ANALYZING ARGUMENTS

WHAT COUNTS AS EVIDENCE

Evidence is what you offer audiences to persuade them that your position on a topic is worth considering.

There are many kinds of evidence composers can use to support their warrants; on these pages we consider:

1 EXPERT TESTIMONY
2 PERSONAL EXPERIENCE
3 ANALOGIES
4 FACTS (AND STATISTICS)
5 FIELD RESEARCH
6 SHARED VALUES
7 EXAMPLES

EXPERT TESTIMONY

An expert has special and thorough knowledge on a particular topic because of education, profession, study, or experience. Experts can be individuals or groups. Because of their knowledge, we believe we can rely on experts' judgments in the areas in which they know more than the average person.

Text composers can use the words of experts—their testimony—as authoritative backing on the topics about which the expert is knowledgeable.

In the editorial on page 101, for example, the Kaiser Family Foundation and the Institute of Medicine are both cited as experts; excerpts from reports they have published are offered as evidence in support of the editorial's arguments.

EVALUATING EXPERT TESTIMONY

If you are wondering whether to accept expert testimony:

- Do an online search on the person or organization. Does the person have credentials—education and experience—for offering the evidence? Does the organization specialize in the topic? Does the person or organization have an affiliation indicating potential bias?
- Ask others what they know about the person or organization.

When you compose your own texts:

- Ask people from your audience if they know and trust the experts you are citing.
- If your audience might not know an expert you are citing, include descriptions of the expert, saying why the expert has authority for you.

PERSONAL EXPERIENCE

Personal experience is what we know through living. Each of us has experiences with families, schools, jobs, and romance; we've paid taxes, driven cars, eaten, shopped, and seen changes in our communities. Every experience—and especially repeated experiences—shapes our sense of how the world works.

Personal experience is limited evidence precisely because it is personal. Without considerable research, you cannot know how many other people share your experiences; you cannot know if they draw the same knowledge from their experiences as you do.

Because personal experience is limited, it ought to play only a small part in formal writing. It can serve as a single example in support of a point. An introductory anecdote about your experiences working in a fast-food restaurant can draw readers emotionally into an argument about the moral satisfactions of low-paying jobs, but you would need much more evidence to show that others found the same moral satisfaction.

The same holds true for using others' experiences as evidence. A friend who has been to Burundi on a missionary trip might have interesting observations about how donations are spent in that country, but those observations have no place in your writing unless your friend is also an expert on the economics of donations or the observations are backed up by other evidence.

Personal experience can become facts or statistics when it is joined with and examined alongside the experiences of others through field research.

EVALUATING PERSONAL EXPERIENCE

When you see others using personal experience—whether their own or of others—as examples in their writing, ask these questions:

- Is the experience used as logical evidence in support of the composer's ability to discuss this topic (ethos), or as an emotional appeal (pathos)?
- If the experience is used as logical evidence, does the writer acknowledge that the experience is necessarily limited? Is other evidence also given as support?
- If the experience is used to show that the composer has relevant experience for taking on the topic at hand, is the experience sufficient? Does the experience indicate that the composer has any bias on the topic?
- If the experience is used as an emotional appeal, does the emotion draw the audience away from what is at issue or does it help show why the issue might be worth the audience's attention?

When you compose your own texts, keep in mind the following:

- Be wary of generalizing from your own experiences. Always try to find out if your audience has shared the same experiences—and drawn similar conclusions.
- When you use the experiences, observations, anecdotes, or opinions of others, use them only to illustrate examples and to offer other evidence of the kinds we describe on these pages.

ANALOGIES

Analogies are quasi-logical structures: When you use an analogy, you compare—usually at length—two objects, events, or processes so that the more familiar can explain the less familiar. For example, a long description of how the brain is like a computer would be an analogy in which the composer relies upon the audience's knowledge of computers to explain how the brain works.

