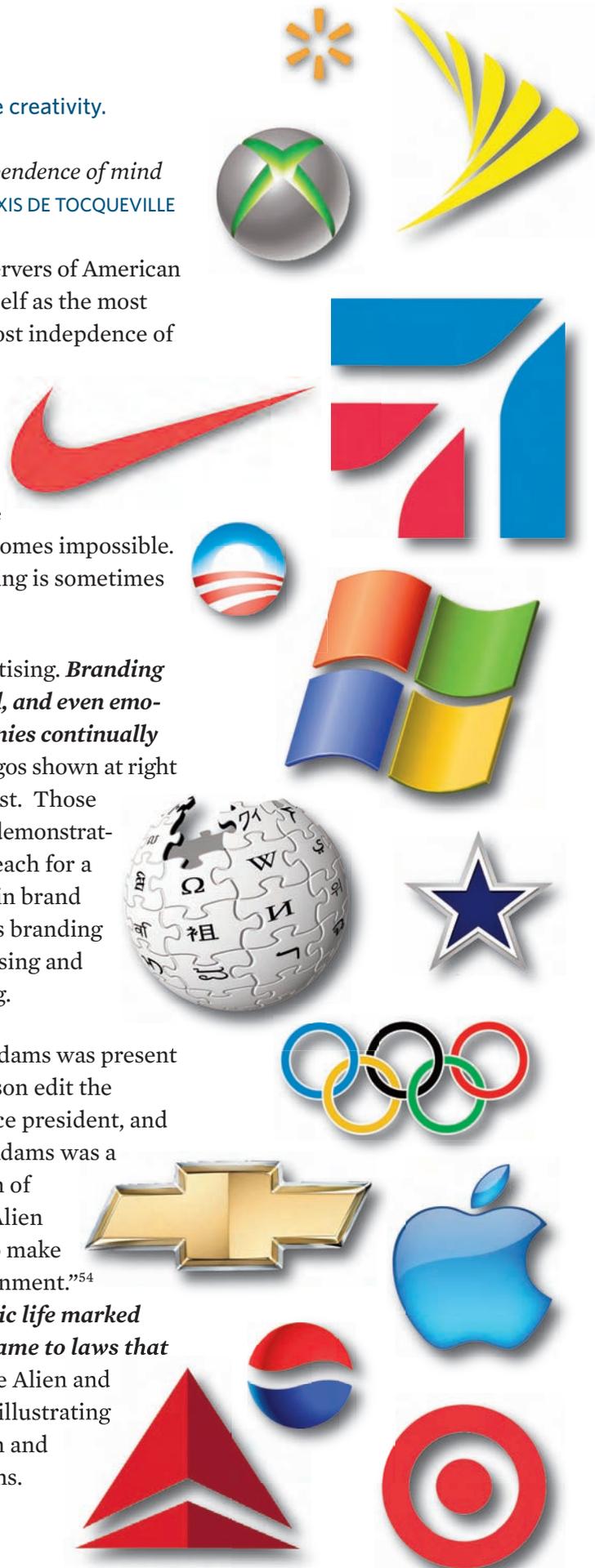
What a puzzling assessment by one of the great observers of American society, Alexis de Tocqueville. America thinks of itself as the most democratic of all nations. Shouldn't we have the most independence of mind and freedom of discussion? But Tocqueville argues *our respect for majority rule can discourage people from expressing unpopular ideas that run contrary to the majority's opinion.*

Tocqueville's point should concern leaders because if new ideas are not welcome, creative thinking becomes impossible. Let's consider four examples of how creative thinking is sometimes discouraged:

Advertising. Teens are constantly exposed to advertising. **Branding – the process of associating certain visual, cultural, and even emotional images with a product – occurs when companies continually try to make their impression on us.**⁵² None of the logos shown at right contains any words, yet you probably recognize most. Those symbols bring forth certain thoughts and feelings, demonstrating branding's effect on the mind. Out of habit, we reach for a particular cola. When we think of sneakers, a certain brand endorsed by a celebrity comes to mind. The success branding has had in shaping our behavior shows that advertising and popular culture sometimes stymie creative thinking.

Sedition Acts. The “Atlas of Independence,” John Adams was present at the first Continental Congress. He helped Jefferson edit the Declaration of Independence, served as our first vice president, and later our second president. By any measure, John Adams was a leader in our nation's early history, a true champion of democratic values. And yet he signed into law the Alien and Sedition Acts, notorious laws “broad enough to make criminal virtually any criticism of the federal government.”⁵⁴

Instead of embracing the open society, with its civic life marked by free inquiry and lively debate, Adams put his name to laws that mocked the First Amendment. Historians judge the Alien and Sedition Acts as a shameful chapter in U.S. history, illustrating that even America may erect barriers to free speech and creative thinking, despite our democratic aspirations.



Uniformity. Do you wear a uniform to school? The term “school uniform” brings to mind a certain outfit that is mandated by the school. But might the term mean more than that? Even if no particular outfit is officially required, teens often pressure one another to dress a certain way. Certain shoes are a must have, or a particular type of shirt is in style, and perhaps to be popular you have to wear your hair in a special way. This line of thought suggests that *so-called individualism or creativity may be conformity in disguise*. One social critic’s perspective on tattoos illustrates the point:

[The tattoo] is no longer a way to express individuality; it’s a way to be part of the mob. People adopt socially acceptable transgressions — like tattoos — to show they are edgy, but inside they are still middle class. A cadre of fashion-forward types thought they were doing something to separate themselves from the vanilla middle classes but are now discovering that the signs etched into their skins are absolutely mainstream. They are at the beach looking across the acres of similar markings and learning there is nothing more conformist than displays of individuality, nothing more risk-free than rebellion, nothing more conservative than youth culture.⁵⁴



The Military Tradition. In many ways, CAP resembles the military. We have a formal chain of command, dozens of regulations, strong traditions, and uniforms. As valuable as those features are, do they have an effect on creative thinking? According to one study, *the military lifestyle can brew hostility toward creative thinking*. Military officers generally score poorly on creativity tests, but score high in conformity tests. One observer noted that officers who are creative thinkers and non-conformists often do not advance in their careers because their embrace of creativity is mistaken for disloyalty or counter-conformity.⁵⁵ Therefore, leaders need to work extra hard to overcome a possible bias against creative thinking in military-style organizations.

“CAP and military leaders have to work extra hard to encourage creativity.”

TO CONSERVE, KEEP CHANGING

Leaders who value tradition and stability are apt to be resistant to change.

Indeed, one role of a leader is to protect what is positive and successful.

But does that philosophy require the leader to be skeptical about any kind of transformation?

G.K. Chesterson, the “Prince of Paradox,” offers a surprising view:

“Conservatism is based upon the idea that if you leave things alone, you leave them as they are. But you do not.

If you leave a thing alone, you leave it to a torrent of changes. If you leave a white post alone, it will soon be a black post.

