



## GATHERING AND DEVELOPING SUPPORTING

### **IN THIS CHAPTER YOU WILL LEARN TO:**

- Use your knowledge and experience to gather effective materials for your speech.
- Search for materials on the Internet and in the library.
- Conduct research interviews.
- Develop examples, statistics, definitions, and other information for your speech.
- Organize your speech using a pattern of reasoning.
- Explain common types of fallacies in logical reasoning.

Use Your Personal Knowledge and Experience

Search for Materials

Conduct Research Interviews

Develop your Supporting Materials

Understand the Patterns of Reasoning

Be Aware of Fallacies in Reasoning

Speakers often use the words of credible people as testimony, giving strength and credibility to the idea being developed. If you could interview the President and use his testimony for your next speech, what questions might you ask him? What other supporting materials might you also include?

## MATERIALS

*I don't believe in setting boundaries or firm expectations—those are just limitations. That's why I find both underwater cave exploration and interdisciplinary research so engaging.*

—Kennerly Broad, ecological anthropologist and National Geographic Explorer



Bloomberg/Getty Images

One of our primary responsibilities as public speakers is to provide audiences with accurate information. In addition to expressing our opinions on the topics we speak about, we must also provide facts, examples, and evidence. We can find this type of information, called *supporting material*, by consulting our own experiences and knowledge, by doing research over the Internet and at the library, and by interviewing the right people. This chapter will help you collect the supporting materials you need and then develop them ethically and confidently in order to enter the public dialogue successfully.

### Use Your Personal Knowledge and Experience

One excellent way to gather materials for your speech is from your personal, firsthand knowledge about a subject. After you have selected a topic, use your personal experience as a starting point for your research. Take a moment to consider what knowledge you already have about your topic. This knowledge can come from your own experiences and training, your family background, hobbies, job or profession, and even things you have read or observed.

Before you decide to use your own experiences as material for your speech, you will want to be sure it is appropriate and ethical to use that information. Ask yourself several questions:

- How much do I actually know about this topic?
- Does my knowledge fit with the purpose of the speech and the assignment?
- Would sharing my experiences harm others or violate their privacy?
- Will sharing my experiences help me build my arguments or develop a point?

If you have a solid background (you have ridden horses since you were four years old, for example) and sharing that background is both ethical and appropriate, then you might consider ways that knowledge and those experiences can help you develop your ideas.



**Search**  
For public information on issues and selecting your sources.

### **Find Materials**

Certain search techniques, such as research, the Internet, and historical documents, and history, and other kinds of speech. Make sure you understand what you are doing and you can use it effectively.

### **The Ethical**

open to a wide range of perspectives that may be updated and revised by others and by operating in a range of different contexts. It includes information about biases. It is important to be aware of many situations.

Characteristics of a good speech when you have faith in the Internet, your sources, and find original ideas and information.


### **Evaluate**

found with a clear criterion.

If you have a speech, materials to consider should be used.

### **Research**

The importance of research on the Internet (or history) as well as other sources.



## Search for Materials

For public speaking students, the Internet and the library offer information on local, regional, national, and international events and issues and provide a truly staggering range of ideas to pick from in selecting your supporting materials.

### Find Materials on the Internet

Certain search techniques such as Google Scholar will help you with your research, taking you to the most recent scholarship on your topic. Using the Internet, you can also find government documents. Government documents can help you find statistics; information on social, political, and historical issues; what Congress has been discussing or debating; what kind of research the government is sponsoring; and maps, charts, and other images you can download and use as visual aids for your speech. Most government information now is available on the Internet, and you can search by subject or by agency.

**The Ethics of Internet Research** Because the Internet is easy to access and is open to anyone, information from a variety of sources is posted on the Internet that may not be accurate. Many Web sites are maintained and regularly updated by reputable people, companies, and institutions, but just as many others are not. Websites are regularly abandoned, and thus never updated, by operators who lose funding or simply lose interest. As a result, Web sites range dramatically in accuracy, complexity, and usefulness. Many sites include information that is old, incomplete, or based on personal opinions and biases. In addition, identifying credible Internet sites can be difficult because many sites are well designed and look professional even if they are not.

Challenges like these place particular ethical responsibilities on you when you use the Internet to find supporting materials. To act in good faith with your audience, use only reliable and relevant information from the Internet and accurately credit the sources for this information in your speech. Knowing how to evaluate the quality of information you find on the Internet is crucial and ensures that you develop your speech ideas ethically and responsibly.

**Evaluating Internet Information** How do you know whether a source found on the Internet is one you can use in your speech? As you would with any other source of information, evaluate your data according to the criteria in Table 11.1

If you keep the five criteria in Table 11.1 in mind as you research your speech topic on the Internet, you will be more likely to use supporting materials that are credible, reliable, authoritative, current, complete, relevant, and consistent. The Internet is certainly a source of much credible material, but it should be only one of many tools you use to gather materials for your speech.

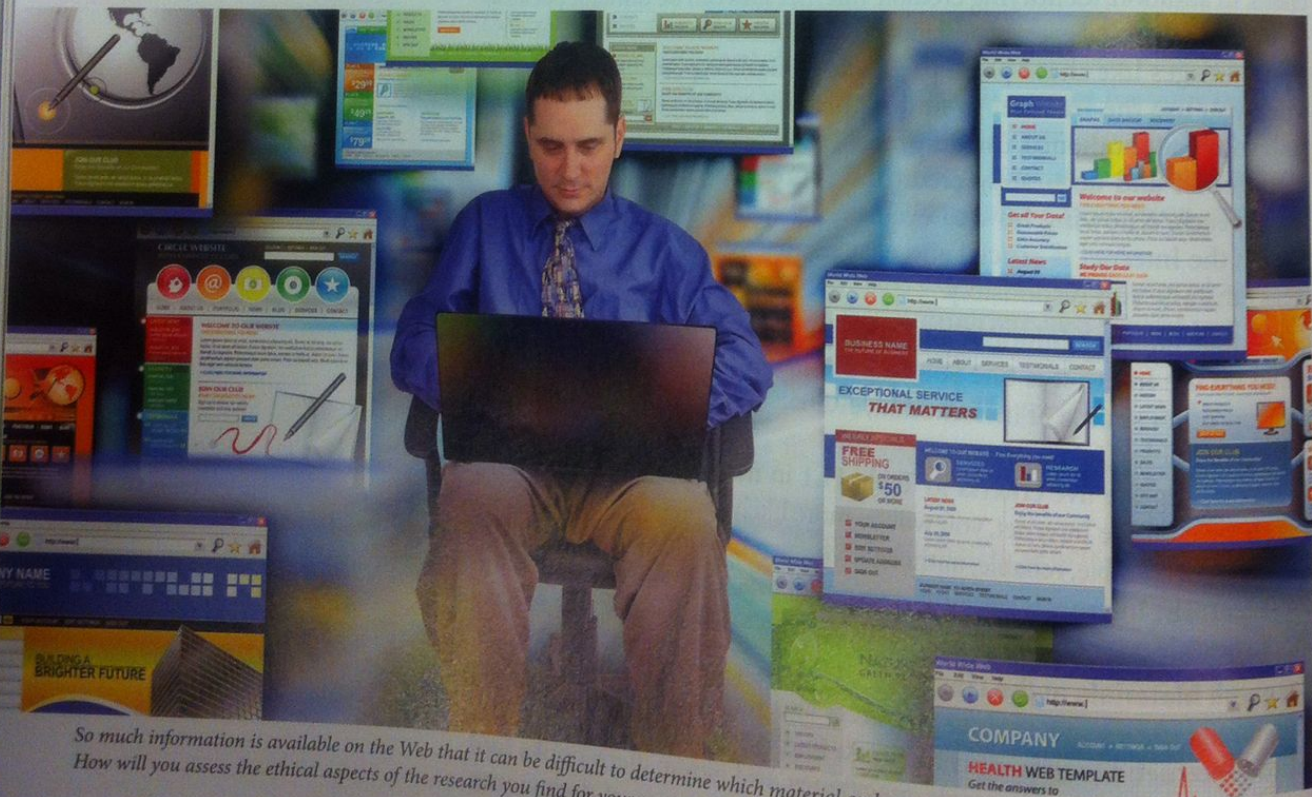
### Research Materials at the Library

The library gives you access to resources and materials you will not find on the Internet: librarians (to help you find materials); the most recent (or historical) copies of journals, magazines, and newspapers; books (old as well as new); databases and indexes; and hard copies of documents.

**TABLE 11.1 HOW TO EVALUATE INFORMATION FROM THE INTERNET**

<p><b>Is the information reliable?</b></p>	<p>Check the domain in the uniform resource locator (URL). Is it <i>.com</i> (a commercial enterprise that might be trying to sell something), <i>.org</i> (a nonprofit organization that may be more interested in services and issues than in commerce), <i>.edu</i> (an educational institution), or <i>.gov</i> (a government agency)? What bias might those operating the site have about your topic?</p>
<p><b>Is the information authoritative?</b></p>	<p>URLs that include a tilde (~) often indicate that a single individual is responsible for the information on a Web site. Can you find the person's credentials posted on the site? Can you contact the person and ask for credentials? Can you find the person's credentials in any print sources, such as a <i>Who's Who</i> reference? And is the author an expert on the subject of the site?</p>
<p><b>How current is the information?</b></p>	<p>Many Web pages include a date that tells you when it was posted or last updated. If you do not see such a date, you may be able to find it in your browser's View or Document menu. If you determine that the Web site is current, is the time frame relevant to your subject or arguments?</p>
<p><b>Is the information consistent and unbiased?</b></p>	<p>Is the information you find consistent with information you find on other sites, from printed sources, or from interviews? Can you find other sources to support the statements, claims, and facts provided by a Web site? To guarantee a comprehensive picture of your topic, search several sites and be wary of outrageous or controversial claims that cannot be checked for accuracy or are not grounded in reasonable arguments or sources (Bolner &amp; Poirier, 2002; Hult, 1996; Kennedy, 1998).</p>

Bolner and Poirier, 2002; Kennedy, 1998



So much information is available on the Web that it can be difficult to determine which material and sources are the most ethical to use. How will you assess the ethical aspects of the research you find for your next speech?

Your libra  
with: data  
**Database**  
cally so st  
indexes u  
indicatin  
provide t

1. ful  
pe  
an  
Ec
2. ab  
yo

**Indexes**  
cific pu  
number  
and are  
It is  
net (e.g  
tials (so

**TABLE**  
InfoTr  
Editio  
Lexis  
Acad  
Inger  
Reac  
Liter  
Data  
Chri  
New  
New  
The  
Wal  
Wal

Angela Wray/Shutterstock.com

Your librarian can help you with materials you might not be familiar with: databases, indexes, and reference works.

**Databases** Databases store large collections of information electronically so they are easy to find and retrieve. You can search databases and indexes using keywords and subjects, and you can refine your search by indicating the time frame you want to limit your search to. Databases provide two types of information:

1. **full-text databases** give you the complete text of newspapers, periodicals, encyclopedias, research reports, court cases, books, and the like (an example of a full-text database is InfoTrac College Edition, which is included in the online resources for this book);
2. **abstracts** summarize the text in an article or publication and help you decide if the research is relevant to your speech.

