



Nurul Izzah Anwar, an engineering major at a college in Malaysia, became a world-famous public speaker after her father, Malaysian pro-democracy leader Anwar Ibrahim, was jailed and tortured. She gives speeches throughout Asia and Europe, urging other nations to pressure the Malaysian government to make democratic reforms and release her father, and she has won the support of many world leaders. Her technique of persuasion is simple but effective: every time she makes a point, she immediately illustrates it with a true story. Using stories is a powerful tool that will be discussed in this chapter in the section on narratives. (AP/Wide World Photos)

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Supporting Your Ideas

Objectives

After studying this chapter, you should be able to:

1. Explain why support materials are needed in a speech.
2. Describe nine types of support materials: definitions, vivid images, examples, narratives, comparison, contrast, analogies, testimony, and statistics.
3. Discuss the use and abuse of statistics in speeches.

Outline

Reasons for Using Support Materials

Types of Support Materials

Definition / Vivid Image / Example / Narrative / Comparison and Contrast / Analogy / Testimony / Statistics

Sample Speech

Clearcutting a forest means cutting down all trees and hauling away the saleable ones. Few people object to the practice on private land, such as the large forests owned by paper companies. But environmentalists are upset when clearcutting is permitted in the U.S. national forests, where vast woodlands have been wiped out. (The term “national forests” refers to land owned by the U.S. government and administered by the U.S. Forest Service.)

The U.S. Congress permits clearcutting in national forests on grounds that it is economically necessary—to provide wood products such as paper and furniture. This viewpoint is reinforced by the timber industry, which pours millions of dollars into election campaigns to encourage lawmakers to vote for pro-timber legislation.

Going against the majority of lawmakers, Cynthia McKinney, a member of Congress from Georgia, is proposing a law that would ban clearcutting in national forests. When she introduced her bill in 2000, only 87 of the 435 members of the House of Representatives supported her, but she has vowed to fight for years, if necessary, until her argument prevails. (She needs 218 votes, a majority in the House.)

McKinney realizes that clearcutting in national forests will continue as long as lawmakers (and many citizens) believe that it is beneficial to society. So she makes a counterargument: Clearcutting in national forests is harmful to the economy and to the environment.

Is this counterargument sufficient to win her case? No. Skeptics would say, “That’s just your opinion. Can you prove it?” To persuade the skeptics, she needs to back up her argument with convincing evidence and clear illustration. Let’s look at some samples from her speeches to see how she supports her argument.¹

- To show that clearcutting in national forests is unnecessary, McKinney, a Democrat, cites *testimony* from Jim Leach of Iowa, a conservative Republican member of Congress who is chair of the House Committee on Banking and Financial Services and a respected expert on economic issues. Leach says that the United States doesn’t need the national forests for its timber supply because all demands for wood could be met by privately owned forests.



Cynthia McKinney, a member of Congress from Georgia, gives the “thumbs up” gesture at a political rally. Fighting to ban clearcutting in national forests, McKinney uses support materials such as statistics to bolster her case. She claims that clearcutting a forest causes soil erosion, mud slides, intensification of flooding, and loss of animal habitat.

- To show that clearcutting causes economic harm, McKinney uses *statistics* from a U.S. Forest Service study: Each year, the timber companies’ destruction of natural resources causes the U.S. economy to lose \$791 million in recreation money that would have been spent by hunters, hikers, campers, fishers, and tourists.
- McKinney gives a *vivid image* (or description) of environmental damage: “Without trees to soak up moisture and roots to hold the soil, water gushes down the slopes, washing silt into streams, polluting our drinking water, intensifying floods, and causing lethal mud slides.”
- Giving an *example* of the destruction of an animal habitat, she says that clearcutting kills hundreds of thousands of young songbirds annually during nesting season.

McKinney has built a strong case. (This doesn’t mean she’s right. The other side might have an even stronger case—you should investigate both sides before agreeing or disagreeing.) What’s important here is to recognize that her argument is strong because it is more than just opinion—it is backed up by credible **support materials**. When you are a speaker, you must do more than make assertions and trust the audience to believe you. You must back up your statements with solid, credible support.

support material
elements that illustrate
or substantiate a point

■ Reasons for Using Support Materials

Support materials enable you to move from general and abstract concepts, which are often hard for audiences to understand and remember, to specific and concrete details, which are easily grasped. Support materials add spice and flavor to a speech, but they are more than just seasonings; they are basic nourishment that is essential to the success of a speech. Let's look at five reasons why support materials are so important.

To Develop and Illustrate Ideas

In a speech on sharks, student speaker Austin Fitzgerald pointed out that, unlike most creatures of the sea, sharks behave unpredictably. To develop and illustrate his point, he said:

In his book on sharks, Jacques-Yves Cousteau, the famous oceanographer, says that he has seen sharks flee from an almost naked, completely unarmed diver, but soon afterward hurl themselves against a steel diving cage and bite furiously at the bars. Sometimes a diver can scare off a shark by waving his or her flippers at it, while at other times sharks are so determined to attack that they are not deterred by the sight of five divers with spears. The terrifying thing, Cousteau says, is that sharks never give clues as to what kind of behavior they will exhibit.

Without these examples, Fitzgerald's contention that sharks behave unpredictably would have been weak. With the examples, the listeners got a clear picture of sharks' volatile nature. Notice, too, that Fitzgerald enhanced the credibility of his remarks by attributing his information to a well-known authority.

To Clarify Ideas

Helping the listener make sense out of your ideas is one of the main reasons for using support material. Student speaker Maria Burton gave a speech on pit-and-fissure sealants, which are used to cover the rough surfaces of teeth and prevent cavities.

"Sealants," Burton explained, "are thin, clear plastic coatings that are painted on the teeth, much like nail polish on fingernails."

With this analogy, the audience had a clear picture of what sealants are.

