CHAPTER 20

Presenting Results: Written and Oral Reports

Learning Objectives

After reading this chapter, you should understand . . .

1 **That a quality presentation of research findings can have an inordinate effect on a reader's or a listener's perceptions of a study's quality.**

2 **The contents, types, lengths, and technical specifications of research reports.**

3 **That the writer of a research report should be guided by questions of purpose, readership, circumstances/limitations, and use.**

4 **That while some statistical data may be incorporated in the text, most statistics should be placed in tables, charts, or graphs.**

5 **That oral presentations of research findings should be developed with concern for organization, visual aids, and delivery in unique communication settings. Presentation quality can enhance or detract from what might otherwise be excellent research.**

Bringing Research to Life

"Has it occurred to you that your draft of the MindWriter report has not been touched in the last two days? The stack of marked-up pages is right there on your desk, and you have been working all around it."

Jason frowned and momentarily flicked his eyes to the papers and immediately glanced away at his shoe tops.

But Myra plunged ahead with her complaint. "It's no big deal, you know. You promised to chop out three pages of methodology that nobody will care about but your fellow statistics jocks . . ." Jason shot her an aggrieved look. ". . . And to remove your recommendations and provide them in a separate, informal letter so that Gracie or I can distribute them under our name and claim credit for your 'brilliance.'"

"I think I have writer's block."

"No. Writer's block is when you can't write. You have already written. You can't *un*write; that's the problem. You have *un*writer's block."

"Well, it isn't funny, Myra. That report might as well be a 15,000-volt power line. I know that if I touch it, I'll never be able to let go."

"OK, Jason. You are right. It isn't funny to have an emotional block against writing . . . or unwriting, but you do not want to see me, as your client, fretting over your delay."

"It's not an emotional problem, Myra."

"Well, of course it is. It always is. Your brain has not deteriorated, has it? In the last week?

"Some people do great research and then panic when they have to decide what goes in the report and what doesn't. Or they can't take all the great ideas running around in their heads and express their abstractions in words. Or they don't believe they are smart enough to communicate with their clients, or vice versa. So they freeze up. There is some sort of emotional problem around this MindWriter report, Jason, and you have got to face it."

"But I love the MindWriter project."

"Ah, *there's* the problem," she said.

"What? That I love it? Loving it is a problem?"

"Jason, I have heard you say that you hated projects for other clients, and I have heard you say that you *liked* projects. But this is the first time I have heard you say you *loved* a project."

"I still don't see the problem."

"Then let me tell you a story. My son-in-law has been assigned to a submarine tender in Iceland. My daughter wants to bring the kids and move in with me. I think I am going to have to tell her no, and the decision is killing me."

"The decision."

"She is my only child. After Harry was gone I raised her alone. I would have been a network anchor, Jason, if I hadn't made it my number one priority to raise Janice. I had to be her father and mother. The week she married I stayed awake for three days and nights, just crying. Not because she married a bad person, but because I had to let go. There comes a time when, after you have nurtured something, you have to let go. Then it isn't yours. It is someone else's, or it is its own thing, but it is not yours.

"When something is not yours anymore . . . when someone is their own person . . . or some work is passed to someone else . . . you don't own it. You do not get to go back and change it. It is out of your hands."

She paused. "Take Janice. She is a delight. I love to have her and the kids for a visit. But she can't come back. I have my life. She has hers. I don't own her anymore. She is not mine the way she was, and it is very important that I accept that unconditionally."

"I think I know what you mean. This MindWriter project was my baby--well, yours and mine. If I chop

five pages out of the report, it is finished. Then it belongs to you—and, I guess, Gracie. I don't own it anymore. I can't fix it. I can't change anything. I can't have second thoughts."

"Fix it, then. Send us an invoice. Write a proposal for follow-up work. Do *something*, Jason. Find another project you love just as much. Finish it. Let go and move on."

The Written Research Report

It may seem unscientific and even unfair, but a poor final report or presentation can destroy a study. Research technicians may appreciate the brilliance of badly reported content, but most readers will be influenced by the quality of the reporting. This fact should prompt researchers to make special efforts to communicate clearly and fully.

The research report contains findings, analyses of findings, interpretations, conclusions, and sometimes recommendations. The researcher is the expert on the topic and knows the specifics in a way no one else can. Because a research report is an authoritative one-way communication, it imposes a special obligation for maintaining objectivity. Even if your findings seem to point to an action, you should demonstrate restraint and caution when proposing that course.

Reports may be defined by their degree of formality and design. The formal report follows a well-delineated and relatively long format. This is in contrast to the informal or short report.

Short Reports

Short reports are appropriate when the problem is well defined, is of limited scope, and has a simple and straightforward methodology. Most informational, progress, and interim reports are of this kind: a report of cost-of-living changes for upcoming labor negotiations or an exploration of filing "dumping" charges against a foreign competitor.

Short reports are about five pages. If used on a website, they may be even shorter. At the beginning, there should be a brief statement about the authorization for the study, the problem examined, and its breadth and depth. Next come the conclusions and recommendations, followed by the findings that support them. Section headings should be used.

A letter of transmittal is a vehicle to convey short reports. A five-page report may be produced to track sales on a quarterly basis. The report should be direct, make ample use of graphics to show trends, and refer the reader to the research department for further information. Detailed information on the research method would be omitted, although an overview could appear in an appendix. The purpose of this type of report is to distribute information quickly in an easy-to-use format. Short reports are also produced for clients with small, relatively inexpensive research projects.

The letter is a form of a short report. Its tone should be informal. The format follows that of any good business letter and should not exceed a few pages. A letter report is often written in personal style (*we, you*), although this depends on the situation.

Memorandum reports are another variety and follow the *To, From, Subject* format. These suggestions may be helpful for writing short reports:

MANAGEMENT



- Tell the reader why you are writing (it may be in response to a request).
- If the memo is in response to a request for information, remind the reader of the exact point raised, answer it, and follow with any necessary details.
- Write in an expository style with brevity and directness.

SNAPSHOT

Online Reporting

Medical Radar International (MRI), a Swedish research company, works exclusively in the pharmaceutical field. It conducts its syndicated study—Radar Dynamics—on the use of pharmaceuticals by doctors across several European countries, by interviewing 150 to 300 physicians (depending on the size of the country) twice each year.

Using a variety of SPSS software products, including *In2quest's In2data* for database development, *Quantum* for fast data tabulation, and *SmartViewer*, MRI can report results quickly. With *SmartViewer* Web server software, a pharmaceutical company participating in the syndicated study can view password-protected results from Medical Radar's own website, even customizing the data in tables that specifically suit its needs, while the underlying data are tamper-protected. Staffan Hallstram, systems manager at MRI, reports Web distribution is the "ideal method" for distributing its syndicated research reports.

www.medical-radar.com

www.spss.com

- If time permits, write the report today and leave it for review tomorrow before sending it.
- Attach detailed materials as appendixes when needed.

Long Reports

Long reports are of two types, the technical or base report and the management report. The choice depends on the audience and the researcher's objectives.

Many projects will require both types of reports: a **technical report,** written for an audience of researchers, and a **management report,** written for the nontechnically oriented manager or client. While some researchers try to write a single report that satisfies both needs, this complicates the task and is seldom satisfactory. The two types of audiences have different technical training, interests, and goals.

The Technical Report This report should include full documentation and detail. It will normally survive all working papers and original data files and so will become the major source document. It is the report that other researchers will want to see because it has the full story of what was done and how it was done.

While completeness is a goal, you must guard against including nonessential material. A good guide is that sufficient procedural information should be included to enable others to replicate the study. This includes sources of data, research procedures, sampling design, data-gathering instruments, index construction, and data analysis methods. Most information should be attached in an appendix.

A technical report should also include a full presentation and analysis of significant data. Conclusions and recommendations should be clearly related to specific findings. Technical jargon should be minimized but defined when used. There can be brief references to other research, theories, and techniques. While you expect the reader to be familiar with these references, it is useful to include some short explanations, perhaps as footnotes or endnotes.

The Management Report Sometimes the client has no research background and is interested in results rather than in methodology. The major communication medium in this case is the management report. It is still helpful to have a technical report if the client later wishes to have a technical appraisal of the study.

Because the management report is designed for a nontechnical audience, the researcher faces some special problems. Readers are less concerned with methodological details but more interested in learning quickly the major findings and conclusions. They want help in making decisions. Often the report is developed for a single person and needs to be written with that person's characteristics and needs in mind.

The style of the report should encourage rapid reading and quick comprehension of major findings, and it should prompt understanding of the implications and conclusions. The report tone is journalistic and must be accurate. Headlines and underlining for emphasis are helpful; pictures and graphs often replace tables. Sentences and paragraphs should be short and direct. Consider liberal use of white space and wide margins. It may be desirable to put a single finding on each page. It also helps to have a theme running through the report and even graphic or animated characters designed to vary the presentation.

Research Report Components

Research reports, long and short, have a set of identifiable components. Usually headings and subheadings divide the sections. Each report is individual; sections may be dropped or added, condensed or expanded to meet the needs of the audience. Exhibit 20–1 lists four types of reports, the sections that are typically included, and the general order of presentation. Each of these formats can be modified to meet the needs of the audience.

The technical report follows the flow of the research. The prefatory materials, such as a letter of authorization and a table of contents, are first. An introduction covers the purpose of the study and is followed by a section on methodology. The findings are presented next, including tables and other graphics. The conclusions section includes recommendations. Finally, the appendixes contain technical information, instruments, glossaries, and references.

In contrast to the technical report, the management report is for the nontechnical client. The reader has little time to absorb details and needs a prompt exposure to the most critical findings; thus the report's sections are in an inverted order. After the prefatory and introductory sections, the conclusions with accompanying recommendations are presented. Individual findings are presented next, supporting the conclusions already made. The appendixes present any required methodological details. The order of the management report allows clients to grasp the conclusions and recommendations quickly, without much reading. Then, if they wish to go further, they may read on into the findings. The management report should make liberal use of visual displays.

The short technical report covers the same items as the long technical report but in an abbreviated form. The methodology is included as part of the introduction and takes no more than a few paragraphs. Most of the emphasis is placed on the findings and conclusions. A memo or letter format covers only the minimum: what the problem is and what the research conclusions are.

Prefatory Items

Prefatory materials do not have direct bearing on the research itself. Instead, they assist the reader in using the research report.

Letter of Transmittal When the relationship between the researcher and the client is formal, a **letter of transmittal** should be included. This is appropriate when a report is for a specific client (e.g., the company president) and when it is generated for an out-

EXHIBIT 20–1 Research Report Sections and Their Order of Inclusion

Report Modules	Short Report		Long Report	
	Memo or Letter	Short Technical	Management	Technical
Prefatory information		1	1	1
Letter of transmittal		√	√	√
Title page		√	√	√
Authorization statement		√	√	√
Executive summary		√	√	√
Table of contents			√	√
Introduction	1	2	2	2
Problem statement	√	√	√	√
Research objectives	√	√	√	√
Background	√	√	√	√
Methodology		√ (briefly)	√ (briefly)	3
Sampling design				√
Research design				√
Data collection				√
Data analysis				√
Limitations		√	√	√
Findings		3	4	4
Conclusions	2	4	3	5
Summary and conclusions	√	√	√	√
Recommendations	√	√	√	√
Appendixes		5	5	6
Bibliography				7

side organization. The letter should refer to the authorization for the project and any specific instructions or limitations placed on the study. It should also state the purpose and the scope of the study. For many internal projects, it is not necessary to include a letter of transmittal.

Title Page The title page should include four items: the title of the report, the date, and for whom and by whom it was prepared. The title should be brief but include the following three elements: (1) the variables included in the study, (2) the type of relationship among the variables, and (3) the population to which the results may be applied.[1] Redundancies such as "A Report of" and "A Discussion of" add length to the title but little else. Single-word titles are also of little value. Here are three acceptable ways to word report titles.

Descriptive study:	*The Five-Year Demand Outlook for Plastic Pipe in the United States*
Correlation study:	*The Relationship between the Value of the Dollar in World Markets and Relative National Inflation Rates*
Causal study:	*The Effect of Various Motivation Methods on Worker Attitudes among Textile Workers*

Authorization Letter When the report is sent to a public organization, it is common to include a letter of authorization showing the authority for undertaking the research. This is especially true for reports to federal and state governments and nonprofit organizations. The letter not only shows who sponsored the research but also delineates the original request.

Executive Summary An **executive summary** can serve two purposes. It may be a report in miniature—covering all the aspects in the body of the report, but in abbreviated form. Or it may be a concise summary of the major findings and conclusions, including recommendations. Two pages are generally sufficient for executive summaries. Write this section after the rest of the report is finished. It should not include new information but may require graphics to present a particular conclusion. Expect the summary to contain a high density of significant terms since it is repeating the highlights of the report.

Table of Contents As a rough guide, any report of several sections that totals more than 6 to 10 pages should have a table of contents. If there are many tables, charts, or other exhibits, they should also be listed after the table of contents in a separate table of illustrations.

Introduction

The introduction prepares the reader for the report by describing the parts of the project: the problem statement, research objectives, and background material.[2] In most projects, the introduction can be taken from the research proposal with minor editing.

Problem Statement The problem statement contains the need for the research project. The problem is usually represented by a management question. It is followed by a more detailed set of objectives.

