Revising and editing are important because they are forms of *quality control* in a document. Your documents should reflect the quality standards that are held by your company (or maintain an even higher quality standard). The revising and editing phase is where your documents will go from "adequate" to "excellent."

Levels of Edit

Revising and editing requires more than checking a document for errors and perhaps changing a few sentences. In most cases, this kind of "revising" is not sufficient for technical documents.

Instead, when you are revising and editing, you need to approach the document from several different points of view. Professional editors use a tool called the "levels of edit" to assess how much editing a document needs before the deadline:

> **Level 1: Revision**—revises the document as a whole, which is why this level of edit is often called "global editing." Revision pays attention to the document's subject, purpose, readers, and context of use.

> **Level 2: Substantive editing**—pays special attention to the content, organization, and design of the document.

> **Level 3: Copyediting**—concentrates on revising the style for clarity, persuasion, and consistency, especially at the sentence and paragraph levels.

> **Level 4: Proofreading**—catches only the grammar mistakes, misspellings, and usage problems.

Which level of edit is appropriate for your document? The answer to this question depends on how much time you have and on the quality needed in the document. Given enough time, a writer will ideally go through all four levels, beginning with revision and ending with proofreading (Figure 20.1). But, sometimes the deadline is looming, leaving you time to only copyedit and proofread.

So, as you begin the revising and editing phase, start out by determining what level of editing is possible and/or needed to produce the desired quality of document. Then, begin reworking the document at that level.

Revising: Level 1 Editing

While you were drafting the document, you probably revised it as you wrote, sharpening your ideas on the subject, reconsidering your purpose, and adjusting the design. Now that the document is completely drafted, you can start revising it as a whole.

Revision is a process of "re-visioning" the document. In other words, you are trying to gain a new perspective on your text so you can ensure that its subject and purpose are appropriate for your intended readers. You also want to revise the document so it will work in its context of use.

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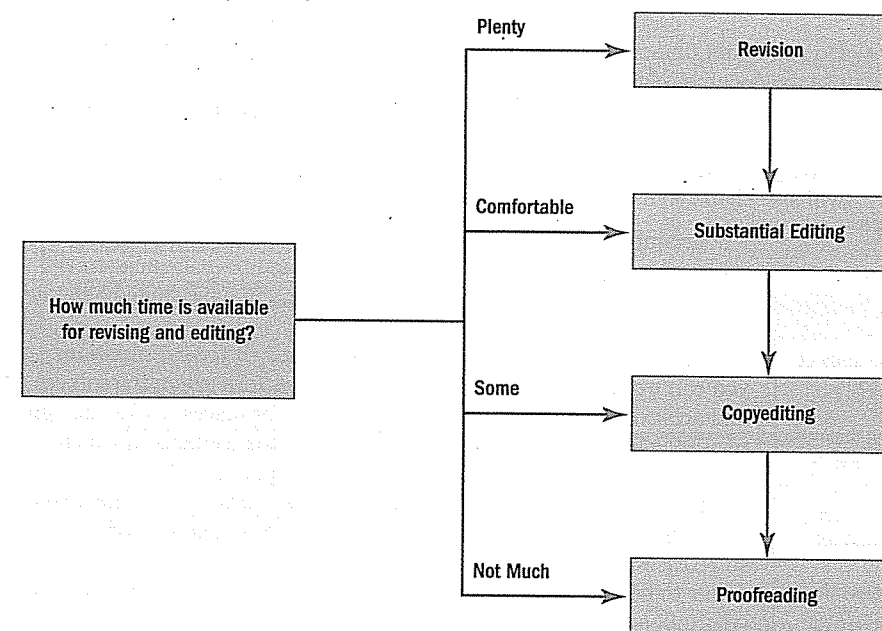
The Levels of Editing

Figure 20.1: Ideally, writers would always go through all four levels of edit, from revision to proofreading. Sometimes, though, limited time determines what level is appropriate to finish a document.

To revise (re-vision) your document, look back at your initial decisions about the rhetorical situation at the beginning of your writing process:

SUBJECT Check whether your subject needs to be narrowed or broadened.

- Has your subject changed or evolved?
- Did you limit or expand the scope of your subject?
- Has your document strayed from the subject anywhere?

PURPOSE Make sure the document is achieving its purpose.

- What do you want the document to achieve?
- Is your document's purpose still the same?
- Has your purpose become more specific or has it broadened?

READERS Looking back at your original profile of your readers, think about the characteristics of the primary readers and other possible readers.

- Do you now know more about your primary readers' needs?
- Have you fully anticipated your readers' values and attitudes?
- Have you thought about the secondary, tertiary, and gatekeeper readers?

CONTEXT OF USE Consider the contexts in which your document might be read or used.