If you particularly want it to be white, you must be always painting it again . . . Briefly, if you want the old white post, you must have a new white post.”⁵⁶

- G.K. CHESTERSON



VICTORIES THROUGH CREATIVE THINKING

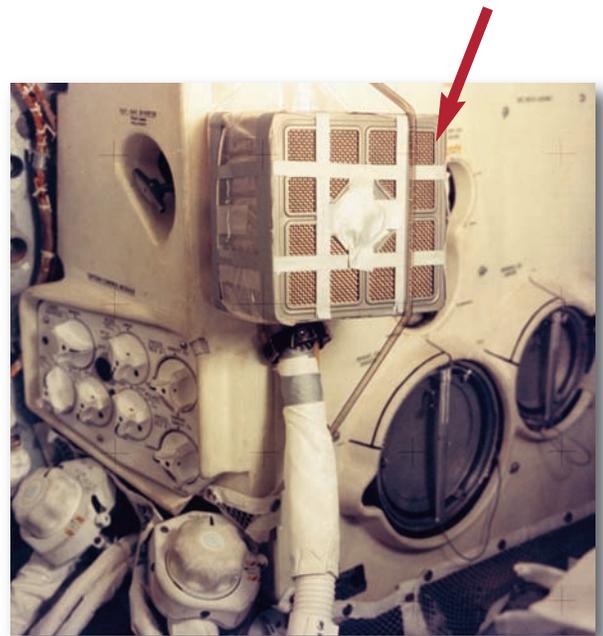
OBJECTIVE:

12. Give examples of outstanding creative thinking.

Returning again to our definition, creative thinking means seeing ideas in a new way, or connecting two concepts that seemed totally different.

Apollo 13. “We’ve got to find a way to make this fit into the hole for this, using nothing but that.”⁵⁷ When a technical malfunction jeopardized the lives of Apollo 13’s crew, the engineers and scientists supporting the astronauts knew that failure was not an option. But, despite their hundreds of checklists, contingency plans and back-up systems, there was no plan typed up on paper and neatly filed on a shelf to instruct NASA how to save the astronauts. The engineers would have to improvise, to think creatively, to make use of only the raw materials available to the astronauts. In the movie *Apollo 13*, the chief engineer is heroically defiant and proclaims, “This will be our finest hour.”⁵⁸ And it was.

D-Day. General Eisenhower planned WWII’s D-Day invasion in great detail (see chapter 1). One half million troops and thousands of tons of equipment were to converge on the Normandy beaches with total precision. That was the plan at least. In reality, there was no order, only chaos and confusion. Soldiers who had been given orders to achieve certain objectives found themselves cut off from their units, in the wrong place at the wrong time, totally unable to execute Ike’s well-orchestrated plan. What could our troops do? They improvised.⁵⁹ Sergeants and lieutenants hastily formed men from different units into teams, and set out to fight the Nazis as best as they could. In short, creative thinkers and leaders emerged just when we needed them most. Had our troops not responded with yankee ingenuity, the invasion would have failed, and perhaps Hitler would have won.



“Houston, we have a problem.”

Thanks to quick-thinking, creative engineers, Apollo 13 astronauts were able to build this contraption out of spare parts. Without it, they would have died in outer space.

D-DAY, June 6, 1944, Omaha Beach.

Total chaos. No one landed where they planned. If not for creative, on-the-spot leadership by NCOs and low-ranking officers, the invasion would have failed.



Complexity & Simplicity.

“Simplify, simplify, simplify!” cried the poet Henry David Thoreau.⁶⁰ Must ideas be complex to be creative?

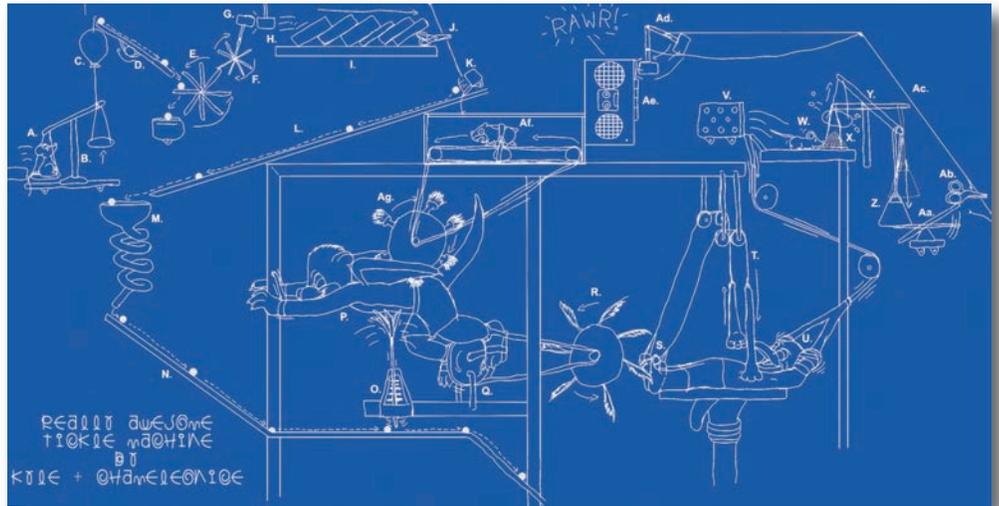
Consider “Rube Goldberg machines,” the deliberately over-engineered, cartoonishly-complex inventions that through chain reactions accomplish a simple task. Indeed, it takes a creative mind and lively imagination to dream-up a great Rube Goldberg, and they’re fun to watch.

But the simple can be just as creative and ingenious. Shaker furniture, for example, is known for the beauty of its plainness. The Shakers were the polar opposite of Rube Goldberg. You will not find fancy decorations on anything made by a Shaker. They valued order, neatness, simplicity, and painted only in colors that would not attract too much attention.⁶¹

Creativity may be complex or simple.

Creativity: Complex and Simple.

A wacky drawing of a Rube Goldberg machine (top right) is an example of ultra-complex creative thought. In contrast, Shaker creativity took a much simpler form (right).



YOU MUST LIVE ON A BOAT!

More than 70% of the Earth's surface is covered by water.⁶² Yet ironically, even the word “earth” means dirt, rocks, and land. Earth is more of a watery planet than an “earthy” planet. Might this image of the Earth (right), turned in such a way as to show hardly any land masses, remind us that sometimes we forget certain facts about our environment?



If this startling picture reminds us of something so basic about our home, imagine how many other obvious facts and preconceived notions have ingrained themselves into our minds. And might this image also suggest that what we see at first glance (in this case, a hemisphere that is almost totally water, with almost no land in sight) does not always give us a full and accurate understanding of reality? After all, more than 25% of the Earth is dry land, though you wouldn't know that from looking at this picture.



The Thinker.

“Guided by my first inspiration I conceived [a] thinker, a naked man, seated on a rock, his fist against his teeth, he dreams. The fertile thought slowly elaborates itself within his brain. He is no longer a dreamer, he is a creator.”⁶³

– AUGUSTE RODIN, French sculptor, 1840-1917

TOOLS FOR CREATIVE THINKING

OBJECTIVE:

13. Describe several practical methods of creative thinking.

How can leaders move their thinking out of the same old patterns? How can they look at problems in new ways? Outlined below are seven techniques to help you think creatively.