To Make a Speech More Interesting

In a speech on how explorers from earth would experience life on Mars, student speaker Diane Weber said,

Most of the time Mars is much colder than the coldest regions of earth, with summer temperatures dipping down as low as 126 degrees below zero and winter temperatures twice that cold. Sometimes, however, at the equator of Mars, the temperature does warm up to an earthly level of comfort. For a few minutes, the temperature can climb to a high of 68 degrees—sort of like a pleasant October afternoon in New England.

Instead of merely reciting statistics, which would have been boring, Weber made her subject interesting by comparing and contrasting the climate of the two planets, using images (such as the October afternoon in New England) that her listeners could appreciate.

To Help Listeners Remember Key Ideas

Jeffrey Scott, a high school English teacher, says that his students are more likely to remember the meaning of a word in a vocabulary lesson if they are told the story of the word's origin. For example, he tells his students that we get the word *tantalize* from a king called Tantalus in Greek mythology: "As punishment for betraying Zeus, Tantalus was sentenced to hang from the branch of a fruit tree that spread out over a pool of water. Whenever he got hungry and reached for fruit, the wind would blow it out of his reach. Whenever he got thirsty and leaned over to drink from the pool, the water would recede." This story, Scott says, helps his students to remember that when we tantalize people, we torment them by showing them something that is desirable but unattainable.

To Help Prove an Assertion

When you want to prove a point, you must have evidence. If, for example, you wanted to prove that more counterfeiters are being caught today than ever before, you could quote a Secret Service official who states that the number of counterfeiting convictions this year is 10 times that of any previous year. Such a statistic from a reliable source is solid proof of your statement.

Note of caution: Support materials do not necessarily constitute proof. Suppose a speaker argues that drinking a glass of carrot juice daily can protect a person from heart disease. To prove his claim, he tells of a 93-year-old man who has consumed carrot juice every day for the past 60 years and has a healthy heart. This is an interesting example, but it proves nothing. There are probably many 93-year-old men who have healthy hearts but have never tasted carrot juice. To prove his point, the speaker would need indisputable findings by reputable medical authorities, based upon long-term studies of thousands of people.

■ Types of Support Materials

In this chapter we will look at *verbal* support materials, reserving *visual* supports for the next chapter. The cardinal rule in using verbal supports is that they must be relevant; they must develop, explain, illustrate, or reinforce your message. They should not be thrown in simply to enliven a speech.

Let's examine eight categories of verbal supports.

Definition

One of the biggest obstacles to successful communication is the assumption that your listeners define words and phrases the same way you do. If you are speaking on gun control, it is not enough to say, "I'm in favor of gun control." Exactly what does "gun control" mean? To some members of your audience, it may mean that citizens must surrender all of their firearms. To some, it may mean that citizens must give up only their handguns. To others, it may mean that citizens can keep their guns if they register them with the authorities. If you say that you are in favor of gun



A Native American leader who spoke to the United Nations at age 18, Winona LaDuke of the Ojibwe tribe of Northern Minnesota goes beyond a formal dictionary definition to define a term: “Quality of life does not have to do with income. Quality of life has to do with having clean air, feeling safe in your house, feeling that your children are safe on the streets, feeling that you are valued as a human being, that you have good relationships with other people, and that what you do feeds your soul and your day.”

definition

a statement of the meaning of a word or phrase

control without giving your **definition** of the term, some listeners may misunderstand your position and angrily reject everything that you say on the subject. So define your terms at the outset; for example: “When I talk about gun control, I’m not talking about confiscation of all guns; I’m talking about citizens registering the serial numbers of their guns with the authorities.” Now you and your audience have a common basis for an evaluation of your views.

Do you know what a “boss button” is? It’s an icon supplied with many computer games that can be clicked if you are playing an unauthorized game on your computer at work and the boss walks into your office. Instantly, the game disappears and is replaced by a spreadsheet so that your boss thinks that you are doing your work. One speaker mentioned “boss button” in a speech, but many in the audience didn’t know the meaning of the term. You can avoid this speaker’s mistake if you always define terms that are not universally known. If you are experienced with digital imagery, for example, you must be careful to define terms like JPEG and TIFF (abbreviations for two types of digital files) that are well-known to you but not to the general public.

Avoid using formal dictionary definitions, if possible. They tend to be tedious and hard to grasp. Instead, use informal definitions that can be easily understood by the audience. Here is an instructive case: *chutzpah*, a slang word that the English language has borrowed from Yiddish, is defined by the *Random House College Dictionary* as “unmitigated effrontery or impudence.” I once heard a speaker give a humorous, informal definition of the word: “Chutzpah is the kind of audacity and gall that a youngster would show if he killed both of his parents and then demanded that the court be lenient to him because he was an orphan.” This informal definition drives home the point that chutzpah is more than ordinary gall; it is the *ultimate* form of gall. Such a definition does more than help the listeners understand the term—it also helps them remember it.

Vivid Image

Student speaker Nancy Li described a fascinating form of slavery in the animal world:

Polyergus ants in Arizona have completely lost the ability to care for themselves, according to Dr. Howard Topoff of the American Museum of Natural History. They can’t hunt for food for themselves, they can’t feed the young, they can’t feed and guard the queen, and they can’t clean their own nest. The only thing they can do is fight. In order to survive, they capture slaves to do their work for them. Periodically about 1,500 Polyergus

warriors will travel up to 500 feet and invade the nest of a different type of ant, the Formica. They expel the Formica queen and workers, and capture the pupae—the developing young—which they take back to their own nest. When the Formica ants are hatched, they assume the role of slaves. They forage for food to sustain their Polyergus masters, they remove wastes, and they excavate new chambers. A typical colony has 2,000 Polyergus masters and 3,000 Formica slaves. Without their slaves, the Polyergus would perish.²

This passage is an example of **vivid images**—word pictures that are created by describing objects, animals, people, places, or situations. To make your description come alive in the minds of your listeners, you must use *specific details*, for they are the brush strokes that provide richness, color, and vividness. Instead of merely saying, “The dessert tasted good,” say “The crunchy pretzels were coated with a soft, white yogurt icing, giving a delicious blend of sweetness and salt in each bite.”

