TECHNICAL REPORT WRITING
AND
ORAL PRESENTATION

A Guide for Students

Prepared by

Asst.Prof.Dr. Ferda Can Çetinkaya

Department of Industrial Engineering
EASTERN MEDITERRANEAN UNIVERSITY

Gazimagusa, Turkish Republic of Northern Cyprus

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CHAPTER 1

INTRODUCTION

Every term paper and project report is a mature piece of original research. Just as the research must be precise and complete, presentation of that research must equally be precise and complete to meet certain library and archival standards. Hence it is essential to prepare the manuscript in a certain format, and use paper of the prescribed quality and follow directions for the preparation of illustrative material exactly.

On the other hand, the ability to communicate technical information orally is just as important as the ability to write well. Oral presentations are different from written reports in some important ways. When people read reports, they can pay attention or not, because they can go back over it more slowly, attempting to puzzle it out. These are not excuses for sloppy writing practices, but they are realistic advantages of written communication. When an audience is listening to a presentation, they do not have these advantages. They hear the message only once, provided that the speaker is not terribly repetitious. They have to focus on what is happening in the present, for if they ponder on what has just occurred, they are missing the present. They must pay close attention at all times because they can not go back. They can not skim or look ahead. And if they have questions, often they are unwilling to ask them. If you have ever sat through a poor presentation, you have no doubt experienced some or all of these difficulties.

Because of these limitations, presentations must be flawlessly clear. Rigid organization is a must. The audience, in order to understand the message, must see how the speaker got from a point to another, for all the points in the presentation. This is a big task, but fortunately there is a systematic way to approach it.

The purpose of this guide is to ensure that every report (project or industrial training) or term paper submitted by the Industrial Engineering students to their department meet certain standards, and to give the reader advise on how to give a formal oral presentation.

Preparing a report with a word processor offers many advantages. However, the limitations of your software or hardware, or your limited knowledge of their capabilities do not release you from the responsibility of meeting these guidelines. Therefore, it is important that you read and understand the guidelines before you prepare your manuscript. Manuscripts, which do not meet these guidelines, will be returned to the student for resubmission prior to full evaluation.

For all cases that are not covered by the instructions given in this guide, please

- refer to references [1], [2] or [3], or
- contact your instructor(s) if you are preparing a term paper/project, or
- the academic advisors or the Industrial Training Coordinator of the department, if you are preparing a training report.
CHAPTER 2

DRAFTING AND WORD PROCESSING

Students at all levels find that the computer not only makes them more productive but is fast becoming indispensable for writing and research. Foremost among computer software tools are word processors. Further useful text tools include spelling checkers, thesauri and even programs to check grammar and analyze style. Available also are publishing and printing tools, management, presentation and information tools. These, and other tools for scanning, can help in different facets of assignment, term paper and technical report writing.

As more and more students come to rely on computers to produce and/or edit drafts of their work, they also need to be aware of the potential effects of computer use on the process of writing. Thus, in this chapter we will first consider some generic methods for preparing a draft, whether it is written by hand or by computer, and then focus on some of the additional difficulties and opportunities offered by computer-based writing. Please note that the material presented in this chapter is partially taken from [3].

2.1. Writing a First Draft

Your goal in writing a draft is to turn the purposes, ideas, and arguments you have generated into a text. You should not expect to produce a finished text in one sitting, not if it is an important text. Instead, you should plan on writing at least several drafts, with the first draft being only a rough approximation of what you want to say. If you have put a lot of thought into your subject and have analyzed your audience, purposes, and arguments, you will probably find it relatively easy to sit down and knock out a first draft. Conversely, if you haven’t done the appropriate prewriting steps, you may well find it difficult to write a draft. Even with the best preparation, however, writers sometimes find it hard to “get going.”

Here are some suggested approaches for overcoming “writer’s block” and getting that first draft written:

1. **Write an outline and then flesh it out in whatever way suits you best.** Some writers like to work top-down, other like to work on the easiest parts first, still others like to skip around and do a little bit here, a little bit there. At this stage, just do what feels most comfortable for you.