TOOLS TO GENERATE IDEAS

BRAINSTORMING

Purpose: To generate ideas through the quick, free-flow of thoughts

Procedure:⁶⁴

1. Write the problem or topic where everyone can see it.
2. Include all ideas, do not edit the remarks.
3. Try to withhold judgment on the ideas. You want to generate ideas, not evaluate them.
4. Allow the team to have some quiet time just to think.
5. Try to involve everyone who has a stake in the problem. In brainstorming, the more people and perspectives you have, the better.
6. Be mindful that less assertive or lower-ranking cadets may hesitate to speak, for fear that their ideas are not good.
7. If the group is large, try breaking into small groups for the brainstorming. This helps generate even more ideas because each group is apt to attack the problem from a slightly different angle.



Example: How can we make encampment better?

More flying	Arts & crafts supplies to make guidons	More training for senior staff
Lower costs through sponsorships	AFROTC cadets to visit for day	Twitter updates to families back home
Better staff training	See if anyone knows how to bugle	Make parents drop cadets off at gate and have cadets walk to command post
Let cadet staff wear ascots, swords, berets, and leggings	Start blogging before arrival	Have everyone bring a camelback for hydration
Special tee shirts for each flight	Central point for everyone to upload photos	Make training time: lights out 12 midnight and reville 4 am
Planning checklist for each staffer	Basic, moderate, and tough levels for orienteering course	Dance / party night before graduation
Bunkmates not from same unit	Add GPS navigation for hiking	
MREs to eat in field	Point system for honor flight	
Do water survival at night, when you can't see anything	Do morning PT in uniform	
Scholarships for needy cadets		

Notice that some of the ideas on this list probably aren't that great, but the recorder wrote them down anyway.

THE FIVE “WHYS”

Purpose: To discover new ideas and solutions to a problem by drilling down into a problem

Procedure: The team begins by stating the problem, then follows-up by continually asking “why”?⁶⁹

Example: Our squadron is shrinking. We had twenty active cadets last year, and this year we have only twelve.

Why? Some cadets have sports?

They practice Monday Wednesday and Friday and we meet on Monday
We’ve always met on Monday
Never thought of changing to Tuesday

Take Away: Poll everyone to see if another day would be better

Why? Meetings are boring

Too many lecture and people droning on
No real resources available to do something else

Take Away: Ask other squadrons what they’ve found successful and check CAP website for cool activities and training plans

Why? People just kind of fall away

I don’t know
Never really asked them
Not my job
No one’s told me to ask why other cadets quit

Take Away: Assign someone to call cadets after they’ve missed 2 meetings, ask why they’re not participating and invite them back

Why? Five cadets just graduated and are away at college

Because when the 5 cadets left, they didn’t get “replaced”
We didn’t recruit any “replacements”
Not sure where to start to recruit new people
No one’s shown me how to recruit

Take Away: Challenge every cadet to bring a buddy to CAP; give them recruiting materials; also, host an open house and put articles in the local paper to tell our town we’re here

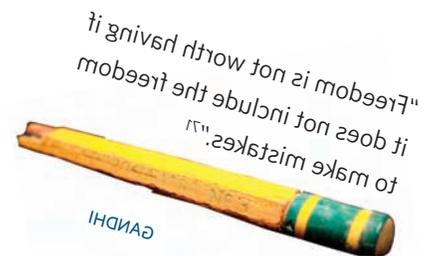
By continually asking “why?,” the team can identify the root causes of a problem. Then, if the team can find ways to counter those root causes, there’s a good chance they can solve the overall problem.



“I not only use all the brains that I have, but all the brains I can borrow.”⁷⁰

PRESIDENT WOODROW WILSON

Look closely because oddly enough, 21,000 soldiers got together one day to create this image of their commander-in-chief.



Creativity, the Air Force Way.

Believing creative thinking is so important, the armed forces have invested millions in obstacle courses or leadership reaction courses, like the one these cadets are challenging.

TOOLS TO ANALYZE A PROBLEM

REVERSAL

Purpose: To find a way to do something better; to improve a product or service

Procedure: Reversal is backwards brainstorming. Instead of trying to imagine ways to solve a problem, you imagine ways to create the problem.⁷²

Example: Suppose you want to find better ways to welcome prospective cadets and help them earn their first promotion. To use the technique called reversal, you'd ask, "What could we do to make prospective cadets feel unwelcome, and how can we make it tough for them to become airmen?"

Don't introduce them to their squadron mates

Don't tell them what's exciting about CAP

Don't let them ask questions

Don't give them any training; make them learn the material on their own

Don't keep their parents informed of upcoming CAP activities

After exhausting their imagination, leaders work together to "re-reverse" their ideas. They'd make sure prospective cadets get introduced to their squadron mates, have someone tell them what's exciting about CAP, etc. The idea behind reversal is that to make something better it can help to ask what will make something worse.

HEADLINES OF THE FUTURE

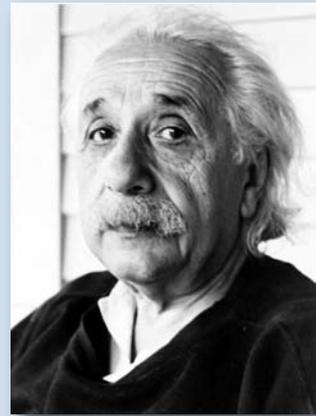
Purpose: To analyze a problem and find the steps needed to achieve a goal.

Procedure: Imagine it's some time in the future and a journalist comes to report on your success in achieving a major goal. Ask yourself how the journalist's news story will read. Proceed to tell that story by actually writing it down as if you were a newspaper reporter. Be sure to include the technical details that made accomplishing your goal possible, and mention the smaller goals or milestones you had to achieve along your journey.⁷³

Example: See right.

By using the "headlines of the future" technique, you are writing about your future picture (see chapter 2). **Not only are you describing your dreams, you're analyzing what you must do to get there.**