Example

An **example** is an instance or fact that illustrates a statement or backs up a generalization. In a speech on illiteracy, student speaker Pat Ferguson made the following point:

Illiterate adults cannot read the important things that the rest of us take for granted in our everyday lives.

If Ferguson had said no more on the subject, she would have forced her listeners to guess for themselves just what kind of reading material she was referring to. Fortunately for the audience, she gave examples:

These adults cannot read the poison warnings on a can of pesticide, a highway directional sign, the front page of a newspaper, or a letter from their child’s teacher.

While these examples are short, you may want to give longer examples in some cases. In a speech on drug smuggling, student speaker William Murphy gave examples of the clever ways that smugglers use to move cocaine into the United States:³

- Agents along the Mexican border discovered the “cone scam,” in which an ice cream cone contained cocaine covered by a layer of ice cream. The cone was licked very slowly as the smuggler strolled across the border.
- A shipment of sneakers from Colombia to New York had false compartments in the soles stuffed with 12,000 pounds of cocaine worth \$30 billion.
- In Miami, customs officials found 1,000 pounds of cocaine worth \$3.4 million packed into hollow plaster shells that were shaped and painted to look like yams.
- A few years ago it became popular to conceal kilo bricks of cocaine beneath false bottoms of containers that hold poisonous snakes. When drug agents discovered this ruse, smugglers began placing the

vivid image

a description that evokes a lifelike picture within the mind of the listener

example

an instance that serves to illustrate a point

drugs *inside* the snakes. “You’ve got cobras that are 12 feet long,” says one customs official. “Who’s going to pull it out and feel it?”

How many examples do you need to develop a point? In some cases, one example is sufficient, while other situations might require a series of short examples. Ask yourself, “If I were those people sitting out there, how many examples would I need in order to understand, remember, or be convinced?”

Narrative

narrative
a story that illustrates a point



SpeechMate

To see a speaker who relates a narrative about the man who stalked her, view Video Clip 8.1 on the CD.

A **narrative** is a story that explains or illustrates your message. Narratives are audience favorites, lingering in the mind long after a speech has ended. People *love* stories, and even a sleepy or distracted member of the audience finds it hard to resist listening. As with all support materials, narratives must be relevant to your message. Never tell a story, no matter how spellbinding, if it fails to develop, explain, illustrate, or reinforce your key ideas.

Dr. Mark Johnson of the University of North Carolina Hospital in Chapel Hill performs kidney transplants. In a speech aimed at showing how easy it is to be a donor, Johnson told the heartwarming story of events leading to one of his operations. Here is a summary of the story:

When Michael Carter was in the 8th grade in Fayetteville, North Carolina, he needed a kidney transplant. He had lost one kidney to disease, and the other was weakening. Despite 22 operations and thrice-weekly dialysis treatments, his condition was desperate, but no matching donor could be found, even though a dozen relatives had been tested.

One day his science teacher, Jane Smith, noticed that he had trouble running on the playground. “I assumed he couldn’t run because his pants were baggy.” When she asked why he wore them, he said, “They’re more comfortable. I’m on dialysis, Ms. Smith. I need a kidney.”

Her reply was instantaneous. “Well, I’ve got two. Want one?”

Smith was soon tested, and it was discovered that she and Carter had compatible blood group and tissue type. A few months later, she checked into Dr. Johnson’s hospital and donated a kidney, which was transplanted into Carter’s body 35 minutes later.

In the months that followed, neither the donor nor the recipient showed any ill

Looking on as Dr. Mark Johnson of Chapel Hill, North Carolina, discusses kidney transplants is science teacher Jane Smith, who donated one of her kidneys to her student Michael Carter (shown in photo below).



effects, and today Michael Carter lives a normal life as a high-spirited, basketball-playing teenager.⁴

While the above story is factual, there are occasions when you may want to use a narrative that is **hypothetical**, that is, about an imaginary situation. Katrina Benjamin, a private investigator, wanted to explain how computers have invaded the average person's privacy:

A company is trying to decide whether to hire you, and they ask me to investigate you. All I have is your name and address. I sit down in front of my computer and within five hours, I know a great deal about you: I know what jobs you have held and how much you got paid. I know the names of your parents, siblings, spouse, and children. I know what kind of car you drive and how much you paid for it. I know if you have ever been arrested or charged with a crime—even if it's just a ticket for speeding. I know the amount of the monthly payment on your home mortgage. I know what kinds of medical problems you have, and I know the names of all the prescribed medications you have taken in the past and are taking right now.⁵

This hypothetical scenario dramatically demonstrates the intrusiveness of computers.

Comparison and Contrast

Sometimes the best way to explain a thing or a concept is to make a **comparison**—that is, show how it resembles something else. In a lecture on the development of the English language, a speaker noted the following similarities:

The Frisian language, spoken by 300,000 Frisians in the marshy headlands of northern Holland, is more closely related to English than any other language. Our *glass of milk* is their *glass milk*, our *butter* is their *butter*, our *dream* is their *dream*, our *boat* is their *boat*, our *green* is their *grien*, our *house* is their *hus*, our *cow* is their *ko*, our *goose* is their *goes*, our *sunshine* is their *sinneskine* . . .

By giving many points of comparison, the speaker strongly illustrated how similar the two languages are.

While a comparison shows how things are similar, a **contrast** shows how they are different. In describing the vast chasm between rich and poor in India, writer Celia W. Dugger contrasted the new India and the old India:

In Hyderabad, Cyber Towers rises from the campus of a software technology park, a sleek Internet-connected symbol of the new India that is feverishly courting foreign investment, selling its wares in the global marketplace, and creating wealth at an astonishing rate.