- Do you better understand the physical places where your readers will read or use the document?
- Do you better understand the economic, political, and ethical issues that will influence how your readers interpret your document?
- Have you anticipated the personal, corporate, and industry-related issues that will also shape your readers' interpretation?

Certainly, these are difficult questions to ask as you finish your document. But they are worth asking. You need to make adjustments to the document if its purpose has evolved or you have gained a better understanding of your readers.

Once you have reconsidered the document's rhetorical situation, you can work through the text to see if it stays focused on the subject and achieves its purpose (Figure 20.2). Look for places where you can revise the text to better suit your readers and the contexts in which they will use the information you are providing.

Revision at this global level requires some courage. You may discover that parts of your document need to be completely rewritten. In some cases, the whole document may need to be reconceived. But it is better to be honest with yourself at this point and make those changes. After all, a document that fails to achieve its purpose is a waste of all the time you've spent.

Substantive Editing: Level 2 Editing

While doing substantive editing, you should concentrate on the content, organization, and design of the document (Figure 20.3). A good approach to substantive editing is to consider the document from three different perspectives:

CONTENT Look for any gaps or digressions in the content.

- Are there any places (gaps) where you are lacking proof or support for your claims?
- Do you need to do more research to support your points?
- Are there any places where you have included information that the readers do not need to know to make a decision or take action?

ORGANIZATION A document should conform to a recognizable genre, and it should have an identifiable introduction, body, and conclusion.

- Are there any places where you have deviated from the organizational pattern of the genre you are following? Are these deviations helpful toward achieving your purpose? Or, should you reorganize the document to suit the genre?

Revising the Document

When revising, look back at your original notes about the rhetorical situation.

Do you need to sharpen your purpose statement?

Do you have a better understanding of the readers?
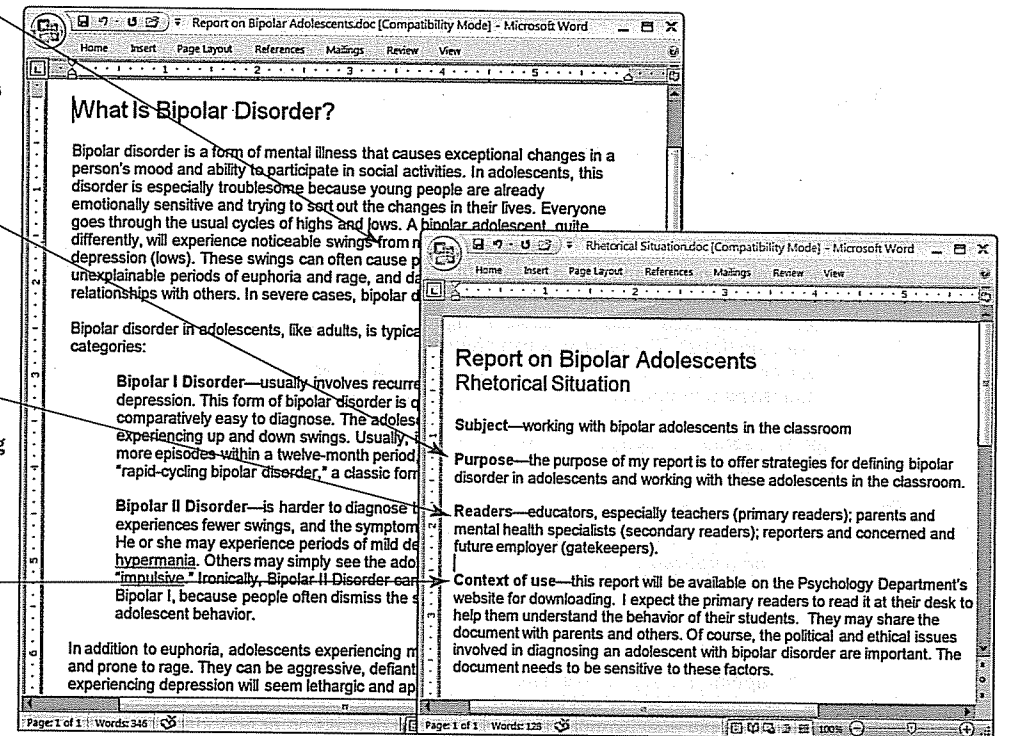
Has the context of use changed?

Figure 20.2: Look back at your original notes about the rhetorical situation. Have any of these elements changed or evolved? Does your document reflect these original decisions? If not, does the document need to change or does your understanding of the rhetorical situation need to change?

- Does the introduction clearly identify the subject, while stating your purpose and your main point? Should the introduction include more background information or stress the importance of the subject?
- Does the conclusion restate your main point, re-emphasize the importance of the subject, and look to the future?

DESIGN The document should be designed for its readers and the contexts in which it will be used.