2. **Sit down and write whatever comes into your mind about your topic.** Don’t worry about its organization, or style, or even its sense; just get something down. This technique for getting started is called *focused free writing*—focused because your writing is focused on a particular topic, and free because you are free from all the normal constraints of organization, style, grammar, spelling, audience, etc. Once you get some version written, you will have something that you can later evaluate, organize, rewrite, and edit.
3. **If you use a computer, try “invisible writing.”** Turn the illumination on your computer screen down so that you can not see anything on it. Then write. When you have done as much as you can, turn the illumination back up and see what you have got. This is a form of free writing that is particularly unconstrained.

4. **Sit down and write a version of what you want to say and then throw it away.** You do not need to worry about how it turns out because no one will see it; you will not even read it over. Write another version and then read it to see if it is good enough. If not, throw it away and write another version. Do this a few times until you like something enough to work on improving it.

5. **Talk about your subject to a friend, coworker, or family member.** Do not worry about organizing what you say; just have a conversation in which you tell someone friendly about your project and why it is important. Then talk about it again to a second person and then to a third person. At this point, try to write a version, assuming that you have honed your points and approach in your oral “trial runs.”

6. **Talk about your subject to a friend, coworker, family member, or some imaginary person and tape-record what you say.** Explain what you have done or want to do and why it is important. Then listen to the tape and write down your main points, or literally transcribe what you say into a draft.

**2.1.1. Combating the Psychological Need for a Perfect First Draft**

Many inexperienced writers try to write perfect sentences in their first drafts, whether they are writing by hand or on a computer. This strategy often “freezes” up the writing process and creates a kind of writer’s block, since it puts too many demands on the writer at one time. A first draft will do its job if it just gets the ideas done in some form. Trying to get the ideas down in perfect form is like trying to memorize a speech in one pass: it can not be done.

Once you get a rough draft, you will need to evaluate it. Do this by first considering its content. Does it make sense? Is it what you want to say? Have you covered all your important points? If the answer to all these questions is yes, you are ready to move on to editing, testing, and revising. If not, you probably should take another look at your outline and try to figure out what is wrong.

**2.2. Using the Computer**

Whether you write your rough draft by hand or on a computer, you will find it helpful to use a computer the rest of the way. A computerized word processor allows you to do a variety of things that you can not do with any other technology. You can:

- write faster,
- make more changes faster,
- use outliners, spelling checkers, and other tools,
- print out hard copy in a variety of fonts and type sizes,
- integrate visual aids and special formatting features; and
- send the result electronically to distant recipients.
Whether you use a personal computer or a mainframe, you can find a word-processing program that will suit your tastes.

If you are careful about your planning, and if you can type well, you will probably get maximal benefit out of writing on a computer. If not, you probably won’t. The rest of this chapter discusses some of the pros and cons of using a word processor. Although the former, in my view, far outweigh the latter, everyone should be aware of possible difficulties in using the computer and how to overcome them. These difficulties include a range of writing process problems, computer problems, and visual design problems.

2.2.1. Minimizing Distractions from Typing or Running the Computer

The first set of problems to confront a computer-based writer is the many things to learn and control when first using a new word processor or computer system. Many people find that when they start with a new system, they seem to focus all their attention on their typing skills or on the commands needed to run the computer. In such cases, they may have little or no attention “left over” to devote to the cognitive acts of composition, to developing an appropriate point and structure and focus for the audience to which they are writing. Thus, if you are a new or moderately new user of a computer system, you may want to minimize the attention you need to spend on running the computer by trying the following strategies:

1. **Define a minimal instruction set.** Instead of trying to learn everything about your new system right away, make a list of the smallest number of tasks you need to learn to get started. Then, make a reference sheet of the commands for these tasks and tape it to your computer or set it up close by while you work. The list will probably include:

   - Starting up your text-processing system.
   - Opening a new document.
   - Calling up an existing document.
   - Entering new material.
   - Deleting material.
   - Adding new material to existing material.
   - Saving your document.
   - Printing your document.
   - Turning off your text-processing system.

   Once you have these actions under control, you might add the following to your list:

   - Changing left margins.
   - Setting up list.
   - Copying and moving text.

   If you can master this subset of text-processing tasks, you will be able to get started on your writing with a minimum of things to remember and thus a minimum of distractions to your writing activity. Once you are comfortable with these tasks, you can learn other things as you need to use them.
2. **Get formal training.** Take a course on your text-processing system or teach yourself to use it by going through all the tasks listed in the documentation and then practicing on “junk” documents. This approach has the advantage of letting you know how to run the computer before you start to do real work, but the series disadvantage of forcing you to spend a lot of time practicing instead of doing real work while you learn.