But less than 50 miles away, in the poverty-stricken village of Sheri Ram Reddy Guda, the old India is alive and unwell. Illiteracy, sickness, and hunger are the villagers' constant companions. Women and children work in the fields for less than 50 cents a day. The sole telephone—an antique contraption of batteries and antennae—almost never works.⁶

Sometimes it is helpful to use both comparison and contrast. For example, comparing and contrasting Japanese and American cars could help the listener understand more fully the features of each.

hypothetical narrative

imaginary story related to help listeners visualize a potential situation



SpeechMate

To see a speaker who uses a hypothetical narrative, view Video Clip 8.2 on the CD.

comparison

showing how two or more items are alike

contrast

showing how two or more items are different



SpeechMate

To see a speaker who makes a contrast to explain sickle cell anemia, view Video Clip 8.3 on the CD.

Analogy

analogy
resemblance in some respects between things that are otherwise dissimilar



SpeechMate

To see a speaker who draws an analogy, view Video Clip 8.4 on the CD.

A special type of comparison is the **analogy**, which explains a concept or object by likening it to something that is—at first glance—quite different. For example, computer-security expert William Cheswick explained how easily criminals can breach security walls at Internet sites. “The Internet is like a vault with a screen door on the back. I don’t need jackhammers and atom bombs to get in when I can walk in through the door.”⁷

How do analogies differ from ordinary comparisons? While ordinary comparisons show similarities between two things of the same category (two cars), analogies show similarities between two things of different categories (punctuation marks work like road signs and traffic signals). Student speaker Cheryl Williams used an analogy to show the futility of worry:

Worrying is like sitting in a rocking chair and rocking furiously. There is a great deal of movement and agitation, but you don’t go anywhere.

An analogy tries to show that what is true in one case is true in another. Student speaker Lisa Rathbone used this analogy:

Cramming for a test the night before is like baking a cake faster by raising the oven temperature from 350 to 550 degrees. It just won’t work.

Testimony

Suppose that one of your classmates gives a speech on the jury system in the United States, and she tells you that the method of selecting and using jurors in most communities is inefficient, overly expensive, and demoralizing to the jurors. Would you believe her? Probably not, if all she gave was her personal opinion—after all, she is not a lawyer or a judge. But what if she quoted the Chief Justice of the U.S. Supreme Court saying the exact same thing? Now would you believe her? You probably would, because the Chief Justice is one of the nation’s experts on what happens in our courts.

When you use what knowledgeable people have to say on your subject, you are using **testimony** to back up your assertions. The main advantage of using testimony is that it gives you instant credibility; quoting an expert is a way of saying, “I’m not the only one who has this idea; it has the backing of a leading authority on the subject.”

How to Use Testimony

There are three ways of using testimony:

1. Quote verbatim. Sometimes it is effective to quote a source word for word. For example, Lorraine Vallejo made the following point in a speech on dreams:

For all of us, dreams are weird, chaotic, and crazy. An expert on dreams, Dr. William Dement, says: “Dreaming permits each and every one of us to be quietly and safely insane every night of our lives.”

testimony
statement by a knowledgeable person, used by a speaker to explain or bolster a point

quote verbatim
to cite the exact words used by a source

Tip 8.1 Cite Experts Whom Your Audience Will Trust

If you were trying to sell computer products to an audience of executives, would you strengthen your appeal by including a quotation from Bill Gates, founder of Microsoft and the world's richest individual?

Not necessarily. Some executives admire Gates and respect his computer savvy, but others consider him an unethical manipulator whose company has impeded progress and unfairly destroyed superior competing products. While a quotation by Gates might be received favorably by some listeners, it could cause other listeners to react with anger—an emotional response that could weaken their trust in you.

Even if an expert is admired, he or she might have low credibility on the topic under discussion. If, for example, you are speaking on foreign policy and you have a colorful quotation from a football star, would your audience consider the player's views on foreign policy as relevant and trustworthy? If not, quoting the player could

weaken, rather than strengthen, your case.

People with advanced training and technical experience—such as scientists, medical researchers, and engineers—are good possibilities for testimony because they are usually rated high in credibility. This doesn't mean, however, that you can't use nontechnical people. A classmate who has sampled and rated low-fat entrees at many different restaurants in your area is an expert on the best places for low-fat dining. A celebrity who leads a national campaign to combat diabetes because she herself has diabetes is not a medical authority, but she has first-hand experience that an audience would value.

As much as possible, find out in advance whether your audience is likely to respect and believe the experts whom you are planning to cite. You can gain this knowledge by interviewing several of your future listeners or distributing a questionnaire to all members of the audience (see Chapter 4 for details).

Quoting the expert verbatim was very effective because the statement was phrased in a colorful way that would have been weakened if it had been paraphrased.

2. Summarize. When a statement is lengthy, quoting it verbatim can bore the audience, so it is best to summarize any quotation that is more than one or two sentences. In another part of Vallejo's speech, she took a long quotation and boiled it down into one brief sentence:

Sigmund Freud believed that dreams reflect unconscious wishes and urges that we are afraid to think about during our daytime waking hours.

3. Paraphrase. If a quotation has archaic or technical language or is laced with jargon, you should paraphrase it. If, for example, you want to quote a skin-care expert who says, "Don't use photoallergenic cosmetics if you will be outdoors," you can paraphrase this jargon into plain English by saying, "Don't go outdoors wearing any moisturizer, perfume, or cologne that is photoallergenic because sunlight will activate certain chemicals that irritate the skin."

Ethical Considerations

Here are some guidelines for using testimony in an ethical and responsible manner:

Make sure quotations are accurate. If you are not careful with a quotation, you can unwittingly change its meaning. For example, Ralph Waldo Emerson is often quoted as saying, "Consistency is the hobgoblin of little minds." That is an unfortunate misquotation. What he really said is quite different in meaning: "A foolish consistency is the

summarize

to give the substance of a statement in condensed form

paraphrase

to restate material, using different words

Ethical Issue

hobgoblin of little minds.” With the misquotation, consistency itself is condemned, but with the correct quotation, only a foolish consistency is deemed stupid.

Use testimony from unbiased sources. Ethical speakers avoid using sources that are biased. Suppose you are researching the question of whether polygraphs (lie detectors) are accurate, and you come across glowing pro-polygraph statements by two “experts” who are on the payroll of a firm that manufactures polygraph machines. Could you expect such sources to be unbiased? Of course not. They would probably lose their jobs if they said anything negative about the machines. Reject such “evidence” and look instead for statements by people who have no vested interest in the issue.