- Is the text readable (scannable) in the situations and places where people will use it?
- Does the design reflect your readers' values and attitudes? Is it straightforward for conservative readers, or is it more innovative for progressive readers?

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Need more help with revision? Go to
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To learn more about editing design, go to
www.pearsonhighered.com/johnsonweb4/20.3

Substantive Editing: Level 2 Editing   555

PARAGRAPHS   Make sure the paragraphs support specific claims. Rework the sentences in the paragraphs to improve the flow of the text.

- Does each paragraph have a clear topic sentence (a claim) and enough support to back it up?
- Would any paragraphs be stronger if you included a transition sentence at the beginning or a point sentence at the end?
- Are the subjects in the paragraph aligned, or could you use given/new strategies to smooth out the text?
- Would transitions or transitional phrases help bridge any gaps between sentences?

HEADINGS   The headings should be easy to understand and consistently used.

- Do the headings in the document properly reflect the information that follows them?
- Do the headings make the document scannable, highlighting places where important information can be found?
- Are there clear levels of headings that help readers identify the structure of the document and the importance of each part of the document?

GRAPHICS   Look over the graphics in the document to make sure they support the written text. Check the graphics for accuracy.

- Does each graphic tell a simple story?
- Does each graphic support the written text without replacing it?
- Are the graphics clearly titled and referred to by number in the written text?

Proofreading: Level 4 Editing

Proofreading assumes that the document is complete in almost every way. Now you need to focus only on the mechanical details of the document, like the grammar, spelling, punctuation, and word usage. While proofreading, you should focus on marking "errors" and making only minor stylistic changes to the text.

Grammar

In technical documents, correct grammar and punctuation are expected. You should always remember that your readers *will* notice the grammatical mistakes. So, these mistakes can often sabotage an otherwise solid document.

Most word-processing programs have a grammar checker, but these checkers are notoriously unreliable. So follow any advice from the grammar checker cautiously, because your computer will often flag grammatically correct sentences. There is no substitute for mastering grammar rules.

Common Grammatical Errors

Error	Explanation
comma splice	Two or more distinct sentences are joined only by a comma.
run-on sentence	The sentence is composed of two or more distinct sentences.
fragment	The sentence is incomplete, usually missing a subject or verb.
dangling modifier	A modifier (usually an introductory phrase) implies a different subject than the one in the sentence's subject slot.
subject-verb disagreement	A singular or plural subject does not agree with the verb form.
misused apostrophe	An apostrophe is used where it doesn't belong (usually confusing *it's* and *its*).
misused comma	A comma signals an unnecessary pause in a sentence.
pronoun-antecedent disagreement	A pronoun does not agree with a noun earlier in the sentence.
faulty parallelism	A list of items in a sentence is not parallel in structure.
pronoun case error	The case of a pronoun is incorrect (usually due to confusion about when to use *I* or *me*).
shifted tense	Sentences inconsistently use past, present, and future tenses.
vague pronoun	It is unclear what the pronoun refers to.

Figure 20.5:
Here are the usual grammatical culprits. If you avoid these simple errors, your document will have almost no grammatical problems.

As you proofread the document, pay attention to your own reactions. When you stumble or pause, chances are good that you have found a grammatical mistake. Mark these places, and then identify what grammatical mistake has been made. Figure 20.5 describes some of the more common grammatical errors.

In the Grammar and Punctuation Guide (Appendix A), you will find examples of and remedies for these common errors. If you are not familiar with one or more of these errors, you should spend a little time learning how to avoid them.

In the end, most readers can usually figure out the meaning of a document even when it has errors in grammar. But these errors make the document look sloppy or seem unprofessional. After stumbling over a few errors, readers will begin to doubt the quality or soundness of the document and the information it contains. Even worse, they may doubt your abilities or commitment to quality. Readers expect correct grammar in technical documents.

Punctuation

Punctuation reflects the way we speak. For example, a *period* is supposed to reflect the amount of time (a period) that it takes to say one sentence. If you were to read a document out loud, the periods would signal places to breathe. Similarly, commas are used to signal pauses. When you come across a comma in a sentence, you pause slightly.

By understanding the physical characteristics of punctuation, you can learn how to use the marks properly (Figure 20.6).

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For quick answers to grammar issues, go to
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For short essays on grammar issues, go to
www.pearsonhighered.com/johnsonweb4/20.7

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Physical Characteristics of Punctuation

Punctuation Mark	Physical Characteristic
capitalization	signals a raised voice to indicate the beginning of a sentence or a proper name
period [.]	signals a complete stop after a statement
question mark [?]	signals a complete stop after a question
exclamation mark [!]	signals a complete stop after an outcry or objection
comma [,]	signals a pause in a sentence
semicolon [;]	signals a longer pause in a sentence and connects two related, complete statements
colon [:]	signals a complete stop but joins two equal statements; or, it indicates the beginning of a list
hyphen [-]	connects two or more words into a compound word
dash [—]	sets off a comment by the author that is an aside or interjection
apostrophe [']	signals possession, or the contraction of two words
quotation marks [" "]	signal a quotation, or when a word or phrase is being used in a "unique way"
parentheses [( )]	enclose supplemental information like an example or definition

Punctuation is intended to help readers understand your text. But when the marks are misused, they can create confusion. The Grammar and Punctuation Guide (Appendix A) includes a more detailed explanation of punctuation usage.