Research Objectives The research objectives address the purpose of the project. These objectives may be research questions and associated investigative questions. In correlational or causal studies, the hypothesis statements are included. As we discussed in Chapter 2, hypotheses are declarative statements describing the relationship between two or more variables. They state clearly the variables of concern, the relationships among them, and the target group being studied. Operational definitions of critical variables should be included.

Background Background material may be of two types. It may be the preliminary results of exploration from an experience survey, focus group, or another source. Alternatively, it could be secondary data from the literature review. A traditional organizational scheme is to think of the concentric circles of a target. Starting with the outside ring, the writer works toward the center. The bull's eye contains the material directly related to the problem. Sources and means for securing this information are presented in Chapter 10 and in Appendix A.

Previous research, theory, or situations that led to the management question are also discussed in this section. The literature should be organized, integrated, and pre-

sented in a way that connects it logically to the problem. The background includes definitions, qualifications, and assumptions. It gives the reader the information needed to understand the remainder of the research report.

Background material may be placed before the problem statement or after the research objectives. If it is composed primarily of literature review and related research, it should follow the objectives. If it contains information pertinent to the management problem or the situation that led to the study, it can be placed before the problem statement (where it is found in many applied studies).

Methodology

In short reports and management reports, the methodology should not have a separate section; it should be mentioned in the introduction, and details should be placed in an appendix. However, for a technical report, the methodology is an important section containing at least five parts.

Sampling Design The researcher explicitly defines the target population being studied and the sampling methods used. For example, was this a probability or nonprobability sample? If probability, was it simple random or complex random? How were the elements selected? How was the size determined? How much confidence do we have, and how much error was allowed?

Explanations of the sampling methods, uniqueness of the chosen parameters, or other points that need explanation should be covered with brevity. Calculations should be placed in an appendix instead of in the body of the report.

Research Design The coverage of the design must be adapted to the purpose. In an experimental study, the materials, tests, equipment, control conditions, and other devices should be described. In descriptive or ex post facto designs, it may be sufficient to cover the rationale for using one design instead of competing alternatives. Even with a sophisticated design, the strengths and weaknesses should be identified and the instrumentation and materials discussed. Copies of materials are placed in an appendix.

Data Collection This part of the report describes the specifics of gathering the data. Its contents depend on the selected design. Survey work generally uses a team with field and central supervision. How many were involved? What was their training? How were they managed? When were the data collected? How much time did it take? What were the conditions in the field? How were irregularities handled? In an experiment, we would want to know about subject assignment to groups, the use of standardized procedures and protocols, the administration of tests or observational forms, manipulation of the variables, and so forth.

Typically, you would include a discussion on the relevance of secondary data that guided these decisions. Again, detailed materials such as field instructions should be included in an appendix.

Data Analysis This section summarizes the methods used to analyze the data. Describe data handling, preliminary analysis, statistical tests, computer programs, and other technical information. The rationale for the choice of analysis approaches should be clear. A brief commentary on assumptions and appropriateness of use should be presented.

Limitations This topic is often handled with ambivalence. Some people wish to ignore the matter, feeling that mentioning limitations detracts from the impact of the study. This attitude is unprofessional and possibly unethical. Others seem to adopt a masochistic approach of detailing everything. The section should be a thoughtful

presentation of significant methodology or implementation problems. An evenhanded approach is one of the hallmarks of an honest and competent investigator. All research studies have their limitations, and the sincere investigator recognizes that readers need aid in judging the study's validity.

Findings

This is generally the longest section of the report. The objective is to explain the data rather than draw interpretations or conclusions. When quantitative data can be presented, this should be done as simply as possible with charts, graphics, and tables.

The data need not include everything you have collected. The criterion for inclusion is, "Is this material important to the reader's understanding of the problem and the findings?" However, make sure to show findings unfavorable to your hypotheses as well as those that support them.

It is useful to present findings in numbered paragraphs or to present one finding per page with the quantitative data supporting the findings presented in a small table or chart on the same page (see Exhibit 20–2). While this arrangement adds to the bulk of the report, it is convenient for the reader.

EXHIBIT 20–2 Example of a Findings Page in Central City Bank Market Study

Findings:

1. In this city, *commercial banks are not the preferred savings medium.* Banks are in a weak third place behind money market accounts.
2. Customers of the Central City Bank have a *somewhat more favorable attitude toward bank savings* and less of a preference for government bonds.

Question: Suppose that you have just received an extra $1,000 and have decided to save it. Which of the savings methods listed would be your preferred way to save it?

- ❒ Government bonds
- ❒ Savings and loan
- ❒ Bank savings
- ❒ Credit union
- ❒ Stock
- ❒ Other

Savings Method	Total Replies	Central City Bank Customers	Other Bank Customers
Government bonds	24%	20%	29%
Savings and loan	43	45	42
Bank	13	18	8
Credit union	9	7	11
Stock	7	8	5
Other	4	2	5
Total	100%	100%	100%
	$n = 216$	$n = 105$	$n = 111$

Conclusions

Summary and Conclusions The summary is a brief statement of the essential findings. Sectional summaries may be used if there are many specific findings. These may be combined into an overall summary. In simple descriptive research, a summary may complete the report, because conclusions and recommendations may not be required.

Findings state facts; conclusions represent inferences drawn from the findings. A writer is sometimes reluctant to make conclusions and leaves the task to the reader. Avoid this temptation when possible. As the researcher, you are the one best informed on the factors that critically influence the findings and conclusions.

Conclusions may be presented in a tabular form for easy reading and reference. Summary findings may be subordinated under the related conclusion statement. These may be numbered to refer the reader to pages or tables in the findings sections.

Recommendations There are usually a few ideas about corrective actions. In academic research, the recommendations are often further study suggestions that broaden or test understanding of the subject area. In applied research the recommendations will usually be for managerial action rather than research action. The writer may offer several alternatives with justifications.

Appendixes

The appendixes are the place for complex tables, statistical tests, supporting documents, copies of forms and questionnaires, detailed descriptions of the methodology, instructions to field workers, and other evidence important for later support. The reader who wishes to learn about the technical aspects of the study and to look at statistical breakdowns will want a complete appendix.

Bibliography

The use of secondary data requires a bibliography. Proper citation, style, and formats are unique to the purpose of the report. The instructor, program, institution, or client often specifies style requirements. The uniqueness of varying requirements makes detailed examples in this chapter impractical although the endnotes and references in this book provide an example. As cited in Chapter 4, on the research proposal, we recommend the *Publication Manual of the American Psychological Association;* Kate L. Turabian, *A Manual for Writers of Term Papers, Theses, and Dissertations;* and Joseph Gibaldi and Walter S. Achtert, *MLA Handbook for Writers of Research Papers.*

Writing the Report

Students often give inadequate attention to reporting their findings and conclusions. This is unfortunate. A well-presented study will often impress the reader more than a study with greater scientific quality but a weaker presentation. Report-writing skills are especially valuable to the junior executive or management trainee who aspires to rise in an organization. A well-written study frequently enhances career prospects.

Prewriting Concerns

Before writing, one should ask again, "What is the purpose of this report?" Responding to this question is one way to crystallize the problem.

The second prewriting question is, "Who will read the report?" Thought should be given to the needs, temperament, and biases of the audience. You should not distort facts to meet these needs and biases but should consider them while developing the presentation. Knowing who will read the report may suggest its appropriate length. Generally, the higher the report goes in an organization, the shorter it should be.

SNAPSHOT

Cooking Up Credibility

While you won't find this firm on our list of largest research companies, when it finishes an experiment, millions of people share the reported results. The Good Housekeeping Institute (GHI), founded in 1900 and one of the most trusted names in America, is the product performance evaluation laboratory of *Good Housekeeping* magazine. When an advertisement or package includes the Good Housekeeping Seal, introduced in 1909, customers are assured that every claim in the ad is supported by extensive, painstaking laboratory research. The seal promises Good Housekeeping will warrant the product for two years, promising replacement or refund of the purchase price, even if the manufacturer will not. GHI evaluates products in numerous categories, including food appliances, beauty and personal care products, foods, and textiles. It also prepares reports on various consumer topics and product categories for the magazine. In celebration of 100 years of reliable data gathering and dissemination, King Features launched "Good Housekeeping Institute Savvy Consumer" on August 30, 1999. This consumer advice column, containing the expertise and research wisdom of a century, appears once per week in major metropolitan newspapers.

www.goodhousekeeping.women.com

www.kingfeatures.com

Another consideration is technical background—the gap in subject knowledge between the reader and the writer. The greater the gap, the more difficult it is to convey the full findings meaningfully and concisely.

The third prewriting question is, "What are the circumstances and limitations under which you are writing?" Is the nature of the subject highly technical? Do you need statistics? Charts? What is the importance of the topic? A crucial subject justifies more effort than a minor one. What should be the scope of the report? How much time is available? Deadlines often impose limitations on the report.

Finally, "How will the report be used?" Try to visualize the reader using the report. How can the information be made more convenient? How much effort must be given to getting the attention and interest of the reader? Will the report be read by more than one person? If so, how many copies should be made? What will be the distribution of the report?

The Outline Once the researcher has made the first analysis of the data, drawn tentative conclusions, and completed statistical significance tests, it is time to develop an outline. A useful system employs the following organization structure:

I. Major Topic Heading
  A. Major subtopic heading
    1. Subtopic
      a. Minor subtopic
        (1) Further detail
          (a) Even further detail

Software for developing outlines and visually connecting ideas simplifies this once-onerous task. Two styles of outlining are widely used—the **topic outline** and the **sentence outline.** In the topic outline, a key word or two is used. The assumption is that the writer knows its significance and will later remember the nature of the argument represented by that word or phrase or, alternatively, the outliner knows that a point should be made but is not yet sure how to make it.

The sentence outline expresses the essential thoughts associated with the specific topic. This approach leaves less development work for later writing, other than elabora-

tion and explanation to improve readability. It has the obvious advantages of pushing the writer to make decisions on what to include and how to say it. It is probably the best outlining style for the inexperienced researcher because it divides the writing job into its two major components—what to say and how to say it.

Here is an example of the type of detail found with each of these outlining formats:

Topic Outline	Sentence Outline
I. Demand	I. Demand for refrigerators.
A. How measured	A. Measured in terms of factory shipments as reported to the U.S. Department of Commerce.
1. Voluntary error	1. Error is introduced into year-to-year comparisons because reporting is voluntary.
2. Shipping error	2. A second factor is variations from month to month because of shipping and invoicing patterns.
a. Monthly variance	a. Variations up to 30 percent this year depending on whether shipments were measured by actual shipment date or invoice date.

The Bibliography Long reports, particularly technical ones, require a bibliography. A bibliography documents the sources used by the writer. Although bibliographies may contain work used as background or for further study, it is preferable to include only sources used for preparing the report.

Bibliographic retrieval software allows researchers to locate and save references from online services and translate them into database records. Entries can be further searched, sorted, indexed, and formatted into bibliographies of any style. Many retrieval programs are network compatible and connect to popular word processors. Chapter 10 also mentions a recording system for converting source notes to footnotes and bibliographies.

Style manuals provide guidelines on form, section and alphabetical arrangement, and annotation. Projects using many electronic sources may benefit from the comparison of APA and MLA citations in Exhibit 20–3.

Writing the Draft

Once the outline is complete, decisions can be made on the placement of graphics, tables, and charts. Each should be matched to a particular section in the outline. It is helpful to make these decisions before your first draft. While graphics might be added later or tables changed into charts, it is helpful to make a first approximation of the graphics before beginning to write. Choices for reporting statistics will be reviewed later in this chapter.

Each writer uses different mechanisms for getting thoughts into written form. Some will write in longhand, relying on someone else to transcribe their prose into word-processed format. Others are happiest in front of a word processor, able to add, delete, and move sections at will. Whichever works for you is the best approach to use.