3. **Improve your typing.** If you are a poor typist, try to improve your typing by taking a typing course or practicing with a “typing tutor” on your computer. While you are learning, try not to worry about your typing as you write. One great advantage of using a computer is that it is very easy to correct mistakes when you are editing. If you can shift your attention from your typing to your thinking and writing, you will be away ahead.

### 2.2.2. Computer Failures

One of the easiest ways to save a lot of time is:

- to save your document frequently when writing on a computer, and
- to make at least one backup copy of the document.

Some word processors save automatically after given periods of time or a certain number of keystrokes; or the user may be prompted to save regularly. You should update a backup copy of your text frequently as you work and keep it in a separate, safe place so that if your computer has a failure, you won’t lose hours of work. This is especially critical if you are working on a system that experiences occasional power surges or losses. Although you may find it annoying to save your text and make backup copies so frequently, you won’t find it nearly as annoying as losing all you have written in a power failure.

### 2.2.3. Computer-aided Editing

Once you start editing, proceed in stages to make the editing easier and more effective. Do one pass for organizational issues, another for paragraph structure, another for grammatical or stylistic issues, another for spelling, punctuation, etc. Make a list of your special problems and add a pass for each problem. Use also other writing aids such as spelling checkers, thesauri, and grammar checkers.

**Spelling Checkers**

Spelling errors in written assignments mar the finished product and suggest a degree of carelessness. This is unfortunate because some errors may be typographic. Spelling errors can be difficult to locate when reading for meaning yet examiners nearly always seem to find some.

Help is at hand with spelling checkers, available sometimes as separate programs used in conjunction with a word processor or as part of a word processor itself. Such checkers work extremely fast, checking every word in a document against an in-build dictionary. Whenever a mismatch is found, it is highlighted and, in the better spelling checkers, shown in context. Many spelling checkers may even include suggestions for correction. Some words may be shown as mismatches because they are technical words and not
included in a particular dictionary. Users often have the option here to create their own user dictionaries to augment the in-build dictionary provided.

Spelling checkers are not foolproof. They will not detect there, for instance, as a mismatch when their was intended. Nor will they detect t as an error when to was intended since single letters of the alphabet are included in most dictionaries. However, spelling checkers usually detect 97-98 per cent of genuine spelling or typographical errors.

**Thesauri**

When looking for just the right word to place in phrase or sentence, most writers turn to a thesaurus. Not surprisingly, thesauri are now available on computer, either as separate programs or add-on modules to word processors.

**Grammar Checkers**

Writers also can check certain aspects of grammar and punctuation with grammar checkers which, like spelling checkers and thesauri, come as separate programs or as part of some word processors. Grammar checkers commonly flag such aspects as split infinitives, unbalanced quotation marks, repetition of words and commonly confused words.

As with spelling checkers, the writer decides what action to take in any instance: grammar checkers can simply point to what may be potential problems. Many of the problems may be of a relatively superficial kind but, nevertheless, here is another text tool that can usefully augment the other tools described in this section, all of which are readily available for those using personal computers for their assignment writing.

2.2.4 Publishing and Printing Tools

The text tools described above are useful for writing and for the various stages of revision. Publishing and printing tolls are discussed briefly in this section.

**Printers**

The overall appearance of a written material utilizing a word processor and other text tools will depend ultimately on the quality of the printer. A poor printer attached to the best computer and software will produce a poor looking product. The content may be satisfactory but the presentation may detract.

Most frequently used with personal computers are dot-matrix printers, ink jet printers and laser printers. The quality of dot-matrix printers depends on the number of pins on the print head and the speed of printing. Using a slower speed results in near letter quality print approximating that of a good electric typewriter. Ink jet printers do not strike the paper as do dot-matrix printers and the result is quieter operation, much higher quality print, but slower operation. At the top of the range are laser printers that produce very high quality print and graphics, and quiet, relatively fast operation compared with both dot-matrix and ink jet printers.
Two obvious points to consider are: first, the printer needs to be compatible with the computer; and, second, the printer needs to be able to handle any formatting in a document such as the use of different fonts, and enhancements like boldface, italics, subscripts, superscripts and graphics.