Spelling and Typos

Spelling errors and typos can be jarring for readers. One or two spelling errors or typos in a document may be forgiven, but several errors will cause your readers to seriously question your commitment to quality. Here are some ways to avoid those errors.

Use the spell check feature on your computer—Most word-processing programs come with a spelling checker that is rather reliable. Even if you are a good speller, the spelling checker will often catch those annoying typos that inevitably find their way into texts (Figure 20.7).

However, a spelling checker is not perfect, so you will still need to pay careful attention to spelling in your documents. After all, words may be spelled correctly, but they may not be the words you intended. Here is a sentence, for example, that has no errors according to a spelling checker:

> Eye sad, they're our many places four us to sea friends and by good she's stakes in Philadelphia.

To avoid these embarrassing errors, don't rely exclusively on the spelling checker.

For websites that discuss the history of punctuation marks, go to
www.pearsonhighered.com/johnsonweb4/20.8

Running the Spelling Checker
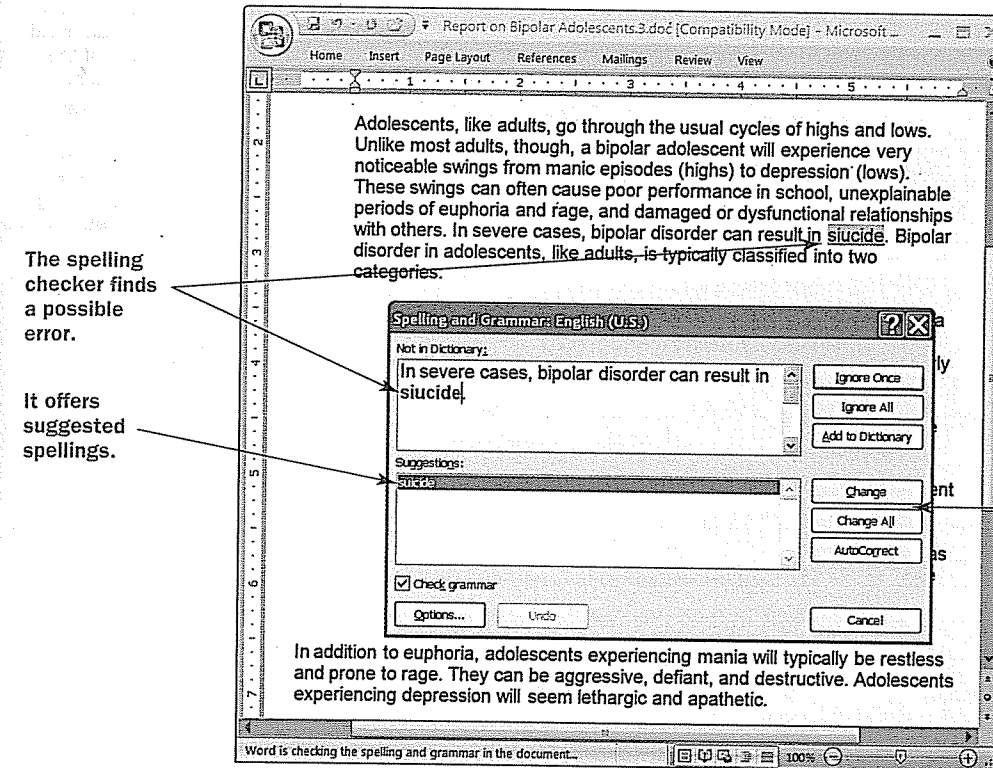
The spelling checker finds a possible error.

It offers suggested spellings.

You can choose to make changes, add the word to your online dictionary, or ignore the "error."

Guidelines for Proofreading (Level 4)

AT A GLANCE

- Grammar—Are all the sentences grammatically correct?
- Punctuation—Are the sentences properly punctuated?
- Spelling and typos— Are there any spelling errors or typos?
- Word usage—Are all the words used properly?

Keep a dictionary close by—Technical documents often use terms and jargon that are not in your computer's spelling checker. A dictionary is helpful in these cases for checking spelling and usage.

On the Internet, you may be able to find dictionaries that define specialized words in your field. There are, for example, numerous on-line dictionaries for engineering or medicine.

