PART I

Communicating in the Workplace

Report Pinpoints Cause of
***Columbia* Shuttle Crash**

On February 1, 2003, near the end of mission STS-107, NASA Space Shuttle *Columbia* disintegrated on reentry into the Earth's atmosphere. All seven astronauts were killed in the accident. On August 26, 2003, the *Columbia* Accident Investigation Board (CAIB) presented to the press the conclusions of its seven-month investigation into the cause of the accident. In four words: "The foam did it."

As the Board members explained, a number of experiments concluded that a small piece of insulating foam, falling from the external fuel tank at about 500 mph, struck the leading edge of *Columbia*'s wing with sufficient force to cause a "breach" in the wing's surface. During reentry, superheated gases penetrated the hole in the wing and caused structural damage that eventually caused the entire shuttle to disintegrate.

The causes of the 2003 shuttle tragedy were vastly different from those behind the 1986 *Challenger* explosion. At the same time, a number of cultural, budgetary, and decision-making factors were outlined in the report. Similar foam incidents had happened on earlier flights. How were the signals missed? Like many organizations, NASA again finds itself needing to confront serious issues of culture and communications. ◆

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Preparing an Effective Technical Document

All professionals specialize in solving problems (how to repair equipment, how to improve a product, how to diagnose an ailment). But whatever your specialty, when you communicate on the job, your main problem is this: ''How do I prepare the right document for this situation?''

COMPLETE THE KEY TASKS

To produce an effective document in a workplace setting, you typically need to complete four basic tasks (Figure 2.1):

- **Deliver the essential information**—because different people in different situations have different information needs.
- **Make a persuasive case**—because people often disagree about what the information means and what action should be taken.
- **Weigh the ethical issues**—because the interests of your employer may conflict with the interests of other people involved.
- **Work in teams**—because this is how roughly 90 percent of U.S. workers spend some part of their day ("People" 57).

The scenarios that follow illustrate how a typical professional confronts these tasks in her own workplace communication.

Delivering the Essential Information

Sarah Burnes was hired two months ago as a chemical engineer for Millisun, a leading maker of cameras, multipurpose film, and photographic equipment. Sarah's first major assignment is to evaluate the plant's incoming and outgoing water. (Waterborne contaminants can taint film during production, and the production process itself can pollute outgoing water.) Management wants an answer to this question: How often should we change water filters? The filters are expensive and hard to change, halting production for up to a day at a time. The company wants as much "mileage" as possible from these filters, without incurring government fines or tainting its film production.

Sarah will study endless printouts of chemical analysis, review current research and government regulations, do some testing of her own, and consult with her colleagues. When she finally decides on what all the data mean, Sarah will prepare a recommendation report for her bosses.

Later, she will collaborate with the company training manager and the maintenance supervisor to prepare a manual, instructing employees how to check and change the filters. To cut publishing

costs, the company has asked Sarah to design and produce this manual using its desktop publishing system. ⌐

Sarah's report, above all, needs to be accurate; otherwise, the company gets fined or lowers production. Once she has processed all the information, she faces the problem of giving users what they need: *How much explaining should I do? How will I organize? Do I need visuals?* And so on.

In other situations, Sarah will face a persuasion problem as well: for example, when decisions must be made or actions taken on the basis of incomplete or inconclusive facts or conflicting interpretations (Hauser 72). In these instances, Sarah will seek consensus for *her* view.

Making a Persuasive Case

Millisun and other electronics producers are located on the shores of a small harbor, the port for a major fishing fleet. For twenty years, these companies have discharged effluents containing metal compounds, PCBs, and other toxins directly into the harbor. Sarah is on a multicompany team, assigned to work with the Environmental Protection Agency to clean up the harbor. Much of the team's collaboration occurs via email.

Enraged local citizens are demanding immediate action, and the companies themselves are anxious to end this public relations nightmare. But the team's analysis reveals that any type of cleanup would stir up harbor sediment, possibly dispersing the solution into surrounding waters and the atmosphere. (Many of the contaminants can be airborne.) Premature action might actually *increase* danger, but team members disagree on the degree of risk and on how to proceed.

Sarah's communication here takes on a persuasive dimension: She and her team members first have to resolve their own disagreements and produce an environmental impact report that reflects the team's consensus. If the report recommends further study, Sarah will have to justify the delays to her bosses and the public relations office. She will have to make people understand the dangers as well as she understands them. ⌐

In the above situation, the facts are neither complete nor conclusive, and views differ about what these facts mean. Sarah will have to balance the various political pressures and make a case for *her* interpretation. Also, as company spokesperson, Sarah will be expected to protect her company's interests. Some elements of Sarah's persuasion problem: *Are other interpretations possible? Is there a better way? Can I expect political or legal fallout?*

Sarah also will have to reckon with the ethical implications of her writing, with the question of "doing the

right thing." For instance, Sarah might feel pressured to overlook or sugarcoat or suppress facts that would be costly or embarrassing to her company.