**Scanners**

A scanner works much like a photocopier but the images and text captured are transformed into electronic images or text that may then be imported to a word processor. As one application, consider preparing an appendix for the test instruments used in a study. Rather than take photocopies of the test instructions, for example, these can be scanned and then formatted in a word processor. This helps to maintain a uniform appearance throughout a document and results in a more professional looking product.
CHAPTER 3

SPECIFIC GUIDELINES FOR PREPARING THE TEXT

In preparing a paper or report, there are a number of format specifications that the writer should follow. These specifications are not to stifle writers but rather to allow them to encompass their individual contributions within a conventional framework that is both logical and sequential. By following stringent format requirements, writers not only can systematize and structure their thinking in terms of theme, unity and clarity, but they can facilitate the reading and interpretation of the work by others.

In a formal report, there are three main parts or divisions: the preliminary pages (front matter), the main text, and the back matter. The first part and the last part support the main text. In preparation of the manuscript, you must follow the order of items within these parts as listed below:

<table>
<thead>
<tr>
<th>FRONT MATTER (PRELIMINARY PAGES)</th>
<th>MAIN TEXT</th>
<th>BACK MATTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title page</td>
<td>Introduction</td>
<td>References and/or Bibliography</td>
</tr>
<tr>
<td>Abstract (Summary)</td>
<td>Body</td>
<td>Glossary</td>
</tr>
<tr>
<td>Acknowledgments</td>
<td>Conclusion and Recommendations (if any)</td>
<td>Appendixes</td>
</tr>
<tr>
<td>Table of Contents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>List of Tables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>List of Figures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>List of Symbols and/or Abbreviations</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In writing these elements, however, you are more likely to begin with the main text and back matter, delaying the front matter until the end of the drafting stage.

3.1. Front Matter (Preliminary Pages)

3.1.1. Title Page

Generally, the following information is required in the title page:

- Title of the assignment
• Name of the writer
• Name of the course and lecturer for whom the assignment is written
• Name of the department
• Name of the university or institution
• Date on which the paper is due and, sometimes, the date when submitted

The format of the title page, including spacing and capitalization must as it is shown in the sample title pages for the "term papers (or projects)" and the "industrial training reports" in Appendices A and B, respectively.

3.1.2. Abstract

The abstract (or summary) briefly summarizes the report and contents of the paper, including a statement of the topic, problem, procedure and methods, results, and conclusions. It is the most important page in the report since it is the first body of information the reader encounters. It is also used by information services to create lists of papers, organized by subject matter.

Guidelines for writing an abstract are:
• Write the abstract after the rest of the report has been written.
• The abstract page must appear on a separate page.
• A generic heading, ABSTRACT, is required in uppercase and centered between the text margins, which are described in Section 4.2 of this document.
• Draw information for the abstract from the introduction (particularly the purpose of the project), the discussion (pick out the most important highlights), and the conclusions (the outcome or result of the research or study).
• Keep the abstract as short as possible (e.g. not exceed 350 words) and make it interesting and informative.
• Keep the intended readers in mind to ensure you tell them what they most want to know or need to hear.
• Use plain and non-technical words, and avoid topic jargon so that the abstract can be understood by almost any person who picks up the report.
• Do not include diagrams, figures, tables, etc.
• Do not include mathematical formulas unless essential.

A sample abstract, which obeys these rules, is provided in Appendix C.

3.1.3. Acknowledgments

Acknowledgments recognize the persons to whom the writer is indebted for guidance and assistance during the study, and credit institutions for providing funds to implement the study or for use of personnel, facilities and other resources. For a term paper or written assignment, it is not necessary to acknowledge teaching staff or institutions.

Acknowledgments is optional, but, if included, the following rules must be followed:
• The acknowledgments must appear on a separate page.
• A generic heading ACKNOWLEDGMENTS is required in uppercase and centered between the text margins.
• The format of this page should be the same as that of the first page of a chapter that carries only a generic heading.

3.1.4. Table of Contents

A table of contents is used mainly to help readers find specific information. But it also has a secondary and a much more subtle purpose—that is, to let readers see how the author has organized the information and what topics are covered.