Similarly, to call the Internet the *Information Superhighway* is to use an analogy in which one is to understand the abstract Internet networked system as being like a highway. Most people in the United States have experienced highways, and so can think of the Internet as a series of roads and interchanges with information traveling between locations in little packets just like cars.

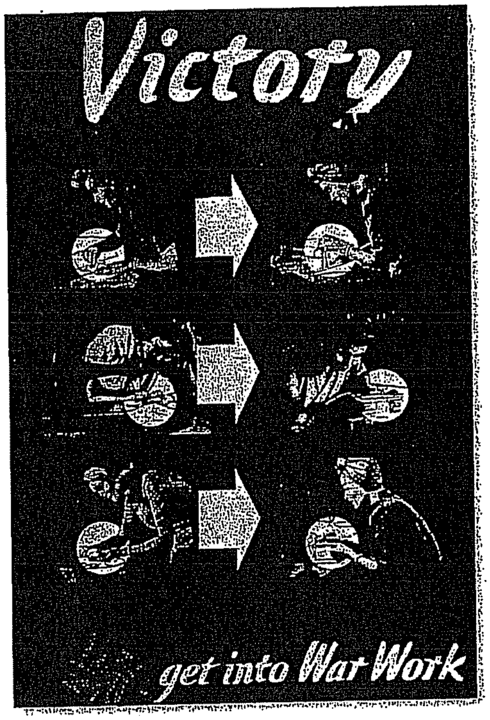
But analogies work more than descriptively. They carry a whole set of assumptions from the more familiar object being named to the less familiar. For example, the *Information Superhighway* analogy implies that the Internet should be a public resource as highways are, and regulated, supported, and repaired with public funds just as highways are.

Analogies can be used in focused ways, or can shape the argument of a whole book: The writer Malcolm Gladwell, for example, one of whose short essays we examine later, has used a whole book to consider how *ideas can be contagious in exactly the same way that a virus is.*

The following analogy is a blog entry; the writer describes a day in which he and others from his company discussed leadership and teamwork:

> **I mentioned something I recently read on migratory birds in flight. This study found that a flock of birds in a V-formation can fly at least 70% farther than a bird on its own. Birds at the back of the V work much less because they can take advantage of the draft created by the birds at front. When a bird at the front tires, it drops out of the lead and goes to the back to rest. The V-formation also improves visual contact and communication.**
>
> **I like to tell this story to show how natural teamwork should be. This story also highlights the importance of individual excellence and leadership. Every bird in the V-formation at some point assumes the leadership role at the front. Similarly, each member of my leadership team has a key responsibility to drive the priorities and vision for their area in the company, while at the same time being able to understand how that fits into the overall vision of our company.**

The comments appearing after the blog entry develop the shortcomings of the analogy: If you carry out the analogy, as one person commented, it would be appropriate for the company's *top managers to drop out of the lead positions and for some others to either die or recover;* another points out that the V-formation is *a pattern learned over the millions of years of evolution* and so not easy for humans to learn or apply.



Visual analogies also exist. The example above comes from early in World War II, when—with so many men in battle—industries encouraged women to work in factories producing weaponry and machinery needed for the war effort. The poster above uses analogies between the work to which women were already accustomed—sewing and cooking—and industrial production. The visual analogies between the two kinds of work are offered as evidence that, if women can do the familiar work, they can also do the unfamiliar work.

EVALUATING ANALOGIES

In reading and developing analogies, consider:

- Analogies are an odd sort of evidence because they prove nothing. They do not guarantee that situations will play out as an analogy suggests.

  Instead, composers use analogies to shape an audience's attitudes. A compelling analogy can persuade audiences to consider an object or process in a positive light, which is a large part of any successful argument. A compelling analogy is therefore both a pathos appeal and a form of logos.
- When it is compelling, an analogy can so focus your perceptions that you cannot think outside the analogy. When you see an analogy being used as evidence in an argument, or want to use one yourself, try carrying out the implications of the analogy, as those commenting on the bird–human leadership example did.