Computer software packages check for spelling errors and provide a thesaurus for looking up alternative ways of expressing a thought. A CD-ROM can call up the 20-volume *Oxford English Dictionary*, believed to be the greatest dictionary in any language. Common word confusion (*there* for *their*, *to* for *too*, or *effect* for *affect*) will

EXHIBIT 20–3 Citing Electronic Sources

Type	APA	MLA
Full-text sources from library resources (online and CD-ROM)	Last name of author, first initial. (Year, month day). Title. *Journal* [Type of medium], volume (issue), paging if given or other indicator of length. Available: supplier/database name and number/identifier number, item, or accession number [access date].	Last name of author, first initial. "Title." *Journal* [Type of medium] volume.issue (year): paging if given or other indicator of length. Available: supplier/database name and number/identifier number, item or accession number [access date].
	Crow, P. (1994). GATT shows progress in Congress. *The Oil and Gas Journal* [Online], 92(49), 32 (1p.). Available: Information Access/ Expanded Academic Index ASAP/ A15955498 [1996, March 13].	Crow, P. "GATT Shows Progress in Congress." *The Oil and Gas Journal* [Online] 92.49 (1994): 32–33. Online. Available: Information Access Company. *Expanded Academic Index ASAP.* 13 Mar. 1996.
WWW sites: Individual works with print equivalent	Last name of author/editor, first initial. (Year, month day). *Title* (Edition). [Type of medium]. Producer. Available: address or source/path/file [access date].	Last name of author/editor, first name. *Title of Print Version of Work.* Edition statement. Place of publication: publisher, date. *Title of Electronic Work.* Medium [Online]. Information supplier. Available protocol: http://www.address.goes.here. Access date [dy mo yr].
	Bartlett, J. (1995, March). *Familiar quotations: Passages, phrases & proverbs traced to their sources* (9th ed.). [Online]. Columbia University. Available: http//www.columbia.edu/acis/bartleby/bartlett/ [1996, March 19].	Bartlett, J. *Familiar Quotations: Passages, Phrases & Proverbs Traced to Their Sources in Ancient & Modern Literature.* 9th ed. Boston: Little, Brown & Co., 1901. *Familiar Quotations: Passages, Phrases & Proverbs Traced to Their Sources.* Online. Columbia University. Available HTTP: http://www.columbia.edu/acis/bartleby/bartlett. 19 Mar. 1996.

not be found by standard spelling checkers. Advanced programs will scrutinize your report for grammar, punctuation, capitalization, doubled words, transposed letters, homonyms, style problems, and readability level. The style checker will reveal misused words and indicate awkward phrasing. Exhibit 20–4 shows sample output from a commercial package used on one of this text's vignettes. The program shown writes comments to a text file, prepares a backup copy of the original, and generates a statistics report. The statistics summarize the program's evaluation of readability, grade level, and sentence structure. Comparisons to "reference" documents, or documents that you submit for comparison, may be made. The software cannot guarantee an error-free report but will greatly reduce your time in proofreading and enhance the style of the completed product.[4]

EXHIBIT 20–3 Concluded

Type	APA	MLA
WWW sites: Parts of works	Last name of author/editor, first initial. (Year, month day). Title of article or document. In Title of Source (edition), [Online], volume (issue), paging or indicator of length. Available: address or source/path/file [access date].	Last name of author, first name. "Title of Article or Document." *Title of Journal, Newsletter, or Conference* volume.issue number (year) or date of publication: number of pages or pars. Medium [online]. Available protocol: http://www.address.goes.here. Access date [dy mo yr].
	Steinfield, C., Kraut, R., & Plummer, A. (1995). The impact of interorganizational networks on buyer-seller relationships. *Journal of Computer-Mediated Communication* [Online], 1(3), 56 paragraphs. Available: http://shum.juji.ac.il/jcmc/vol1/issue3/steinfld.html [1996, April 22].	Steinfield, C., Kraut, R., & Plummer, A. "The Impact of Interorganizational Networks on Buyer-Seller Relationships." *Journal of Computer-Mediated Communication* 1.3 (1995): 56 pars. Online. Available HTTP: http://shum.juji.ac.il/jcmc/vol1/issue3/steinfld.html. 22 Apr. 1996.
WWW sites: E-mail, listserv, and discussion list messages	Last name of author, first initial (if known). (Year, month day). Subject of message. Discussion List [Online]. Available e-mail: LISTSERV@e-mail address [Access date].	Last name of author, first name (if known). "Subject line from posting." Date. Medium [online]. Discussion List. Available e-mail: LISTSERV @e-mail address. Access date.
	Wagner, K. (1996, February 6). Re: Citing/evaluating web resources. NETLIBS [Online]. Available e-mail netlibs@qut.edu.au [1996, February 7].	Wagner, Kurt W. "Re: Citing/evaluating web resources." Online. NETLIBS. Available e-mail: netlibs @qut.edu.au 7 Feb. 1996.
WWW sites: Home pages	Last name of author/editor, first initial (if known). (Last update or copyright date). Home Page Title [Home page of . . .]. Available: http://www.address.goes.here [Access date].	
	House, P. (1997, March 26—last update). The Smithsonian: America's treasure house for learning [Home Page of the Smithsonian Institution]. [Online]. Available: http://www.si.edu/newstart.htm [1997, March 27].	

*Access date not needed if CD-ROM.

SOURCE: Adapted from *APA Guides for Citing Electronic Sources and Guidelines for Citing Electronic Sources—MLA*, Cedarville College Centennial Library, Cedarville, OH, 45314.

EXHIBIT 20–4 Grammar and Style Proofreader Results

Statistics

Statistics for: Chapter 3 Vignette — Problems marked/detected: 8/8

Readability Statistics

Flesch Reading Ease: 66 — Flesch-Kincaid Grade Level: 8
Gunning s Fog Index: 11

Paragraph Statistics

Number of paragraphs: 25 — Average length: 2.2 sentences

Sentence Statistics

Number of sentences:	55	Passive voice:	4
Average length:	13.8 words	Short (< 12 words) :	39
End with ? :	2	Long (> 28 words) :	7
End with ! :	0		

Word Statistics

Number of words: 759 — Average length: 4.58 letters

Document Summary for: Chapter 3 Vignette — Problems detected: 8

Readability Statistics	Interpretation
Grade level: 8 (Flesch-Kincaid)	Preferred level for most readers.
Reading ease score: 66 (Flesch)	This represents 6 to 10 years of schooling.
Passive voice: 331	Writing may be difficult to read or ambiguous for this writing style.
Average sentence length: 13.8 words	Most readers could easily understand sentences of this length.
Average word length: 1.50 syl.	Vocabulary used in this document is understandable for most readers.
Average paragraph length: 2.2 sentences	Most readers could easily follow paragraphs of this length.

Comparisons

Readability Comparison Chart

Flesch Reading Ease Score
- Chapter 3 Vignette 66
- Gettysburg Address 64
- Hemingway short story 86
- Life insurance policy 45

Flesch-Kincaid Grade Level
- Chapter 3 Vignette 8
- Gettysburg Address 11
- Hemingway short story 5
- Life insurance policy 13

Sentence Statistics Comparison Chart

Average Sentence per Paragraph
- Chapter 3 Vignette 2.2
- Gettysburg Address 4.1
- Hemingway short story 2.8
- Life insurance policy 3.2

Average Words per Sentence
- Chapter 3 Vignette 13.8
- Gettysburg Address 26.8
- Hemingway short story 13.5
- Life insurance policy 23.9

Word Statistics Comparison Chart

Average Letters per Word
- Chapter 3 Vignette 4.5
- Gettysburg Address 4.2
- Hemingway short story 4.0
- Life insurance policy 4.7

Readability Sensitive writers consider the reading ability of their audience to achieve high readership. You can obtain high readership more easily if the topic interests the readers and is in their field of expertise. In addition, you can show the usefulness of the report by pointing out how it will help the readers. Finally, you can write at a level that is appropriate to the readers' reading abilities. To test writing for difficulty level, there are standard **readability indexes.** The Flesch Reading Ease Score gives a score between 0 and 100. The lower the score, the harder the material is to read. The Flesch-Kincaid Grade Level and Gunning's Fog Index both provide a score that corresponds with the grade level needed to easily read and understand the document. Although it is possible to calculate these indexes by hand, some software packages will do it automatically. The most sophisticated packages allow you to specify the preferred reading level. Words that are above that level are highlighted to allow you to choose an alternative.

Advocates of readability measurement do not claim that all written material should be at the simplest level possible. They argue only that the level should be appropriate for the audience. They point out that comic books score about 6 on the Gunning scale (that is, a person with a sixth-grade education should be able to read that material). *Time* usually scores about 10, while *The Atlantic* is reported to have a score of 11 or 12. Material that scores much above 12 becomes difficult for the public to read comfortably. Such measures obviously give only a rough idea of the true readability of a report. Good writing calls for a variety of other skills to enhance reading comprehension.

Comprehensibility Good writing varies with the writing objective. Research writing is designed to convey information of a precise nature. Avoid ambiguity, multiple meanings, and allusions. Take care to choose the right words—words that convey thoughts accurately, clearly, and efficiently. When concepts and constructs are used, they must be defined, either operationally or descriptively.

Words and sentences should be carefully organized and edited. Misplaced modifiers run rampant in carelessly written reports. Subordinate ideas mixed with major ideas make the report confusing to readers, forcing them to sort out what is important and what is secondary when this should have been done for them.

Finally, there is the matter of pace. **Pace** is defined as

> *The rate at which the printed page presents information to the reader . . . The proper pace in technical writing is one that enables the reader to keep his mind working just a fraction of a second behind his eye as he reads along. It logically would be slow when the information is complex or difficult to understand; fast when the information is straightforward and familiar. If the reader's mind lags behind his eye, the pace is too rapid; if his mind wanders ahead of his eye (or wants to) the pace is too slow.*[5]

If the text is overcrowded with concepts, there is too much information per sentence. By contrast, sparse writing has too few significant ideas per sentence. Writers use a variety of methods to adjust the pace of their writing:



- Use ample white space and wide margins to create a positive psychological effect on the reader.
- Break large units of text into smaller units with headings to show organization of the topics.
- Relieve difficult text with visual aids when possible.
- Emphasize important material and deemphasize secondary material through sentence construction and judicious use of italicizing, underlining, capitalization, and parentheses.

- Choose words carefully, opting for the known and short rather than the unknown and long. Graduate students, in particular, seem to revel in using jargon, pompous constructions, and long or arcane words. Naturally, there are times when technical terms are appropriate. Scientists communicate efficiently with jargon, but the audiences for most applied research are not scientifically trained and need more help than many writers supply.
- Repeat and summarize critical and difficult ideas so readers have time to absorb them.
- Make strategic use of service words. These are words that "do not represent objects or ideas, but show relationship. Transitional words, such as the conjunctions, are service words. So are phrases such as 'on the other hand,' 'in summary,' and 'in contrast.' "[6]

Tone Review the writing to ensure the tone is appropriate. The reader can, and should, be referred to, but researchers should avoid referring to themselves. One author notes that the "application of the 'you' attitude . . . makes the message sound like it is written to the reader, not sent by the author. A message prepared for the reader conveys sincerity, personalization, warmth, and involvement on the part of the author."[7] To accomplish this, remove negative phrasing and rewrite the thought positively. Do not change your recommendations or your findings to make them positive. Instead, review the phrasing. Which of the following sounds better?

> End users do not want the Information Systems Department telling them what software to buy.
>
> End users want more autonomy over their computer software choices.

The messages convey the same information, but the positive tone of the second message does not put readers from the Information Systems Department on the defensive.

Final Proof It is helpful to put the draft away for a day before doing the final editing. Go to the beach, ride a bicycle in the park, or see a movie—do anything that is unrelated to the research project. Then return to the report and read it with a critical eye. Does the writing flow smoothly? Are there transitions where they are needed? Is the organization apparent to the reader? Do the findings and conclusions adequately meet the problem statement and the research objectives? Are the tables and graphics displaying the proper information in an easy-to-read format? After assuring yourself that the draft is complete, write the executive summary.

Presentation Considerations

The final consideration in the report-writing process is production. Reports can be typed; printed on an ink-jet, laser, color, or other printer; or sent out for typesetting. Most student and small research reports are typed or produced on a computer printer. The presentation of the report conveys to the readers the professional approach used throughout the project. Care should be taken to use compatible fonts throughout the entire report. The printer should produce consistent, easy-to-read letters on quality paper. When reports are photocopied for more than one reader, make sure the copies are clean and have no black streaks or gray areas.

Overcrowding of text creates an appearance problem. Readers need the visual relief provided by ample white space. We define "ample" as one inch of white space at the top, bottom, and right-hand margins. On the left side, the margin should be at least one and one-fourth inches to provide room for binding or punched holes. Even greater margins will often improve report appearance and help to highlight key points or sec-

tions. Overcrowding also occurs when the report contains page after page of large blocks of unbroken text. This produces an unpleasant psychological effect on readers because of its formidable appearance. Overcrowded text, however, may be avoided in the following ways.

MANAGEMENT Tip

- Use shorter paragraphs. As a rough guide, any paragraph longer than half a page is suspect. Remember that each paragraph should represent a distinct thought.
- Indent parts of text that represent listings, long quotations, or examples.
- Use headings and subheadings to divide the report and its major sections into homogeneous topical parts.
- Use vertical listings of points (such as this list).

Inadequate labeling creates another physical problem. Each graph or table should contain enough information to be self-explanatory. Text headings and subheadings also help with labeling. They function as signs for the audience, describing the organization of the report and indicating the progress of discussion. They also help readers to skim the material and to return easily to particular sections of the report.



Close-Up: MindWriter Written Report

A written report is the culmination of the MindWriter project, which has illustrated the research process throughout the book. Jason's contract for the CompleteCare project requires a report about the size of a student term project. Although repetitive portions have been omitted to conserve space, it should give the reader some idea of how an applied project of this size is summarized. Descriptive statistics and simple graphics are used to analyze and present most of the data. References to chapters where specific details may be reviewed are shown in the marginal comments.

The presentation of findings follows the content specifications of Exhibit 20–1 for short reports. It falls between a memo/letter and a short technical report. The objective was to make it available quickly for feedback to the CompleteCare team. It was therefore set up as a facsimile document.

The fax cover sheet acts as a temporary transmittal letter until the plain paper copies are sent.

It provides all necessary identification and contact information. The writer's and recipient's relationship makes using first names appropriate.

Authorization for the study. Scope of findings (month). Specific instructions for process issues.

Request for follow-up by the client to reduce the study's limitations.

Progress update and feedback on improvements.

FAX Transmittal Memo

To:	Ms. Gracie Uhura	**From:**	Jason Henry
Company:	MindWriter Corp.	**Company:**	Henry Associates
Location:	Austin, TX Bldg 5	**Location:**	Palm Beach, FL
Telephone:	512.555.1234	**Telephone:**	407.555.4321
Fax:	512.555.1250	**Fax:**	407.555.4357

Total number of pages including this one: 10

January 5, 2003

Dear Gracie,

This fax contains the CompleteCare December report requested by Mr. Malraison through Myra Wines. You may expect the plain paper copies tomorrow morning for distribution.