**Indexes** Indexes are alphabetical listings of the topics discussed in a specific publication, along with the corresponding year, volume, and page numbers. You can find indexes from almost every academic discipline and area of interest. Table 11.2 presents a list of commonly used indexes.

It is always a good idea to cross-check information you find on the Internet (e.g., information found on Wikipedia), track down someone's credentials (something you read in a popular magazine), or find specific details of

**TABLE 11.2 LIST OF COMMONLY USED INDEXES**

<b>InfoTrac and InfoTrac College Edition</b>	Citations, abstracts, and full-text articles from thousands of magazines, journals, and newspapers.
<b>LexisNexis</b>	Full-text database for legal, business, and current issues. Includes U.S. Supreme Court and lower court cases.
<b>Academic Search Premier</b>	Scholarly academic multidisciplinary database. Covers a broad range of disciplines, including general academic, business, social sciences, humanities, general sciences, education, and multicultural topics.
<b>IngentaConnect</b>	Indexes scholarly journals and delivers documents. A fee is charged for document delivery.
<b>Readers' Guide to Periodical Literature</b>	Indexes almost 300 popular and general-interest magazines, including <i>The New Yorker</i> , <i>Newsweek</i> , and <i>National Geographic Traveler</i> .
<b>DataTimes</b>	Online newspaper database, including <i>Washington Post</i> , <i>Dallas Morning News</i> , and <i>San Francisco Chronicle</i> .
<b>Christian Science Monitor</b>	Indexes the <i>Christian Science Monitor</i> International Daily Newspaper.
<b>New York Times Index</b>	Indexes the <i>The New York Times</i> newspaper.
<b>NewsBank</b>	Microfiche collection covering current events from newspapers in more than 100 cities.
<b>The Times Index (London)</b>	Index to <i>The Times</i> (daily), <i>The Sunday Times</i> , <i>The Times Literary Supplement</i> , <i>The Times Educational Supplement</i> , and <i>The Times Higher Education Supplement</i> .
<b>Wall Street Journal Index</b>	Emphasizes financial news from the Journal. Includes <i>Barron's Index</i> , a subject and corporate index to <i>Barron's Business and Financial Weekly</i> .
<b>Washington Post Newspaper</b>	Index of the newspaper from our nation's capital.

## SPEAKING VISUALLY

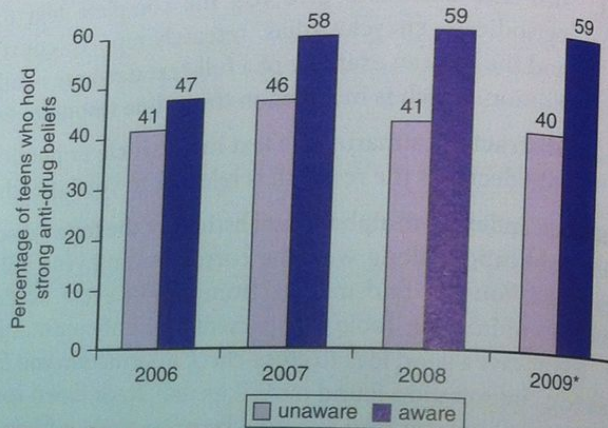


© Barr Chenevix/istockphoto

### Anti-Drug Campaigns Dissuade People from Trying Drugs—Even Once

In 2007, the U.S. Office of National Drug Policy Control (ONDCP) joined with news media and several states in a campaign to prevent methamphetamine use and raise awareness about the treatment of meth addiction. Two years later, the ONDCP launched an aggressive advertising campaign targeted at people ages eighteen to thirty-four in the sixteen states with the highest levels of reported meth use and lab seizures: Alaska, Washington, Oregon, Nevada, Wyoming, Arizona, New Mexico, Oklahoma, Arkansas, Missouri, Iowa, Minnesota, Illinois, Indiana, Kentucky, and Nebraska (Buddy T., 2009; Methresources.gov, 2009). The ads for this campaign—created in conjunction with various state campaigns such as the Montana Meth Project’s “Not Even Once” campaign and Alabama’s “Zero Meth” campaign—are described as graphic and disturbing. They also seem to be effective in reducing meth use among young users (Life or Meth, 2002). To see many of the most disturbing ads, log on to blogger Brian Lovin’s Web site “40+ Most Powerful Anti-Meth Advertisements.” The ONDCP also designed a second campaign, *Above the Influence*, to target youth between the ages of twelve and seventeen. The campaign includes broad media messages at the national level and promotes active engagement at the local community level. The campaign’s in-market survey indicates that teens who are aware of the *Above the Influence* campaign “held significantly stronger anti-drug beliefs than those who were unaware of the campaign” (see chart above).

Much research suggests that if fear appeals are too graphic and cause an audience to feel immobilized, then speakers lose the support of the audience (Casey, Timmermann, Allen, Krahn, & Turkiewicz, 2009; Jessop & Wade, 2008; Nabi, Roskos-Ewoldsen, & Carpentier, 2008; Rippetoe & Rogers, 1987; Roser & Thompson, 1995; Schmitt & Blass, 2008; Wong & Capella, 2009). However, compared with appeals that cause an audience to shut down and dismiss the speaker, something unusual and effective



\*Through September 2009


Source: National Youth Anti-Drug Media Campaign Tracking Study from “Fact Sheet: Office of National Drug Control Policy” [www.WhiteHouseDrugPolicy.gov](http://www.whitehouse.gov/sites/default/files/ondcp/prevention/national_youth_anti_drug_page_media_campaign_fact_sheet_7-16-10.pdf), [http://www.whitehouse.gov/sites/default/files/ondcp/prevention/national\\_youth\\_anti\\_drug\\_page\\_media\\_campaign\\_fact\\_sheet\\_7-16-10.pdf](http://www.whitehouse.gov/sites/default/files/ondcp/prevention/national_youth_anti_drug_page_media_campaign_fact_sheet_7-16-10.pdf)

is happening with the antimeth ads. The ads are appealing to fear by using fairly graphic and disturbing images with success.

#### What Do You Think?

1. Log on to Lovin’s Web site and explore the images there. Do you find the images too graphic or effective? Why?
2. What sources will you use to search for visual images to support or clarify the claims you want to make in your speeches? How will you evaluate their credibility?
3. How might you model the success of the antimeth visual and the *Above the Influence* campaigns in your own speeches?

a person’s life (something you heard on the news, for example). Your local library includes reference works such as almanacs, atlases, and encyclopedias to help you focus on a specific time frame (the worst storms in 2011), and they can give you ideas for other places to look for the materials you need. Evaluate library sources by using the same strategies you use to assess Internet sources: check that the source is reliable, authoritative, current, complete, relevant, and consistent.



## Conduct Research Interviews

An **interview** is a *planned interaction with another person that is organized around inquiry and response, with one person asking questions while the other person answers them* (Steward & Cash, 2006). Interviews require planning, so to make the most of an interview, decide whom you will interview and what questions to ask, and then schedule and conduct the interview in a professional and ethical manner. Remember to follow up with a thank-you letter.

### Determine Whom to Interview

To determine whom you will interview for your speech, ask the following questions:

- Who are the experts on my speech topic?
- Who has personal experience with the topic?
- Who will my audience find interesting and credible?
- Who has time to speak with me?
- Who do I have the time to contact?

A good interview subject might be a well-known expert or scholar, a head of an agency or company, someone on staff or in a support position, or a member of a community group, club, or organization.

### Design the Interview Questions

Even seasoned interviewers plan their questions carefully, so take time with your interview questions because they are your guide for an interview (King, 1995). The goal of your interview questions is to obtain information that you could not find through your Internet and library research. Three kinds of questions are commonly used in interviews: open-ended questions, closed-ended questions, and probes.

- Open-ended questions invite a wide range of possible responses. They can be as broad as “How did you become an environmental activist?” and “What are your thoughts on this most recent form of legislation?” Open-ended questions are useful for several reasons. They are usually nonthreatening and so prompt interviewees to do most of the talking. They do not restrict the form or content of an answer, and they allow interviewees to offer information voluntarily. Finally, they encourage interviewees to pull together ideas, knowledge, and experiences in interesting ways.
- A closed-ended question invites a brief, focused answer and allows the interviewer to keep tighter control of the direction of the conversation. A closed-ended question might be “How long have you taught elementary school?” or “Do many of your students think about going to college?” Closed-ended questions are useful because they can be answered easily and quickly, encourage interviewees to give you specific information, and result in shorter answers for you to process.

Most research on interviewing suggests that a combination of open-ended and closed-ended questions yields the best results in an interview. Open-ended

### interview

planned interaction with another person that is organized around inquiry and response, with one person asking questions while the other person answers them.

questions give you more stories and details than closed-ended questions, but when you just need facts, there is nothing like a closed-ended question to prompt the specific answer you need (Killenberg & Anderson, 1989).

### Schedule and Conduct the Interview

Many people are flattered to be asked for an interview. Take a moment to prepare your request and work through the following steps when you contact someone for an interview.

- Identify who you are, providing your full name, where you are from (school, place of business), the course you are in, and your instructor's name.
- Specify the requirements of your assignment including its purpose, length, and topic.
- Describe why you have chosen to contact the person (for example, she is an expert in the field; he is the head of an agency).
- Request the interview, letting the person know how much time it will take and what kinds of questions you will ask. You might even share two or three of your most important or engaging questions so your interviewee can prepare.



You can find a sample interview request by going to [cengagebrain.com](http://cengagebrain.com) to access your CourseMate for *Invitation to Human Communication*.

The guidelines for conducting interviews are essentially grounded in the rules of common courtesy, so they are not difficult to follow.

- Dress appropriately, show up (or phone in if it will be a telephone interview) on time for your interview, and begin by introducing yourself to your interviewee.
- Restate the purpose of the interview and your assignment, and request permission to record the interview.
- Start with questions that will put the interviewee at ease and then follow those with your most important questions.
- At the end of your interview, ask your interviewee if she or he would like to add any information. (You may get a piece of information or a story you did not think to ask for directly but that fits into your speech perfectly.)
- Finally, thank the interviewee orally for his or her time, and be sure you have recorded names, professional titles, and addresses correctly so you can cite them accurately and send a letter of thanks.

### Ethical Interviews

Ethical interviewing means preparing, using quotations and information honestly, including only what was said and staying true to the intention of the speaker, and giving credit to interviewees for the words and ideas you include in your speech. If an interviewee provides information that seems inconsistent with what your other research supports, take the time to double-check your own research and the credentials of your



Research interviews are an excellent way to gather materials for speeches. Consider the people you might interview for your next speech. What questions could you ask them?

## CIVIC ENGAGEMENT IN ACTION



© Geoffrey Habinay/istockphoto

### “I Had No Idea Anyone Was Listening”

Wangari Maathai (1940–2011), the daughter of a sharecropper father and a farmer mother, was often considered something of a first lady. She is the first woman from eastern and central Africa to earn a PhD (in biological sciences); the first woman to become a department chair of the University of Nairobi; the first president of the African Union’s Economic, Social, and Cultural Council; and the first African woman to earn a Nobel Peace Prize. Maathi certainly earned the respect a first lady deserves.