  You can also explore how an analogy shapes thinking by coming up with alternative analogies. For example, consider how the ***Internet as a Superhighway*** analogy asks us to think of the Internet as roads and exchanges—and implies that the Internet should be built and supported with public funds. To consider an alternative analogy, ask what implications accompany thinking of the Internet as a marketplace or huge library.

FACTS

A fact is a statement about an event or condition that exists or has happened. Facts are true or false; there is no gray area to a fact. Facts are verifiable: They can be checked. If someone claims, for example, that it is a fact that cold climate turtles hibernate, we ought to be able to go see such hibernating turtles for ourselves.

Facts can be presented in words and through numbers, firsthand experience, illustrations, charts, and graphs.

Facts can be about historical events—

In the late 18th century, Haiti's nearly half million slaves revolted under Toussaint L'Ouverture. After a prolonged struggle, Haiti became the first black republic to declare its independence in 1804.

—more recent events—

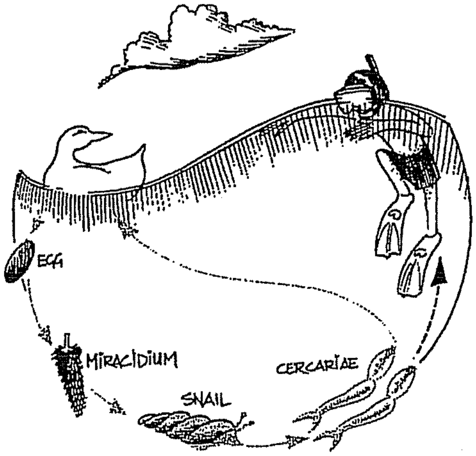
He graduated from the University of Hawaii in 2008.

—or natural objects and events:

Jupiter is the largest planet.

The maximum age of a snapping turtle recorded in nature is 24 years.

Facts can be presented in diagrams, as in this explanation of swimmer's itch:



This diagram brings together small facts about a parasitic flatworm's life cycle to build a larger fact about how swimmers get infected with the worm.

USE FACTS, NOT OPINIONS

Zbigniew Boniek is the greatest male soccer player of all time.

The sentence above is an opinion: People can argue about who is the greatest soccer (or baseball or football) player of all time.

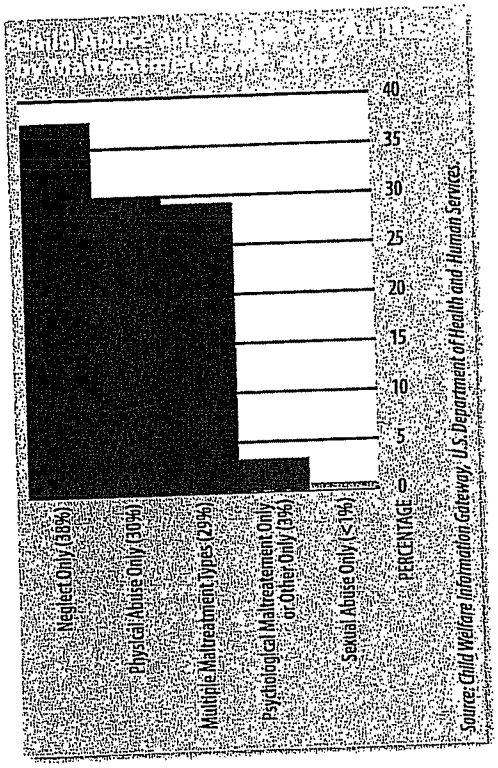
In 2006, Sharma Wing of Daniel Webster College scored the most points per game in Division III soccer.

The sentence above gives a fact: It can be verified by checking data collected about college soccer in 2006.

STATISTICS—A KIND OF FACT

Statistics result from manipulations of sets of numbers.

They can appear in charts or graphs—



Source: Child Welfare Information Gateway, U.S. Department of Health and Human Services.

—be written—

In 2002, more than one-third (38 percent) of child maltreatment fatalities were associated with neglect alone. Physical abuse alone was cited in more than one-quarter (30 percent) of reported fatalities. Another 29 percent of fatalities were the result of multiple maltreatment types.