We hope that the Call Center will complete the nonrespondent surveys so that we can discover the extent to which these results represent all CompleteCare customers.

This month's findings show improvements in the areas we discussed last week by telephone. The response rate is also up. You will be delighted to know that our preliminary analysis shows improvements in the courier's ratings.

Best regards,

Jason

Title contains reference to a known survey and program. Descriptions of variables, relationships, and population are unnecessary.

The recipient of the report, corporation, and date appear next.

The report's preparer, location, and telephone number facilitate contact for additional information.

The information level identifies this as a restricted circulation document for in-house use only.

CompleteCare Customer Survey Results for December

Prepared for Ms. Gracie Uhura
MindWriter Corporation
January 2003

Henry Associates
Research Services
200 ShellPoint Tower
Palm Beach, Florida 33480

407.555.4321

MindWriter CONFIDENTIAL

Title repeated.

Section headings are used.

Introduction contains period of coverage for report, management question, and secondary research objective.

An overview of the report's contents allows readers to turn to specific sections of interest.

The executive summary provides a synopsis of essential findings. It is the report in miniature—six paragraphs.

Both positive and negative results are capsulized.

Criteria for indexes are provided as reminders.

MindWriter CompleteCare December Results

Introduction

This report is based on the December data collected from the MindWriter CompleteCare Survey. The survey asks customers about their satisfaction with the CompleteCare repair and service system. Its secondary purpose is to identify monthly improvement targets for management.

The findings are organized into the following sections: (1) an executive summary, (2) the methods used, (3) the Service Improvement Grid, (4) detailed findings for each question, and (5) patterns in the open-ended questions.

Executive Summary

The highest degrees of satisfaction with CompleteCare were found in the categories of "delivery speed" and "pickup speed." Average scores on these items were between 4.2 and 4.4 on a 5-point scale. "Speed of repair," "condition on arrival," and "overall impression of CompleteCare's effectiveness" also scored relatively well. They were above the *met all expectations* level (see appropriate charts).

Several questions were below the *met all expectations* level. From the lowest, "Call Center's responsiveness," to "Call Center's technical competence," and "courier service's arrangements," the average scores ranged from 2.0 to 3.9. In general, ratings have improved since November with the exception of "condition on arrival."

The three items generating the most negative comments are (1) problems with the courier's arrangements, (2) long telephone waits, and (3) transfer among many people at the Call Center. These same comments carry over for the last two months.

CompleteCare's criteria for Dissatisfied Customers consist of negative comments in the Comments/Suggestions section or ratings of less than three (3.0) on questions one through eight. Forty-three percent of the sample met these criteria, down from 56 percent last month. By counting only customers' comments (positive/negative or +/–), the percentage of Dissatisfied Customers would be 32 percent.

The ratio of negative to positive comments was 1.7 to 1, an improvement over November's ratio (2.3 to 1).

When the expectation-based satisfaction scores are adjusted for perceived importance, "Call Center responsiveness," "Call Center technical competence," and "courier arrangements" are identified as action items. "Repair speed" and "problem resolution" maintained high importance scores and are also rated above average.

The methodology, reported in brief, reminds the reader of the data collection method, nature and format of the questionnaire, scales used, and target measurement issues.

Methodology

The data collection instrument is a postage-paid postcard that is packed with the repaired product at the time the unit is shipped back to the customer.

The survey consists of 12 satisfaction questions measured on five-point scales. The questions record the degree to which the components of the CompleteCare process (arrangements for receiving the customer's computer through return of the repaired product) meet customers' *expectations*. A final categorical question asks whether customers will use CompleteCare again. Space for suggestions is provided.

The sample, a self-selecting nonprobability sample, and the response rate are shown. With respondents' data from the postcards and the Call Center's files on nonrespondents, a future study on nonresponse bias is planned.

Sample

The sample consisted of 175 customers who provided impressions of CompleteCare's effectiveness. For the four-week period, the response rate was 35 percent with no incentive given. Nothing is yet known about the differences between respondents and nonrespondents.

This section begins the Findings section. Findings consist of the action planning grid and detailed results sections. The headings were specified by the client.

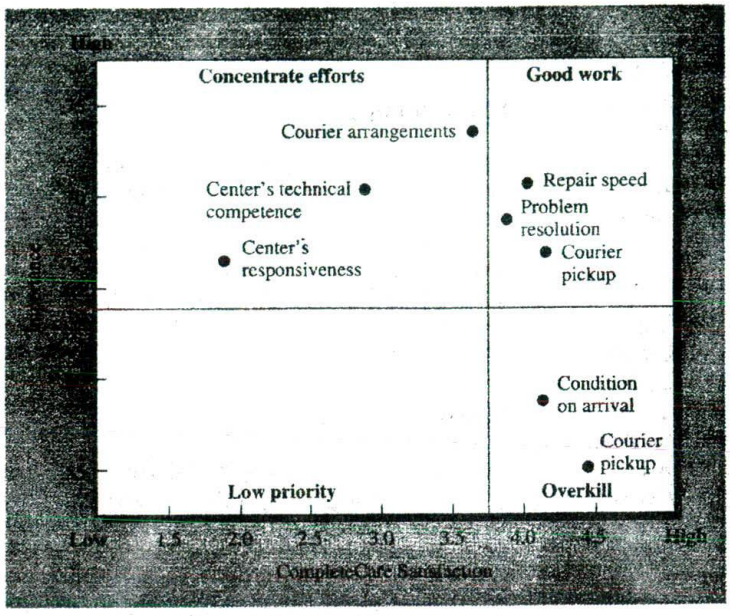
Service Improvement Grid

The method for creating the planning grid and the grid's contents are highlighted.

The grid on page three compares the degree to which expectations were met along with the *derived importance* of those expectations. The average scores for both axes determine the dividing lines for the four quadrants. The quadrants are labeled to identify actionable items and to highlight those that bear watching for improvement or deterioration.

The **Concentrate Efforts** quadrant is the area where customers are marginally satisfied with service but consider service issues important. Question 1a, "Call Center's responsiveness," Question 1b, "Call Center's technical competence," and Question 2a, "courier arrangements," are found here. "Technical competence" was similarly rated last month. Its perceived importance was rated higher in previous months. "Courier arrangements" has increased in perceived importance over previous reports.

The statistical technique for producing the grid is correlation. A modification of scatterplots was used to create a plot with reference lines (see Chapter 18).



Note: Satisfaction scores are in the range of 1.0 to 5.0 and importance is in the range of 0 to 1.0.

The contents of each quadrant are described. Comparisons and connections to the next section are previewed.

In the **Good Work** quadrant, CompleteCare has, on average, *met all expectations* with the "repair speed" and "courier pickup" questions. Their mean scores are greater than 4.0 and considered important by respondents. "Problem resolution" has improved but remains a borderline concern.

There are no items in the **Low Priority** quadrant.

Overkill, the last quadrant, contains two questions. Question 5, "condition on arrival," has improved its ratings over last month but has dropped slightly on the importance scale because the average of importance scores (horizontal line) moved upward. Question 2c, "courier delivery speed," has a high satisfaction rating, but respondents considered this item to have lower importance than most issues in CompleteCare.

Detailed findings show the results of individual questions. This section announces the two-part content and presents, briefly and in a direct style, the most pertinent outcomes.

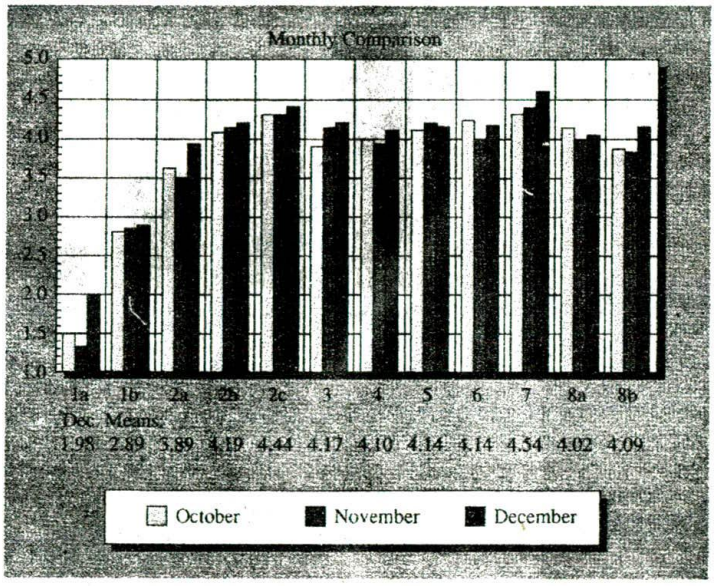
Detailed Findings

The figures that follow provide (1) a comparison of the mean scores for each of the questions for the last three months and (2) individual question results. The latter contains frequencies for the scale values, percentages for each category, mean scores, standard deviations, and valid cases for each question. (See Appendix for question wording and placement.)

The three-month comparison (October, November, December) shows results for all scaled questions. December data bars (in black) reveal improvements on all average scores (vertical axis) except Question 5, "condition on arrival." Most aspects of the service/repair process have shown improvement over the three-month period.

This graphic gives the reader a three-month view of all the questions at a glance. Vertical bars are the simplest and easiest to read for the amount of space allocated. Horizontal grid lines guide the eye from the bar tops to the closest value on the mean score axis.

Charts similar to these may be produced by the same spreadsheet that handles data entry. Charting programs offer other options and will import the data from spreadsheets.

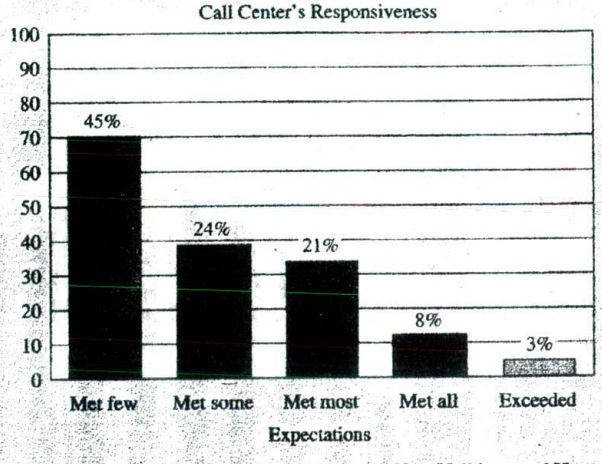


The first individual item is reported with mean scores, percentages, and recommendations for improvement.

This chart conveys the message of low responsiveness rather well but does not have a label for the vertical axis. It is easy to confuse percentages with the number of respondents (which it is supposed to represent).

Similar reporting formats are skipped.

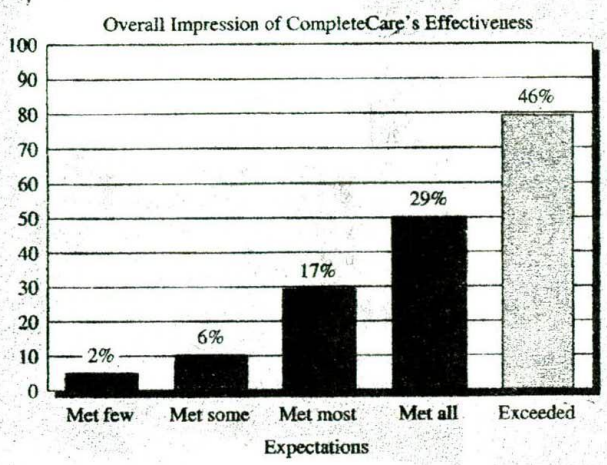
Question 1a. Call Center's Responsiveness. This question has the lowest mean score of the survey. Using a top-box method of reporting (combining the top two categories), 11 percent of the respondents felt that the Call Center met or exceeded their expectations for service responsiveness. This has improved only marginally since November and has significant implications for program targets. Based on our visit and recent results, we recommend that you begin immediately the contingency programs we discussed: additional training for Call Center operators and implementation of the proposed staffing plan.



Mean score: 1.98 Standard deviation: 1.09 Valid cases: 159

Question 6 shows the respondents' overall impression of CompleteCare. It would be an ideal dependent variable for a regression study in which questions 1 through 5 were the independent variables (see Chapters 17 and 18).

Question 6. Overall Impression of CompleteCare's Effectiveness. CompleteCare has increased the number of truly satisfied respondents with 46 percent (versus 43 percent in November) in the *exceeded expectations* category. The top-box score has increased to 75 percent of respondents (against 70 percent in November).



