ACCRA INSTITUTE OF TECHNOLOGY

The University of the Future

The Professor Francis Allotey Graduate School

A Guide to Technical Report Writing

Introduction

In this Guideline you will learn about technical reports, their different types, and their typical audiences and situations. In a technical writing course, your task is typically to pick a *report topic*, *report audience and situation*, *report purpose*, and *report type*. This planning leads directly into proposals.

About the Technical Report

The major focus of many technical writing courses is the technical report. Just about everything you study, everything you write, is geared toward preparing you to write this final report. The early, short assignment involving instructions or descriptions and the like give you practice using headings, lists, notices, and graphics; in handling numbers and abbreviations; and of course in producing good, clear, well-organized writing.

For many students, the technical report is the longest document they've ever written. It normally involves some research; often the information comes not only from published sources in the library, but also sources outside the library, including non-published things such as interviews, correspondence, and video tapes. It may also be the fanciest document: it uses binding and covers and has special elements such as a table contents, title page, and graphics.

As you think about what you want to write about for this project, don't shy away from topics you are curious about or interested in, but don't know much about. You don't need to do exhaustive research; normally, you can pull together information for an excellent report from several books and a half-dozen articles.

Your real focus is the writing: how well adapted to a specific audience it is, how clear and readable it is, how it flows, how it's organized, how much detail it provides. You are also focused on format: how well you use headings, lists, notices; how well you incorporate graphics; how well you handle the front- and back-matter elements; and how nice a job you do of turning out the final copy of the report.

You don't need to be a trained graphic designer to produce a fine-looking report. Basic word-processing skills and a decent printer and access to nice (but inexpensive) binding are all you need. Plan on doing a first-rate job on the report; remember that past students have shown prospective employers their reports and have benefited by doing so.

If you are planning a technical report, your job in this unit then is define the following:

- ***Report topic:*** Decide what subject you are going to write on; narrow it as much as possible.

- ***Report audience:*** Define a specific person or group of people for whom you are going to write the report. Define the circumstances in which this report is needed.

- ***Report purpose:*** Define what the report will accomplish—what needs of the audience it is going to fufill.

- ***Report type:*** Decide on the type of report—for example, technical background report, feasibility report, instructions, or some other.

  Front cover of a final report. Do a great job on your final report, and then put a copy of it in your fancy briefcase when you go job-interviewing.

  You can do these in any order: for some people, it helps to start by defining an audience or a report type first. For others, beginning by picking a topic is more stimulating. Once you have defined these elements, you can start testing your report-project ideas by asking yourself these questions:

- Is there hard, specific, factual data for this topic?

- Will there be at least one or two graphics?

- Is there some realistic need for this report?

Types of Technical Reports

Depending on the technical writing course you are taking, you can choose to write one of the following types Of reports:

Technical-Background Report: The background report is the hardest to define but the most commonly written. This type of technical report provides background on a topic—for example, solar energy, global warming, CD-ROM technology, a medical problem, or U.S. recycling activity.

However, the information on the topic is not just for anybody who might be interested in the topic, but for some individual or group that has specific needs for it and is even willing to pay for that information. For example, imagine an engineering firm bidding on a portion of the work to build a hemodialysis clinic. The engineers need to know general knowledge about renal disease and the technologies used to treat it, but they don't want to have to go digging in the library to find it. What they need is a technical background report on the subject.

Instructions: These are probably the most familiar of all the types of reports. Students often write backup procedures for the jobs they do at their work. Others write short user manuals for an appliance, equipment, or program. If there is too much to write about, they write about some smaller segment—for example, instead of instructions on using all of WordPerfect, just a guide on writing macros in WordPerfect.

Feasibility, Recommendation, and Evaluation Reports: Another useful type of report is one that studies a problem or opportunity and then makes a recommendation. A *feasibility* report tells whether a project is "feasible"—that is, whether it is practical and technologically possible. A *recommendation* report compares two or more alternatives and recommends one (or, if necessary, none). An *evaluation* or *assessment* report studies something in terms of its worth or value For example, a college might investigate the feasibility of giving every student an e-mail address and putting many of the college functions online.

The same college might also seek recommendations on the best hardware and software to use (after the feasibility report had determined it was a good idea). In practice, however, it's hard to keep these two kinds of reports distinct. Elements of the feasibility and recommendation report intermingle in specific reports—but the main thing is to get the job done!