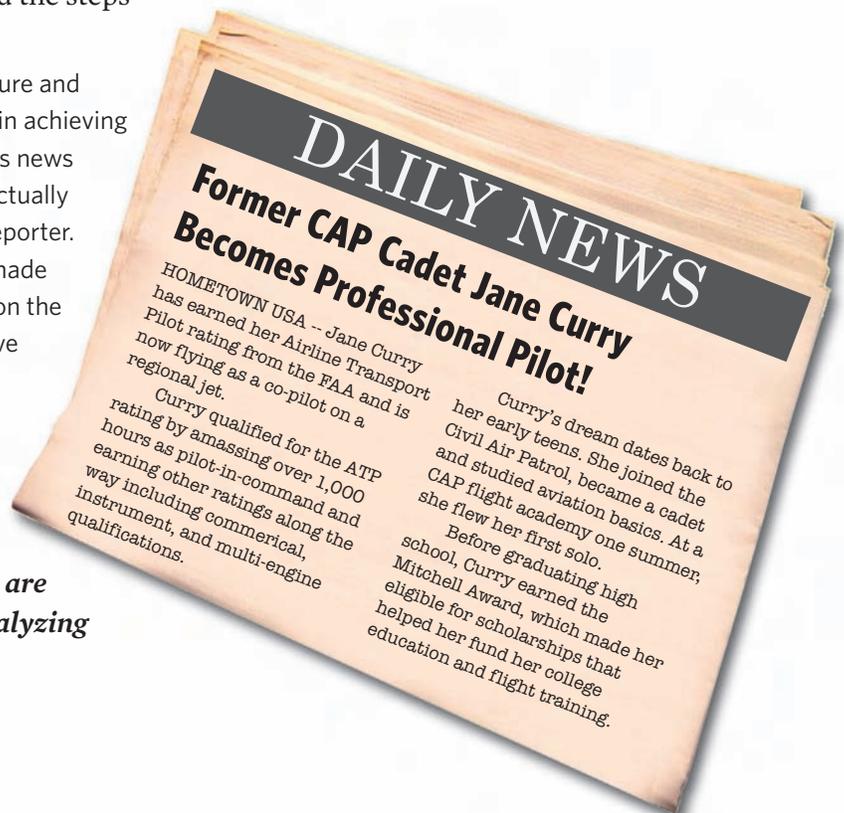
CREATIVITY or SMARTS?



According to the Nobel Prize-winning scientist, creativity beats ordinary book knowledge:

"Imagination is more important than knowledge."⁷⁴

ALBERT EINSTEIN, scientist



FLOWCHARTS

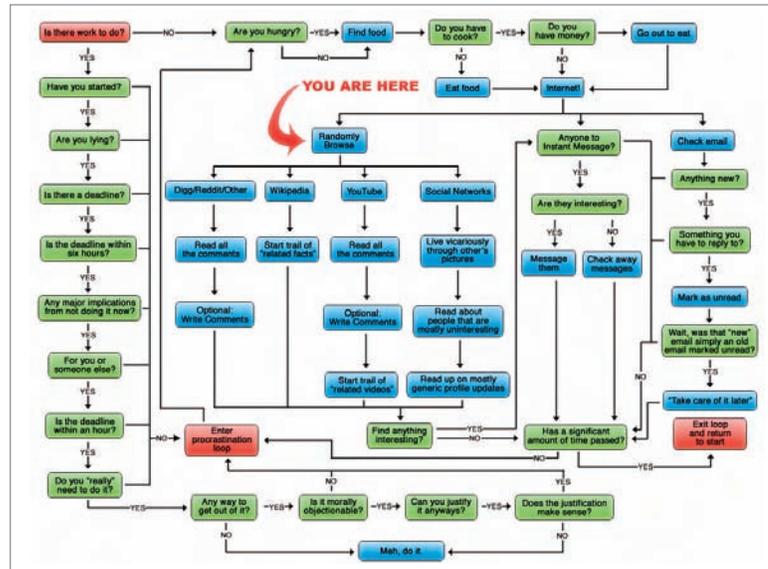
Purpose: To identify the different parts of a system, and in so doing, to make it more efficient.

How can you get a handle on a big project that has lots of moving parts? A flowchart can help. **Flowcharts are simply visual representations of the major steps in a process.**⁷⁵ They help leaders find more efficient ways of accomplishing the mission. Moreover, they are often a good way to show everyone on the team (especially newcomers) what's going on.

Procedure:

1. Identify your **widget**. What is it exactly you're producing?
2. Describe the current process for making your widget. Where do you start? Then what happens? And then what? Include every step along the way (there are probably many more steps than you realize).
3. Step back from the flowchart and look for ways to make the route from "start" to "finish" easier.
4. Update your flowchart to show the changes you're making to your process.

Example: See right.



The best flowcharts are clear thinking made visible.⁷⁶ Special software is available to create flowcharts and share them online, but simply using a whiteboard, sticky notes, or tacking pieces of paper to the wall is sometimes an even better way to use flowcharts because it's so easy to update the chart, add little notes anywhere, and motivate the team as they track their progress.⁷⁷

TOOLS TO MAKE A DECISION

MULTI-VOTING

Purpose: To find which idea has the greatest consensus when the team has several options to choose from.⁷⁸

Procedure: Multi-voting is a democratic process, but instead of "one man, one vote," everyone gets to cast several votes. It's recommended that participants be given about half as many votes as there are options.

Example: All twenty cadets in the squadron are working together to choose goals for the coming year. They've made a list of 10 possible goals, and now want to identify the four goals that are most popular.

Widget.

A fake, universal name for the thing an organization makes



Cost / Benefit Analysis.

Another way to make decisions is to conduct a cost / benefit analysis.⁷⁹ In simple terms, you first consider what your ideas cost. These costs include money, time, effort, and the other opportunities you give up to pursue the goal. Then you consider the benefits, which could include making money, saving time, having more fun, learning something new, etc. In the end, you go with the idea only if its benefits outweigh its costs.

	1st 4 pts.	2nd 3 pts.	3rd 2 pts.	4th 1 pt.	Total	Rank
Rocketry	2	1	3	4	21	
Bivouac	5	2	2	3	33	3rd
Drill Team	3	3	2	4	29	4th
Orientation Flights	7	5	1	3	46	1st
Community Service Project	0	0	1	1	3	
"AEX Day" for Cub Scouts	0	0	1	1	3	
Radio Operator Training	1	1	1	0	9	
Orienteering Competition	1	7	4	1	34	2nd
Support Local Air Show	0	0	1	1	3	
Day Hiking (3 trips)	1	1	4	2	17	
Total Votes Counted	20	20	20	20		

Multi-voting avoids a win/lose situation for the team's members. It allows an item that was popular among most people, but not favored by all, to rise toward the top in popularity. In the example above, the orienteering competition was the favorite choice of only one cadet, but through multi-voting, the team realized that it was actually the second most popular overall.

WEIGHTED PROS & CONS

Purpose: To make a decision by analyzing the arguments for and against an idea, with a special emphasis on the relative strength of each pro and con.

Procedure:⁸⁰

1. Make a chart that has 2 columns. Label one "pros" and the other "cons."
2. Under the "pros" column, list all the benefits you see your idea producing. Give each benefit you identified a point value. How many points you give the benefit is totally your decision.
3. Under the "cons" column, list all the drawbacks to your idea. This time give each a negative point value.
4. When you've completed your list, add up the points in each column. If the sum is positive, that means you're leaning toward going with the idea; if negative, you probably want to not adopt the idea.

Example: Should I get a part-time job so I can buy a car?

Pro

It'd be awesome to have my own car;
the general excitement of it +5

More freedom +3

Gain valuable work experience +2

Be able to get to CAP activities without
relying on anybody +1

TOTAL +11

Con

Cars cost a lot to buy -4

Cost of insurance, gas, and
maintenance -3

Having to work means less time
for CAP -3

Unnecessary; can use Mom's -2

Parents disapprove -2

✓ TOTAL -14

MULTIVOTING:

Which activity is best?