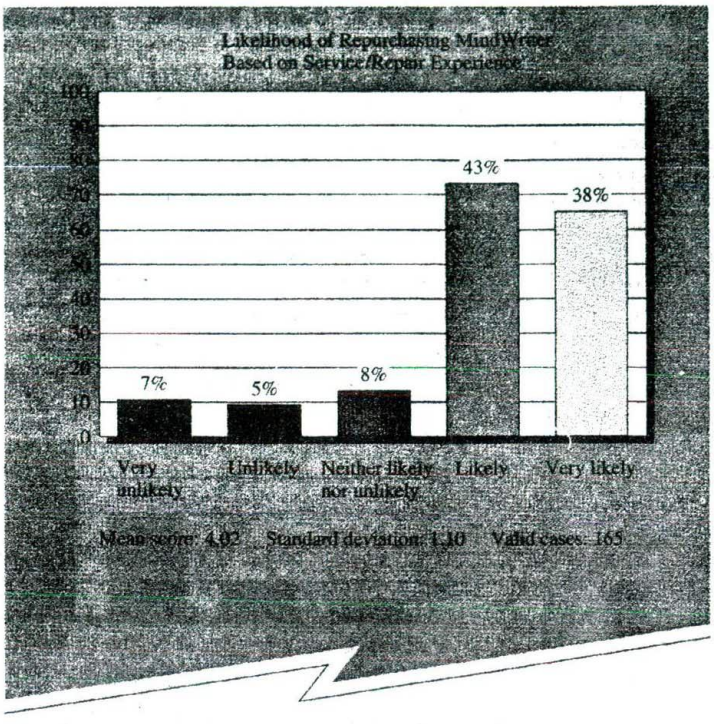
Mean score: 4.14 Standard deviation: 0.98 Valid cases: 169

Question 8a is another question for more detailed research. It allows the researcher to connect the variables that describe the service/repair experience with repurchase intentions.

Question 8a. Likelihood of Repurchasing MindWriter Based on Service/Repair Experience. Respondents' average scores (4.02) for this likelihood scale are the highest this month since measurement began. Improvement of the courier service's arrangements with customers and the resolution of the problem that prompted service appear to be the best predictors of repurchase at this time.

Using regression, it was possible to identify two key influences for this question.

Question 8b (not shown) is similar, asking about the relation of product performance to repurchase intention.



The questionnaire has one open-ended question that encourages respondents to make comments or suggestions.

Content analysis is used to distill the reponses (see Chapter 15).

Patterns in the Open-Ended Questions

The following categories were found when the comments and suggestions were analyzed. The ratio of negative to positive comments was 1.7 to 1. Pickup problems continue to be "courier only" problems and coordination between MindWriter's telephone support and the courier. Customers complain of holding on the phone for long periods and being transferred between support people. Problems with service are split between large problems that have not been fixed and small, nuisance problems that customers are prepared to live with. Positive comments commend turnaround and service and also praise specific technical operators.

Although content analysis produces more than frequency counts of recurring themes, it is a labor-intensive process. The project's restrictive budget and the needs of the audience made this section of the report adequate for its purpose.

Negative Comments	Count
Shipping	19
Pickup problems (15)	
Delivery problems (2)	
Box damage (1)	
The courier charged customer (1)	
Call Center	19
Too long on hold (9)	
Transferred call too frequently/confusion (8)	
Untrained/hard to understand (2)	
Service	13
Problem continues (5)	
Small things not fixed/damaged (6)	
Took too long (2–7 weeks) (2)	
Product	6
Multiple repairs needed (3)	
Paint wears off (2)	
General dislike of product (1)	
Positive Comments	
General positive comment about the process	13
Quick response	12
Great service	7
Helpful phone personnel	6
Other Comments	
MindWriter shouldn't need to be repaired	4
Provide more information on what was done	2
Offer extended warranty	1
Won't use MindWriter Call Center again	1

Appendix Contents
Sample Questionnaire

MindWriter personal computers offer you ease of use and maintenance. When you need service, we want you to rely on ***CompleteCare,*** wherever you may be. That's why we're asking you to take a moment to tell us how well we've served you.

	Met **few** expectations 1	Met **some** expectations 2	Met **most** expectations 3	Met **all** expectations 4			**Exceeded** expectations 5
1. Telephone assistance with your problem:				1	2	3	4 5
a. Responsiveness				1	2	3	4 5
b. Technical competence				1	2	3	4 5
2. The courier service's effectiveness:							
a. Arrangements				1	2	3	4 5
b. Pickup speed				1	2	3	4 5
c. Delivery speed				1	2	3	4 5
3. Speed of the overall repair process.				1	2	3	4 5
4. Resolution of the problem that prompted service/repair.				1	2	3	4 5
5. Condition of your MindWriter on arrival.				1	2	3	4 5
6. Overall impression of CompleteCare's effectiveness.				1	2	3	4 5
7. Likelihood of using CompleteCare on another occasion. **(1 = very unlikely 3 = neither likely nor unlikely 5 = very likely)**				1	2	3	4 5
8. Likelihood of repurchasing a MindWriter based on: **(1 = very unlikely 3 = neither likely nor unlikely 5 = very likely)**							
a. Service/repair experience				1	2	3	4 5
b. Product performance				1	2	3	4 5

Comments/Suggestions: _____

_____

_____

How may we contact you to follow up on any problems you have experienced?

_____ (_____) _____

Last Name First Name Phone

_____

City State Zip

Service Code

The report's appendix contains a copy of the questionnaire (see Chapter 12).

Presentation of Statistics[8]

The presentation of statistics in research reports is a special challenge for writers. Four basic ways to present such data are in (1) a text paragraph, (2) semitabular form, (3) tables, or (4) graphics.

Text Presentation

This is probably the most common method of presentation when there are only a few statistics. The writer can direct the reader's attention to certain numbers or comparisons and emphasize specific points. The drawback is that the statistics are submerged in the text, requiring the reader to scan the entire paragraph to extract the meaning. The following material has a few simple comparisons but becomes more complicated when text and statistics are combined.

> *A comparison of the three aerospace and defense companies from the high-tech stratum of the Forbes 500 sample shows that Sundstrand had the best sales growth record over the years 1988–1989. Its growth was 8.0 percent—with sales significantly lower than the other two firms in the sample. This compares to sales growth for Rockwell International of 3.3 percent, and Allied-Signal was third at only 0.8 percent sales increase. Rockwell International generated the most profits in 1989 among the three companies. Rockwell's net profits were $720.7 million as compared to $528 million for Allied-Signal and $120.8 million for Sundstrand.*

Semitabular Presentation

When there are just a few figures, they may be taken from the text and listed. Lists of quantitative comparisons are much easier to read and understand than embedded statistics. An example of a semitabular presentation is shown below.

> *A comparison of the three aerospace-defense companies in the Forbes 500 sample shows that Sundstrand showed the best sales growth over a one-year period. Rockwell International generated the highest net profits for the year.*

	Annual Sales Growth	1989 Net Profits ($ millions)
Sundstrand	8.0%	$120.8
Rockwell	3.3	720.7
Allied-Signal	0.8	528.0

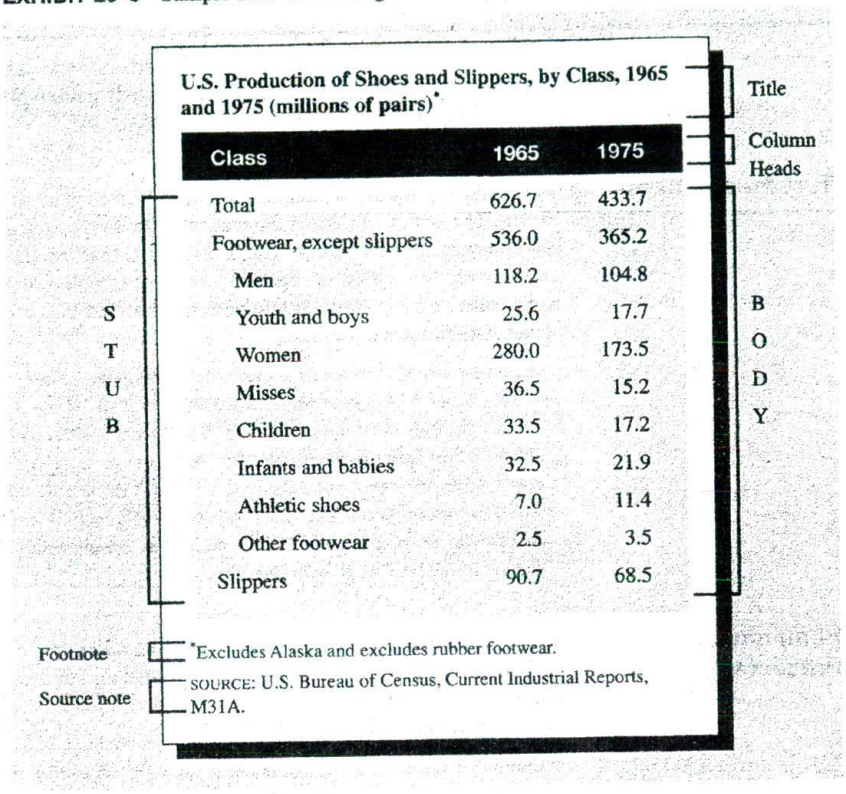
Tabular Presentation

Tables are generally superior to text for presenting statistics, although they should be accompanied by comments directing the reader's attention to important figures. Tables facilitate quantitative comparisons and provide a concise, efficient way to present numerical data.

Tables are either general or summary in nature. General tables tend to be large, complex, and detailed. They serve as the repository for the statistical findings of the study and are usually in the appendix of a research report.

Summary tables contain only a few key pieces of data closely related to a specific finding. To make them inviting to the reader (who often skips them), the table designer should omit unimportant details and collapse multiple classifications into composite measures that may be substituted for the original data.

EXHIBIT 20–5 Sample Tabular Findings



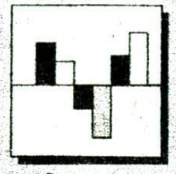
Any table should contain enough information for the reader to understand its contents. The title should explain the subject of the table, how the data are classified, the time period, or other related matters. A subtitle is sometimes included under the title to explain something about the table; most often this is a statement of the measurement units in which the data are expressed. The contents of the columns should be clearly identified by the column heads, and the contents of the stub should do the same for the rows. The body of the table contains the data, while the footnotes contain any needed explanations. Footnotes should be identified by letters or symbols such as asterisks, rather than by numbers, to avoid confusion with data values. Finally, there should be a source note if the data do not come from your original research. Exhibit 20–5 illustrates the various parts of a table.

Graphics

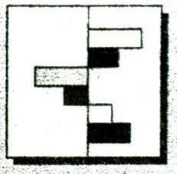
Compared with tables, graphs show less information and often only approximate values. However, they are more often read and remembered than tables. Their great advantage is that they convey quantitative values and comparisons more readily than tables. With personal computer charting programs, you can easily turn a set of numbers into a chart or graph.

There are many different graphic forms. Exhibit 20–6 shows the most common ones and how they should be used. Statistical explanation charts such as boxplots,

EXHIBIT 20–6 Guide to Graphs



Column Compares sizes and amounts of categories usually for the same time. Places categories on *X* axis and values on *Y* axis.



Bar Same as the column but positions categories on *Y* axis and values on *X* axis. Deviations, when used, distinguish positive from negative values.



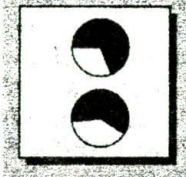
Stacked Bar In either bar or column, shows how components contribute to the total of the category.



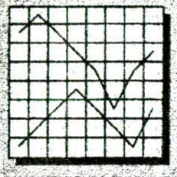
Pie Shows relationship of parts to the whole. Wedges are row values of data.



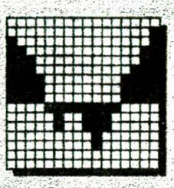
Stacked Pie Same as pie but displays two or more data series.



Multiple Pie Uses same data as stacked pie but plots separate pies for each column of data without stacking.



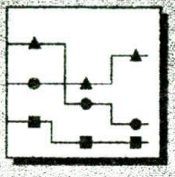
Line Compares values over time to show changes in trends.



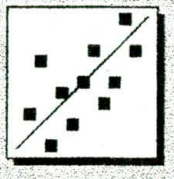
Filled Line Similar to line chart, but uses fill to highlight series.



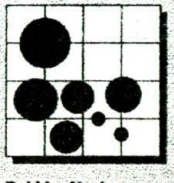
Area (surface) Like line chart, compares changing values but emphasizes relative value of each series.



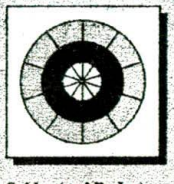
Step Compares discrete points on the value axis with vertical lines showing difference between points. Not for showing a trend.



Scatter Shows if relationship between variables follows a pattern. May be used with one variable at different times.



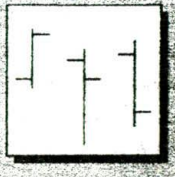
Bubble Used to introduce third variable (dots of different sizes). Axes could be sales, profits; bubbles are assets.



Spider (and Radar) Radiating lines are categories; values are distances from center (shows multiple variables e.g., performance, ratings, progress).

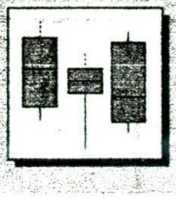


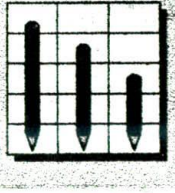
Polar Shows relationship between a variable and angle measured in degrees (cyclical trends, pollution source vs. wind direction, etc.).



Open Hi Lo Close Shows fluctuating values in a given period (hour, day). Often used for investments.

Boxplots Displays distribution(s) and compares characteristics of shape (Chapter 16).





Pictographic Special chart that uses pictures or graphic elements in lieu of bars.