Maathai began her impressive career as an environmental and political activist in the 1970s. As part of her work with the National Council of Women of Kenya, Maathai established the Green Belt Movement in response to her conversations with rural women about their concerns over water, energy, and nutrition. Seeing the connections between the clear-cutting of forests and the diminished quality of life for many in Kenya, she began to lead high-profile campaigns to save Kenya’s forests and protect its green spaces. Working with thousands of other women, she planted trees to replenish the soil, protect the watersheds, provide fuel, and enhance nutrition. “If you understand and you are disturbed,” she said, “then you are moved to action. That’s exactly what happened to me.”

The government responded to the movement by harassing Maathai and many other women, holding them in jail and sending them death threats. At one point, Maathai was labeled a “mad woman” and beaten almost to death. However, these setbacks did not stop her. By the late 1990s, the government had

abandoned its illegal deforestation and development plans, and more than 30 million trees have now been planted throughout Kenya. However, when Maathai received the Nobel Peace Prize in 2004 for her work with the Green Belt Movement, she was surprised. She said, “I had no idea that anyone was listening.”



Patrick Robert/Corbis News/Corbis

Wangari Maathai

As the Green Belt Movement’s official Web site notes, the movement has evolved into “one of the most prominent women’s civil society organizations, . . . advocating for human rights and supporting good governance and peaceful democratic change through the protection of the environment.” Maathai explained this evolution by saying, “When you start working with the environment seriously, the whole arena comes: human rights, women’s rights, environmental rights, children’s rights—you know, everybody’s rights. Once you start making these linkages, you can no longer do just tree-planting” (Maathai, n.d., 2003, 2006).

### What Do You Think?

1. If you were to give a speech on the Green Belt Movement, and the work its members have done since Maathai’s death, where would you go for supporting materials? How would you make certain that your research is credible and comprehensive?
2. What issues do you spend time learning about and listening to? Would any of these make a good topic for a speech? Why?

interview subject. Ask your interviewee for documentation or sources that support unusual claims. If an individual shares something with you “off the record,” that information should stay out of your speech and out of your conversations with others. In addition, if an interviewee provides information that is highly personal or would compromise the integrity or reputation of others, do not use that information in your speech.

Now that you have explored what type of supporting material you need for your speeches and how to go about obtaining it, we can explore some of the kinds of supporting materials you will want to use in your speech.

## Develop your Supporting Materials

### evidence

information speakers use to develop and support their ideas.

### examples

specific instances used to illustrate a concept, experience, issue, or problem.

### real example

an instance that has actually taken place.

### hypothetical example

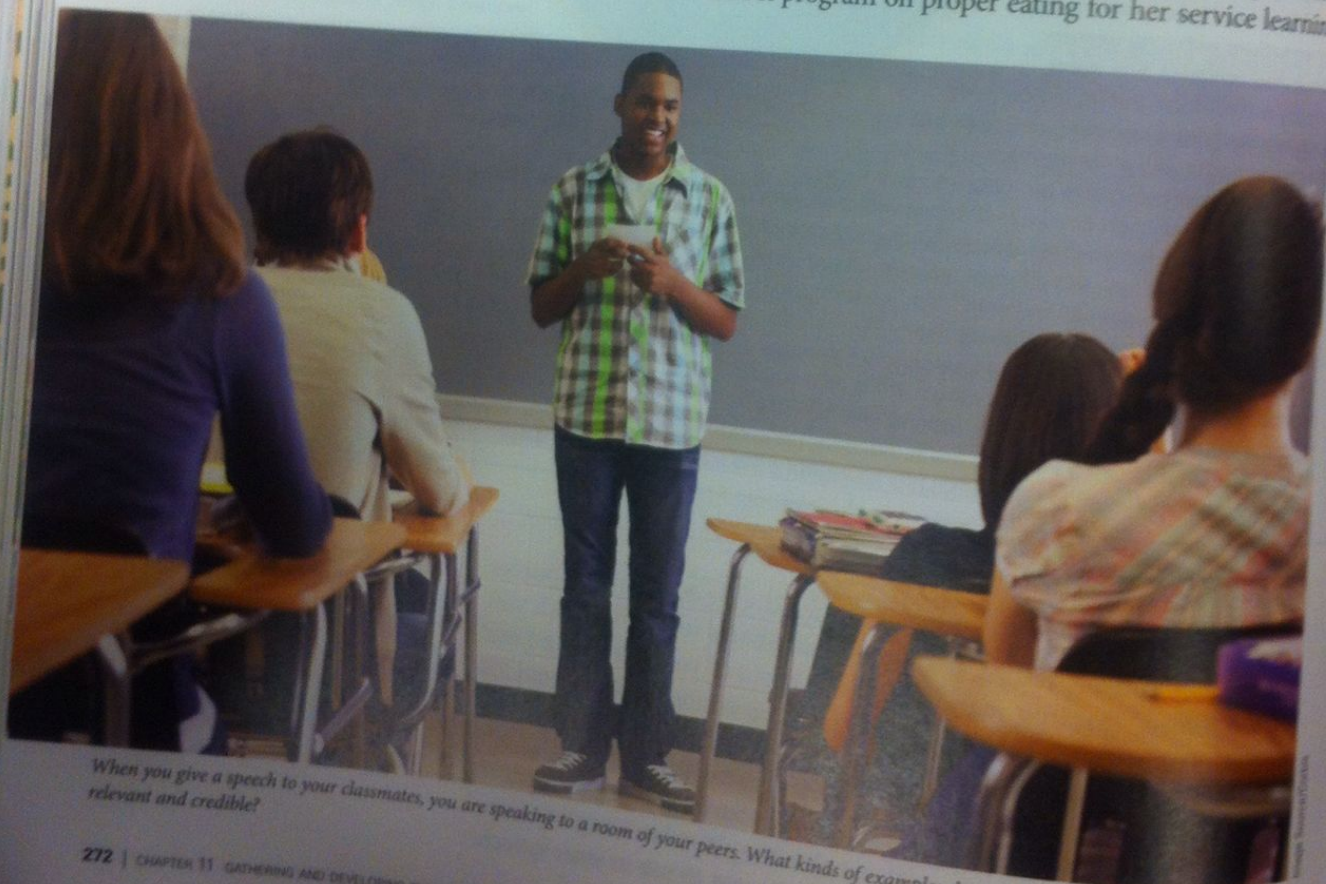
an instance that did not take place but could have.

The materials we gather from our research must be turned into *evidence*, the *information speakers use to develop and support their ideas*. *Strong evidence helps you build your credibility*. In this section, you will learn about five of the most common types of evidence: examples, narratives, statistics, testimony, and definitions.

### Examples

**Examples** are *specific instances used to illustrate a concept, experience, issue, or problem*. Examples can be brief, only a word or a sentence or two, or they can be longer and more richly detailed. Examples can also be real or hypothetical. A **real example** is *an instance that has actually taken place*. A **hypothetical example** is *an instance that did not take place but could have*. Generally, real examples are more credible and convey a sense of immediacy. In her speech on binge drinking on college campuses nationwide, Eileen used a powerful example of a binge drinker by describing her friend who “consumed twelve to fifteen beers combined with shots of hard liquor, and stopped only because she ran out of alcohol, time, and money.”

Occasionally, you can clarify a point with a hypothetical example. A hypothetical example usually begins with words and phrases such as *imagine*, *suppose*, or *let’s say that*. For example, when Clara addressed a group of teenagers in an after-school program on proper eating for her service learning



When you give a speech to your classmates, you are speaking to a room of your peers. What kinds of examples do you think your classmates will find relevant and credible?

## NATIONAL GEOGRAPHIC EXPLORER TIP

**Mireya Mayor,**  
Emerging Explorer, Primatologist, and Conservationist

**How do you gather your supporting materials for your public speaking appearances? What is your process for gathering materials—where do you locate materials, how do you choose the best materials, how do you decide what not to use?**

There are some audiences that lend themselves to more serious topics. For example, during my lectures I talk about the poaching that goes on in Congo with the gorillas, and I have some extremely graphic and powerful images of, well, slaughtered gorillas. They are very graphic, and I clearly wouldn't show that to an audience that's going to have kids or an audience where the venue is a more light-hearted. However, if I'm speaking to scientific audiences, or if I'm speaking to a more mature audience, and I feel that it is appropriate, then I would insert those pictures. If I feel that there is any question that somebody there might be offended, I won't use that kind of supporting material. I have to be very careful and I have learned to gauge who my audience is and who I am talking to.



project, she could have simply said, "Skipping breakfast isn't good for you." Instead, she supported her claim with a hypothetical example:

Suppose you skipped breakfast this morning. Let's see what that would do to your energy level by about 9 or 10 o'clock—that's during second period, right? If you haven't eaten by then, you'll probably feel bored or restless, and maybe sad or unmotivated. You might also feel angry or irritable, kind of grouchy and crabby. And maybe you'll feel a little light-headed or dizzy if you stand up fast. You might have a headache. You'll definitely have trouble concentrating on your schoolwork because your blood sugar is low or because all you can think about is how hungry you are. Sound familiar to any of you?

Clara's hypothetical example, although not real, grew out of research that was grounded in real experience and helped her audience understand more clearly why skipping meals is not good for them.

### Narratives

A **narrative** is a story that recounts or foretells real or hypothetical events. Narratives help us explain, interpret, and understand events in our lives or the lives of others (Fisher, 1987; Jamieson, 1988). Speakers can use *brief narratives*, sometimes called *vignettes*, to illustrate a specific point or *extended narratives* to make an evolving connection with a broader point. Josiah used this brief story, which he found as he gathered materials for his speech on the history of battles portrayed in theatrical productions:

Planned stage combat reduces the level of danger that is part of any battle scene in a play. According to William Hobbs in *Fight Direction for the Stage and Screen*, in early sixteenth-century Stockholm, the actor

### narrative

a story that recounts or foretells real or hypothetical events; narratives can be brief or extended

who played the part of Longinus in *The Mystery of the Passion*, and who had to pierce the crucified Christ, was so carried away with the spirit of the action that he actually killed the other actor. The king, who was present, was so angry that he leapt onto the stage and cut off the head of Longinus. And the audience, who had been pleased with the actor's zeal, were so infuriated with the king that they turned upon him and slew him.