Use testimony from relevant authorities. As part of your pre-speech audience analysis, ask yourself, “What kind of experts would this particular audience believe?” If you are speaking on foreign policy, for example, and you have a good quotation from a movie star, would your audience consider the star’s views irrelevant? If so, quoting the star might weaken, rather than strengthen, your case.

State the credentials of your source. If you quote a famous person like Abraham Lincoln, you don’t need to give any background information about the person. But for authorities who are not well known, be sure to give some biographical data to establish their credibility. For example, “Jack Smithson, who spent 25 years as a research scientist for NASA, says that . . .”

Statistics

For a speech explaining the immense distances of space, Paula Schiller began with some mind-boggling facts:

Proxima Centauri, the star that is closest to our solar system, is only 4.28 light years away. That doesn’t sound like a very great distance, does it? Is there any chance that we can reach that star—or one of its planets—in our lifetime? Before you start fantasizing about being the first human to travel to our nearest star, consider this fact: if you traveled to Proxima Centauri in the fastest spacecraft now in existence, it would take you *40,000 years* to make the trip.

Schiller was using **statistics**, which are numerical ways of expressing information. As this example illustrates, statistics don’t have to be dry and boring. They can be made interesting and even exciting.

Statistics can be especially effective in persuading an audience to accept a particular point. In our society, people put a lot of trust in statistics. If a television commercial says that 78 percent of physicians prefer Cure-All pain reliever over all competing brands, many consumers will rush out to buy Cure-All.

In a speech in which she tried to persuade her audience to drive their cars less and walk more, Carol Morris wanted to prove that the fitness of Americans has been lessened by the automobile. She could

statistics
numerical facts
assembled to present
significant information
about a subject

have made a vague statement such as, “Because of the automobile, we Americans are getting soft and flabby.” Instead, she gave a fascinating statistic to prove her point: “Since the advent of the auto, the average waistline of American adults has increased one inch every generation.” That single statistic, short and surprising, was one of the most persuasive parts of her speech.

Understanding Statistics

While statistics can provide powerful support for ideas, they also can be easily misused, either willfully or through carelessness or ignorance. Unfortunately, there is much truth in the old statement, “You can prove anything with statistics.” To understand how statistics are used (and abused), let’s look at several of the more popular varieties.

Averages. The most popular kind of statistic is the **average**. It can provide interesting views of a subject, as when one speaker pointed out, “On an average day, 24 mail carriers in the United States receive animal bites.” Giving the average in a case like this is much more interesting than simply stating the annual total.

Though averages seem like straightforward pieces of statistical data, there are pitfalls: most people are unaware that there are actually three different kinds of averages—the mean, the median, and the mode. To understand these terms, consider Figure 8.1, which shows three ways for figuring the average of normal high temperatures in July in selected American cities.

The **mean**, which is what most people use when they are asked to compute an average, is derived by adding all the temperatures (for a total of 954) and dividing by the number of cities (11). This gives us 86.7 as the mean.

The **median** is derived by listing the numerals, ranging from highest to lowest (or lowest to highest), and then locating the numeral that falls in the middle. (*Memory aid:* Just as the median is the strip in the *middle* of a highway, the median is the *middle* number.) In this case 88 is precisely in the middle, so it is our median. Our example has an *odd* number of figures—this makes it easy to find the median; when you have an *even* number of figures, the median is defined as the number halfway between the median pair.

The **mode** is simply the number that occurs most frequently: in this case, 83.

Since all three of these terms can be called the average, problems arise in communicating information. Suppose a company is made up of a



Puerto Rican singer Ricky Martin is an outspoken foe of the U.S. Navy's policy of using the Puerto Rican island of Vieques for bombing practice. He uses statistics in his campaign to halt the bombings: "More than 9,300 people live in Vieques. Because of 60 years of bombing, the island has been contaminated by toxic smoke, napalm, and uranium residue. According to a study by the Puerto Rico Department of Health, the cancer rate in Vieques is 27 percent higher than in the rest of Puerto Rico."

average

a single value that represents the general significance of a set of unequal values

mean

in a set of numbers, the sum of all figures divided by the number of figures

median

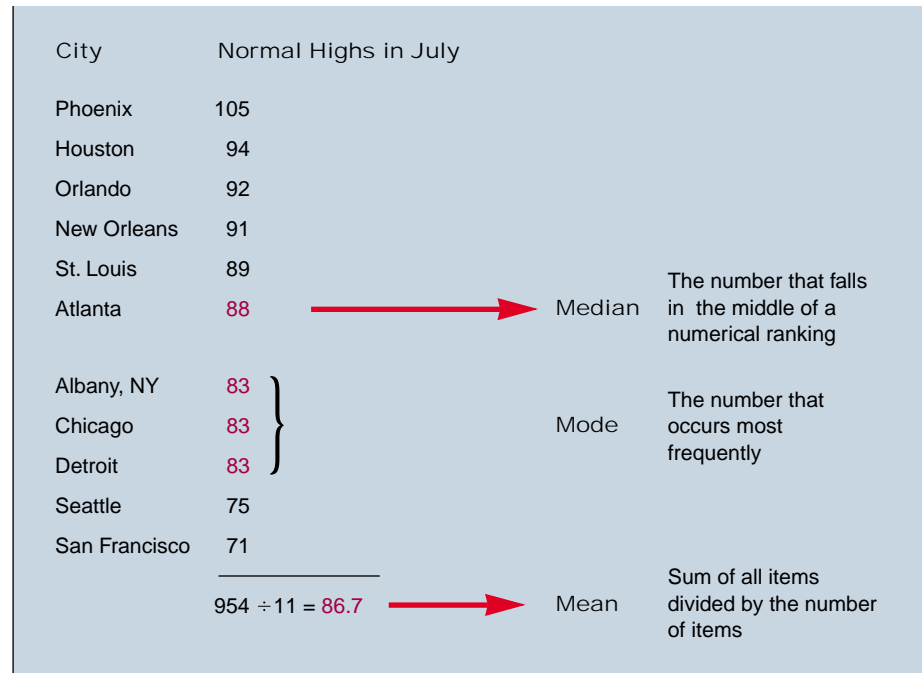
the number that falls in the middle of a numerical ranking

mode

the figure that appears most frequently in a set of figures

Figure | 8.1

For these normal high temperatures for July in selected American cities, the average high for all the cities can be computed in three ways, because there are three different types of averages: mean, median, and mode.