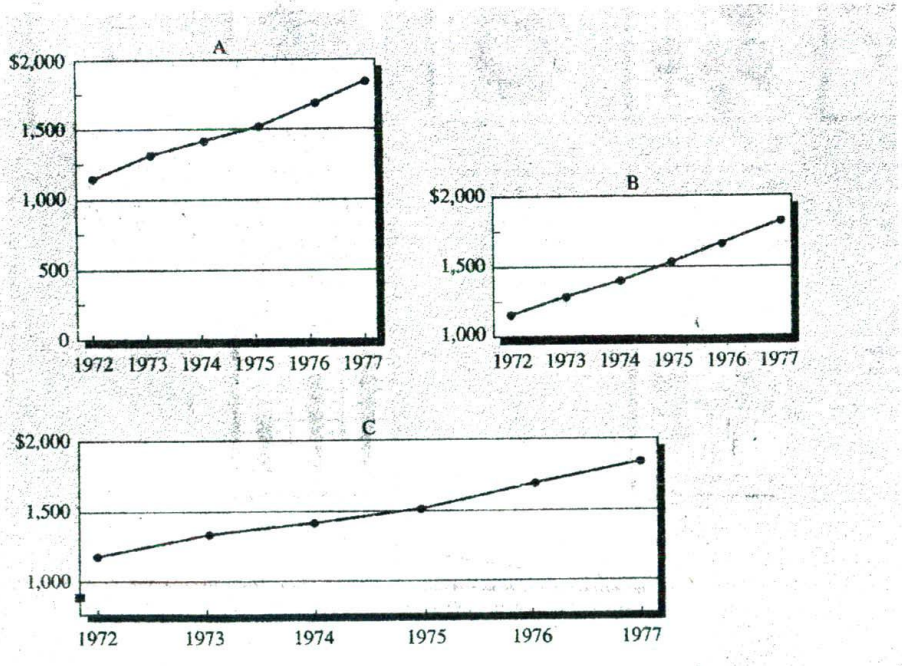
stem-and-leaf displays, and histograms were discussed in Chapter 16. Line graphs, area, pie, and bar charts, and pictographs and 3-D graphics receive additional attention here.

Line Graphs Line graphs are used chiefly for time series and frequency distribution. There are several guidelines for designing **a line graph:**

- Put the time units or the independent variable on the horizontal axis.
- When showing more than one line, use different line types (solid, dashed, dotted, dash-dot) to enable the reader to easily distinguish among them.
- Try not to put more than four lines on one chart.
- Use a solid line for the primary data.

It is important to be aware of perceptual problems with line diagrams. The first is the use of a zero baseline. Since the length of the bar or distance above the baseline indicates the statistic, it is important that graphs give accurate visual impressions of values. A good way to achieve this is to include a zero baseline on the scale on which the curves are plotted. To set the base at some other value is to introduce a visual bias. This can be seen by comparing the visual impressions in Parts A and B of Exhibit 20–7. Both are accurate plots of the gross national product of the United States from 1972 through 1977. In Part A, however, using the baseline of zero places the curve well up on the chart and gives a better perception of the relation between the absolute size of GNP and the changes from year to year. The graph in Part B, with a baseline at $1,000 billion, can easily give the impression that the growth was at a more rapid rate. When space or other reasons dictate using shortened scales, the zero base point should still be used but with

EXHIBIT 20–7 U.S. Gross National Product, 1972–1977 (dollars in billions)



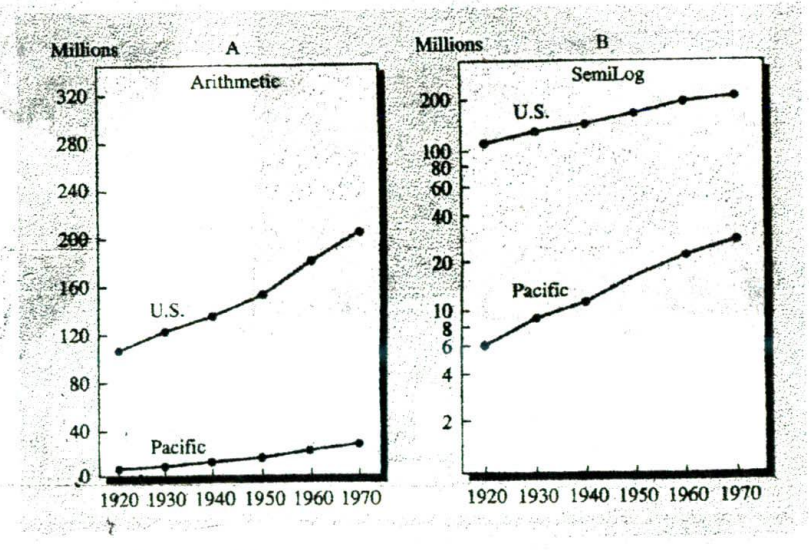
a break in the scale as shown in Part C of Exhibit 20–7. This will warn the reader that the scale has been reduced.

The balance of size between vertical and horizontal scales also affects the reader's impression of the data. There is no single solution to this problem, but the results can be seen by comparing Parts B and C in Exhibit 20–7. In Part C, the horizontal scale is twice that in Part B. This changes the slope of curve, creating a different perception of growth rate.

A third distortion with line diagrams occurs when relative and absolute changes among two or more sets of data are shown. In most charts, we use arithmetic scales where each space unit has identical value. This shows the absolute differences between variables, as in Part A of Exhibit 20–8, which presents the total U.S. population and that of the three Pacific states. This is an arithmetically correct way to present these data; but if we are interested in rates of growth, the visual impressions from a semilogarithmic scale are more accurate. A comparison of the line diagrams in Parts A and B of Exhibit 20–8 shows how much difference a semilogarithmic scale makes. Each is valuable and each can be misleading. In Part A, notice that both areas have been growing in population and that the population of the Pacific states is only a small portion of total U.S. population. One can even estimate what this proportion is. Part B gives insight into growth rates that are not clear from the arithmetic scale. Part B shows that the Pacific states' population has grown at a much faster rate than the U.S. population as a whole.

Area (Stratum or Surface) Charts An **area chart** is also used for a time series. Consisting of a line that has been divided into component parts, it is best used to show changes in patterns over time. The same rules apply to stratum charts as to line charts (see Exhibit 20–6).

EXHIBIT 20–8 Population of the United States and Pacific States Area, 1920–1970 (millions)



SOURCE: U.S. Department of Commerce.

Pie Charts **Pie charts** are another form of area chart. They are often used with business data. However, they can easily mislead the reader or be improperly prepared. Research shows that readers' perceptions of the percentages represented by the pie slices are consistently inaccurate.[9] Consider the following suggestions when designing pie charts:

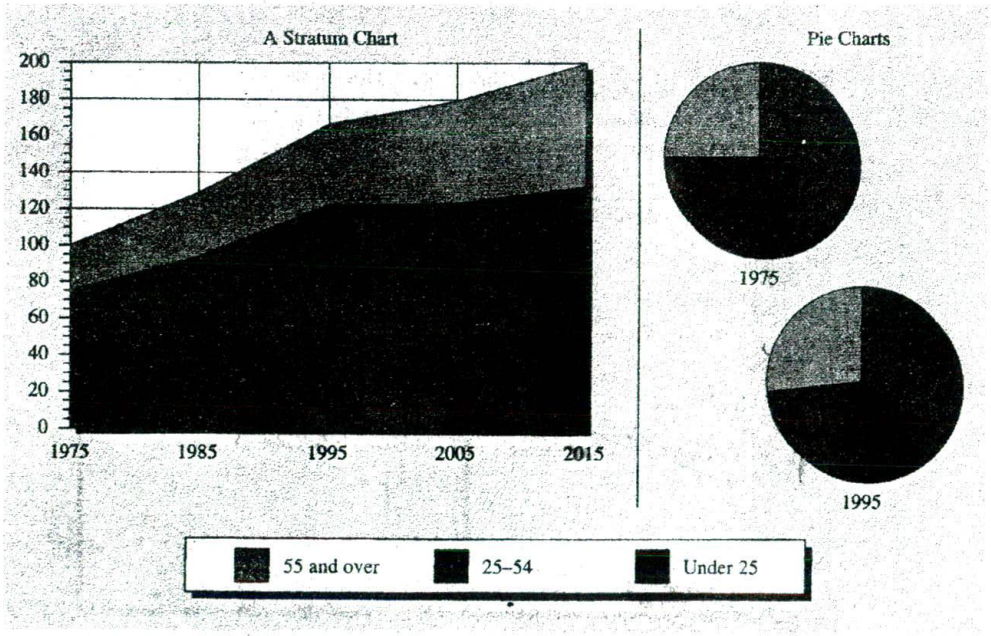
MANAGEMENT Tip

- Show 100 percent of the subject being graphed.
- Always label the slices with "call-outs" and with the percentage or amount that is represented. This allows you to dispense with a legend.
- Put the largest slice at twelve o'clock and move clockwise in descending order.
- Use light colors for large slices, darker colors for smaller slices.
- In a pie chart of black and white slices, a single red one will command the most attention and be memorable. Use it to communicate your most important message.[10]
- Do not show evolution over time with pie charts as the only medium. Since pie charts always represent 100 percent, growth of the overall whole will not be recognized. If you must use a series of pie charts, complement them with an area chart.

As shown in Exhibit 20–9, pie charts portray frequency data in interesting ways. In addition, they can be stacked to show relationships between two sets of data.

Bar Charts **Bar charts** can be very effective if properly constructed. Use the horizontal axis to represent time and the vertical axis to represent units or growth-related

EXHIBIT 20–9 Examples of Area Charts: A Stratum Chart and Two Pie Charts



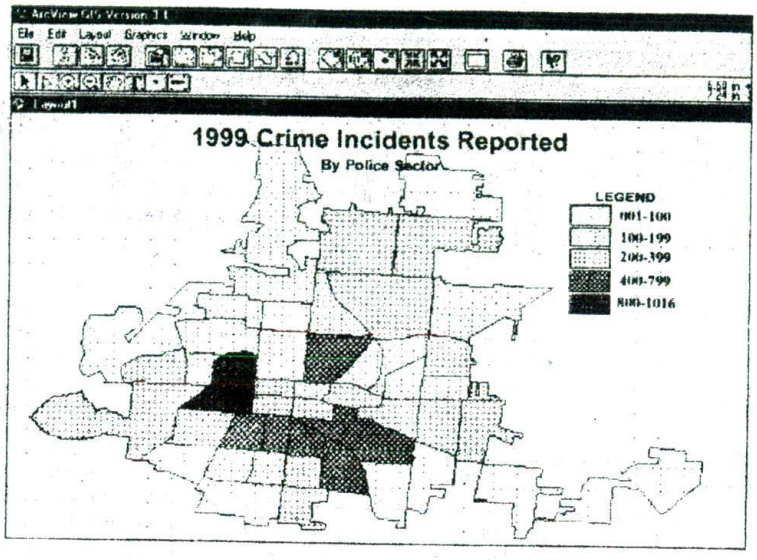
Notice the two pie charts seem to indicate a dramatic decrease in the "under 25" category. Now look at the stratum chart. The "under 25" category never decreased; it only changed relative to the entire population. It is important not to use pie charts alone in a time series, to avoid giving erroneous impressions.

variables. Vertical bars are generally used for time series and for quantitative classifications. Horizontal bars are less often used. If neither variable is time related, either format can be used. A computer-charting program easily generates charts. If you are preparing a bar chart by hand, leave space between the bars equal to at least half the width of the bar. An exception to this is the specialized chart—the histogram—where continuous data are grouped into intervals for a frequency distribution (see Chapter 16). A second exception is the multiple variable chart, where more than one bar is located at a particular time segment. In this case, the space between the groups of bars is at least half the width of the group. Bar charts come in a variety of patterns. In Chapter 16, Exhibit 16–3 shows a standard vertical bar graph. Variations are illustrated in Exhibit 20–6.

Pictographs and Geo-Graphics These graphics are used in popular magazines and newspapers because they are eye-catching and imaginative. *USA Today* and a host of imitators are often guilty of taking this to the extreme, creating graphs that are incomprehensible. A **pictograph** uses pictorial symbols (an oil drum for barrels of oil, a stick figure for numbers of employees, or a pine tree for amount of wood). The symbols represent data volume and are used instead of a bar in a bar-type chart. It is proper to stack same-size images to express more of a quantity and to show fractions of an image to show less. But altering the scale of the symbol produces problems. Since the pictures represent actual objects, doubling the size will increase the area of the symbol by four (and the volume by more). This misleads the reader into believing the increase is larger than it really is. The exception is a graphic that is easily substituted for a bar, such as the pencils in Exhibit 20–6.

The research presentation provides a final opportunity to imbue research findings with clarity and perhaps draw additional information from the data. When the data lend themselves to spatial display, software such as MapInfo can prove to be a useful presentation tool. www.mapinfo.com





As this Arc View map illustrates, public services are increasingly using geographic displays of data to assist in personnel and resource allocation.

See the section on Geographic Information Systems in Chapter 16.

Geo-graphic charts use a portion of the world's map, in pictorial form, to show differences in regions. They can be used for product production, per capita rates, demographics, or any of a number of other geographically specific variables.

As we noted in Chapter 16, management applications for GIS mapping abound. Stacked data sets produce variables of interest that can be aligned on a common geographical referent. The resulting pictorial display allows the user to drill through the layers and visualize the relationships. With better Windows-based software and government agencies providing geo-codes and reference points, geographic spatial displays like the image below are becoming a more common form of graphic.