Weighing the Ethical Issues

> To ensure compliance with OSHA[1] standards for worker safety, Sarah is assigned to test the air purification system in Millisun's chemical division. After finding the filters hopelessly clogged, she decides to test the air quality and discovers dangerous levels of benzene (a potent carcinogen). She reports these findings in a memo to the production manager, with an urgent recommendation that all employees be tested for benzene poisoning. The manager phones and tells Sarah to "have the filters replaced," but says nothing at all about her recommendation to test for benzene poisoning. Now Sarah has to decide what to do about this lack of response: Assume the test is being handled, and bury the memo in some file cabinet? Raise the issue again, and risk alienating her boss? Send copies of her original memo to someone else who might take action? ⌟

Situations that compromise truth and fairness present the hardest choices of all: Remain silent and look the other way or speak out and risk being fired. Some elements of Sarah's ethics problem: *Is this fair? Who might benefit or suffer? What other consequences could this have?*

In addition to solving these various problems, Sarah has to reckon with the implications of working in a team setting: Much of her writing will be produced in collaboration with others (editors, managers, graphic artists), and her audience will extend beyond her own culture.

Working on a Team

> Recent mergers have transformed Millisun into a multinational corporation with branches in eleven countries, all connected by an intranet. Sarah can expect to collaborate with coworkers from diverse cultures on research and development and with government agencies of the host countries on safety issues, patents and licensing rights, product liability laws, and environmental concerns.
>
> In order to standardize the sensitive management of the toxic, volatile, and even explosive chemicals used in film production, Millisun is developing automated procedures for quality control, troubleshooting, and emergency response to chemical leakage. Sarah has been assigned to a team that is preparing computer-based training packages and instructional videos for all personnel involved in Millisun's chemical management worldwide. ⌟

As a further complication, Sarah will have to develop working relationships with people she has never met face-to-face, people from other cultures, people she knows only via an electronic medium.

For Sarah Burnes, or any of us, writing is a process of *discovering* what we want to say, "a way to end up thinking something [we] couldn't have started out thinking" (Elbow 15). Throughout this process in the workplace, we rarely work alone, but instead collaborate with others for information, help in writing, and feedback (Grice, "Document" 29–30). We must satisfy not only our audience, but also our employer, whose goals and values ultimately shape the document (Selzer 46–47). Almost any document for people outside our organization will be *reviewed* for accuracy, appropriateness, usefulness, and legality before it is finally approved (Kleimann 521).

RELY ON CREATIVE AND CRITICAL THINKING

In *creative thinking*, we explore new ideas; we build on information; we devise better ways of doing things. (For example, "How do we get as much mileage as possible from our water filters?")

In *critical thinking*, we test the strength of our ideas or the worth of our information. Instead of accepting an idea at face value, we examine, evaluate, verify, analyze, weigh alternatives, and consider consequences—at every stage of that idea's development. We employ critical thinking to examine our evidence and our reasoning, to discover new connections and new possibilities, and to test the effectiveness and the limits of our solutions.

We apply creative and critical thinking throughout the four stages in the *writing process:*

1. Gather and evaluate ideas and information.
2. Plan the document.
3. Draft the document.
4. Revise the document.

One engineering professional describes how creative and critical thinking enrich every stage of the writing process:

> Good writing is a process of thinking, writing, revising, thinking, and revising, until the idea is fully developed. An engineer can develop better perspectives and even new technical concepts when writing a report of a project. Many an engineer, at the completion of a laboratory project, senses a new interpretation or sees a defect in the results and goes back to the laboratory for additional data, a more thorough analysis, or a modified design. (Franke 13)

As the arrows in Figure 2.2 indicate, no one stage of the writing process is complete until all stages are complete. Figure 2.3 lists the kinds of questions we answer at various stages. On the job, we must often complete these stages under deadline pressure. Like the exposed tip of an iceberg, the finished document provides the only visible evidence of our labor.

NOTE *Revising a draft doesn't always guarantee that you will improve it. Save each draft and then compare them to select the best material from each one.*

Computers, of course, are essential tools in the writing process. The following guidelines will help you capitalize on all the benefits a computer has to offer.