president with an annual salary of \$290,000; a vice president with a salary of \$170,000; three managers with salaries of \$50,000 each, and 20 workers with wages of \$20,000 each. What is the average income of the people who work at this company? If one uses the *mean* as the average, the answer is derived by totaling the salaries and dividing by 25 (the total number of employees): \$40,400. The *median* is derived by listing the salaries in a column, ranging from highest to lowest, and then locating the salary that falls in the middle: \$20,000. The *mode* is the salary that occurs most frequently: \$20,000.

Now suppose that the company had a labor–management dispute. In an interview with the press, the president could say, “I don’t see what the workers are complaining about. The average income in this company is \$40,400.” And she would be correct, since she chose to use the *mean* as her version of average. A representative of the workers, on the other hand, could say “We are paid an average of only \$20,000,” and this would be correct, since the *median* is also a kind of average.

As a researcher, you need to know the meanings of these three terms, but as an ethical speaker, you should restrict your use of the word *average* to the mean because that is what most people think of as the average. For the other two types of averages, simply explain them in context without using the word “average.” Regarding Figure 8.1, for example, you could say, “The high that appears most often on this list is 83.” For the median, it would help your audience if you said, “Highs range from 105 to 71, with 88 falling in the middle.”

Percentages. Giving a **percentage** (a portion of 100) can be a useful way to make a point. For example, suppose that you find that 2 percent of the employees in a company have physical disabilities, and yet only 1 percent of the parking spaces have been designated for employees with disabilities. With these figures, you can make a good argument for increasing the number of spaces for employees with disabilities.

Unfortunately, percentages can be misleading. A television commercial might say, “Eighty percent of the doctors interviewed said they recommend Feel Good medicated tablets for their patients.” How many doctors were involved? If only ten doctors were interviewed, and eight of them gave the endorsement, the commercial is accurate (8 out of 10 amounts to 80 percent) but misleading.

The following statement is true: In one recent year Switzerland experienced a 50 percent jump in unemployment, causing that nation to rank number one in the world in the percentage increase of unemployed over the previous year. Sounds terrible, doesn't it? Is the prosperous little country sliding toward economic catastrophe? But here is another way of reporting the facts: In the year cited, there were 51 jobless persons in Switzerland as compared to 34 in the previous year. This represents a 50 percent increase, but when you look at the actual number of people involved, you find no reason for the Swiss to be alarmed.

Correlations. The term **correlation** refers to the degree of relationship between two sets of data. Let's say that I have two sets of data concerning you and 20 of your friends: I have the scores (or IQs) from an intelligence test that all of you took, and I also have your grade-point averages. When I compare the two sets of data, I find that for most of you, the higher the IQ, the higher the grade-point average. I can now state that there is a high correlation between the two sets of data. This should be no surprise: For most people in our society, the higher the IQ, the greater the level of academic achievement. Statisticians would say that IQ scores and grade-point averages are highly correlated.

Now let's suppose that I compare the IQ scores with the shoe sizes of you and your friends. Will I find that the larger the foot, the higher the IQ? No, of course not. Will I find that the smaller the foot, the higher the IQ? Again, no. There is absolutely no pattern to observe—no correspondence between foot size and intelligence. In the language of statisticians, there is no correlation at all.

Correlation is a handy statistical device because it can help us predict probable outcomes for individuals. For example, because a high correlation is known to exist between exercising regularly and living a long time, medical experts can predict that a person who jogs regularly is likely to live longer than someone who doesn't exercise.

Correlation, however, is often misunderstood and misused because some people think that it proves a cause-and-effect relationship. Just because two sets of data are correlated, we cannot conclude that one causes the other. For example, some medical researchers once thought that drinking milk might cause cancer because they found a high correlation between milk consumption and the incidence of cancer in some

percentage

a rate or proportion per hundred

correlation

the degree of relative correspondence between two sets of data

European countries, while finding a rarity of that disease in underdeveloped nations where milk consumption is low. When the researchers analyzed their data, however, they found that a third factor was involved: cancer most often strikes people who are over 40; most of the people studied in the underdeveloped nations did not live long enough to get the disease. So a correlation between milk consumption and cancer does exist (people who drink a lot of milk have high cancer rates), but there is no cause-and-effect relationship (the milk is not what causes cancer).

Guidelines for Using Statistics

Here are some guidelines to consider when you are evaluating statistics for possible use in a speech:

Use statistics fairly and honestly. In one recent year, newspapers and TV stations reported some alarming news: Four of America's largest cities—Los Angeles, San Diego, Dallas, and Phoenix—had experienced a record number of murders during the previous year. The story was true, but misleading. All four of those cities had also reached new highs in population, with the per-capita murder rates staying the same. In other words, there were more murders because there were more people.⁸

This case illustrates that even a true statistic can sometimes leave a false impression. An unethical speaker could cite the study and let the audience draw the wrong conclusion—that murder was becoming rampant in four big cities. An ethical speaker, in contrast, would analyze the statistics for their true significance and explain to the audience that the murder rate—the only fair yardstick—had not increased.

Make sure that your sources for statistics are unbiased. If a pharmaceutical company comes out with a new drug it claims is 100 percent effective in eliminating migraine headaches, you would be wise to treat the claim with skepticism. Look for an evaluation by a source that has no vested interest in the product—such as a university medical school.