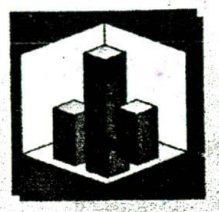
3-D Graphics With current charting techniques, virtually all charts can now be made three dimensional. Although **3-D graphics** add interest, they can also obscure data. Care must be used in selecting 3-D chart candidates (see Exhibit 20–10). Pie and bar charts achieve dimensionality simply by adding depth to the graphics; this is not 3-D. A 3-D column chart allows you to compare three or more variables from the sample in one bar chart–type graph. If you want to display several quarters of sales results for Hertz, Avis, Budget, and National, you have 3-D data. But be careful about converting line charts to ribbon charts, and area charts to 3-D area charts.

Surface charts and 3-D scatter charts are helpful for displaying complex data patterns if the underlying distributions are multivariate. Otherwise, do not enter the third dimension unless your data are there.

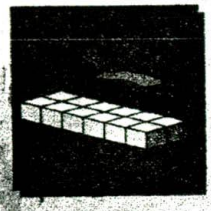
Oral Presentations

Researchers often present their findings orally. These presentations, sometimes called **briefings,** have some unique characteristics that distinguish them from most other kinds of public speaking: Only a small group of people is involved; statistics normally constitute an important portion of the topic; the audience members are usually managers with

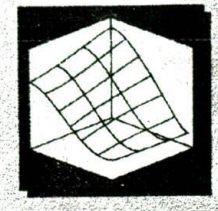
EXHIBIT 20–10 3-D Charts



3-D Column
A variation on column charts, they compare variables to each other or over time. Axes: X = categories, Y = series, Z = values. Other variations include 3-D area charts and connect-the-dots scatter charts.



3-D Ribbon This example is a one-wall plot showing columns of data (series) as ribbons. One or more columns are used. Axes: X = categories, Y = series, Z = values.



3-D Wireframe
A variation of a contour or response surface; suitable for changes in time and multivariate data. Axes: X = categories, Y = series, Z = values.



3-D Surface Line
Handles three columns of data and plots XYZ coordinates to show a response surface. Helpful for multivariate applications.

an interest in the topic, but they want to hear only the critical elements; speaking time will often be as short as 20 minutes but may run longer than an hour; and the presentation is normally followed by questions and discussion.

Preparation

A successful briefing typically requires condensing a lengthy and complex body of information. Since speaking rates should not exceed 100 to 150 words per minute, a 20-minute presentation limits you to about 2,000 to 2,500 words. If you are to communicate effectively under such conditions, you must plan carefully. Begin by asking two questions. First, how long should you plan to talk? Usually there is an indication of the acceptable presentation length. It may be the custom in an organization to take a given allotted time for a briefing. If the time is severely limited, then the need for topical priorities is obvious. This leads to the second question: What are the purposes of the briefing? Is it to raise concern about problems that have been uncovered? Is it to add to the knowledge of audience members? Is it to give them conclusions and recommendations for their decision making? Questions such as these illustrate the general objectives of the report. After answering these questions, you should develop a detailed outline of what you are going to say. Such an outline should contain the following major parts.

1. **Opening.** A brief statement, probably not more than 10 percent of the allotted time, sets the stage for the body of the report. The opening should be direct, get attention, and introduce the nature of the discussion that follows. It should explain the nature of the project, how it came about, and what it attempted to do.
2. **Findings and conclusions.** The conclusions may be stated immediately after the opening remarks, with each conclusion followed by the findings that support it.
3. **Recommendations.** Where appropriate, these are stated in the third stage; each recommendation may be followed by references to the conclusions leading to it. Presented in this manner, they provide a natural climax to the report. At the end of the presentation, it may be appropriate to call for questions from the audience.



An internal, informal oral report of research findings (and often findings-in-process) is often a lively, interactive exchange of information. The researcher supports the discussion by sharing preliminary graphical and tabular displays of data and initial conclusions.

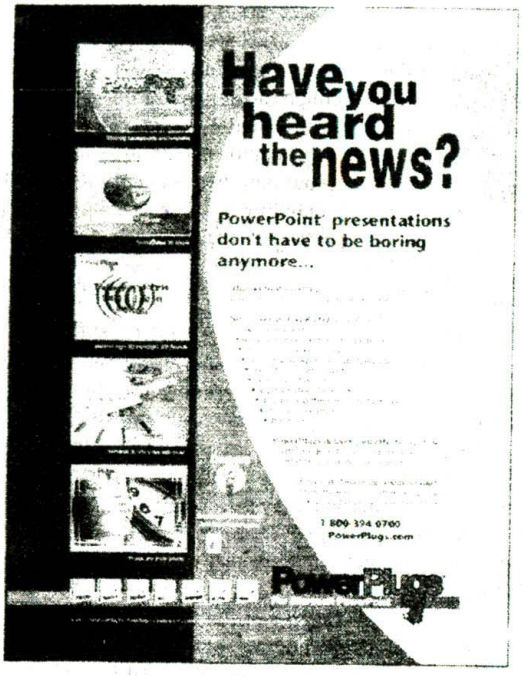
Early in the planning stage you need to make two further decisions. The first concerns the type of audiovisuals (AV) that will be used and the role they will play in the presentation. AV decisions are important enough that they are often made *before* the briefing outline and text are developed.

Presenting your research findings using PowerPoint™ or other presentation software requires preparation similar to presenting with nonelectronic visual aids. The researcher must still determine his style of presentation, the order of findings, and which findings will be presented graphically, in tabular format, or verbally. As most visual aids are prepared using computer software, the key hyperlink files are already available. It might seem as though the presenter could bypass the costly printing of visual aids, which can be a time-consuming task. However, the electronic presenter must have a contingency plan for a malfunctioning computer. Color transparencies are the low-tech backup but clearly don't allow the full range of possibilities that electronic hyperlinks afford. Having a second laptop and projection system, as well as multi-prong power cords and spare computer connection cords are the usual high-tech insurance plan. The same general rule applied to all presentations is critical for electronic ones—practice, practice, practice—but a caveat is added: Practice *with your equipment* so movement between files, and between hyperlinks and your PowerPoint™ control presentation seems effortless.

The second decision you must make as you plan for your presentation is what type it will be. Will it be memorized, read from your manuscript, or given extemporaneously? We rule out the impromptu briefing because impromptu speaking does not involve preparation. Your reputation and the research effort should not be jeopardized by "winging it."

Memorization is a risky and time-consuming course to follow. Any memory slip during the presentation can be a catastrophe, and the delivery sounds stilted and distant. Memorization virtually precludes establishing rapport with the audience and adapting to their reactions while you speak. It produces a self- or speaker-centered approach and is not recommended.

Reading a manuscript is also not advisable, even though many professors seem to reward students who do so (perhaps because they themselves get away with it at pro-



Today's formal research presentation often takes place in a decision-making environment where the researcher and the decision maker collaborate on problem solving. Interactive presentations are particularly well suited to the use of electronic presentation software, like PowerPoint™. Such software can incorporate hyperlinks to graphical verbal, tabular, or video displays of data, as well as to the actual written report. Software utilities, like the PowerPoint™ add-ons described in this Crystal Graphics ad, enhance the capability of presentation software. To learn how to set up a PowerPoint™ presentation with hyperlinks, visit our text website. www.crystalgraphics.com

fessional meetings). The delivery sounds dull and lifeless because most people are not trained to read aloud and therefore do it badly. They become focused on the manuscript to the exclusion of the audience. This head-down preoccupation with the text is clearly inappropriate for management presentations.

The **extemporaneous presentation** is audience centered and made from minimal notes or an outline. This mode permits the speaker to be natural, conversational, and flexible. Clearly, it is the best choice for an organizational setting. Preparation consists of writing a draft along with a complete sentence outline and converting the main points to notes. In this way, you can try lines of argument, experiment with various ways of expressing thoughts, and develop phraseology. Along the way, the main points are fixed sequentially in your mind, and supporting connections are made.

Audiences accept notes, and their presence does wonders in allaying speaker fears. Even if you never use them, they are there for psychological support. Many prefer to use 5-by-8-inch cards for their briefing notes because they hold more information and so require less shuffling than the smaller 3-by-5-inch size. Card contents vary widely, but here are some general guidelines for their design:

- Place title and preliminary remarks on the first card.
- Use each of the remaining cards to carry a major section of the presentation. The amount of detail depends on the need for precision and the speaker's desire for supporting information.
- Include key phrases, illustrations, statistics, dates, and pronunciation guides for difficult words. Include also quotations and ideas that bear repeating.
- Along the margin, place instructions and cues, such as SLOW, FAST, EMPHASIZE, TRANSPARENCY A, TURN CHART, and GO BACK TO CHART 3.

After the outline and the AV aids comes the final stage of preparation—the rehearsal. Rehearsal, a prerequisite to effective briefing, *is too often slighted,* especially by inexperienced speakers. Giving a briefing is an artistic performance, and nothing improves it more than for the speaker to demonstrate mastery of the art. First rehearsal efforts should concentrate on those parts of the presentation that are awkward or poorly developed. After the problem areas have been worked out, there should be at least a few full-scale practices under simulated presentation conditions. All parts should be timed and edited until the time target is met. A videotape recorder is an excellent diagnostic tool.

Delivery

While the content of a report is the chief concern, the speaker's delivery is also important. A polished presentation adds to the receptiveness of the audience, but there is some danger that the presentation may overpower the message. Fortunately, the typical research audience knows why it is assembled, has a high level of interest, and does not need to be entertained. Even so, the speaker faces a real challenge in communicating effectively. The delivery should be restrained. Demeanor, posture, dress, and total appearance should be appropriate for the occasion. Speed of speech, clarity of enunciation, pauses, and gestures all play their part. Voice pitch, tone quality, and inflections are proper subjects for concern. There is little time for anecdotes and other rapport-developing techniques, yet the speaker must get and hold audience attention.

Speaker Problems Inexperienced speakers have many difficulties in making presentations. They often are nervous at the start of a presentation and may even find breathing difficult. This is natural and should not be of undue concern. It may help to take a deep breath or two, holding each for a brief time before exhaling as fully as possible. This can be done inconspicuously on the way to the podium.

Several characteristics of inexperienced speakers may be summarized as questions. Even if you are an accomplished speaker, it is helpful to review them as you watch a videotape of your presentation.

MANAGEMENT Tip

1. **Vocal characteristics:**
   - **a.** Do you speak so softly that someone cannot hear you well? It is helpful to have someone in the back of the room who can signal if your voice is not carrying far enough.
   - **b.** Do you speak too rapidly? Remind yourself to slow down. Make deliberate pauses before sentences. Speak words with precision without exaggerating. However, some people talk too slowly, and this can make the audience restive.
   - **c.** Do you vary volume, tone quality, and rate of speaking? Any of these can be used successfully to add interest to the message and engage audience attention. Speakers should not let their words trail off as they complete a sentence.
   - **d.** Do you use overworked pet phrases, repeated "uhs," "you know," and "in other words"?
2. **Physical characteristics:**
   - **a.** Do you rock back and forth or roll or twist from side to side or lean too much on the lectern?
   - **b.** Do you hitch or tug on clothing, scratch, or fiddle with pocket change, keys, pencils, or other devices?
   - **c.** Do you stare into space? Lack of eye contact is particularly bothersome to listeners and is common with inexperienced speakers. Many seem to choose a spot above the heads of the audience and continue to stare at this spot except when looking at notes. *Eye contact is important.* Audience members need to feel that

SNAPSHOT

Overcoming the Jitters

The fear of public speaking ranks up there with the fear of death and/or public nudity. Whether you are a seasoned pro or this is your first speech, stage fright, the illogical fear of facing an audience, can be a paralyzing emotion. How do you handle those times when your mind starts going blank and your stomach is turning? Patricia Fripp, an award-winning keynote speaker and speech coach, provides some answers. She suggests that you "need to anticipate your speech mentally, physically, and logistically." Mental preparation is key and should be a six-to-one ratio: Invest three hours of preparation for a 30-minute speech. There is no substitute for rehearsal. Spend some time memorizing your opening and closing—three or four sentences each. Although you may speak from notes, knowing your opening and closing helps your fluency, allowing you to make the vital connection in rapport with your audience when you are likely to be most nervous.

Logistically, know the room. Go there as early as possible to get comfortable in the environment. Practice using the microphone and check the equipment. A quick review of your visual aids is also helpful. Then, during the presentation, you can focus on your audience and not be concerned with the environment.

The physical part of overcoming nervousness is varied and may be constrained by your setting. In a small group setting, shake hands, exchange greetings, and make eye contact with everybody beforehand. In a larger meeting, at least connect with the people in the front row. Do so sincerely and they'll be cheering for your success. They are not waiting for you to fail—they are far too worried about themselves—and they are there to listen to you. If possible, avoid sitting while you're waiting to speak. Find a position in the room where you can stand occasionally. The rear of the room gives you access to the bathroom and drinking fountain.

If your anxiety level is still high, then you need an outlet for your energy. Comedians and actors find that doing light exercises in their dressing rooms or in another private area can relieve the excess energy. Fripp adds, "Find a private spot, and wave your hands in the air. Relax your jaw, and shake your head from side to side. Then shake your legs one at a time. Physically shake the tension out of your body." The object is to release enough nervous energy to calm your anxieties—without becoming so stress-free that you forget your purpose and audience.

www.fripp.com

you are looking at them. It may be helpful to pick out three people in the audience (left, right, and center) and practice looking at them successively as you talk.

d. Do you misuse visuals by fumbling, putting them on in incorrect order or upside down? Do you turn your back to the audience to read from visuals?