MAKE PROOFREADING YOUR FINAL STEP

No matter how attractive and informative the document, basic errors annoy the user and make the writer look bad (including on various drafts that are being reviewed by colleagues). Proofreading detects easily correctable errors such as these:

- *Sentence errors* such as fragments, comma splices, or run-ons (see page 752)
- *Punctuation errors* such as missing apostrophes or excessive commas (see page 762)
- *Usage errors* such as "it's" for "its", "lay" for "lie," or "their" for "there" (see page 774)
- *Mechanical errors* such as misspelled words, inaccurate dates, or incorrect abbreviations (see page 773)
- *Format errors* such as missing page numbers, inconsistent spacing, or incorrect form of documenting sources (see page 344)
- *Typographical errors* (typos) such as repeated or missing words or letters, missing word endings (say, *-s* or *-ed* or *-ing*), or a left-out quotation mark or parenthesis (see page 284)

Refer to the page numbers in parentheses for advice on repairing these errors.

EXERCISES

1. Assume that a friend in your major thinks that computers have made writing skills obsolete and that anyone with the necessary hardware and software can write and design information without regard to the issues discussed in this chapter. Write your

friend a memo based on this chapter explaining why you think these assumptions are mistaken. (See pages 386, 387 for details on memo format.)

Supplement this chapter's information with material from a brief search of Web sites that offer writing advice. Check out the Web sites listed below or use a search engine to locate other relevant sites. Trace the sequence of links you followed to reach your material, and cite each source. (See pages 695, 709 for citation formats for electronic sources.)

- <www.owl.english.purdue.edu> This online writing center offers all kinds of writing help.
- <www.inkspot.com> A good source of useful writing tips.

2. Locate a Web site that describes some form of multinational collaboration to address an environmental threat such as global warming, nuclear accident, deforestation, or species depletion. In a one-page memo, summarize how various cultures are working together to address the problem. (For example, to learn about international cooperation to save fish populations, go to the National Marine Fisheries site at <www.nmfs.noaa.gov>.) Trace the sequence of links you followed to reach your material, and cite each source.
3. As you respond to the following scenario,[2] carefully consider the information, persuasion, and ethical problems involved (and be prepared to discuss them in class).

   You are Manager of Product Development at High-Tech Toys, Inc. You need to send a memo to the Vice President of Information Services, explaining the following:

   a. The laser printer in your department is often out of order.
   b. The laser printer is seldom repaired satisfactorily.
   c. Either the machine is faulty or the repairperson is incompetent (but this person always appears promptly and cheerfully when summoned from Corporate Maintenance—and is a single parent raising three young children).
   d. It is difficult to get things done in your department without being able to use the laser printer.
   e. The members of your department share ideas and plans daily.
   f. You want the problem solved—but without getting the repairperson fired.

In your memo, recommend a solution, and briefly justify your recommendation.

COLLABORATIVE PROJECT

An Issue of Ethics

Working in small groups, analyze Sarah Burnes's ethical decisions (page 19). What could happen if Sarah follows her boss's orders? What could happen if she takes no further action? After discussing the issues involved and the possible consequences, try to reach a consensus about what action Sarah should take in this situation. Appoint one member to present your group's conclusion to the class.

SERVICE-LEARNING PROJECT

Social service agencies work toward varied goals. As you scan the list of United Way agencies and others researched by your classmates, can you identify agencies whose goals or values conflict with yours or your family's? If your instructor assigned you to work for one of these agencies, how might you respond?

In a one-page memo to your instructor, summarize the key values and goals of the agency you have researched, and explain how you would or would not make a good "fit" in working with that agency.

TECHNICAL COMMUNICATION IN THE NEWS
What workplace communicators need to do
FIGURE 2.1
How an Effective Document Is Produced
"Can I provide exactly what users need?"
"Can I influence people to see things my way?"
"Can I be honest and still keep my job?"
2.1
For more on
ethics in technical communication visit
<www.ablongman.com/
lannonweb>
[1]Occupational Safety and Health Administration.
"Can I connect with all these different colleagues?"
Stages in the writing process
Writing sharpens thinking
FIGURE 2.2
The Writing Process for Technical Documents
FIGURE 2.3 Creative and Critical Thinking in the Writing Process

GUIDELINES for Writing with a Computer

1. *Beware of computer junk.* The ease of cranking out words on a computer can produce long, windy pieces that say nothing. Cut anything that fails to advance your meaning. (See pages 253–60 for ways to achieve conciseness.)