Use statistics sparingly. A long recital of statistics is hard for the audience to absorb:

Poor: According to the U.S. Census Bureau, 222,600,798 Americans speak English at home; 38,844,979 speak a different language at home. Of the latter number, 19,339,172 speak Spanish; 2,189,253 speak Chinese; 2,102,176 speak French; 1,947,099 speak German; and 1,908,648 speak Italian. All other languages have under one million users.

Better: According to the U.S. Census Bureau, 85 percent of Americans speak English at home. Of the 15 percent speaking other languages, one-half speak Spanish. Four languages—Chinese, French, German, and Italian—are each spoken by roughly 5 percent of the non-English group.

The statistics in the first version would be fine in a written essay, but in a speech they would be hard for the audience to follow. The second version, streamlined and simple, would be easier for the audience to digest.

Round off long numbers. In print, a long number is no problem, but in a speech, it is hard for the listener to absorb the information. A rounded-off number is easy to say and easy for the audience to grasp.

Poor: In the last presidential election, 96,274,564 Americans voted.

Better: In the last presidential election, over 96 million Americans voted.

Translate your statistics into vivid, meaningful language. If you have a statistic that would be meaningless to most listeners or difficult for them to visualize, translate it into simple, down-to-earth language. Jim McMahon, a computer-security expert in San Diego, explains how the shrinking size of computer hard drives (fixed disks) has benefited criminals:

In the '60s, the hard drive of a computer, responsible for holding all your data, was the size of a Volkswagen. In the '70s, it was the size of a shoe box, but it still weighed a good ten pounds. Hard to put in your pocket and run with. Now, a hard drive is half the size of a pack of cigarettes.⁹

Instead of giving us dry statistics about weight and dimensions, McMahon gives us a clear picture that we can understand instantly.

Adapt statistics to your particular audience. Whenever possible, adapt your statistics to the needs and interests of your particular audience. Imagine that you are planning a speech on Alaska and you want to give your audience an idea of that state's immense size. All you need to do is take a pocket calculator with you to the library, look up the areas of states in a reference work like the *World Almanac*, and make a few simple calculations. If you live in California, for example, you could give your audience a sense of Alaska's size by saying, "You could put three Californias inside Alaska's borders and still have room left over for Oregon."

Relate statistics to familiar objects. One way to make statistics dramatic is to relate them to something familiar. In a speech on bats, student speaker Sally Ingle wanted to give the audience an idea of the incredible smallness of one variety of bat. Instead of giving its weight in grams, which would have meant little to most of the audience, she said, "One variety of bat is so tiny that when it is full-grown, it weighs less than a penny." Knowing the lightness of a penny, the audience could easily get a notion of the smallness of the bat.

Since every American has a clear visual image of the width and length of a football field, you can use the field as a point of reference for size and distance. To show that a baseball diamond uses more space than one would suspect from its appearance, you could say, "The distance that a home run hitter travels around the bases is 60 feet more than the length of a football field." To show how relatively small a basketball court is, you could say, "A regulation court, if placed on a football field, will extend from the goal line to the thirty-one yard line; its width will cover less than a third of the width of the field."



SpeechMate

To see a speaker who dramatizes statistics, view Video Clip 8.5 on the CD.

Sample Speech

To see how support materials can be used, let's look at a speech by student speaker Karen Miyamoto on bullies in the workplace.¹⁰ A commentary alongside the speech points out the types of support materials that are used.

Commentary

*Karen Miyamoto opens with a **narrative** that is designed to capture the attention and interest of the audience.*

*The speaker gives a **definition** to make sure that the audience understands precisely what behavior she is talking about.*

*This section of the speech gives a variety of **statistics** to add interest and give a clear picture of the extent of the problem.*

*Here and elsewhere in the speech, the speaker uses **testimony** from experts.*

*A **vivid image** provides a description of what a bully in action looks like.*

*Some specific **examples** of health problems demonstrate the damage caused by bullies.*

Workplace Bullies

Mark Montana, a 28-year-old chef at a catering service in Seattle, loved his job and made his supervisors happy—until a few years ago when a new boss made his life unbearable. The boss constantly belittled Montana in front of others, cursing him in a loud, angry voice; blaming him for any mistakes that he himself made; and threatening to ruin his reputation in the culinary field if he didn't "shape up." Montana says, "I began to feel bad about myself and I doubted my own competence. I developed severe headaches and had trouble sleeping." Finally, after a few months of this abuse, he quit.

Mark Montana was the victim of a workplace bully. I'd like to show you that bullying in the workplace is a serious problem, but we don't have to be passive victims. Let's begin by looking at the scope of the problem.

Bullies are found throughout the workforce. "Workplace bullying" is defined as "deliberate, repeated, hurtful mistreatment of one person by another. It can be emotional or physical, but it's usually emotional." This definition is from Dr. Gary Namie, a California psychologist who heads the Campaign Against Workplace Bullying.

In Dr. Namie's research, most bullies are bosses—no surprise there, but I was surprised by some of his other findings: In 30 percent of the cases, the bullies were women. When the bully was a male, the victims were males in 72 percent of the cases. When the bully was a female, the victims were females in 68 percent of the cases. Dr. Harvey Hornstein, a psychologist at Columbia University, has completed an eight-year study that estimates that one in five U.S. workers will be the victim of workplace bullies during their careers.

Dr. Harry Levinson, a psychologist in Waltham, Massachusetts, has studied workplace bullies for 40 years and gives this picture of what they do: They overcontrol, micro-manage, and display contempt for others, usually by repeated verbal abuse and sheer exploitation. They constantly put others down with snide remarks or harsh, repetitive, and unfair criticism. They don't just differ with you, they differ with you contemptuously; they question your adequacy and your commitment. They humiliate you in front of others.

Workplace bullies inflict harm on both employees and the company or agency. According to Dr. Hornstein, employees who are victimized by bullies suffer from anxiety,

depression, heart problems, gastrointestinal disorders, headaches, skin rashes, insomnia, and sexual dysfunction. As employees suffer, the company or agency suffers. Productivity declines, mistakes proliferate, and good employees quit to find employment elsewhere.