—or presented in tables:

Table 1: DOCTORATE AWARDS
by selected characteristics of recipients, 1995 and 2004

	1995	2004
All doctorates	41,750	42,155
Male	61%	55%
Female	39%	45%

Source: National Science Foundation/Divisions of Science Resources Statistics, Survey of Earned Doctorates, 2004.

Charts, graphs, and tables allow viewers to make comparisons.

EVALUATING FACTS & STATISTICS

To evaluate these, ask the following:

- Are sources given for the facts and statistics? If so, are they authoritative? If not, do you trust the author enough to accept the facts?
- Do the facts and statistics support the conclusions that are based on them?
- Can you find other facts that contradict those you are questioning?

When you are using facts and statistics in your own compositions, consider:

- Will your audience accept the authority of the sources from which you've drawn the facts or statistics?
- Have you made clear how the facts support the points you are making?
- If you are working with a source that offers a wide range of facts or statistics—census data, for example—are you using the facts responsibly, using them fully, and not choosing only those that support your points?

FIELD RESEARCH

If researchers are fair and open-minded in their research, honestly looking for what others think, then their interviews, observations, and surveys will create facts. When researchers compile information, they can demonstrate what a group of people think or believe in a particular place and time. They can, for example, provide statistics about how many people desire a particular policy or show, through interviewing older people in an area, what Sunday activities were popular a few decades ago.

You can use the following questions both to evaluate field research carried out by others and to help you shape field research you might perform.

EVALUATING INTERVIEWS

- Did the interviewer ask open-ended questions, allowing the person or people being interviewed to provide their opinions and beliefs?
- Did the interviewer present the interview fairly, showing where the words of the person interviewed were cut or edited?
- What sort of relationship does the interviewer appear to have had with the person being interviewed? Does the interviewer seem hostile, or overly friendly?

EVALUATING OBSERVATIONS

- Does the researcher describe the goals and methods of the observation?
- Does the researcher appear to have approached the observation seeking particular results—or been open to whatever happened?
- Does the researcher appear to have observed well, or with too much focus?
- Are the researcher's results only positive, in support of the researcher's goals, or does the researcher note any observations that went against expectations?

EVALUATING SURVEYS

- Did the survey ask open-ended questions, allowing the person or people being interviewed to provide their opinions and beliefs?
- Was the number of people surveyed sufficient for providing support for any assertions a researcher is making based on the research? (To learn how many people need to be surveyed depending on what a researcher is trying to find out, see the article "How Many People are Enough?" <http://survey.pearsonncs.com/planning/people.htm>.)
- Did the researcher seek information from an appropriately wide group of people, or only from those likely to give responses the researcher wanted?

SHARED VALUES

The editorial on p. 101 relies on the warrant that *Congress should have oversight of what affects the future health of young people* (as shown on page 103). This statement presumes that its readers will be concerned about anything affecting young people's future health. Whoever wrote the editorial does not have to argue for this value or offer further evidence to support this; it can simply be assumed.

Composing an argument that does not rely on readers' values is impossible. One could argue whether such values are evidence, but many arguments depend on such assumptions. Simple arguments such as *Don't do that—you'll get hurt!* can work only if the person at whom they are directed believes that getting hurt is a bad thing. The person who makes the statement doesn't have to explain the assumption.

Longer and more complex arguments about going to war or about health care, for example, will appeal to shared values about patriotism, nationalism, the right of people to a doctor's care, or the right not to suffer.

Because the composers of texts rely on such shared values to encourage readers to accept their arguments, these values work to support arguments just as other kinds of evidence do.