Overall, though, you should be quick to grab the dictionary or look up a word online when there are any doubts about the spelling of a word. The best editors are people who do not hesitate to look up a word, even when they are almost certain that they know how the word is spelled.

Word Usage

In English, many words seem the same, but they have subtle differences in usage that you should know (Figure 20.8). There are several

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Want to try out some great online dictionaries? Go to
www.pearsonhighered.com/johnsonweb4/20.10

Proofreading: Level 4 Editing

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Common Usage Problems in Technical Documents

Confused Words	Explanation of Usage
accept, except	*accept* means to receive or agree to; *except* means to leave out
affect, effect	*affect* is usually used as a verb; *effect* is usually used as a noun
anyone, any one	*anyone* is a pronoun that refers to a person; *any one* means any one of a set
between, among	*between* is used for two entities; *among* is used for more than two entities
capitol, capital	*capitol* is the seat of a government; *capital* is money or goods
criterion, criteria	*criterion* is singular; *criteria* is plural
ensure, insure	*ensure* means to make certain; *insure* means to protect with insurance
complement, compliment	to *complement* is to complete something else or make it whole; a *compliment* is a kind word or encouragement
discreet, discrete	*discreet* means showing good judgment; *discrete* means separate
farther, further	*farther* refers to physical distance; *further* refers to time or degree
imply, infer	*imply* means to suggest indirectly; *infer* means to interpret or draw a conclusion
its, it's	*its* is always possessive; *it's* is always a contraction that means "it is"; *its'* is not a word
less, fewer	*less* refers to quantity; *fewer* refers to number
personal, personnel	*personal* refers to an individual characteristic; *personnel* refers to employees
phenomenon, phenomena	*phenomenon* is singular; *phenomena* is plural
precede, proceed	*precede* means to come before; *proceed* means to move forward
principle, principal	a *principle* is a firmly held belief or law; a *principal* is someone who runs a school
their, there, they're	*their* is a possessive pronoun; *there* is a place; *they're* is a contraction that means "they are"
whose, who's	*whose* is a possessive pronoun; *who's* is the contraction of "who is"
your, you're	*your* is a possessive pronoun; *you're* is a contraction that means "you are"
who, whom	*who* is a subject of a sentence; *whom* is used as the object of the sentence

Figure 20.8:
You can avoid some of the most common usage problems in technical documents by consulting this list.

good *usage guides* available in print that explain the subtle differences among words. More usage guides are becoming available over the Internet.

If you are unsure about how a word should be used, look it up. Dictionaries are usually sufficient for answering usage questions. When a dictionary cannot answer your question, though, look up the word in an online or print usage guide.

Using Copyediting Symbols

While editing, you might find it helpful to use the same editing symbols that professional editors use. To mark any stylistic changes and inconsistencies, editors have developed a somewhat universal set of copyediting marks (Figure 20.9). They are easy to use and widely understood. See Figure 20.10 for examples of how they are used.

Editing Symbols and Their Uses

Figure 20.9:
Copyediting symbols offer a standardized method for editors and writers to work together on a document.

Lost in Translation: Cross-Cultural Editing

Today, translation software from Language Weaver, free services from World Lingo (www.worldlingo.com), and Altavista's Babel Fish (babelfish.altavista.com) make it possible to translate documents from one language to another with up to 80 percent accuracy. But that means 20 percent of any "machine-translated" document might be flawed or confusing. The limited success of these programs is often due to cultural subtleties that can cause confusing results.

When working with cross-cultural documents, you need to put extra effort into the revising and editing process. Several companies have experienced some classic gaffes when they have not taken the extra time to edit their texts from their readers' cultural point of view. For example, the baby food brand name Gerber means "vomit" in French. Also, when Gerber began introducing their jars of baby food in Africa, they kept its familiar design with a plump, happy baby on the front of the jar. In parts of Africa, though, where many are illiterate, the labels of jars and cans typically show what kind of food is inside.

Meanwhile, the Germanic word for travel is "Fahrt," which causes some classic problems with travel-related products that are sold in both Central Europe and English-speaking countries. For example, the Swedish furniture maker IKEA once sold a mobile workbench called the "Fartfull" in the United States and Europe.

Moreover, slogans often don't translate well. In 1996, Japanese designers at Panasonic created a web browser that used Woody Woodpecker as a mascot. Japanese executives were horrified to learn that the English meaning of their slogan "Touch Woody—The Internet Pecker" was not exactly what they had intended (Yoshida, 1996). Fortunately, most cross-cultural gaffes cause only confusion, not embarrassment. Nevertheless, you need to check your documents carefully when editing.