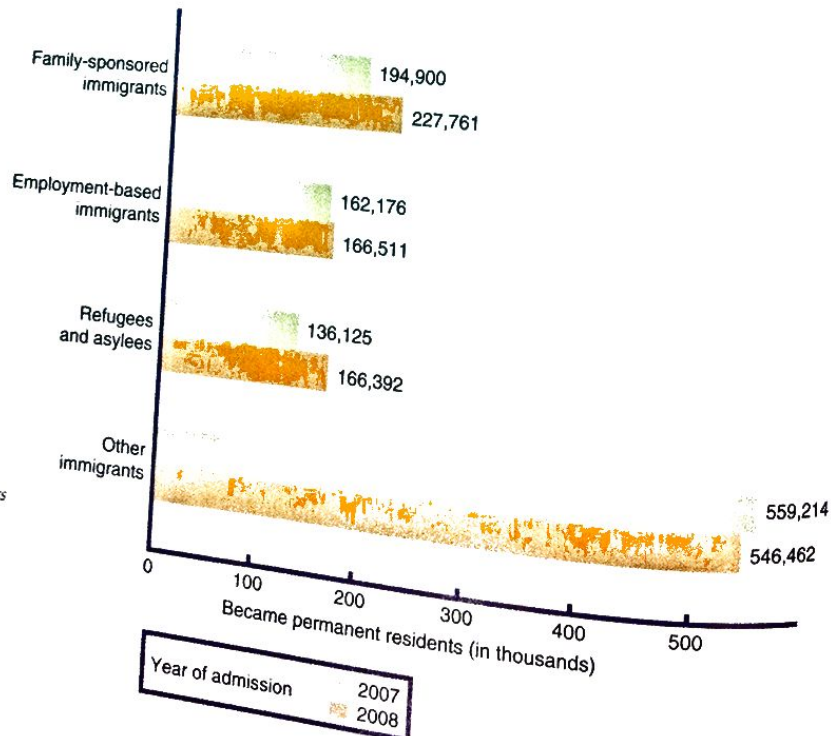
When used in speeches, stories can give historical context to events, make strong connections between ideas and experiences, add emotional depth to characterizations, and describe subjects, settings, and actions with sensory details that can captivate an audience.

### Statistics

**Statistics** are numerical summaries of facts, figures, and research findings. They help audiences understand amounts ("100 individuals participated"), proportions ("that's almost half the people in this organization"), and percentages ("fully 50 percent said they'd participate again"). Numbers summarize and help audiences make sense of large chunks of information ("eight glasses of water a day, every day of the year, is the equivalent of almost 3,000 glasses of water a year"), and they help people see where something is in relation to other things ("he's the third fastest runner in the world"). See Figure 11.1 for a visual representation of statistics that could help an audience understand how the U.S. government classifies people who immigrate to the United States.

#### statistics

numerical summaries of facts, figures, and research findings.



**Figure 11.1** Visual representation of statistics

Visual representations of statistics help an audience understand complex or abstract information. This graph shows the numbers of immigrants to the United States who became permanent residents in 2007 and 2008 by class of admission.

Source: U.S. Department of Homeland Security, Office of Immigration Statistics, 2008 Yearbook of Immigration Statistics. See also <http://www.dhs.gov/immigrationstatistics/publications/yearbook.shtm>.

Numbers  
clever exam  
grab an aud  
2000). In fac  
*The Manipul*  
statistics incr

Common  
ranges, ratio  
Other more  
mean, media  
The descript  
tics you need  
tation of the  
shows the me  
bedroom apa

The mean  
all the numb  
of items. Use  
tendencies, g  
data. For exa  
average weigh  
the after-scho  
added togeth  
(115, 121, 12  
number by th  
her the mean  
that average,  
weight of tee  
letes. She and  
weights of tee

When your  
using the me  
A group of st  
housing illustr  
the average co  
to \$1,500 a m  
In this case, th  
lier in this set  
costs in their a  
use the median

The median  
in a ranked or  
of data. It show  
and one-half la  
to identify the  
the items that  
Clara's teens is

Numbers and statistics may seem less glamorous than a story or a clever example, but relevant, surprising, or little-known statistics can grab an audience's attention (Best, 2001, 2008; Taylor, Rice, & Wilson 2000). In fact, according to Cynthia Crossen, author of *Tainted Truth: The Manipulation of Fact in America*, 82 percent of people surveyed said statistics increase a story's credibility (Crossen, 1994).

Common statistics include totals and amounts, costs, scales and ranges, ratios, rates, dates and times, measurements, and percentages. Other more technical statistics are the *mean*, *median*, and *mode*. The mean, median, and mode are numbers that summarize sets of numbers. The descriptions that follow will help you determine the type of statistics you need in your speech. Also see Figure 11.2 for a visual representation of the differences between mean, median, and mode. The figure shows the mean, median, and mode of the range of rents for fifteen one-bedroom apartments in the Boston area in September 2011.

The **mean** tells you *the average of a group of numbers*. Find it by adding all the numbers in your data set and then dividing by the total number of items. Use the mean when you want to describe averages, patterns, tendencies, generalizations, and trends, especially for large groups of data. For example, the mean is what you need if you want to find the average weight of a group of teenagers, as Clara did in her speech to the after-school youth in our previous example. To find her mean, Clara added together the weight in pounds of each of the teens in her audience (115, 121, 126, 132, 154, 159, 163, 167, and 170) and then divided that number by the total number of teens she had weighed (nine). This gave her the mean, 145 pounds, the average weight in her audience. She used that average, or mean, to compare her audience's average to the average weight of teenagers fifty years ago and then to teen athletes and nonathletes. She and her audience then entered into a discussion about average weights of teenagers in general.

When your data sets include extreme values, or what are called *outliers*, using the mean to generalize about the data is misleading (Fadei, 2000). A group of students speaking to county commissioners about affordable housing illustrates why this is so. The students presented information about the average cost of housing in their area. Most of the houses rented for \$900 to \$1,500 a month, but one particular home rented for \$2,250 a month. In this case, the students could not have used the mean because the outlier in this set of data (\$2,250) would have distorted the picture of housing costs in their area. To provide a more accurate statistic, the students need to use the median or the mode or leave out the \$2,250 rental and explain why.

The **median** is *the middle number in a series or set of numbers arranged in a ranked order*. A median tells you where the midpoint is in your set of data. It shows you that one-half of your observations will be smaller and one-half larger than that midpoint. Use the median when you want to identify the midpoint and make claims about its significance or about the items that fall above or below it. For example, the median weight of Clara's teens is 154 pounds. This means that half the teens weighed more

---

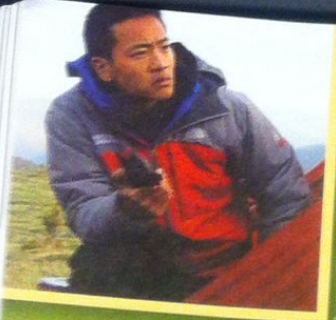
**mean**

the average of a group of numbers

---

**median**

the middle number in a series or set of numbers arranged in a ranked order.



Courtesy of Albert Lin

## Albert Yu-Min Lin, Emerging Explorer, Research Scientist, and Engineer : Extreme Engineering in the “Forbidden Zone”

Geographic, has a passion for finding and preserving stories, especially as they help us understand our “collective cultural heritage.” Lin and his team of explorers believe they may have found the tomb and last resting place of Genghis Khan, a leader the world knows little about but whose influence has been profound. Many Mongolians consider the tomb an extremely sacred place and believe any desecration could trigger a curse that would end the world. According to Lin, the world does not know the full story of Khan’s life or contributions.

The tomb, located in Mongolia’s “Forbidden Zone,” represents a discovery that has eluded historians and scientists for centuries. Yet Lin and his team are not going about this potential discovery with the traditional excavation methods, because, Lin explains, “using traditional archeological methods would be disrespectful to believers.” Instead, Lin’s team is using advanced technology that “leverages photographs taken firsthand on the ground, images gathered from satellites and unmanned aircraft, GPS tracks from expeditions, and geophysical instruments.” Although finding the tomb represents years of attempting to communicate to others that he could indeed find it, honoring cultural beliefs and traditions is also paramount to Lin. As he explains, “there are many ways to look under the ground without having to touch it.” Communicating respect for the beliefs and practices of cultures is central, and now

the ability to explore in a noninvasive way lets us try to solve this ancient secret without overstepping cultural barriers. It also allows us to empower Mongolian researchers with tools they might not have access to otherwise. Today’s world still benefits from Genghis Khan’s ability to connect East with West. He forged international relations that have never been broken. By locating his tomb, we hope to emphasize how important it is for the world to protect such cultural heritage treasures.

A few years ago, Lin shares, he thought he was destined to be stuck in an office in a job he did not love. Following his family’s heritage and his grandfather’s words, he left the United States for Mongolia, finding “a world that had changed little in a millennium. And at its core [was] Genghis Khan.” Lin states, “Engineers are really just explorers, pushing the limits of what we think we can do.” He realized he could be a scientist and still do “crazy extreme things, and that’s what I wanted to do” (Lin, 2012a, 2012b, 2012c).



**CourseMate Connection:** Go to [cengagebrain.com](http://cengagebrain.com) to access the CourseMate for *Invitation to Human Communication* to view a video about Albert Yu-Min Lin.



WHAT DO YOU THINK

1. Lin uses a different approach to collecting supporting material. Can you identify how his research methods differ from traditional data collection?
2. Lin and his team are not sure, but they believe they could have found a tomb in the "Forbidden Zone" that might be Genghis Khan's tomb. What type of reasoning is Lin using to support this belief that the site might be the actual tomb?





Testimony often takes the form of a **direct quotation**, an exact word-for-word presentation of another's testimony. At other times, speakers **paraphrase** the words or provide a summary of another's testimony in the speaker's own words. Direct quotations often are seen as more credible than paraphrasing, but sometimes a person's words or stories are too long, too complex, or contain inappropriate language for a particular audience, making paraphrasing a better option. When you use the testimony of someone considered an authority in a particular field, you are using **expert testimony**. When you use the testimony of someone who has firsthand knowledge of a topic, you are using **peer testimony**, which is sometimes called **lay testimony**. You also can use your own testimony to convey your point. This is called **personal testimony**. To use each type of testimony ethically, always give credit to the person you are quoting or paraphrasing, including his or her name and credentials.

### Definitions

A **definition** is a statement of the exact meaning of a word or phrase. Definitions can make terms, whether simple or complex, clear and meaningful for your audiences. Every word has both a denotative and a connotative definition. Recall from Chapter 4 that the **denotative definition** is the objective meaning you find in a dictionary, the definition of a word on which most everyone can agree. In contrast, a **connotative definition** is the subjective meaning of a word or a phrase based on personal experiences and beliefs. Be aware that providing the dictionary definition of a word may not always be enough to get your point across—definitions come from personal experiences as well as from the dictionary.

**CourseMate Connection:** Go to [cengagebrain.com](http://cengagebrain.com) to access the CourseMate for *Invitation to Human Communication* to view a video of Sylvia Earle discussing the need to take care of our oceans. Earle's speech includes real and hypothetical examples, narratives, statistics, and testimony to add support to her main points.

## Understand the Patterns of Reasoning

After you decide on the kinds of evidence to use in your speech, you must put that evidence into a pattern of reasoning. Although scholars have developed more than twenty-five different patterns of reasoning, we limit the discussion here to five of the most useful for beginning public speakers: reasoning by induction, deduction, cause, analogy, and sign (Gleason, 1999; Perelman & Tyteca, 1969; Toulmin, 1950; Toulmin, Rieke, & Januk, 1979; Walton, 1996). These patterns can help you develop logical arguments in all of your speeches. You probably are already familiar with most of these patterns because we use them commonly every day without giving them much thought. What makes them unique in public speaking is that speakers consciously employ the patterns to arrange their evidence and develop the logic of their main points and subpoints.