Now that we have seen the nature and extent of the problem, let's see what we can do about it. If you are ever the victim of bullying, you should definitely take action. The first step—recommended by all the experts I read about—is to talk to the bully privately and tell him or her that you will not tolerate being abused. If this is not effective, keep a daily log to document the pattern of behavior. After 20 incidents, take your log to a higher administrator and demand that the bullying be stopped.

At this point, the company should take action, as spelled out in the company's code of conduct. If the company has no such code, urge them to create one. Firms such as American Express, Burger King, and J.C. Penney have banned offensive behavior. Any employee who bullies another is dismissed.

Rather than firing the offender, some companies provide counseling with a mental health professional. Counseling can sometimes help bullies to get insights into what motivates their behavior. Dr. Hornstein says that bullies feel insecure and inadequate in their personal lives, and they compensate by becoming aggressive on the job. They feel small, so they belittle others in the futile hope that it will make them appear big. It's sad when the only way some people can build themselves up is by tearing others down.

When some abusive managers are asked to change, they think they are being advised to become weak. They need to be taught that a manager can avoid the two extremes—weakness at one end and aggression at the other—by being in the middle: firm and fair. Tommy Lasorda, the former manager of the Los Angeles Dodgers, once said, "Managing is like holding a dove. Squeeze too tight, and you'll kill it. Open your hand too much, and you'll let it fly away."

What should you do if your employer takes no action? You can consider filing a lawsuit; or you can quit and seek a job elsewhere. One thing is certain: You should never stay in an abusive situation. No person should tolerate being bullied.

To summarize, there are many bullies in the workplace, and if you are ever their victim, you should take action to stop them. Talk to them privately, and if that doesn't stop their behavior, document their actions and report them to top management. If necessary, seek another job.

We wouldn't tolerate a schoolyard bully who beats up little kids, and we must not tolerate workplace bullies who beat up people emotionally.

A **hypothetical narrative** imagines a situation in which the listener is bullied and then takes action. This technique helps listeners to see the relevance of the speaker's ideas.

Specific **examples** of companies illustrate that the problem is being taken seriously by some employers.

The speaker uses **contrast** to show the difference between the bullies' inner reality and their outer behavior.

An **analogy** that draws a parallel between holding a dove and managing people helps the audience to see the need for middle ground.

In her closing statement, Miyamoto gives a **comparison** between two varieties of bullies.



Summary

Verbal support materials are vital to the success of a speech. They develop, illustrate, and clarify ideas; they make a speech more interesting and meaningful; and they can help prove an assertion.

Some of the more popular types of verbal supports are (1) *definition*, which helps make sure that your listeners understand key terms as you intend them to be understood; (2) *vivid image*, which is a word picture that helps listeners visualize concepts; (3) *example*, which is an instance that illustrates a statement; (4) *narrative*, which is a story that amplifies your message; (5) *comparison*, which shows how two or more things are alike; (6) *contrast*, which shows how two or more things are different; (7) *analogy*, which explains a concept by likening it to something that seems different; (8) *testimony*, which

provides input from experts; and (9) *statistics*, which are numerical ways of conveying information.

Of all these types, the narrative (or story) is the favorite of most audiences. People love to hear stories and are more likely to remember them than most other parts of your speech. As with all support materials, you must make sure that a narrative explains, illustrates, or reinforces the message of your speech. Telling a story that is irrelevant to the subject is not appropriate in informative and persuasive speaking.

Statistics such as averages, percentages, and correlations can be useful in a speech, but you must be careful to use them accurately and fairly. Adapt statistics to your particular audience, making them as interesting and as meaningful as possible.

Key Terms

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Review Questions

- List five reasons why support materials are important in a speech.
- Why are informal definitions usually superior to dictionary definitions in a speech?
- What must speakers use in order to make vivid images successful?
- What is the main advantage of using testimony in a speech?
- The boss of a small firm has an annual salary of \$100,000. Each of his 13 employees makes \$12,000 a year. Give the average salary of the firm in terms of *mean*, *median*, and *mode*.
- How many examples are needed to develop a point?
- What term is used to refer to a story about an imaginary situation?
- What is the difference between a comparison and a contrast?
- A speaker who likens worrying to rocking in a rocking chair is using which kind of support material?
- If we say that there is a positive relationship between height and landing a spot on a basketball team, we are using which type of statistics?

■ Building Critical-Thinking Skills

1. Whenever tar on asphalt roads gets hot enough to bubble on a summer day, the incidence of heat exhaustion among citizens goes up. In other words, there is a strong correlation between bubbling tar and heat exhaustion. Does the correlation prove that tar fumes cause people to pass out? Explain your answer.
2. In three or four sentences, give an informal definition (not a dictionary definition) of one of these terms:
 - a. Friendship
 - b. Pizzazz
 - c. Ideal pet

■ Building Teamwork Skills

1. In a group, choose several focal points (such as music and food preferences) and analyze how group members compare and contrast with one another. In what way are group members most alike and most unlike?
2. Working in a group, analyze these statistics, all of which are true. Discuss why they can be misleading.
 - a. “Last year 37 people were killed by automobile airbags.”
 - b. “Three out of four doctors surveyed said that margarine is healthier for the heart than butter.”
 - c. “Studies show that children with longer arms are better at solving math problems than children with shorter arms.”
 - d. “College-educated people drink 90 percent of all bottled mineral water sold in the United States, so we can say that a high correlation exists between an advanced educational level and consumption of mineral water.”
 - e. “The average American parents have named their daughter Jennifer and their son Michael.”

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Building Internet Skills

1. Find three quotations about children at a Website devoted to collections of quotations.
2. On the Internet, find and print an article that uses lots of statistics, and identify the types used (percentages, correlations, averages, etc.).

Possible Strategy: Visit Yahoo! (www.yahoo.com), click on Reference, and then Quotations. Browse through several listed Websites until you find quotations about children. (Many sites have search features so that you can use the keyword “children.”)

Possible Strategy: Go to the back issues site of *American Demographics* magazine (www.demographics.com) and browse through recent issues.