With dozens of cool opportunities in CAP, how can a squadron decide which are its favorites? Multi-voting can help.



Flying



Rocketry



Orienteering



Bivouac



First Aid



Color Guard



Hiking



Radios



Air Show

What's the simplest way to make a decision? Add up the pros and cons. But because some pros and cons count for a lot and others matter only a little, *the weighted pros and cons method uses a point system to help you make decisions.*

GRADUAL VOTING

Purpose: Aid the team in making a sound and democratic decision by limiting the influence its ranking members have on the junior members.

Suppose you're somewhat against a proposal your team is considering. Before you have a chance to say why, the Spatz cadet leading your team loudly says he is in favor of the idea. Might that intimidating cadet influence your vote? Might he or she deter others from speaking their minds? Gradual voting is a decision-making method that's useful when the team is comprised of members of different ranks or levels of experience.

"Gradual voting limits the influence senior people have over newcomers."

Procedure: Begin by identifying the rank order of each member of the team (ie: lowest to highest ranking, youngest to oldest, or newest to most senior). In ascending order (lowest to highest), give each member a chance to share his or her perspectives on the following:

1. State what the main issue is.
2. Identify what factor affecting that issue is most important to you.
3. Briefly summarize why you are in favor or against the proposal.
4. Cast a provisional vote for or against the proposal, or if you have mixed views, explain how the proposal would have to be changed to win your vote.
5. After giving everyone a turn, put the issue to an official vote by a simple showing of hands, to see if anyone has been persuaded to change their minds, based on what others have argued.

Example:

After reading written documents called "briefs," and listening to oral arguments, the nine justices of the Supreme Court of the United States meet in private to discuss the case and vote on the ruling. To help ensure each justice speaks his or her mind and votes honestly, the newest justice shares his or her views on the case first, then it is the second newest justice's turn, continuing up to the most senior justice. The one exception to this practice is that the Chief Justice, regardless of his or her seniority, speaks last.

Let the New Girl Go First.

The Supreme Court of the United States uses gradual voting. The newest justice, #9 Sonia Sotomayer (as of this photo) goes first. Chief Justice John Roberts, #1, speaks and votes last.⁸¹



Through gradual voting, a leader can encourage every member on the team – especially the most junior – to truly speak their minds and vote accordingly. As a result, the team is apt to make better decisions.

TEACHING & TRAINING PEOPLE

“Education is not the filling of a bucket, but the lighting of a fire.”⁸²

WILLIAM BUTLER YEATS

Irish Poet

A fire begins with a tiny spark, but can quickly feed on itself and grow. No wonder that in art and literature, fire has long been a symbol for knowledge. Learn something today and that knowledge is sure to lead you toward learning something else tomorrow. What leaders do is something like lighting a fire, too. **Leaders try to influence other people, and in the process, make more leaders.** Recall that in chapter 3, we considered that one role a leader plays is that of the teacher. Leadership and education, therefore, go hand in hand. Both are like lighting a fire. Now that you are a cadet NCO, it's time to consider how you can become an effective teacher or trainer.



Light a Fire.

A fire begins with a tiny spark, but can feed on itself and grow. Several generations ago, we built warbirds. Today, Raptors. What will your generation build?

THE TRAINERS' GOALPOSTS

OBJECTIVE:

14. Explain the function of a learning objective.

What is it that a teacher or a trainer wants to accomplish? Is it something precise, or just a vague notion? In chapter two's discussion about goals, we learned that dreams can be vague, but goals have to be specific. **Likewise, effective teachers and trainers try to lead their people toward a precise goal called a learning objective.**

In simple terms, a learning objective describes what a student should know, feel, or be able to do at the end of the lesson.⁸³ The learning objective is the measure of success. If a student fulfills the learning objective, then it's mission accomplished. The student and instructor can move on to other challenges.

Good learning objectives are specific (saying exactly what is to be accomplished) and measurable (can be tested fairly).⁸⁴ To focus trainers and students on the specific and measurable, most learning objectives begin with action verbs, like these examples:

- Identify and describe CAP's four Core Values
- State the Air Force's definition of leadership
- Demonstrate how to perform the command, "To-the-Rear, MARCH."
- Find your position on the map by referencing nearby landmarks.
- Show a commitment to Respect by properly rendering customs and courtesies

Note: Technically, each learning objective should begin with a phrase along these lines: "The objective of this lesson is for each student to..." That phrase is often taken for granted and so is sometimes not actually included with the stated objectives.

In other words, a learning objective tells the student and the instructor what the goal is. Moreover, the objective should be worded such that it's easy to tell if the student has fulfilled the objective or needs more help. As you can see, ***without clear learning objectives, there's no way to tell if the lesson has been successful.***

LEARNING STYLES

OBJECTIVES:

15. Describe the four modalities of learning.
16. Explain why leaders should present material in multiple ways.

How do you prefer to learn? By reading? By watching? By getting your hands dirty? ***There are as many learning preferences as there are people. Everyone is different.*** One way to understand this principle is to look at what educational theorists call the four modalities of learning. ***The four modalities or learning channels describe the ways we process information into memory.***⁸⁵ They describe our learning styles or preferences.



Visual.⁸⁶ The visual cortex – the part of the brain controlling sight – is larger than all other sensory cortexes put together. No wonder then that many of us like to see what it is we're studying. Show me the aileron. Show me the cadet grade insignia. Show me what a flight in column formation looks like. ***If you are a visual learner, you probably like to learn from watching videos, examining diagrams and looking at pictures.*** You might like using flash

cards to study and highlighting key passages in your textbook. Live demonstrations make learning fun and productive for you.



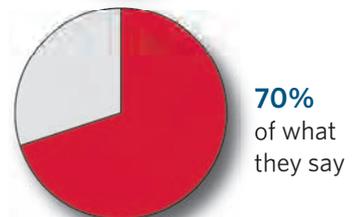
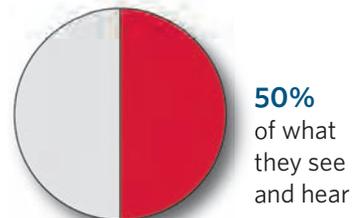
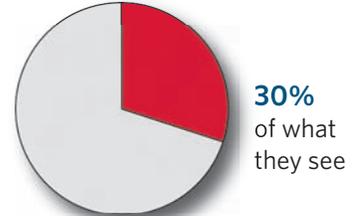
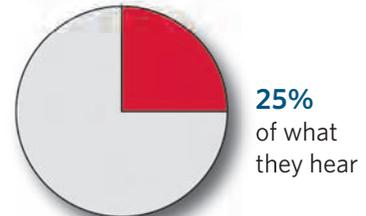
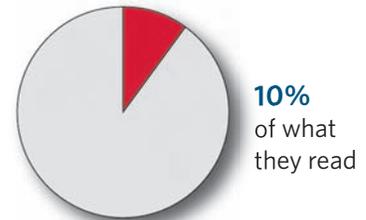
Auditory.⁸⁷ Are you able to easily remember the words to your favorite songs? You may be ***an auditory learner, someone who learns best by listening.*** Story-telling and group discussions are effective ways to reach these learners. In grade school, the auditory learners probably liked hearing the multiplication tables being recited. Given a problem, an auditory learner's first instinct may be to talk about it. Or, given written instructions, the auditory learner is apt

to ask that they be explained orally, thereby giving them a chance to listen. Perhaps its no surprise that auditory learners are likely to have developed an advanced vocabulary.