2. *Never confuse style with substance.* Laser printers and choices of typefaces, type sizes, and other design options can produce attractive documents. But not even the most engaging design can redeem a document with worthless or inaccessible content.

3. *Save and print often.* Save each paragraph as you write it; print out each page as you complete it; and keep a copy on a backup disk.

4. *Revise on hard copy.* Nothing beats scribbling on the printed page. The hard copy provides the whole text, right in front of you.

5. *Don't rely only on computerized writing aids.* A synonym found in an electronic thesaurus may distort your meaning. Spell checkers can root out incorrectly spelled words but not incorrectly *used* words such as "their," "they're," and "there" or "it's" versus "its." And grammar checkers often give bizarre or inaccurate advice. Page 284 summarizes the limitations of computerized aids. In the end, nothing substitutes for your own careful reading.

6. *Keep a different file for each draft.* Revision hardly ever occurs in a neat sequence ("good," "better," "best"). Sometimes parts of an earlier draft actually are better than something you've rewritten. Give each file a different name ("Draft #1," "Draft #2,"), in case you need to retrieve good, usable data.

7. *Select a design and a medium that your audience favors.* Should the document be primarily verbal, visual, or some combination? Should it travel by conventional mail, interoffice mail, or email? What would *these*

users prefer in this situation—the solid feel of paper or the “hi-tech” lure of a computer screen? Younger audiences tend to like flashy graphics; older audiences prefer traditional text; and people in general trust printed text more than images (Horton, “Mix Media” 781).

2.2
For more electronic writing resources visit
<www.ablongman.com/
lannonweb>
Errors to look for during proofreading

GUIDELINES for Proofreading

1. *Save it for the draft(s) others will read*. Proofreading the versions that only you will see might cause writer’s block and distract you from the "rhetorical features" (content, organization, style, and design).

2. *Take a break before proofreading*. After you complete the piece, take a walk, take a nap, or whatever.
3. *Work from hard copy*. Research indicates that people read more perceptively (and become less tired) from a printed page than from a computer screen. Also, paper is easier to mark up and scribble on. Some people like to get comfortable or even lie down.
4. *Keep it slow*. Read each word—don’t let yourself skim. Force yourself to slow down by sliding a ruler under each line or by moving backward throughout the document, sentence by sentence. For a long document, read only small chunks at one time.
5. *Be especially alert for problem areas in your writing*. Do you confuse commas with semicolons? Do you make typos? If punctuation is a problem, for example, make one final pass to check each punctuation mark.
6. *Proofread more than once*. The more you do it, the more errors you’re likely to spot.

CONSIDER THIS Workplace Settings Are Increasingly “Virtual”
Office communication has evolved dramatically, as illustrated in the practices below.

- *Instead of being housed in one location, the virtual company may have branches across the state, the nation, or the world, to which many employees "commute" electronically. These telecommuters include freelance workers who are employed by other companies as well.*
- *Workplace discussions and document sharing occur via email, instant messaging, or videoconferencing. Networked employees worldwide collaborate and converse in real time. Email listservs announce daily developments for employees or readers worldwide such as price and inventory lists, changes or updates in policies or procedures, and press releases.*
- *Employees work and write collaboratively (as in developing a proposal or a marketing plan). Drafts circulated electronically allow colleagues to add comments directly on the manuscript. Multimedia systems present text, graphics, sound, and animated material retrieved from a computer file. Colleagues in any location work on the electronic document and comment on one another’s "work in progress."*
- *Online databases store information from books, magazines, newspapers, journals, and so forth, and can be searched via the Web for the latest stock market quotations, trends in global weather patterns, sites of recent disease outbreaks, and so on. A single compact disc stores an entire encyclopedia, a medical dictionary, or interactive manuals and lessons.*
- *Instead of relying on secretaries, managers compose their own letters and memoranda for distribution via email to readers across the building or across the globe.*
- *On desktop publishing (DTP) networks, the composition, layout, graphics design, typesetting, and printing of external documents and Web pages are done in-house.*

- *Optical scanners take an electronic snapshot of any paper document produced or received, including incoming mail. Stored online, this image can be retrieved and edited, printed out, faxed or emailed, or posted on an electronic bulletin board or Web page. Company forms (requisitions, accident reports, etc.) can be produced, filled out, filed, updated, and distributed electronically.*
- *Unlike printed texts, which tend to be read front to back, electronic texts are often read nonsequentially (Grice and Ridgway 37). Readers navigate their own paths and choose various routes to explore.*

For more exercises, visit
<www.ablongman.com/lannon>

[2]My thanks to Teresa Pawelcyzk for the original version of this exercise.