Primary Research Report: Primary research refers to the actual work someone does in a laboratory or in the field—in other words, experiments and surveys. You may have written a "lab report," as they are commonly called, for one of your previous courses. This is a perfectly good possibility for the technical report as well. In this type of report, you not only present your data and draw conclusions about it, but also explain your methodology, describe the equipment and facilities you used, and give some background on the problem. You can modify this type by summarizing other primary research reports. For example, you could report on the research that has been done on saccharine.

Technical Specifications: In this report type, you discuss some new product design in terms of its construction, materials, functions, features, operation, and market potential. True specifications are not much on writing—the text is dense, fragmented; tables, lists, and graphics replace regular sentences and paragraphs whenever possible. Thus, specifications are not a good

exercise of your writing abilities. However, you can write a more high-level version—one that might be read by marketing and planning executives.

Report-length Proposal: As you may be aware, proposals can be monster documents of hundreds or even thousands of pages. (Please, not this semester.) Most of the elements are the same, just bigger. Plus elements from other kinds of reports get imported—such as feasibility discussion, review of literature, and qualifications; these become much more elaborate. The problem with writing a proposal in our technical-writing class is coordinating it with the proposal you write at the beginning of the semester (a proposal to write a proposal, come on!). Several students have set up scenarios in which they proposed internally to write an external proposal, in which they went after some contract or grant.

Business plans: If you are ambitious to run your own business, you can write a business plan, which is a plan or proposal to start a new business or to expand an existing one. It is aimed primarily at potential investors. Therefore, it describes the proposed business, explores the marketplace and the competition, projects revenues, and describes the operation and output of the proposed business.

Don't feel constrained by this list; if there is a type of technical document you want to write not listed here, talk to your instructor. It may be that we are using different names for the same thing.

Audience and Situation in Technical Reports

A critical step in your early report planning is to define a specific audience and situation in which to write the report. For example, if you wanted to write about CD audio players, the audience cannot be this vague sort of "anybody who is considering purchasing a CD player." You have to define the audience in terms of its *knowledge*, *background*, and *need* for the information.

- Why does the audience need this information?
- How will readers get access to this information?

  You also have to define the audience in terms of who they are specifically: that means things like *names*, *organization* or *company*, *street address* and *phone numbers*, and *occupation* or *position*.

Just as critical to the planning process is defining the situation. When you define audience, you define who the readers are, what they know or don't know in relation to the topic, what

experience or background they have in relation to the topic, and why they want or might need the information. Sometimes this leaves out a critical element: just what are the circumstances that bring about the need for the information.

Instructors as brainstorming devices: And of course if you are absolutely stumped, get with your instructor. Use your instructor as a brainstorming device. Here are some areas in which you can look for topics as well:

- ***Your major, future courses:*** Think about some the courses you have taken or will soon be taking within your major. Browse through some textbooks used in those courses.

- ***Magazines, journals, periodical indexes:*** Do some browsing in magazines and journals that are of interest to you. Indexes are a terrific way of brainstorming for a topic—they are huge lists of topics!

- ***Career plans, current work:*** Consider what sorts of work you will be doing in your chosen field; you may be able to think of some topics by this means. Take a look around you at work—there may be some possibilities there as well.

- ***Ideas for improvements:*** Take a look around your home, school, neighborhood, or city. What needs to be fixed, improved? Thinking along these lines can also lead to some good topics.

- ***Problems:*** Think about problems—your own, the city's, the state's, the country's, the world's. Think about problem in relation to certain groups of people. There are plenty of topics here as well.

General Characteristics of Technical Reports

You're probably wondering what this technical report is supposed to look like. Ask your instructor to show you a few example reports. In addition to that, here is a brief review of some of the chief characteristics of the technical report:

- ***Graphics:*** The report should have graphics. Graphics include all kinds of possibilities, as a later chapter in this book will show. If you can't think of any graphics for your report project, you may not have a good topic. Get in touch with your instructor, who can help you brainstorm for graphics.

- ***Factual detail:*** The report should be very detailed and factual. The point of the report is to go into details, the kind of details your specific audience needs.

- ***Information sources:*** Your report should make use of information sources. These may include not only books and articles that can be found in libraries but also technical brochures, interviews or correspondence with experts, as well as first-hand inspections. If you don't believe any information sources are necessary for your report project, contact your instructor.

- ***Documentation:*** When you use borrowed information in your technical report, be sure to cite your sources. The style of citing your sources (also called "documenting" your sources). One style commonly used in science and engineering is called the *number system*.