Note: In high stakes tests, learning objectives are ultra-specific. In CAP, "Recite the Cadet Oath from memory" is a fine objective. But a hyper-precise objective might read: "Recite the Cadet Oath from memory, without help, and without omitting or reordering more than 3 words."

HOW DO PEOPLE REMEMBER BEST?

Research shows that on average, people retain:⁸⁷





Tactile.⁸⁸ The word *tactile* comes from the Latin word meaning “to touch.” Therefore, *tactile learners will want to physically touch whatever it is they are studying.* Not content to simply see a handheld radio, for example, the tactile learner may want to try pressing its buttons, unscrew the antenna and screw it back on, open up the battery case and have a look around. In math

class, you can spot the tactile learners because they’re counting with their fingers. Labeling diagrams, drawing maps, or crossing items off a checklist are other hallmarks of tactile learning.



Kinesthetic.⁸⁹ This term comes from an ancient Greek word meaning “to move.” Kinesthetic learning is closely related to tactile learning – both show a preference for learning by doing. But *with kinesthetic learning, the emphasis is on physically moving around and staying active, not simply touching things.* Games and role-playing are fun and productive ways to learn if

you’re a kinesthetic. If forced to sit through a lecture, the kinesthetic may want to use the computer to type their notes, that way at least their fingers stay busy. In cadet life, drill is an excellent example of kinesthetic learning. And in science class, the kinesthetic students will look forward to conducting experiments because they can get out of their seats and use their hands to learn.

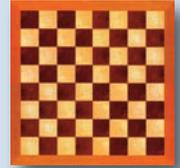
Why is it important for leaders to know about the modalities? It’s valuable to understand that everyone learns differently, so *whenever possible, instructors will want to present their material in a variety of ways, especially if the group is large.* And when giving instructions or mentoring someone, some basic knowledge about the modalities will help the leader communicate in a way that the follower/student finds easy to understand. Leaders who expect the team to adapt to their presentation style do not serve the team’s needs.

“Leaders who understanding the learning modalities can communicate better.”

“Tell me, I forget. Show me, I see. Involve me, I remember.”

CHINESE PROVERB

CHESS, WITHOUT ANY PIECES



An eight year-old chess prodigy is thinking deeply about a tough chess problem. Suddenly his trainer cries out, “Let me make it easier for you!,” sweeping his arm across the board, knocking all the pieces to the ground.

The boy stares at the empty chessboard for a few moments. Then a light goes on in his brain: “Knight to A4!” Problem solved.

This scene from the film *Searching for Bobby Fischer* is a peculiar example of the four modalities of learning.⁹⁰ Peculiar in that the boy’s pure genius allows him to learn without benefit of visual, auditory, tactile, or kinesthetic help.

How might we expect four chess players, each preferring a different modality, to train?

Visual: Would want to look at the piece and study the board; would do poorly in the scenario above.

Auditory: Would want to talk through the possible moves with the coach, or talk through the options to himself.

Tactile: Would struggle against a desire to unofficially move the pieces, which is not allowed.

Kinesthetic: Would prefer to get up, walk around the room, and perhaps look at the board from different angles.



TEACHING & TRAINING METHODS

OBJECTIVES:

17. Describe different methods of teaching.
18. Describe the pros and cons of those teaching methods.

Just as there are several modalities of learning, there are several teaching and training methods. No doubt, you've experienced each during your career as a student. But as you continue your transition from a follower to a leader, review the methods below with an eye toward understanding each from the instructor's point of view.

Lecture. *Arguably the most common teaching method, the lecture is an oral presentation of information, concepts, or principles that will lead students toward fulfillment of a learning objective.*⁹¹ Lectures may be formal, with the instructor essentially reading from a carefully written manuscript, or informal with the instructor working from a rough outline but keeping the talk conversational in tone and occasionally welcoming students' questions.

Instructors may overly rely on the lecture method because lectures are relatively simple to prepare. Moreover, they offer a quick way to impart large amounts of information, especially when introducing a new subject. It's an especially valuable method if the lecturer is an expert in the field who possesses knowledge that cannot be obtained elsewhere. But because the lecture is mostly a one-way form of communication, the lecture's main weakness is that it is difficult for the instructor and the students alike to tell if the students are actually learning the material. As such, lectures are a form of passive learning – the student is supposed to be like a sponge who absorbs the lesson, but in reality, students may simply sit back and let the instructor do all the work without listening critically. In a cadet environment, lectures are not very desirable because they are too “boring” and too much like school. Auditory learners are apt to enjoy lecturers, but students who want to remain physically active as they learn will find them frustrating.

Guided Discussion. *The guided discussion is an instructor-controlled group process in which students share information and experiences to achieve a learning objective.*⁹² While the instructor retains almost total control of the lesson during a lecture, in a guided discussion the students are supposed to do much of the talking. Therefore, the instructor's job is to facilitate or gently direct the conversation and challenge the students'



Lecture



Guided Discussion

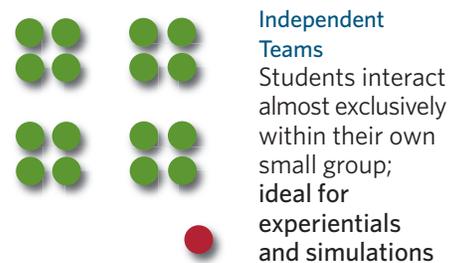
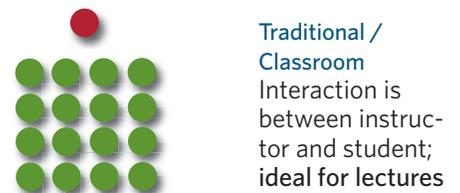
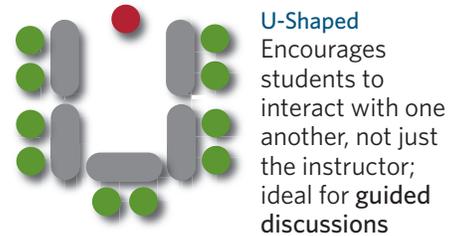
remarks, leading them toward the learning objective. However, guided discussions can easily fail if the instructor cannot resist the urge to dominate the conversation, in which it becomes more of a lecture than a discussion. Because guided discussions usually do not require special equipment or involve elaborate activities, they are reasonably easy to prepare, though the instructor will still need to develop carefully worded questions in advance, along with ways to transition from one point to the next and summarize the most important teaching points. One assumption about guided discussions is that the students already possess some basic knowledge about the subject and are therefore capable of speaking intelligently about it. The guided discussion is a popular method because it provides the instructor with immediate feedback on the students' performance – you can tell who “gets it” based on how they are contributing to the discussion. Auditory learners will enjoy guided discussions, but students who are naturally quiet or prefer to be physically active while learning may find the method frustrating.