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Need to check the usage of a word? Go to
www.pearsonhighered.com/johnsonweb4/20.11

Want to learn more about using copyediting symbols? Go to
www.pearsonhighered.com/johnsonweb4/20.12

Lost in Translation: Cross-Cultural Editing
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Copyediting a Text

Eruption History of Kilauea

Can you be more specific here? Are more accurate estimates available?

When Kilauea began to form is not known, but various estimates are 300,000–600,000 years ago. The volcano had been active ever since, with no prolonged periods of quiescence known. geologic studies of surface exposures and examination of drillhole samples show that Kilauea is made mostly of lava flows, locally interbedded with deposits of explosive eruptions. Probably what we have seen happen in the past 200 years is a good guide to what has happened ever years since Kilauea emerged from the sea as an island perhaps 50,000–100,000 ago.

Lava Erupts from Kilauea's Summit and Rift Zones

Define the jargon in this paragraph.

Throughout its history Kilauea has erupted from three main areas: its summit and two rift zones. Geologists debate whether Kilauea has always had a caldera at the summit or whether it is a relatively recent feature of the past few thousand years. It seems most likely that the caldera has come and gone throughout the life of Kilauea.

The summit of the volcano is high because eruptions are more frequent there than at any other single location on the volcano.

It's hard to figure out what you're describing here. A diagram would help.

However, more eruptions actually occur on the long rift zones than in the summit area, but they are not localized instead, eruptions construct ridges of lower elevation than the summit. Eruptions along the east and southwest rift zones have build ridges reaching outward from the summit some 125 KM and 35 KM, respectively.

Most eruptions are relatively gentle, sending lava flows downslope from fountains a few meters to a few hundred meters high. OVER and over again these eruptions occur, gradually building up the volcano and giving it a gentle, shield-like form. Every few decades to centuries, however, powerful explosions spread ejecta across the landscape. Such explosions can be lethal, as the one in 1790 that killed scores of people in a war party near the summiting of Kilauea. Such explosions can take place from either the bridging summit or the upper rift zones.

Source: U.S. Geological Survey, http://hvo.wr.usgs.gov/kilauea/history/main.html. Errors in the text were added and did not appear in the original.

International business specialists Carol Leininger and Rue Yuan (1998) offer the following advice for creating and editing cross-cultural documents:

Use short, direct sentences that follow subject, verb, object order—Second-language readers and translation software will be more successful if they can easily locate the subjects and verbs of sentences. Longer sentences should be cut into shorter sentences.

Use positive sentences and minimize negative sentences—Negative sentences sometimes translate more harshly than originally intended. A negative sentence that offers a simple caution to the reader can translate into one that makes dire predictions of harm or death.

Use a limited set of words—Most international companies, such as Caterpillar and IBM, have developed standard language guides of English words to be used in international documents. Documents that use these words are easier for people and translation software to translate.

Avoid humor or jokes—Jokes are highly culture-specific and situational, so they rarely translate well into other cultures and languages. Usually, they are just confusing, but sometimes they can be embarrassing for the writer or insulting to the reader.

Minimize jargon and slang—Jargon words and slang phrases are also culturally dependent and difficult to translate. These terms should be translated into their common meanings even though they might lose some of their original flair.

Check any sayings, clichés, or idioms—These turns of phrase often do not translate well. For example, in North America people "cross their fingers" for luck, but in Germany, people "hold their thumbs." Machines "run" in English, but they "walk" in Spanish.

Avoid obvious metaphors—Metaphors cannot be completely avoided, but obvious ones should be removed. In German, calling a company a "shooting star" would suggest that it will be successful long into the future. In North America, "shooting star" means the company will rise quickly and fail spectacularly. Meanwhile, sports metaphors like, "She hit a home run" or "He just punted" will be confusing to most international readers. Metaphors that use body parts (e.g., "I'll keep an eye on the project") or animals (e.g., "He's a workhorse") can have very different and disturbing meanings when translated.

Check slogans—Slogans usually rely on a cultural twist of words, so they are particularly risky when translated. In Taiwan, Pepsi's slogan "Come alive with the Pepsi Generation" translated into, "Pepsi will bring your ancestors back from the dead" (Pendergrast, 1994).

Check product names—Names of products can also translate in embarrassing ways. Products like the Pinto, Puffs, Waterpik, and latte, among others, have sexually suggestive meanings in other languages. The Chevy Nova didn't sell well in Mexico and Latin America because "no va" means "It doesn't go" in Spanish.

To ensure that your documents will work cross-culturally, your best strategy is to user-test your documents with readers from likely target cultures because, unfortunately, translation software will rarely catch the subtleties of languages. So, you need to do it. Also keep in mind that your translation dictionary probably won't include insulting phrases or sexually suggestive slang that a test reader would catch.

Document Cycling and Usability Testing

When you are completing your document, it is important that you gain an outside perspective. Often, while drafting, we become too close to our documents. Consequently, we can no longer edit or assess our own work objectively. Two ways to gain that outside perspective are *document cycling* and *usability testing*.