EVALUATING SHARED VALUES

When you are questioning shared values or making use of them in your own work, keep in mind:

- Using shared values to support arguments depends on what the audience believes—so you must pull assumed shared values from arguments and ask if audiences truly do believe the assumptions. Under what conditions will an audience accept those assumptions?
- People can hold contradictory values or accept some values only under certain conditions, as when some people are against violence except in response to aggression. When you are considering the shared values underlying an argument, ask if the assumptions hold in all cases or only in some.
- When you are composing your own texts, be aware of the values you are assuming your readers share with you. If you do not make those values explicit to yourself, you will not be able to use them alertly in your writing—and so you may be surprised when your audience responds negatively.

EXAMPLES

Examples can make general or abstract arguments specific and concrete for audiences. Detailed examples can help audiences visualize what might otherwise be only conceptual.

Examples can be in a sentence—

Classes at our college emphasize personal attention, especially in the first year, when all classes are limited to fifteen students.

—or a paragraph:

What always amazed me about my father was how multifaceted he was. He was an intellectually curious physician living in a small town who had traveled the world, read at least a book a week up until he died, could continually kick my ass in Scrabble even though he didn't learn English until he was 23, and knew practically everything there was to know about classical music, Spanish wines, and French cinema. All I wanted to be when I grew up was as smart as my dad.

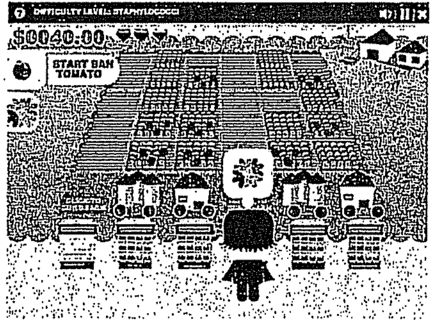
In each example above, a general statement comes first—*Classes at our college emphasize personal attention* and *What always amazed me about my father was how multifaceted he was*—followed by examples to show concretely what ***personal attention*** and ***multifaceted*** mean to the writers.

Like analogies, examples do not prove anything. Rather, they help audiences better understand a point or concept, and so can enhance an audience's engagement with your work. Like analogies, they are logos and pathos appeals.

USING VISUAL EXAMPLES

Notice how the following selection uses both written and visual examples to clarify what it is arguing:

By immersing players in political or economic structures, the makers of *serious games* hope to encourage critical thinking and even activism. For example, in *Bacteria Salad* from Persuasive Games, players learn about agribusiness because they have to (in the words of the Persuasive Games website) "Harvest mass amounts of cheap produce and sell it for as much profit as possible. But watch out for floods and animal waste, or your greens might turn, uh—brown—and your customers will get E. Coli." As you can tell from the description, the game is humorous and, as the screenshot below shows, has lighthearted graphics, all to seduce players to engage critically with serious issues. I wonder, however, if the playfulness encourages or distracts from that purpose.



Screenshot of* Bacteria Salad *from Persuasive Games website.

EVALUATING EXAMPLES

Whether you are analyzing others' examples or considering how to use them in your own work, consider:

- Do the examples make clear the general or abstract point they are meant to explain? Do they distract from the point, or will audiences easily understand why the examples are there?
- How do the examples support the general or abstract points being made? Are the examples too specific, causing the general points to get lost?
- If more than one example is used to clarify a general or abstract point, are all the examples appropriate? Are the examples ordered to move from least complex to most, or from most known to least known?

In addition, for ***visual examples***, consider the following:

- Are the examples used only to support and explain general points, or do they distract from the purpose?
- Are the examples labeled, both to give proper attribution and to help readers understand their relationship to the words?

SHARED VALUES

Shared values underlie every argument you make, so we have not mentioned them on the right. Nonetheless, because they underlie all arguments, working to identify them is central to analysis.

CHOOSING KINDS OF EVIDENCE FOR YOUR COMPOSITIONS

On pages 34–37 in Part 2 we encouraged you to develop questions to guide research; on pages 42–43, we showed how those questions guide choosing research sources. Also use those questions to choose useful kinds of evidence. Decide which questions most guide your research; use the information below to help you develop evidence or find it in sources. Also use what we've written in Part 3 to evaluate your evidence.