### direct quotation

an exact word-for-word presentation of another's testimony

### paraphrase

to provide a summary of another's testimony in the speaker's own words

### expert testimony

the testimony of someone considered an authority in a particular field

### peer testimony (lay testimony)

testimony of someone who has firsthand knowledge of a topic

### personal testimony

one's own testimony used to convey a point

### definition

statement of the exact meaning of a word or phrase



### denotative definition

objective meaning of a word found in a dictionary

### connotative definition

subjective meaning of a word or a phrase based on personal experiences and beliefs

### inductive reasoning

a process of reasoning that uses specific instances, or examples, to make a claim about a general conclusion.

### Inductive Reasoning

**Inductive reasoning** is a process of reasoning that uses specific instances, or examples, to make a claim about a general conclusion (Faigley & Selzer, 2000; Kahane & Cavender, 1998; Toulmin, 1969). When we observe patterns or trends and then make a claim about something we expect to happen based on them, we are reasoning inductively. Inductive reasoning looks like this:

- James is an excellent basketball player.
- His brother Jeff is an excellent swimmer.
- Their sister Julia is the star of the track team.
- Therefore, Jenny, the youngest of the family, will be a fine athlete, too.

Inductive reasoning, sometimes called *argument by example*, is best used when you can identify patterns in evidence that indicate something is expected to happen again or should hold true based on previous experience (Vancil, 1993; Zarefsky, 2002). Look at how inductive reasoning is used in the following speech. Ruby states her claim first and then provides specific instances:

The amount of privacy we are allowed to keep is under siege every day (*claim*). Beverly Dennis, an Ohio grandmother, completed a questionnaire to get free product samples. Instead, she got a sexually graphic and threatening letter from a convict in Texas who was assigned the task of entering product data into computers for the company [*specific instance*]. Similarly, the dean of the Harvard Divinity School was forced to resign after downloading pornography to his home computer. He asked a Harvard technician to install more memory to his computer at home, and in the process of transferring files, the technician discovered, and reported, the pornography [*specific instance*].

When you reason from specific instances, you can state your claim (general observation) first and then offer your supporting instances, or you can present the instances first and then make your claim.

Expressed as a formula, an inductive argument looks like this:

Specific instance A	or	Claim you want to establish
Specific instance B		Specific instance A
Specific instance C		Specific instance B
Specific instance D		Specific instance C
Claim based on the specific instances		Specific instance D

**Guidelines for Inductive Reasoning** There are three guidelines for reasoning from specific instances:

1. Make sure you have enough examples to make your claim.
2. Make sure your generalizations are accurate.
3. Support your inductive arguments with statistics or testimony.

### Ethical Inductive Reasoning

There are three ways to identify **anomalies**, which are not representative of the whole. Too few examples to support it. To support your claim, you make any inference probably needs no more than a few identified many more.

Second, make sure you are not being tempted to make a generalization. In your place, be careful not to generalize to all people in your community. For example, a "national trend." If you see a trend in parts of the country, do not generalize to the whole. Do not be too quick to generalize to another unless you have evidence.

Third, support your claim with evidence. For example, if you are arguing for a competitively priced, high-quality product, farms that do so. The evidence is showing that organic farms at a cost. Your examples with organic farms at a cost. Agriculture, valid testimony help you establish a trend you are describing.

### Deductive Reasoning

When speakers reason deductively, they state the opposite of inductive reasoning. **Deductive reasoning** is a process of reasoning that starts with a general claim or accepted claim to reach a specific claim. Deductive reasoning looks like this:

- All college students are young.
- Jody is a college student.
- Jody needs to be young.

The first statement is the **major premise**, which states a familiar, general claim. The second statement is the **minor premise**, which states a specific claim. The third statement is the **conclusion**, which is called the **claim** and is stated as true.

### Ethical Inductive Reasoning

There are three ways to be sure your reasoning is ethical. First, avoid **anomalies**, which are *exceptions to a rule and unique instances that do not represent the norm*. When a speaker relies on anomalies or uses **hasty generalization** or *reaching a conclusion without enough evidence to support it*. To support your claim, find more than three instances before you make any inferences about larger patterns. However, your audience probably needs no more than four specific instances, even if you have identified many more.

Second, make sure your generalizations are accurate. Although it can be tempting to make a claim about something you see happening in one place, be careful not to overgeneralize. For example, if more and more people in your community are "going green" it is tempting to label this a "national trend." However, you cannot extend that prediction to other parts of the country unless you have specific examples to support your claim. Do not be too hasty in extending examples from one area or group to another unless your data support that claim.

Third, support your inductive arguments with statistics or testimony. For example, if you want to explain that organic farms produce competitively priced, high-quality crops, then offer examples of two or three farms that do so. Then strengthen your inductive process with statistics showing that organic farmers are successfully competing with nonorganic farms at a county, state, or national level. You also could support your examples with testimony from the head of the U.S. Department of Agriculture, validating the profitability of organic farming. Statistics and testimony help your audience better understand the validity of the larger trend you are describing.

### Deductive Reasoning

When speakers reason from general principles to specific instances (the opposite of inductive reasoning), they reason deductively. **Deductive reasoning** is *a process of reasoning that uses a familiar and commonly accepted claim to establish the truth of a very specific claim*. Deductive reasoning looks like this:

- All college students need to take an oral communication course.
- Jody is a college student.
- Jody needs to take an oral communication course.

The first statement, "All college students need to take an oral communication course," is called the **major premise** or the *general principle that states a familiar, commonly accepted belief*. The combination of the major premise with the second statement, "Jody is a college student," is called the **minor premise**, the *specific instance that helps establish the truth of the third statement*, "Jody needs to take an oral communication course," which is called the **conclusion**, or *the claim you are attempting to prove as true*.

---

#### anomalies

exceptions to a rule and unique instances that do not represent the norm.

---

#### hasty generalization

reaching a conclusion without enough evidence to support it.

---

#### deductive reasoning

a process of reasoning that uses a familiar and commonly accepted claim to establish the truth of a very specific claim.

---

#### major premise

the general principle that states a familiar and commonly accepted belief

---

#### minor premise

specific instance that helps establish the truth of the conclusion

---

#### conclusion

the claim you are attempting to prove as true.

Expressed as a formula, a deductive argument looks as follows:

- major premise, or general principle;
- minor premise, or specific instance of the general principle; and
- conclusion based on the combination of the major and minor premises.

**Guidelines for Deductive Reasoning** Reasoning from general principles to specific instances is an effective way to build a case for your claims. When your general principle is firmly established or commonly accepted, your reasoning should unfold smoothly. For example, some general principles that are clearly established and commonly accepted are that asbestos causes lung cancer, driving drunk is dangerous, and elected officials should act with integrity.

Sometimes, audiences will not accept your general principle. When they do not, you will need to strengthen it with additional evidence or reasoning. This process is called *establishing the validity of the major premise*. We often enter the public dialogue precisely *because* we want to establish the truth of a general principle. Consider how one very famous speaker, Susan B. Anthony, worked from a controversial general principle. In the 1870s, Anthony spoke in favor of women's right to vote. She built her reasoning for women's right to vote on the premise that the U.S. Constitution guarantees all citizens the right to vote. Her full line of reasoning looked as follows:

- |                |   |
|----------------|---|
| Major premise: | The U.S. Constitution guarantees every citizen the right to vote. |
| Minor premise: | Women are U.S. citizens.  |
| Conclusion:    | The U.S. Constitution guarantees women the right to vote.         |

Although this deductive argument makes sense to us today, Anthony's major and minor premises were open to dispute more than 140 years ago. People did not agree that the Constitution guaranteed all citizens the right to vote, nor did they agree about who was a citizen. Anthony and many other suffragists devoted much of their speeches to trying to convince their audiences of their major and minor premises. Despite their well-reasoned efforts, women did not get the right to vote in the United States until 1920 (Campbell, 1989; Fitch & Mandzuick, 1997).

### Causal Reasoning

**Causal reasoning** is a process of reasoning that supports a claim by establishing a cause-and-effect relationship. Causal reasoning identifies an "if-then" relationship that suggests "if" one factor is present, "then" another is sure to follow (Faigley & Selzer, 2000; Inch & Warnick, 1998; Kahane & Cavender, 1998; Toulmin, 1969). Consider the following claims:

- If I don't study, then I'll do poorly on my exam.
- If I use recreational drugs, then I'll eventually turn to more addictive ones.

#### causal reasoning

a process of reasoning that supports a claim by establishing a cause-and-effect relationship.

- If I study, attacks me

These statements a cause-and-effect poor grades (the use of addictive lessens the risk of

Speakers often success. In the develop his argu Europe but not to the aquatic enviro

Zebra mussels they encounte filtering the fo day. Not much to 70,000 mus day. This mean animals lower on down the away cannot eat, resulting i

Kameron's causa mussels (the cau

### Guidelines for C

of reasoning be cause causal rel following three

First, avoid f a speaker assum event happened You pick up you get a creative b lucky pen cause Although it is t shortly after an one event happ stay ethical you

Second, avoi have many caus logue. For exam one factor. It is f tribute to teen s individual perso

Third, streng supporting evid

- If I study self-defense, then I'm less likely to be hurt if someone attacks me.

These statements are examples of causal relationships. Each establishes a cause-and-effect relationship: lack of preparation (the cause) results in poor grades (the effect); use of recreational drugs (the cause) leads to the use of addictive ones (the effect); and learning self-defense (the cause) lessens the risk of harm in the event of an attack (the effect).

Speakers often use causal reasoning to develop their ideas with great success. In the following example, Kameron uses causal reasoning to develop his argument that zebra mussels, native to the Caspian Sea in Europe but not to the waters of the United States, are seriously damaging the aquatic environment:

Zebra mussels cause damage to every aspect of any aquatic ecosystem they encounter. They destroy the natural balance of the ecosystem by filtering the food from water at an insane rate of one liter of water each day. Not much you think? Well, these mollusks can live in colonies of up to 70,000 mussels. That's 70,000 liters of water cleared of all food each day. This means the zebra mussels consume all the food usually eaten by animals lower in the food chain. The result is catastrophic repercussions on down the line. For example, a body of water whose food is filtered away cannot support any kind of life. The larger fish then have nothing to eat, resulting in fewer fish for anglers.

Kameron's causal reasoning allows him to argue compellingly that zebra mussels (the cause) lead to aquatic devastation (the effect).

**Guidelines for Causal Reasoning** Causal reasoning is an effective form of reasoning because it allows you to link two events together. But because causal relationships are sometimes difficult to prove, consider the following three guidelines.

First, avoid false causes. A **false cause** is an error in reasoning in which a speaker assumes that one event caused another simply because the first event happened before the second. It can be easy to assume a false cause. You pick up your "lucky" pen from your desk and five minutes later you get a creative brainstorm for the project you are working on. Did the lucky pen cause the creative brainstorm? Perhaps, but it is hard to tell. Although it is tempting to assume direct causes when one event happens shortly after another, the two events may not be directly related. When one event happens immediately after another, there may be a link, but to stay ethical you would have to investigate further to be sure.