Document Cycling

Document cycling is a method for letting others at your company look over your draft. When you *cycle* a document, you pass it among your co-workers and supervisors to obtain feedback (Figure 20.11).

Computers give you the ability to quickly send your document around to others for their suggestions for improvement. You can send it as an attachment or make multiple paper copies. Then, your supervisors, colleagues, and even your primary readers can look it over and offer suggestions for improvement.

When revising and editing your documents, it is important to let others look over your work. Document cycling is an important part of a *quality feedback loop,* a central principle of quality management. If you rely on yourself alone to edit your work, the quality of your document might suffer.

Usability Testing

Usability testing means trying out your document on real readers. This kind of testing on real readers can be informal or formal, depending on the importance of your document and the time you have to test it.

> **Informal usability testing**—Minimally, you should ask other people to look over the document and mark places where they stumble or find it difficult to understand your meaning.

Document Cycling in the Workplace
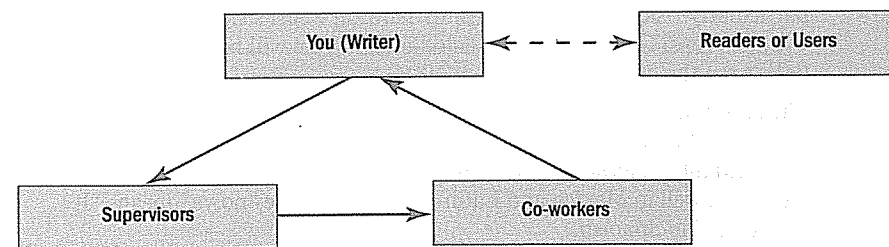
Figure 20.11:
Document cycling gathers feedback by letting others look over the document.

Types of Usability Testing

	Usability Test	How It Is Conducted
informal testing	document markup	Readers are asked to read through a document, marking places where they stumble or fail to understand.
	read and locate test	Readers are asked to locate specific kinds of information in a document. They are timed and videotaped.
	summary test	Readers are asked to summarize the important information in a document.
	protocols	Readers are asked to talk out loud as they are using the text. Their comments are taped and transcribed.
	journal or tape recording	Readers are asked to keep a written or taped journal at their workplace to record their experiences with the document.
	surveying	Readers are given a questionnaire after they use the document, asking them about their experience.
	interviewing	Readers are interviewed about their experiences using a document.
	focus groups	Groups of readers look over a document and discuss their reactions to the work.
formal testing	laboratory testing	Through cameras and a one-way mirror, readers are carefully observed using a text.

Figure 20.12:
A variety of methods are available to user-test a document.

> **Formal usability testing**—More formally, you can run experiments with sample readers to measure how well they can understand and use your document. Instructions and user's manuals are commonly user-tested in this way. But, increasingly, focus groups of readers are being used to test persuasive documents like proposals. In some cases, companies will create *usability laboratories* to observe the reactions of readers as they use documents.

The more similar your test subjects are to your target readers, the better the results of your testing will be. In other words, the folks around the office are fine for an informal test. But if you want a more accurate assessment of how your document will be used, you should try to locate a group of people who are most like your readers. Figure 20.12 lists some of the more common methods for testing usability, ranking them from informal methods to formal methods.

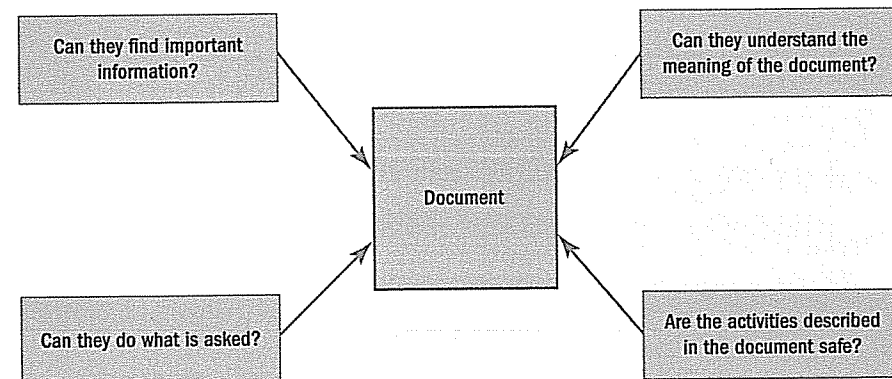Most usability testing is designed to answer four questions (Figure 20.13):

> **Can they find it?**—*Read-and-locate tests* are used to determine whether users can locate important parts of the document and how quickly they can do so. Often, the users are videotaped and timed while using the document.

> **Can they understand it?**—*Understandability tests* are used to determine if the users retain important concepts and remember key terms. Users are often asked to summarize parts of the document or define concepts.