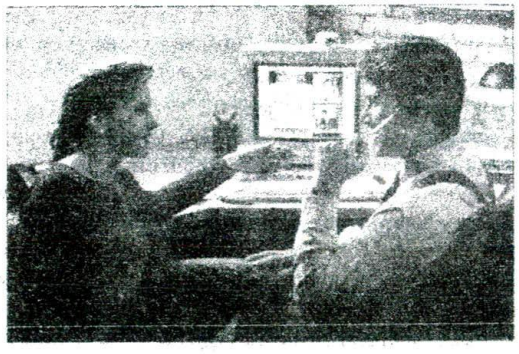
Audiovisuals

Researchers can use a variety of AV media with good results. While there is need for computer-assisted media in many business applications, they will be mentioned only briefly. Our emphasis is on **visual aids** that are relatively simple and inexpensive to make.

1. **Chalkboards and whiteboards.** Chalkboards are flexible, inexpensive, and require little specific preparation. On the other hand, they are not novel and do not project a polished appearance. Whiteboards, both portable and installed, provide visual relief, particularly when color markers are used. Both varieties reduce speaking time while the speaker is writing. If you use either, write legibly or print, leave space between lines, and do not talk to the board with the audience to your back. If you are in an unfamiliar room, it is best to arrive prepared with erasable markers (or chalk) and erasure materials.
2. **Handout materials.** These are inexpensive but can have a professional look if done carefully. Handouts can include pictures and graphic materials that might be difficult to display otherwise. The disadvantages include the time needed to produce them and their distracting impact if not properly used. You may distribute them when the audience leaves, but a better use is to refer to them during your talk. If you use them this way, *do not hand them out until you are ready to refer to them.*

3. **Flip charts.** You can show color, pictures, and large letters with these. They are easy and inexpensive to make; they can focus listener attention on a specific idea. If not well made, they can be distracting. Unless they are large, they should be restricted to small groups and to types of material that can be summarized in a few words.
4. **Overhead transparencies.** These may be of different sizes, but the most common is about the same as an 8 1/2-by-11-inch page. They are easily made with color markers or with a copy machine. Computer graphics can be plotted or printed directly to transparencies for a more accurate and professional look. Multiple-color and single-color renditions are available. You can also show overlays and buildups. In using transparencies, be sure they are in correct order and right side up when you place them on the projector.
5. **Slides.** Most slides are 35mm, but larger sizes are sometimes used. They are relatively inexpensive and colorful and present a professional-looking image if done well. They are somewhat more difficult to make but can be prepared with a personal computer and slide-construction software.
6. **Computer-drawn visuals.** For transparencies and slides, the draw and paint programs for personal computers provide the presenter with limitless options for illustrating the message. Stored visuals can be teamed with a device for projecting the computer output to a screen, or the briefer can use the software to create the image at the moment a question is asked or a demonstration is appropriate. Be careful that the technology does not distract from the purpose of the message.
7. **Computer animation.** The development of larger and faster processors, memory chips, and disks has made it possible to store voice and image data in quantity in personal computers. Technology permits multimedia presentations using videotape, videodisc, and CD-ROM elements that are integrated for the ultimate in image reproduction. For proposals, large contracts, or other business applications, the preparation and expense may be justifiable.

The choice of visual aids is determined by your intended purpose, the size of the audience, meeting room conditions, time and budget constraints, and available equipment.



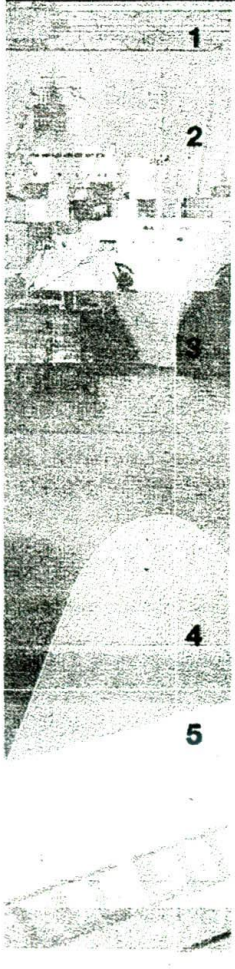
As technology advances, the Internet has become a medium for oral presentations and videoconferences. Like other presentations, you need to be cautious with equipment and look for software glitches. Have a backup copy of your presentation on your laptop or your company's server. Test your external mouse as well as the one that is connected to your computer. Be certain that your screensavers are disabled. And most important, be prepared to give your presentation even if the technology fails.

Visual aids serve the presenter of a research presentation in several ways. They make it possible to present materials that cannot otherwise be communicated effectively. Statistical relationships are difficult to describe verbally, but a picture or graph communicates well. How better to describe some object or material than to show it or picture it?

Visual aids help the speaker to clarify major points. With visual reinforcement of a verbal statement, the speaker can stress the importance of points. In addition, the use of two channels of communication (hearing and sight) enhances the probability that the listener will understand and remember the message.

The continuity and memorability of the speaker's message are also improved with visual aids. Verbal information is so transient that any slight lapse of listener attention results in losing the information thread. The failure to fully comprehend a given point cannot be remedied by going back to hear it again, for the speaker has gone on. With a visual aid, however, there is more opportunity to review this point, relate it to earlier comments by the speaker, and improve retention.

SUMMARY



1 A quality presentation of research findings can have an inordinate effect on a reader's or a listener's perceptions of a study's quality. Recognition of this fact should prompt a researcher to make a special effort to communicate skillfully and clearly.

2 Research reports contain findings, analysis, interpretations, conclusions, and sometimes recommendations. They may follow the short, informal format typical of memoranda and letters, or they may be longer and more complex. Long reports are of either a technical or a management type. In the former, the problem is presented and followed by the findings, conclusions, and recommendations. In the management report, the conclusions and recommendations precede the findings. The technical report is targeted at the technically trained reader; the management report is intended for the manager-client.

3 The writer of research reports should be guided by four questions:

- What is the purpose of this report?
- Who will read it?
- What are the circumstances and limitations under which it is written?
- How will the report be used?

Reports should be clearly organized, physically inviting, and easy to read. Writers can achieve these goals if they are careful with mechanical details, writing style, and comprehensibility.

4 There is a special challenge to presenting statistical data. While some of this data may be incorporated in the text, most statistics should be placed in tables, charts, or graphs. The choice of a table, chart, or graph depends on the specific data and presentation purpose.

5 Oral presentations of research findings are common and should be developed with concern for the communication problems that are unique to such settings. Briefings are usually conducted under time constraints; good briefings require careful organization and preparation. Visual aids are a particularly important aspect of briefings but are too often ignored or treated inadequately.

Whether written or oral, poor presentations do a grave injustice to what might otherwise be excellent research. Good presentations, on the other hand, add luster to both the research and the reputation of the researcher.

KEY TERMS

area charts 689
bar charts 690
briefings 692
executive summary 662
extemporaneous presentation 695
letter of transmittal 660
line graphs 688
management report 659
pace 671
pictographs (geo-graphics) 691
pie charts 690
readability indexes 671
sentence outline 666
technical report 659
3-D graphics 692
topic outline 666
visual aids 697

EXAMPLES

Company	Scenario	Page
Central City Bank*	A findings page in a commercial bank market study.	664
CrystalGraphics	Designing software (PowerPlugs) to enhance PowerPoint™ presentations.	695
Forbes 500	Text presentation of statistics.	685
Good Housekeeping Institute	Research center that conducts product performance tests for all products advertised or featured in articles in *Good Housekeeping* magazine.	666
"Good Housekeeping Institute Savvy Consumer"	New syndicated column for newspapers by King Features based on research results from experiments conducted by Good Housekeeping Institute.	666
MapInfo	Software useful for the spatial analysis and display of data.	691
McGraw-Hill	Website has tutorial for including hyperlinks within PowerPoint™ for research presentations.	695
Medical Radar International (MRI)	Swedish research company that publishes research on European doctors' use of pharmaceuticals.	659
MindWriter*	A final report, culminating from the book's vignettes, Close-Ups, and examples.	BRTL, 673
Shoe industry	A profile of industry production as an example of tabular presentation.	686
SPSS	Provided the software products—including *In2 data, Quantum,* and *SmartViewer*—used by MRI to conduct pharmaceutical research.	659
U.S. Department of Commerce	Population charts.	689
U.S. Government	GNP charts.	688

*Due to the confidential and proprietary nature of most research, the names of some companies have been changed.

DISCUSSION QUESTIONS

Terms in Review

1. Distinguish between the following:
   a. Speaker-centered presentation and extemporaneous presentation.
   b. Technical report and management report.
   c. Topic outline and sentence outline.

Making Research Decisions

2. What should you do about each of these?
   a. Putting information in a research report concerning the study's limitations.
   b. The size and complexity of tables in a research report.

c. The physical presentation of a report.

d. Pace in your writing.

3. What type of report would you suggest be written in each of the following cases?

a. The president of the company has asked for a study of the company's pension plan and its comparison to the plans of other firms in the industry.

b. You have been asked to write up a marketing experiment, which you recently completed, for submission to the *Journal of Marketing Research.*

c. Your division manager has asked you to prepare a forecast of cash requirements for the division for the next three months.

d. The National Institutes of Health has given you a grant to study the relationship between industrial accidents and departmental employee morale.

4. There are a number of graphic presentation forms. Which would you recommend to show each of the following? Why?

a. A comparison of changes in average annual per capita income for the United States and Japan from 1990 to 2000.

b. The percentage composition of average family expenditure patterns, by the major types of expenditures, for families whose heads are under age 35 compared with families whose heads are 55 or older.

c. A comparison of the change between December 31, 2001, and December 31, 2000, in the value of the common stock of six major electronics firms.

From Concept to Practice

5. Outline a set of visual aids that you might use in an oral briefing on these topics:

a. How to write a research report.

b. The outlook for the economy over the next year.

c. The major analytical article in the latest issue of *Business Week.*

6. Conduct a search of websites that provide Internet presentations. Select one and critique its content, visuals, and the presenter's skills.

7. Research reports often contain statistical materials of great importance that are presented poorly. Find examples of research reports, annual reports, or government reports that illustrate this point and devise ways to improve their presentation.

WWW Exercises

Visit our website for Internet exercises related to this chapter at
www.mhhe.com/business/cooper8

CASES

INQUIRING MINDS WANT TO KNOW—NOW!

KNSD SAN DIEGO

MASTERING TEACHER LEADERSHIP

NCR: TEEING UP A NEW STRATEGIC DIRECTION

PERFORMANCE EVALUATIONS

THE BRAZING OPERATION

VIOLENCE ON TV

*All cases indicating a video icon are located on the Instructor's Videotape Supplement. All nonvideo cases are in the case section of the textbook. All cases indicating a CD icon offer a data set, which is located on the accompanying CD.

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1. Paul E. Resta, *The Research Report* (New York: American Book Company, 1972), p. 5.
2. John M. Penrose, Jr., Robert W. Rasberry, and Robert J. Myers, *Advanced Business Communication* (Boston: PWS-Kent Publishing, 1989), p. 185.
3. Ibid.
4. Most word processors contain dictionaries. All-purpose word processors such as MS Word, WordPerfect, WordPro, or Macintosh products contain a spelling checker, table and graphing generators, and a thesaurus. For style and grammar checkers, programs such as Grammatik, RightWriter, Spelling Coach, and Punctuation + Style are available. New programs are reviewed periodically in the business communication literature and in magazines devoted to personal computing.
5. Robert R. Rathbone, *Communicating Technical Information* (Reading, MA: Addison-Wesley Publishing Company, 1966), p. 64. Reprinted with permission.
6. Ibid., p. 72.
7. Penrose, Rasberry, and Myers, *Advanced Business Communication*, p. 89.
8. The material in this section draws on Stephen M. Kosslyn, *Elements of Graph Design* (San Francisco: W. H. Freeman, 1993); DeltaPoint, Inc., *DeltaGraph User's Guide 4.0* (Monterey, CA: DeltaPoint, Inc., 1996); Gene Zelazny, *Say It with Charts* (Homewood, IL: Business One Irwin, 1991); Jim Heid, "Graphs that Work," *MacWorld* (February 1994), pp. 155–56; and Penrose, Rasberry, and Myers, *Advanced Business Communication*, Chapter 3.
9. Marilyn Stoll, "Charts Other than Pie Are Appealing to the Eye," *PC Week*, March 25, 1986, pp. 138–39.
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Public Speaking Jitters

Patricia Fripp, CSP, CPAE. Award-winning keynote speaker and speech coach, author of *Get What You Want!* and past president of the National Speakers Association. PFripp@fripp.com, 1-800-634-3035 (http://www.fripp.com)

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Cases

A GEM of a Study
AgriComp
AIDS Rates for Females
BBQ Product Crosses Over the Lines of Varied Tastes
Calling Up Attendance: TeleCenter System Users Forum
Can This Study Be Saved?
Healthy Lifestyles
HiTech Engineering
Inquiring Minds Want to Know—NOW!
Mastering Teacher Leadership
Match Wits with Jason on Sampling Theory
McDonald's Tests Catfish Sandwich
Medical Laboratories
NCR: Teeing Up a New Strategic Direction
Overdue Bills
Performance Evaluations
Ramada Demonstrates Its *Personal Best*
Retailers Unhappy with Displays from Manufacturers
Rubbergate
State Farm: Dangerous Intersections
Sturgel Division
The Brazing Operation
The Catalyst for Women in Financial Services
T-Shirt Designs
Violence on TV
Waste Paper
Workload Ratings
Xerox Abuses