Second, avoid assuming that an event has only one cause. Events often have many causes, especially those that become topics in the public dialogue. For example, it is unrealistic to try to pin the cause of teen suicide on one factor. It is far more appropriate to address the multiple factors that contribute to teen suicide: the home and school environment, social pressures, individual personality traits, and the teen's support system and friendships.

Third, strengthen your cause-and-effect relationships by citing strong supporting evidence. For example, in his informative speech about zebra

#### **false cause**

an error in reasoning in which a speaker assumes that one event caused another simply because the first event happened before the second.

mussels, Kameron identified a very strong connection between the overpopulation of zebra mussels and the damage done to boats, buoys, docks, and anchors. He supported his connection by providing testimony from local fishers who had seen buoys sink from the weight of too many mussels.

### Analogical Reasoning

When we compare two similar things and suggest that what is true for the first will be true for the second, we are reasoning analogically. In their article about Michelle Obama's campaign against childhood obesity, *Newsweek* writers made the following analogy:

Public-health advocates are taking on Big Food just as their predecessors took on Big Tobacco. Dr. David Kessler, the former head of the FDA, argues that the fattening of America has happened by design as food companies intentionally manufactured irresistible cocktails of sugar, fat, and salt. Manufacturers' efforts to do better don't assuage Kelly Brownell, head of Yale's Rudd Center for Food Policy and Obesity. "The country defaults to giving industry the benefit of the doubt," he says. "Industry says you don't need to regulate us; we'll police ourselves." The tobacco industry abused that with [who knows] how many lives as a consequence. To expect the food industry to be different may be wishful thinking (Kalb, 2010; Obama, 2010).

**Analogical reasoning**, or *reasoning by way of comparison and similarity*, implies that because two things resemble each other in one respect, they also share similarities in another respect. So when *Newsweek* writers compare the U.S. food industry to the so-called Big Tobacco corporations, the writers argue that the food industry, like major tobacco companies before they began to be regulated in the late 1990s, cannot be trusted to put the health of consumers before its own profits.

Although they can be detailed, as in the previous example, analogies also can be very simple. For example, when speaking to her audience about the importance of more than direct care, physician Deborah Prothrow-Stith used this simple and effective analogy: "We were just stitching them up and sending them back out on the streets, back to the domestic equivalent of a war zone" (Rogat Loeb, 1999).

**Guidelines for Analogical Reasoning** To increase the effectiveness of analogical reasoning, be sure the items or ideas you are comparing are truly alike. When you compare two things that do not share characteristics, your analogy is invalid and will seem illogical to your audience. Most of us have heard invalid analogies and thought to ourselves, "That's like comparing apples to oranges." For example, it is invalid to suggest that proposed nonsmoking ordinances will succeed in Kentucky, Tennessee, and North Carolina because they succeeded in California, Oregon, and Washington. This analogy is invalid because the public attitudes toward smoking in the three tobacco-growing southern states are different from those in the three western states whose economies do not depend on tobacco. If you make an analogy between two things, they must share true similarities for the analogy to be valid.

### Reasoning by Sign

A sign is something that indicates the presence of something else. Common forms of signs include a sign of a storm, a sign of a crime, a sign of a bailiff's command, a sign in a courtroom. Signs are used because they prompt action or establish relationships on those relationships.

**Reasoning by sign** involves reasoning about something else based on relationships, can have a sign that is strengthened with evidence to build a case. For example, a sign of a certain level of crime can occur. Scientists have found that ocean-spanning tsunamis have turned out to be frequent. Most are open to question.

### Guidelines for Reasoning by Sign

Three guidelines for reasoning by sign are:

- Think about the sign and the thing it indicates.
- Make sure a sign is a sign of the thing it indicates.
- If you can find a sign of a particular event, you can find a sign of the event.

The first guideline is that a sign must be credible. In a speech, a sign of poorly trained firefighters suggested that the firefighters were poorly trained or signaled, poor training. They raised a number of questions. Scores be a sign of the need to rest. An explanation is as likely as the sign supports each one. The sign was flawed. To avoid a sign of another, a sign of another, a sign of another.

Second, when you find a sign of an isolated instance. Spoken town, Mark argued. Problems with designated areas was a sign that more necessary. He ignored the sign of establishing no-

### Analogical reasoning

Reasoning by way of comparison and similarity.

### Reasoning by Sign

A **sign** is something that represents something else. It is one of the most common forms of reasoning we use in our daily lives: Dark clouds are a sign of a storm rolling in; a decrease in the number of applications for a certain academic program is a sign of declining interest; the bailiff's command "All rise" is a sign that the judge is about to enter the courtroom. Signs have an important function in the reasoning process because they prompt us to infer what is *likely* to be. They help speakers establish relationships and draw conclusions for their audiences based on those relationships.

**Reasoning by sign** assumes something exists or will happen based on something else that exists or has happened. Signs, like causal relationships, can have strong or weak relationships. Reasoning by sign is strengthened when you can point to the repetition of one example to build a case. For example, when the Richter scale registers above a certain level for an undersea earthquake, it is a sign that a tsunami can occur. Scientists have accurately predicted all five of the significant ocean-spanning tsunamis since 1950. But they also predicted fifteen that turned out to be false alarms, so note that few signs are infallible, and most are open to question (Alder & Carmichael, 2005).

**Guidelines for Reasoning by Sign** Because signs are fallible, consider three guidelines for using them:

- Think about whether an alternative explanation is more credible.
- Make sure a sign is not just an isolated instance.
- If you can find instances in which a sign does not indicate a particular event, you do not have a solid argument.

The first guideline asks whether an alternative explanation is more credible. In a speech on the standards for licensing teachers, Seogwan suggested that the low test scores in the nation's public schools were a sign of poorly trained teachers. He reasoned that low scores represented, or signaled, poor teaching. However, when his audience questioned him, they raised a number of equally credible explanations. Could the lower scores be a sign of outdated or biased tests? of overcrowded classrooms? of the need to restructure our classrooms? of poor testing skills? Each explanation is as likely as the one Seogwan offered, and much evidence supports each one. As a result, his audience thought Seogwan's reasoning was flawed. To avoid this pitfall, be sure that when you claim one thing is a sign of another, an alternative explanation is not equally valid or better.

Second, when you reason by sign, make sure the sign is not just an isolated instance. Speaking against the new no smoking ordinance in his town, Mark argued that all of his friends, even nonsmokers, had no problems with designated areas for smokers in public places. This, he claimed, was a sign that most people do not think a no-smoking ordinance is necessary. He ignored the many local and nationwide campaigns in favor of establishing no-smoking ordinances in public places. He mistakenly

**sign**

something that represents something else



Consider the reasoning you plan to use in your speech. If you share that reasoning with your friends or classmates, do you think they will find it credible? Why or why not?

Rich Leng/Metta/Getty Images

assumed that one instance (his friends' support of smokers in public places) represented a larger pattern.

Third, when you reason by sign, you are suggesting the sign almost always indicates a particular event. If you can find instances in which the sign does not indicate that event, then you do not have a solid argument. In his speech on our ability to predict natural disasters, Tim offered the evidence that not every undersea earthquake of a certain magnitude results in a tsunami, nor does every hurricane result in massive damage. Thus, he argued, blaming scientists for not notifying authorities before such natural disasters occur is unreasonable. However, Tim argued, the occurrence of the Sri Lanka tsunami and Hurricane Katrina, and the tragedies left in

their wake are signs that warning systems, regardless of their overprediction rates, are imperative.

### Reasoning and Emotion

Now that you have learned about the five most common patterns of reasoning used in speeches, we will consider appeals to emotion and how they can affect your reasoning. The use of emotional appeals can be one of the most challenging aspects of public speaking. On the one hand, research suggests that effective speakers appeal to emotions because they encourage the audience to relate to an issue on an internal personal level. On the other hand, because emotions are so personal and powerful, research also suggests that an inappropriate appeal to emotions can cause an audience to shut down in an instant (Perloff, 1993; Stiff, 1994). Appeals to emotions can be complicated, so it is useful to understand what emotions are and which emotions people most commonly experience.

**Emotions** are *internal mental states that focus primarily on feelings* (Stiff, 1994). Communication research has identified six primary emotions that tend to be expressed similarly across cultures and four secondary emotions that are expressed differently depending on age, gender, and culture (Perloff, 1993). The primary emotions are

- *fear*, or an unpleasant feeling of apprehension or distress, the anticipation of danger or threat;
- *anger*, or a feeling of annoyance, irritation, or rage;
- *surprise*, or a feeling of sudden wonder or amazement, especially because of something unexpected;

#### emotions

internal mental states that focus primarily on feelings.

- *sadness*,
  - *disgust*, and
  - *happiness*.
- The secondary emotions are
- *pride*, or a feeling of self-worth, a trait, or a feeling of delight;
  - *guilt*, or a feeling of regret or shame;
  - *shame*, or a feeling of embarrassment; and
  - *reverence*.

In public speaking, the following points, expressed memorably.

**Gaining Attention**  
The audience's attention is essential for your emotions with a

**Reinforcing Points**  
Use points or subpoints that are statistically and then restate the statistic in your own words to reinforce your point on a

**Expressing Personality**  
Express your personality and want your audience to know you may appeal to emotions in an intense tone, or you

**Calling to Action**  
Call the audience to action and explain how it could affect them with a compelling story.

Because emotions are so powerful, you want to consider the emotion with which you use language carefully.

**Balancing Emotions**  
Balance your emotions to be effective. Balance your audience with your arguments.

- *sadness*, or a feeling of unhappiness, grief, or sorrow;
- *disgust*, or a feeling of horrified or sickened distaste for something; and
- *happiness*, or a feeling of pleasure, contentment, or joy.

The secondary emotions are

- *pride*, or an appropriate level of respect for a person, character trait, accomplishment, experience, or value; feeling pleased or delighted;
- *guilt*, or an awareness of having done wrong accompanied by feelings of shame and regret;
- *shame*, or a feeling of dishonor, unworthiness, and embarrassment; and
- *reverence*, or a feeling of deep respect, awe, or devotion.

In public speaking, you make appeals to emotions to accomplish the following goals: gain attention and motivate listening, reinforce points, express personal commitment, and call to action or conclude memorably.

**Gaining Attention and Motivating Listening** You often catch an audience's attention and motivate them to listen by appealing to their emotions with a compelling short story, testimony, or examples.

**Reinforcing Points** You can use emotional appeals to reinforce main points or subpoints. For example, when you support a point with a statistic and then reinforce the statistic with an example of how some aspect of the statistic has affected a specific person, an audience can understand your point on a more personal level.

**Expressing Personal Commitment** When you care deeply about an issue and want your audiences to recognize this depth of commitment, you may appeal to emotions by shifting your delivery to a more passionate or intense tone, or you may personalize your claims and arguments.

**Calling to Action or Concluding Memorably** You can often move an audience to action by asking them to envision the result of that action and how it could affect them personally. You might end your speech with a compelling story or quote and so conclude memorably.