Usability Questions

Figure 20.13: Usability testing is designed to answer four simple questions.

Can they do it?—*Performance tests* are used to determine whether users can perform the actions the document describes. These tests are often used with instructions and procedures.

Is it safe?—*Safety tests* are used to study whether the activities described in the document, especially in instructions or user's manuals, are safe. These tests carefully watch for possible safety problems by having sample readers use the product documentation.

As you devise a usability test or series of usability tests, you should set quantifiable objectives that will allow you to measure *normal* and *minimal* user performance with the document. In other words, first define what you would expect *typical* users to be able to accomplish with your document. Then, define what you would *minimally* expect them to be able to do.

READ-AND-LOCATE TESTS: CAN THEY FIND IT?   To run a read-and-locate test, list five to seven important pieces of information that you want readers to locate in the document. Then, while timing and/or videotaping them, see how long it takes them to find that information.

Videotaping your subjects is especially helpful, because you can observe how readers go about accessing the information in your document. Do they go right to the beginning or the middle? Do they flip through the text looking at the headings or graphics? Do they look at the table of contents or index (if these features exist)?

After your subjects locate the major pieces of information you asked them to look for, have them tell you about these major points orally or in writing. Then, check their answers against your original list. If they successfully found four or five items from your list of most important pieces of information, your document is likely well written and well designed. If, however, they struggled to find even a few of your major points, you probably need to revise your document to ensure that the important information is easy to locate.

UNDERSTANDABILITY TESTS: CAN THEY UNDERSTAND IT?   When running an understandability test, you want to determine how well the users of your document grasped its meaning. Before running the test, write down your document's purpose and main point. Then, write down three important concepts or points that anyone should retain after reading the document.

Give your readers a limited amount of time to read through the document or use it to perform a task. Then have them put the document away so they cannot use it. Verbally or in writing, ask them:

- What is the purpose of this document?
- What is the document's main point?
- Can you tell me three major points that are made in the document?

If their answers to these questions are similar to the ones you wrote down, your document is likely understandable. If, however, your readers struggle to answer these questions, or get them wrong, you should think seriously about revising the document to highlight the information you intended your readers to retain.

PERFORMANCE TESTS: CAN THEY DO IT?   Almost all technical documents are written to help readers take some kind of action. A set of instructions, obviously, asks readers to follow a procedure. A report might make some recommendations for change.

To do a performance test, have the users perform the procedure the document describes. Or, ask them to react to your recommendations. Here again, videotaping the users is a good way to keep a record of what happened. Did they seem to find the document easy to use? Where did they stumble or show frustration? When did they react positively or negatively to the tasks or ideas described in the document?

Usability Testing a Document

To test the usability of a document, you can run experiments with people who represent real readers. Videotaping is an especially good way to see how people actually use a document.

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Ultimately, performance tests are designed to find out whether the users can do what the document asks of them. But it is also important to determine their attitude toward performing these tasks. You want to ensure not only that they *can* do it, but also that they *will* do it.

SAFETY TESTS: IS IT SAFE?   Above all, you want your documentation and products to be safe. It is impossible to reduce all risk of injury, but you should try to reduce the risk as much as possible. Today, it is common for companies to be sued when their documentation or products are shown to be inadequate. Often, in product liability lawsuits, documents like instructions and user's manuals are used to prove or deny a company's negligence for an injury.

Without putting test subjects at risk themselves, safety tests are usually designed to locate places where users may make potentially injurious mistakes. They also ask readers about the warnings and cautions in the document to determine whether the reader noticed and understood these features.

SETTING OBJECTIVES AND MEASURING RESULTS   The challenge to effective usability testing is to first identify some objectives for the document. These objectives could refer to (1) how well the users can find information, (2) how well they understand important ideas, and (3) how well they perform tasks described in the document. Then, measure the results of your usability testing against these objectives.

It's often quite sobering to watch people fumble around with your document, misunderstand its meaning, and not follow its directions. But, the results of your tests should help you revise the document to improve its usability.

No form of usability testing will ensure that your document is a success. However, feedback from users is usually the best way to gain new insights into your document and to solicit suggestions for improvement.
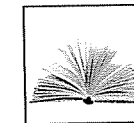
CHAPTER REVIEW

- Revising and editing are forms of quality control that should be a regular part of your writing process.

- Documents and presentations can be edited at four different levels: revision, substantive editing, copyediting, and proofreading.

- Editorial tools such as copyediting marks are helpful even for nonprofessional editors.

- Document cycling is a process of circulating your text among colleagues and your supervisor. You can use e-mail attachments to send your work out for review by others.

- Usability testing can involve informal or formal methods to test the effectiveness of your document. You might ask sample readers to test documents that will be used by a broad readership.