Demonstration - Performance. *The “demo-perf” is a process-driven approach to training that is used when students need to physically practice new skills.*⁹³ One assumption about demo-perfs is that most students learn best by doing. The classic example of proper use of the demo-perf is drill and ceremonies. The instructor demonstrates how to make an about face, then the students try it themselves. For the demo-perf to be successful, the instructor must be an expert in the subject. Not only must the instructor be able to demonstrate the task correctly, he or she must know the precise standards governing the task (exactly how far forward do you swing your arms on forward march?). Likewise, the instructor must be able to diagnose and correct students' problems in completing the task. Leading a demo-perf is easier than it looks – it actually requires outstanding communication skills, especially in a one-on-one setting. Kinesthetic and visual learners will love the demo-perf. One weakness of this method is that it works only for process-driven, task-based training – you can't teach someone to understand an abstract principle like “integrity first” via a demo-perf.

Experiential. *Experiential learning is an umbrella term covering games, role-playing, hands-on activities, service projects, problem-solving challenges, and more.*⁹⁴ With experiential learning, the main idea is to learn from doing, to learn from direct personal experience. This method often involves all modalities of learning, especially tactile and kinesthetic. Experiential learning has a reputation for fun and excitement and therefore most students are initially motivated to

SEATING ARRANGEMENTS

How an instructor sets-up the room can affect how the students relate with the instructor and with one another.



Demo-Perf

participate, whereas students may be initially turned-off by a lecture, discussion, or other conventional method. One downside to experiential learning is that it almost always requires special materials and a great deal of planning and preparation. In cadet environments, experiential learning methods are especially important in ensuring CAP does not look and feel too much like school. Another potential downside to experiential learning is that it can be a victim of its own success. If learning is fun, the fun itself might become the goal, not a means to an end, which of course ought to be fulfillment of the learning objective.



Experiential

Simulation. A form of experiential learning deserving special attention is the simulation. *A simulation seeks to replicate the conditions of a job as realistically as possible.*⁹⁵ In CAP for example, we conduct search and rescue exercises where we simulate the actual tasks of aircrews, ground teams, and mission base staff in searching for a downed aircraft. Therefore, simulations are superb venues to practice existing skills and apply previously acquired knowledge. Generally the simulation is not a good method for teaching brand new concepts. The method is scalable, that is, it can be narrowly constructed and focused on teaching one very precise task (for example, pilots might use a computer-based flight simulator to practice recovering from spins), or the simulation may be wide-ranging in scope, encompassing all facets of a search and rescue mission, for example.

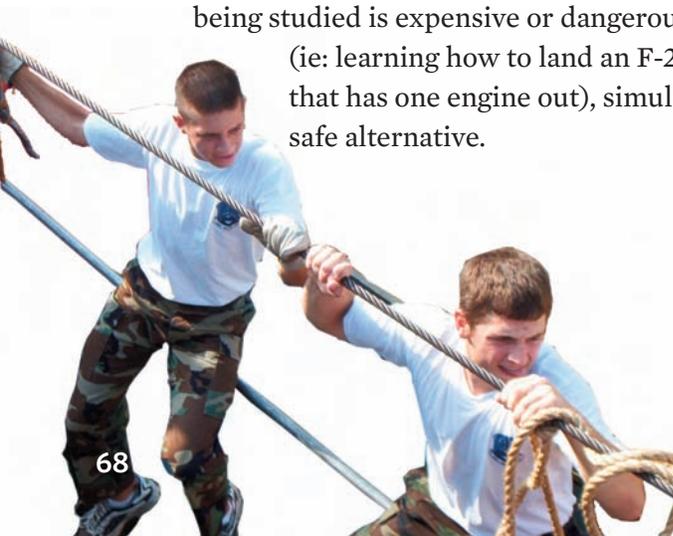


Simulation

To make the simulation as real-to-life as possible often requires a tremendous amount of visual aids, supporting materials, elaborate scripts, and the like. Having created the conditions necessary for running a simulation, the instructor's role becomes that of a mentor or evaluator. Simulations are great for tactile and kinesthetic learners. If the activity being studied is expensive or dangerous

(ie: learning how to land an F-22 that has one engine out), simulations offer a cheap and safe alternative.

"Simulations are superb venues to practice existing skills."



Experiential Learning
Leadership Reaction Courses are experiential learning. They require cadets to solve problems by applying knowledge acquired in the classroom.

TEACHING & TRAINING METHODS: PROS & CONS

Method	Pros	Cons
Lecture	<ul style="list-style-type: none"> ★ Can present large amount of information ★ Taps personal knowledge and experience of instructor ★ Relatively easy to prepare 	<ul style="list-style-type: none"> ★ Communication flows mostly one-way ★ Boring, passive ★ Limited opportunity for feedback to check student learning
Guided Discussion	<ul style="list-style-type: none"> ★ Students learn not only from instructor and from one another ★ Many opportunities for feedback and checking student learning ★ Students may relate topic to personal experiences 	<ul style="list-style-type: none"> ★ Facilitating a discussion and gently leading it requires skill and practice ★ Can easily fail if the group is too quiet or if instructor dominates discussion ★ Assumes students possess enough knowledge to speak intelligently about a subject; not ot appropriate for brand new topics
Demonstration Performance	<ul style="list-style-type: none"> ★ Students learn skills by example and by actually practicing what they hope to learn ★ Great potential for individual attention ★ Great potential for immediate feedback, with students and instructor alike quickly seeing if objectives are being fulfilled 	<ul style="list-style-type: none"> ★ Not suited for in-depth academic study; designed for skills training ★ Labor-intensive, requiring lots of instructors / assistants, or a very small group size ★ Requires instructor to pay tremendous attention to detail and be skilled in diagnosing students' performance issues
Experiential	<ul style="list-style-type: none"> ★ Active, exciting, fun way to learn ★ Generally involves all modalities of learning, thereby offering something for everyone ★ Offers great opportunities to synthesize learning across multiple topics or fields of study 	<ul style="list-style-type: none"> ★ Can become a victim of its own success, becoming an end in itself ★ Usually requires a great deal of instructor preparation, visual aids, and equipment ★ May convey only a small amount of actual academic content
Simulation	<ul style="list-style-type: none"> ★ True to life, preparing students for the "real world" without experiencing its dangers ★ Active, exciting, fun way to learn ★ Great potential for feedback and learning from own successes and failures 	<ul style="list-style-type: none"> ★ Requires students to already possess basic knowledge; good for perfecting existing skills but not acquiring new ones ★ Usually requires a great deal of instructor preparation, visual aids, equipment, time, and other resources ★ Can often accomodate only a limited number of students at one time

RED FLAG: THE ULTIMATE SIMULATION



Nothing comes close to real combat. How then can Air Force warriors train effectively?