Because emotional appeals engage an audience personally, you will want to consider three things to help you use them effectively: balancing emotion with reason, staying audience centered, and using vivid language carefully.

**Balancing Emotion and Reason** Overly emotional speeches may stimulate your audience, but without sound reasoning they are less likely to be effective. Balance emotional appeals with sound reasoning and your audience will see more than one dimension of your ideas and arguments.

**Staying Audience Centered** Consider your audience very carefully before you decide what kinds of emotional appeals to use. Before you incorporate emotional appeals, ask yourself the following questions:

- *Is my appeal to emotion overly graphic or violent?* When a speaker's use of emotion provides extensive details about the horrors or injuries of a person or situation, the audience may shut down or feel overwhelming revulsion.
- *Is my appeal to emotion overly frightening or threatening?* When a speaker describes something so frightening or threatening that the audience feels helpless or panicked, members may stop listening or feel immobilized.

- *Is my appeal to emotion overly manipulative?* When a speaker relies on theatrics, melodrama, and sensation rather than on fact and research, the audience can feel manipulated or reject the message or argument.

**Using Vivid Language** Vivid language helps an audience recall some of their most profound experiences and create images that are rich with feeling. Use vivid descriptions and examples that are not overly graphic or manipulative to help your audience connect with those experiences.

## PRACTICING HUMAN COMMUNICATION

### Test the Reasoning of Your Arguments

Bring one of your main arguments to your speech to class. Present this argument and determine which pattern of reasoning will help you develop this argument most fully (inductive, deductive, causal, analogical, or by sign). After each person has presented her or his argument and selected a pattern of reasoning to support it, discuss the strengths and weaknesses of each person's approach.

#### fallacy

an argument that seems valid but is flawed because of unsound evidence or reasoning.

#### ad hominem fallacy

an argument in which a speaker attacks a person rather than challenge that person's arguments.



## Be Aware of Fallacies in Reasoning

Whether or not it is intentional, speakers sometimes make inaccurate arguments called fallacies. A **fallacy** is *an argument that seems valid but is flawed because of unsound evidence or reasoning*. Fallacies are a problem in speeches not only because they undermine speakers' arguments but also because, despite their factual or logical errors, they can be quite persuasive. Fallacies can seem reasonable and acceptable on the surface, but when we analyze them, we see that their logic is flawed. Although there are more than 125 different fallacies, we will discuss the most common types for beginning public speakers: ad hominem, bandwagon, either-or, red herring, slippery slope, false cause, and hasty generalization (Kahane & Cavender, 1998; Van Eemeren & Gootendorst, 1992).

### Ad Hominem: Against the Person

*Ad hominem* is a Latin term that means "against the person." Perhaps one of the most familiar fallacies, an **ad hominem fallacy** is *an argument in which a speaker attacks a person rather than that person's arguments*. By portraying someone with an opposing position as incompetent,

unreliable, or even her or his argument fallacy:

1. Certain a liberal
2. Of cour vices; sh her life.

Ad homin content of an person offering audience to ev

### Bandwagon:

When you fa something is doing it. In p these:

- Many c in resta
- How c have ne why sh

The bandv say no to sor wagon is flav might work v ence. You ne worked for c for a particu just because Large group not necessa fallacy, ask y me or us? Ev we support?

### Either-Or: A

A dilemma i are all unple we feel we m speeches, an argument in actually mor

unreliable, or even stupid, you effectively silence that person and discredit her or his arguments or ideas. Here are two examples of an ad hominem fallacy:

1. Certainly, Obama worked so hard to pass the health-care bill—he's a liberal democrat who only wants to make our country socialist.
2. Of course the commissioner would argue for cuts in social services; she's been an insensitive, money-grubbing Republican all her life.

Ad hominem fallacies turn the audience's attention away from the content of an argument and toward the character and credibility of the person offering that argument. They cloud an issue, making it hard for an audience to evaluate the ideas the speaker challenges.

### Bandwagon: Everyone Else Agrees

When you fall prey to the **bandwagon fallacy**, you are *suggesting that something is correct or good because everyone else agrees with it or is doing it*. In public speaking, this translates to making statements like these:

- Many other communities are adopting this nonsmoking ordinance in restaurants. It is a perfect solution for us as well.
- How can we allow gays and lesbians in our organization? They have not been allowed in the military or scouting organizations, so why should we accept them in ours?

The bandwagon fallacy works a little like group pressure: It is hard to say no to something everyone else is doing. But the logic of the bandwagon is flawed for two reasons. First, even though a solution or a plan might work well for some, it might not be the best solution for your audience. You need to do more than argue "it will work for you because it worked for others." You need to explain exactly why a plan might work for a particular group of people, community, or organization. Second, just because "lots of others agree" does not make something "good." Large groups of people agree about many things, but those things are not necessarily appropriate for everyone. When you hear the bandwagon fallacy, ask yourself two questions: If it is good for them, is it good for me or us? Even if many others are doing something, is it something I or we support?

### Either-Or: A False Dilemma

A dilemma is a situation that requires you to choose from options that are all unpleasant or mutually exclusive. When we are facing a dilemma, we feel we must make a choice even if it is not to our liking. In persuasive speeches, an **either-or fallacy**, sometimes called a "false dilemma," is an argument in which a speaker claims our options are "either A or B," when actually more than two options exist. To identify a false dilemma, listen

#### bandwagon fallacy

a suggestion that something is correct or good because everyone else agrees with it or is doing it.

#### either-or fallacy (false dilemma)

an argument in which a speaker claims our options are "either A or B," when actually more than two options exist.

## ETHICAL MOMENT



© Trevor Henty/istockphoto

### Are We Free to Say Anything We Want?

Conservative political commentator Rush Limbaugh is known for speaking his mind and criticizing liberal politicians and policies. On his radio show that aired October 20, 2009, Rush Limbaugh criticized a blog written by Andrew Revkin, a journalist for *The New York Times*. In his blog post “Are Condoms the Ultimate Green Technology?” Revkin claimed that an increase in the human population correlates directly with an increase in carbon dioxide emissions. He wrote that “recent research has resulted in renewed coverage of the notion that one of the cheapest ways to curb emission in coming decades would be to provide access to birth control for tens of millions of women around the world who say they desire it.” He raised the question of implementing a “baby-avoidance carbon credit,” similar to selling “CO<sub>2</sub> credits for avoiding deforestation,” and stated that this idea was “purely a thought experiment, not a proposal” (Revkin, 2009a).

After learning of Revkin’s thought experiment, Rush Limbaugh called Revkin and others who believe humans are ultimately to blame for climate change “environmental wackos.” Limbaugh lamented, “This guy from *The New York Times*—if he really thinks that humanity is destroying the planet, humanity is destroying the climate, that human beings in their natural existence are going to cause the extinction of life on Earth—Andrew Revkin, Mr. Revkin, why don’t you just go kill yourself and help the planet by dying?” After ten days of media stories questioning

Limbaugh’s integrity for making the comments, Limbaugh (re) framed his position. On his show, he stated, “Mr. Revkin, for crying out loud, I’m making a point. I’m not advocating death. I do not advocate death on this program. I do not advocate control over anybody else’s life” (“Limbaugh to NY Times”, 2009; Revkin, 2009a, 2009b; New York Times, September 15, 2009; Media Matters for America, 2009; New York Times, October 20, 2009).

### What Do You Think?

1. What is the definition of free speech? What does free speech mean to you?
2. Were Rush Limbaugh’s original comments regarding Andrew Revkin in the realm of free speech? Why or why not?
3. If you or others found either Limbaugh’s or Revkin’s remarks offensive, do you still think they should be protected by free speech principles?
4. What are the ethical implications of Limbaugh’s statement that Revkin should “just go kill” himself?
5. Do you think Revkin was ethical in expressing his thought experiment on using birth control as a means to reduce carbon emissions? Why or why not?

for the words *either* and *or* as a speaker presents an argument. Consider these two examples:

Either we increase access to our before- and after-school meal programs or our students will continue to fail.

Either we increase our candidate’s appeal to women or we don’t get elected.

In both examples, the audience is presented with a false dilemma. Intuitively, we know there must be other options. In the first example, there are other ways to respond to poor student performance—better nutrition is only one part of the solution. In the second, there likely are other ways to increase a candidate’s appeal and chances of success. Sometimes, it is hard to see the other options immediately, but they are usually there.

Either-or arguments are fallacious because they oversimplify complex issues. Usually, the speaker has created an atmosphere in which the

audience feels p  
if those options  
from consideri

**Red Herring:** R  
The term *red h*  
Before a hunt  
the perimeter  
scent of the f  
from trample  
farmers, trail  
is not such a  
we introduce  
audience from  
herring fallac

How can  
50,000 wh  
AIDS-rela

In this ex  
community  
then becom  
edly, this is  
which is eq  
less inclin  
of fallacy c  
but the auc  
an audienc  
and impor  
herring fall

### Slippery S

A slipper  
taking a j  
further st  
stop, a sli  
or action  
slope falla

If we a  
will be  
to out  
inside  
try to

The s  
one unw  
gets cau  
slope ar  
claim (f

audience feels pressured to select one of the two options presented. Even if those options may be good choices, an either-or argument prevents us from considering others that may be even better.

### Red Herring: Raising an Irrelevant Issue

The term *red herring* comes from the fox-hunting tradition in England. Before a hunt began, farmers often dragged a smoked herring around the perimeter of their fields. The strong odor from the fish masked the scent of the fox and threw the hounds off its trail, keeping the hounds from trampling the farmers' crops. Although this worked well for the farmers, trailing the equivalent of a red herring around an argument is not such a good idea. When we make use of the **red herring fallacy**, we *introduce irrelevant information into an argument to distract an audience from the real issue*. The following example illustrates the red herring fallacy:

How can we worry about the few cases of AIDS in our town of only 50,000 when thousands and thousands of children are dying of AIDS and AIDS-related illnesses in other countries?

In this example, the speaker turns the argument away from her own community and toward the international problem of AIDS. The audience then becomes more concerned about AIDS in other countries. Undoubtedly, this is an important issue, but it is not the one under discussion, which is equally important. Because of the red herring, the audience is less inclined to move toward a solution for the local situation. This type of fallacy can be hard to spot because both issues usually are important, but the audience feels pulled toward the most recently raised issue. As an audience member, listen carefully when a speaker introduces a new and important topic in a persuasive speech; you might be hearing a red herring fallacy.

### Slippery Slope: The Second Step Is Inevitable

A **slippery slope fallacy** is an argument in which a speaker claims that *taking a first step in one direction will inevitably lead to undesirable further steps*. Like a skier speeding down a hill without being able to stop, a slippery slope fallacy suggests the momentum of one decision or action will cause others to follow. Here is an example of a slippery slope fallacy:

If we allow our children to dress in any way they want at school, they soon will be wearing more and more outrageous clothing. They'll start trying to outdress one another. Then it'll be increasingly outrageous behaviors inside and outside the classrooms. Soon they'll turn to violence as they try to top one another.

The speaker is making a slippery slope argument by suggesting that if one unwanted thing happens, others certainly will follow. The audience gets caught up in the momentum of this "snowball" argument. Slippery slope arguments can be persuasive because the speaker relates the first claim (for example, the dress codes) to a larger issue (violence) when the

#### red herring fallacy

irrelevant information inserted into an argument to distract an audience from the real issue.