- ***Realistic audience and situation:*** The report must be defined for a real or realistic group of readers who exist in a real or realistic situation. Most students invent an audience and situation. And the audience can't merely be something like "anybody who might be interested in global warming." Instead, it has to be real, realistic, and specific: for example, "Texas Coastal Real Estate Developers Association, interested in reliable information on global warming, to be used to aid in long-range investment planning."

- ***Headings and lists:*** The report should use the format for headings that is required for the course, as well as various kinds of lists as appropriate.

- ***Special format:*** The technical report uses a rather involved format including covers, binding, title page, table of contents, list of figures, transmittal letter, and appendixes. These have to be prepared according to a set standard, which will be presented in a later chapter.

- ***Production:*** The technical report should be typed or printed out neatly. If graphics are taped in, the whole report must be photocopied, and the photocopy handed in (not the original with the taped-in graphics). The report must be bound in some way.

- ***Length:*** The report should be at least 8 doublespaced typed or printed pages (using 1-inch margins), counting from introduction to conclusion. This is a minimum; a report of this length is rather skimpy. There is no real maximum length, other than what your time, energy, and stamina can handle. But remember that sheer weight does not equal quality (or better grade). If you get into a bind with a report project that would take too many

pages, contact your instructor—there are numerous tricks we can use to cut it down to size.

- ***Technical content:*** You must design your report project in such a way that your poor technical-writing instructor has a chance to understand it—in other words, you must write for the nonspecialist. Also, at some point, you may get concerned about the technical accuracy of your information. Remember that this is a writing course, not a course in engineering, nursing, science, electronics, or the like. Make a good-faith effort to get the facts right, but don't go overboard.

Checklist for the Technical Report

Use the following questions to ensure that your technical report is structured properly according to common expectations:

- Do you include all the required components in the required order, for example, transmittal letter, followed by title page, followed by figure list, and so on?
- Do you address your report to a real or realistic audience that has a genuine need for your report? Do you identify in the introduction what background the audience needs to read and understand your report?
- Does your report contain specific, factual detail focused on the purpose of the report and the needs of the audience and aimed at their level of understanding?
- Does your report accomplish its purpose? Is that purpose clearly stated in the introduction?
- Does your report use information sources and do you properly document them?
- Does your report use the format for headings that is standard for this course?
- Does your report use the format for lists that is standard for this course?
- Does your report use graphics and tables? Does your report use the format for graphics and tables that is standard for this course? Specifically, are your figure titles (captions) to our class specifications?

- Is page 1 of your introduction designed according to the standard for this course?

- Does every new section (which starts with a first-level heading) start on a new page? Have you check for widowed headings (headings that start at the very bottom of a page)? stacked headings (two or more consecutive headings without intervening text)? lone headings (a single heading within a section)? parallelism in the phrasing of headings?

- Does the title page of your report include a descriptive abstract, and is it written according to the specifications and guidelines

- Do you include an informative abstract in your report; is it positioned properly in relation to the other report components; and is it written according to the specifications? Specifically, does your informative abstract summarize the key facts and conclusions of your report rather than act as just another introduction or descriptive abstract?

- Does the introduction of your report include the elements necessary in good introductions, such as audience, overview, purpose? Do you avoid the problem of having too much background in the introduction, or having an introduction that is all background?

  Just about any topic can be worked into a good technical-report project. Some are a little more difficult than others; that's where your instructor can help. And, that is why some technical writing course include a proposal assignment: it gives your instructor a chance to see what you want to do and to guide you away from problems such as the following:

Editorializing: For the report project, avoid editorial topics. For example, don't attempt to write a technical report on the pro's and con's of gun control, abortion, marijuana, and the like. You can, however, develop these topics: for example, describe the chemical, physiological aspects of marijuana or the medical techniques for abortion or the developmental stages of the fetus. These get into substantial technical areas. But avoid editorializing—there are other courses where you can do this.

Fuzzy topics: Some topics just don't work, for some reason. For example, dream analysis can be very fuzzy and nebulous. So can UFOs. You want your report to have hard factual data in it. The preceding topics are difficult to pin down this way. However, good reports have been written on the apparatus used in dream research laboratories. Maybe somebody can even figure out a good way to handle UFOs.

Tough technical topics: As mentioned earlier, don't shy away from interesting topics that you don't feel you know enough about. No one expects a doctoral thesis. Use the report project as a chance to learn something new. Of course, it's common sense that we often write better about things we know about. If this is a concern for you, look around you in your work, hobbies, or academic studies.

At the same time, however, don't be concerned that your has to be about computers, electronics, or some other "technical" topic. Remember that the word *technical* refers to any body of specialized knowledge