QUESTIONS OF FACT: Facts!

QUESTIONS OF DEFINITION: Expert testimony (from a person or authoritative text) can help.

QUESTIONS OF INTERPRETATION: Expert testimony, analogies, personal experience, and field research can help persuade audiences to consider the interpretation you offer.

QUESTIONS OF CONSEQUENCE: Expert testimony, analogies, facts about what has already happened, and field research can be persuasive about what might result from a proposed action.

QUESTIONS OF VALUE: Expert testimony, personal experience joined with field research, and facts about people's behaviors help identify values.

QUESTIONS OF POLICY: Use expert testimony and facts.

ANALYZING ARGUMENTS

FURTHER QUESTIONS TO GUIDE CRITICAL READING

In the previous pages, we have been focusing on paying critical attention to logical elements of texts. Here, we offer you questions to help you consider an even broader range of choices composers make in their texts.

Once you have done preliminary analysis to be sure you understand a text, ask these questions to help you decide if you want to be persuaded by a text:

QUESTIONS ABOUT AUDIENCE

- Whom is the composer including in the audience? Who is excluded from the audience—and why?
- To what is the composer drawing the audience's attention? What might the audience be able to overlook by focusing the audience's attention in this way?
- What does the composer assume the audience knows or believes?

QUESTIONS ABOUT PURPOSE

- Why does this purpose matter at this time and in this place?
- Are there secondary purposes as well as a main purpose?
- Is the purpose clearly stated or easy to determine? If not, why might the composer have decided not to make the purpose obvious?

QUESTIONS ABOUT CONTEXT

- Where does the audience encounter the text? How might this shape their responses?
- When is an audience likely to encounter the text? How might this shape their responses?
- What events at the time of the text's production are likely to shape an audience's expectations about the topic?

USING STYLE TO SUPPORT ANALYSIS

When you are analyzing writing, use Part 7 of this book, on style, to help you identify a writer's choices. Part 7 will help you name the strategies a writer uses for emphasizing parts of an essay and thus will help you figure out what is emphasized (logos) as well as how to describe the writer's ethos and pathos strategies. Such identifications help you see a writer's purposes more easily.

QUESTIONS ABOUT ETHOS

- Does the composer have the appopriate background or experience for pursuing this purpose?
- Does the composer seem open to multiple perspectives on the task at hand? Is the composer treating those perspectives fairly?
- What cultural backgrounds and expectations shape the composer's positions?
- Is the composer using a tone of voice appropriate to the purpose?
- What role does the composer take toward the audience? Is the composer acting as a teacher, a lecturer, a parent, a peer, a friend? Is this role appropriate for the purpose?
- Is the composer respectful of the audience, treating them as intelligent, thoughtful people?

QUESTIONS ABOUT PATHOS

- What emotion is the intended audience likely to have about the issue before they encounter the text? How does the text acknowledge that emotion, and try to shift it?
- Do the emotional appeals seem reasonable to you—or overblown?
- Are the emotional appeals appropriate to the issue?

QUESTIONS ABOUT LOGOS

- What claims, reasons, and warrants are explicit or implied in the text? (→ See pages 102–103.)
- What kinds of evidence does the composer use? (→ See pages 104–113.) Is that evidence relevant, credible, and sufficient? (→ See pages 104–113.) Do you know of or can you find evidence that points to different conclusions?
- Are the sources cited so that the audience can check them? If so, are the sources relevant and credible? (→ See pages 130–143.)
- Why might a composer start with particular examples or evidence? To what will these draw the audience's attention? (And from what will these examples distract attention?)
- How does the composition end? How will the end affect how the audience looks back on the rest of the composition?

GIVING EVIDENCE

If you are using these questions to do the preliminary analysis for writing a paper, include with your responses any evidence in the text that supports your responses. For example, when taking notes about ethos, you might write: *It feels as though the author is yelling at readers: All the sentences are short, emphatic, addressed to '**you!**' written as though readers know nothing about the topic.*