#### slippery slope fallacy

an argument in which a speaker claims that taking a first step in one direction will inevitably lead to undesirable further steps.

### false cause fallacy

an argument mistaking a chronological relationship with a causal relationship.

### single cause fallacy

when speakers assume a particular effect only has one cause.

### hasty generalization fallacy

an argument based on too few cases or examples to support a conclusion.

two may not even be linked. Before you accept the full claim made with a slippery slope argument, stop and consider whether the chain of events really is inevitable.

### False Cause: Mistaking a Chronological Relationship

A **false cause fallacy** is an argument mistaking a chronological relationship with a causal relationship. There are two types of false cause fallacies. The first type occurs when a speaker assumes that one event caused the second to occur. Notice how the speaker in the following example mistakenly assumes that the first event caused the second:

After the state passed legislation in favor of the death penalty, violent crimes decreased. The new legislation has deterred criminal activity.

Criminal activity may have declined after the state implemented a new pro-death penalty policy; however, it does not prove that the legislation caused the decline. Other factors may have influenced the decline, such as methods of reporting violent crimes, rehabilitation programs in prisons, and even educational opportunities for individuals at risk to commit violent crimes.

The second type of false cause fallacy is known as a **single cause fallacy**. This occurs when speakers assume a particular effect only has one cause. Many public problems are complex, resulting from multiple causes. Speakers want to avoid oversimplifying an effect to a single cause. Notice how the following example blames only one cause on childhood obesity

The number of obese children in the United States has significantly increased over the past decade. According to pediatric experts, approximately 30 percent of children under the age of thirteen are obese. This is because of the unhealthy school lunches being served in schools across the nation. We need legislation mandating more nutritious lunches in order to solve the obesity epidemic.

This example assumes that there is only one cause to the problem of childhood obesity—unhealthy school lunches. In fact, there are a number of reasons American children are obese: fast food, junk food, and trans fats consumed outside of school; lack of physical exercise inside and outside of school; and possibly genetic factors. Assuming only one cause exists for a complex problem is committing a false cause fallacy.

### Hasty Generalization: Too Few Examples

A **hasty generalization fallacy** is an argument based on too few cases or examples to support a conclusion. When speakers rely only on personal experiences to draw conclusions, for example, they may fall into the trap of a hasty generalization because personal experiences often are not enough to prove a claim true. Notice how the following student relies only on her personal experience to support a larger claim:

The school of business and finance is the hardest program to be accepted into at our university. I have applied three times and still have not been admitted.

This student uses her personal experience of being rejected multiple times to support her argument on the overall difficulty of getting into

the school of business denied admission is the toughest one to

As you listen to speakers, keep in mind that you need to be sure our logic

### Tips for Reasoning

Evidence, reasoning, and perspective, and you can manipulate, confuse, or you reason ethically. Use evidence and verify

### Using Accurate Evidence

use accurate evidence to present a fully informed dialogue. To avoid being deceived, use reliable sources

### Verifying the Source

watch out for an unreliable source. Take time to assess the source and credible information. Take time to figure out the source with a sound ex

## Chapter 11

### Gathering and Evaluating Evidence Will Help You Make a Publicly and Ethically Sound Decision

- Gather information from a variety of sources, including the Internet, the media, and authoritative sources.
- Evaluate the sources of information, including the Internet or in person, for their authority and reliability.

### When You Complete an Interview, Determine Whether the Interview Ended Quietly or Ended with a Question. The Interviewer's Response to the Question Will Determine the Interview's Outcome.

### The Material You Gathered Will Become the Support You Need to Make a Publicly and Ethically Sound Decision

the school of business and finance. Although this student may have been denied admission into the program, this does not prove that the program is the toughest one to enter for all students.

As you listen to speeches, and as you put your own arguments together, keep in mind that a fallacy is an error in logic. When we reason, we want to be sure our logic is sound and not based on error or deception.

### Tips for Reasoning Ethically

Evidence, reasoning, logic, and arguments are powerful tools in the public dialogue. With them, we can share information, express our perspective, and invite dialogue on an issue. However, we also can manipulate, confuse, and misrepresent with our reasoning. To ensure you reason ethically and effectively, follow these two tips: use accurate evidence and verify the structure of your reasoning.

**Using Accurate Evidence** As a speaker, you are ethically obligated to use accurate evidence in all of your reasoning. Although you may be able to present a fully developed argument based on fabricated evidence, that would be deceiving your audience and counterproductive to the public dialogue. To avoid this, use only evidence you are sure is from accurate and reliable sources.

**Verifying the Structure of Your Reasoning** When you give a speech, watch out for any fallacies that creep into your arguments and reasoning. Take time to assess each claim you make and be sure it is based on strong and credible inductive and deductive reasoning. When you spot a fallacy, take time to figure out what kind you are using and replace that fallacy with a sound example, bit of evidence, or statistic.

## Chapter Summary

### Gathering a Range of Materials for Your Speech Will Help You Enter the Public Dialogue Responsibly and Ethically and Deliver an Effective Speech

- Gather information from personal experiences and knowledge, the Internet, the library, and research interviews.
- Evaluate the strength of the materials you find on the Internet or in the library: Is the information reliable? authoritative? current? consistent and unbiased?

### When You Conduct a Research Interview, Determine Whom to Interview, Design the Interview Questions Using Open or Closed Ended Questions, and Schedule and Conduct the Interview

### The Material You Gather From Your Research Becomes the Evidence You Use to Develop and Support Your Ideas

- The five most common types of evidence are: examples, narratives, statistics, testimony and definitions.
- Examples can be real or hypothetical. Narratives can be brief or extended.
- Statistics can present the mean, median, and mode. Testimony consists of direct quotations or paraphrasing, as well as expert, peer, and personal testimony.
- Definitions can be either denotative or connotative.

### Put the Evidence Into One of the Five Most Common Patterns of Reasoning: Induction, Deduction, Cause, Analogy, and Sign

- Inductive reasoning uses specific examples to make a claim about a general conclusion.
- To ensure your reasoning is ethical, avoid anomalies and hasty generalizations; make sure your generalizations are accurate; support your inductive arguments with statistics or testimony.

- Deductive reasoning includes the major premise (the general principle), a minor premise (the specific instance that helps establish the truth of the third statement), and a conclusion (the claim you are attempting to prove as true).
- Causal reasoning supports a claim by establishing a cause-and-effect relationship. Avoid false causes, avoid assuming an event has only one cause, and strengthen your causal reasoning by offering supporting evidence.
- Analogical reasoning compares two similar things and suggests that what is true for the first will be true for the second. To increase the effectiveness of analogical reasoning, be sure what you are comparing is truly alike.
- Reasoning by sign assumes something exists or will happen based on something else that exists or has happened. Because signs are fallible, consider whether an alternative explanation is more credible. Make sure a sign is not just an isolated instance; if a sign does not indicate a particular event, then you do not have a solid argument.

- In public speaking, emotional appeals accomplish the following goals: gain attention and motivate listening, reinforce points, express personal commitment, and make a call to action or conclude memorably. When you use appeals to emotion, be sure to balance emotion with reason, stay audience centered, and use vivid but appropriate language.

### Common Types of Fallacies for Beginning Public Speakers Are Ad Hominem, Bandwagon, Either-or, Red Herring, Slippery Slope, False Cause, and Hasty Generalization

- Keep in mind that a fallacy is an error in logic. When we reason, we want to be sure our logic is sound and not based on error or deception.
- To be certain you are reasoning ethically, make sure your evidence is accurate and your reasoning does not rely on any fallacies.

## Key Concepts

<b>ad hominem fallacy</b> (288)	<b>examples</b> (272)	<b>mode</b> (278)
<b>analogical reasoning</b> (284)	<b>expert testimony</b> (279)	<b>narrative</b> (273)
<b>anomalies</b> (281)	<b>fallacy</b> (288)	<b>paraphrase</b> (279)
<b>bandwagon fallacy</b> (289)	<b>false cause</b> (283)	<b>peer testimony (lay testimony)</b> (279)
<b>causal reasoning</b> (282)	<b>false cause fallacy</b> (292)	<b>personal testimony</b> (279)
<b>conclusion</b> (281)	<b>hasty generalization</b> (281)	<b>real example</b> (272)
<b>connotative definition</b> (279)	<b>hasty generalization fallacy</b> (292)	<b>red herring fallacy</b> (291)
<b>deductive reasoning</b> (281)	<b>hypothetical example</b> (272)	<b>sign</b> (285)
<b>definition</b> (279)	<b>inductive reasoning</b> (280)	<b>single cause fallacy</b> (292)
<b>denotative definition</b> (279)	<b>interview</b> (269)	<b>slippery slope fallacy</b> (291)
<b>direct quotation</b> (279)	<b>major premise</b> (281)	<b>statistics</b> (274)
<b>either-or fallacy (false dilemma)</b> (289)	<b>mean</b> (275)	<b>testimony</b> (278)
<b>emotions</b> (286)	<b>median</b> (275)	
<b>evidence</b> (272)	<b>minor premise</b> (281)	

## Invitation to Human Communication Online

Speech Communication CourseMate includes an interactive eBook and interactive learning tools including National Geographic Explorer videos, student videos, quizzes, flash cards, and more. Speech Builder Express 3.0 and Speech Studio 2.0 are also available. Go to [cengagebrain.com](http://cengagebrain.com) to access your CourseMate for *Invitation to Human Communication* where these resources can be found.

## Further Reflection and Discussion

---

1. Bring a newspaper to class. In groups, identify as many different types of reasoning as you can find in the text, photographs, and advertisements. Label each item you find as inductive reasoning, deductive reasoning, causal reasoning, analogical reasoning, or reasoning by sign and evaluate the strength of each type of reasoning according to the guidelines discussed in this chapter.
2. Evaluate the strengths and weaknesses of the information you have gathered for your speech. Is it reliable, authoritative, current, complete, relevant, and consistent? Based on your assessment, identify information you might discard and consider whether you need to do more research for your speech.
3. Draft a list of questions you would like to ask a personal contact for your next speech. Keep in mind your speech goals, time limitations, and audience. Now organize that list so the most important questions are first and the least important ones are last. Next consider how you will begin your interview. Will you start with your most important questions or some warm-up questions? What questions will you use to close the interview?
4. Consider the sources that you gathered your research from. Did you use a wide range of materials? Did you consider the credibility of those sources? Did you evaluate the ethical nature of the sources and the information you plan to use in your speech? Are there any changes you might make to ensure your research is unbiased, appropriate, and ethical?

## Activity and Web Link

---

Visit [cengagebrain.com](http://cengagebrain.com) to access the CourseMate for *Invitation to Human Communication* where these activities and web links can be found.

1. Visit the following databases and indexes and write brief notes about what type of information and sources you find there that could be helpful in gathering information for your speech: *New York Times Index*, *Wall Street Journal Index*, *DataTimes*, *Academic Search Premier*, *IngentaConnect*. Go to *Web link 11.1*.