Red Flag is a combat simulation involving the full arsenal of US and allied aircraft.⁹⁶ Above the Nevada dessert fly fighters, bombers, tankers, airlifters, helos, and nearly every kind of combat aircraft. For added realism, the "bad guys," called "Aggressors," are given unique paint schemes (left).

Operating on the ground in harsh conditions are the maintainers, medics, security

forces, and other mission support personnel – all of whom must be self-supporting, just as if actually fighting in a distant land.

Military historians discovered that pilots' chances of survival dramatically increased after flying ten combat missions. Experience counts. Therefore, Air Force leaders created Red Flag to reproduce (as closely as possible) the life-or-death challenge of combat.

Red Flag offers the type of learning that cannot be acquired in a classroom.



EVALUATING LEARNING

OBJECTIVES:

19. Explain the purpose of evaluations, in the context of learning.
20. Give several examples of how cadets are evaluated.

Suppose you just completed your first challenge as a new instructor. You delivered a lecture, guided a discussion, conducted a demo-perf, or lead some type of experiential activity. How do you know if you've been successful? It doesn't necessarily follow that what you present in class is what the student will learn.

In cadet training and educational settings, *evaluation is an attempt to check whether each student fulfilled the learning objectives.* Regardless how we try to measure learning, *an evaluation must be valid.*⁹⁷ That is, the test material must relate back to what the cadets studied. (Would you like to study land navigation but be tested on aircraft mechanics?)

Students may be evaluated formally or informally and in a number of ways, including: written tests, oral quizzes, participation in classroom discussions, and via direct observation.

"Evaluations test whether students fulfilled the learning objectives."

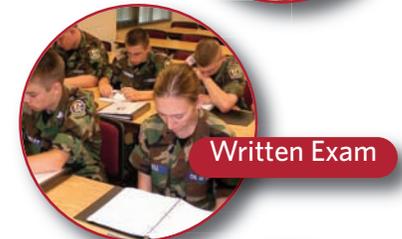
After conducting an evaluation, there's still one step remaining: feedback. Just because you've completed some type of test or quiz doesn't mean you understand how well you did. *Through feedback, students see where they did well and where they fell short.* Feedback can be formal, such as when cadets see their written test results and correct their tests to 100%, or informal, such as when following a demo-perf, a cadet NCO says to an airman, "Not quite, watch my arms stay pinned as I perform the about face, see..."

CONCLUSION

In teaching and training people, you yourself become more knowledge and more expert in the subject matter. One great teacher wrote, "The least of the work of learning is done in the classroom."⁹⁸ The CAP Cadet Program develops leadership skills in cadets through textbooks like this one and classroom activities, but mostly through hands-on experiential learning. What's the best way to learn how to lead? By actually getting out there and using the cadet squadron as a leadership laboratory.

HOW CADETS MEASURE THEIR LEARNING

How many ways have you been evaluated as a cadet? Because evaluation is such an important part of teaching and training, there are several ways to measure learning, including:



THE CAP CADET PROGRAM'S LEARNING MODEL

The CAP Cadet Program is a good example of “student-centered education.” That is, the focus is on the cadets’ needs, interests, and abilities. This table shows how the Cadet Program applies the student-centered learning.⁹⁹

Theory

1. Learning is most meaningful when topics are relevant to the students’ lives, needs, and interests . . .
2. . . . and when the students themselves are actively engaged in creating, understanding, and connecting to knowledge.
3. Students will have a higher motivation to learn when they feel they have a real stake in their own learning.
4. Instead of the teacher being the sole, infallible source of information, then, the teacher shares control of the classroom and . . .
5. . . . students are allowed to explore, experiment, and discover on their own.
6. Essentially, learners are treated as co-creators in the learning process, as individuals with ideas and issues that deserve attention and consideration.

Practice

1. Cadets join CAP because they want to fly, learn about the military, or for similar reasons.
2. Cadets learn by doing. They learn about aviation by flying in CAP aircraft. They learn to lead by serving on a cadet staff.
3. Cadets are eager to advance so they can earn promotions, ribbons, and awards, and qualify for prestigious staff positions.
4. Ranking cadets instruct, train, and mentor junior cadets, under the guidance of a senior.
5. Cadets have opportunities to participate in special activities, but are not required to do so. There’s something for everyone in CAP.
6. The cadet staff has a say in the goals the squadron sets. They help plan and implement cadet activities, under senior guidance.

CHECKLIST: GETTING READY TO INSTRUCT

1. Talk with boss about the objective. Begin with the end in mind.
2. Look at the subject matter. Re-read the chapter, review the regulation, review the manuals or handbooks, think about your own experience and what you personally have learned about the subject
3. Look at lesson plan.
4. Think about time limits, group size, physical location of class and any supplies available there
5. How will you present the material? Think about method. Make sure it’s ok with #4 above.
6. First time: meet with your supervisor / mentor before you teach. Present your idea to him or her. What will you do, how will you do it? What have you done to prepare.
7. Go for it.
8. Rethink your performance with the help of your mentor.

CHECKLIST: HOW TO LEAD A DEMO-PERF

When teaching someone how to perform a task – how to drill, how to use a compass, how to preflight an airplane – the demonstration / performance method can be a great way to train. Here’s how it works, as applied to drill:

1. State the movement and explain its purpose.
2. Perfectly demonstrate how the movement is performed at a normal cadence, twice.
3. Break the movement into segments. Show the starting position and the finishing position. Identify any special rules or standards. Slowly demonstrate the



movement one step at a time, by the numbers. Allow the cadets to ask questions.

4. Have cadets try executing the movement on their own, and then as a group, by the numbers. Watch them closely and give them feedback. Ensure everyone understands how to perform the movement properly.

FINAL ANALYSIS

Leadership requires brainpower. Deep, serious, ever-growing brainpower. Aspiring leaders can develop their brainpower by studying principles of critical thinking and by learning how to be more creative. Moreover, brainpower is especially important in the leader's role as an instructor.

Our study of leadership keeps returning to the principle that leadership is an intellectual activity. Great leaders are great thinkers. Therefore, any cadet who means to lead must develop his or her brainpower.

DRILL & CEREMONIES TRAINING REQUIREMENTS

As part of your study of this chapter, you will be tested on your ability to lead an element in drill and ceremonies. Ask an experienced cadet to help you develop your command voice and practice calling commands on the correct foot. For details, see the *USAF Drill and Ceremonies Manual* available at capmembers.com/drill.

From the Air Force Drill & Ceremonies Manual, Chapter 4

Command the flight to fall in.

Command the flight to dress right and check its alignment.

Command the flight to open and close ranks and check its alignment.

Command the flight to perform facings and other in-place movements.

Command the flight to perform flanks, columns, and march to-the-rear.

Command the flight to perform right (left) steps.

Command the flight to perform close and extend, at the halt and on the march.

Command the flight to change step and count cadence.

Command the flight to form a single file or multiple files.

PHOTO CREDITS

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