A table of contents is necessary only in those papers where the text has been divided into chapters or several sections. Most short written assignments, such as homework assignments, do not require a table of contents.

These are the factors you should take into account when writing a table of contents, as shown in the table of contents page of this manuscript:

• The table of contents should follow the acknowledgments (if there exists one) on a new page.
• A generic heading TABLE OF CONTENTS is required in uppercase and centered between the text margins. If a single page is not enough to list the captions, the generic heading should not be reused in the subsequent pages.
• The listing of actual contents begins at the left margin at least three spaces below the generic heading TABLE OF CONTENTS.
• Each entry should have the same number and the same caption (title) as they appear in the report.
• Each entry must have leader dots, which connect it to its page number.
• Double-space between each entry and single-space within the same caption should be used.

A final table of contents can not be prepared until the entire draft of a report is typed. Only then can page numbers be inserted. However, as each chapter or section is being written, it is helpful to develop a table of contents as a guide to the structure of the report.

3.1.5. List of Tables

Guidelines for writing a list of tables are:

• The list of tables should follow the list of contents on a new page.
• A generic heading LIST OF TABLES is required in uppercase and centered between the text margins. If a single page is not enough to list the tables, the generic heading should not be reused in the subsequent pages.
• Each entry should have the same number and the same caption (title) used for a table in the text.
• The tables should appear ordered numerically.
• The table numbers are placed in a column flush left under the heading "TABLE".
• The page numbers are listed flush right under the heading "Page".
• The table titles should begin two spaces after the period following the table number.
• The table titles should agree exactly with the wording of the titles as they appear above the tables themselves.
• The titles are capitalized in headline style used throughout the report.
• The first letter of all other table titles and any runover lines (if a title extends to more than one line) should be aligned with the first letter of the title following the first table.
• As in the table of contents, each entry must have leader dots that connect it to its page number.
• Double-space between each entry of tables and single-space within the table heading should be used.

3.1.6. List of Figures

The same rules as the list of tables apply for the list ones page, except the generic heading should be replaced by "LIST OF FIGURES", and the heading above the figure numbers must be "FIGURES".

3.1.7. List of Symbols and/or Abbreviations

This part of the report is also optional. However, if there are many symbols, abbreviations or acronyms used in the text, inclusion of such a list is very useful for the reader.

Certain guidelines apply to the list of symbols:
• The list of symbols should follow the list of figures on a new page.
• A generic heading LIST OF SYMBOLS is required in uppercase and centered between the text margins. If a single page is not enough to list the symbols, the generic heading should not be reused in the subsequent pages.
• The symbols can be arranged alphabetically.
• Each symbol should be flush left.
• Two to four spaces should be left between the longest symbol and its definition.
• The first letter of all other definitions and any runover lines (if a definition extends to more than one line) should be aligned with the first letter of the definition of the longest symbol.
• Double-space between symbols and single-space within the symbol definition should be used.

3.2. Main Text

The main text consists of the introduction (which is the first chapter), subsequent chapters, conclusion, and recommendations (if any).

3.2.1. Introduction

The introduction is designed to orient and help readers understand the material presented in the body. It introduces them to the circumstances leading up to the project, and the reasons it was undertaken and the report was written.

An introduction has three main components:
• The background, which describes events leading up to the existing situation, what studies, if any, have been made previously, and why the project or study is necessary.
• The **purpose**, which defines what the project or study is to achieve, who authorized it, and the specific terms of reference.

• The **scope**, which outlines any limitations imposed on the project, either by the person(s) authorizing it or by the person undertaking it, such as cost, time in which the project is to be completed, depth of the study, and factors which may be included or may be omitted.

You do not have to present these components in this order. Furthermore, in very long reports the three components may be treated as separate topics proceeded by individual headings.

The length of an introduction varies according to the nature of the research project. For shorter written assignments (2000-3000 words), a single carefully structured introductory paragraph may suffice; for longer papers and reports, an introduction may a chapter length.

The introduction should:
• begin on a new page, like in this manuscript,
• have a generic heading **CHAPTER 1** centered in uppercase within the text margins,
• have a title **INTRODUCTION**, centered in uppercase below the generic heading.

### 3.2.2. Body

The **body** is naturally the longest section of the main text, and divided into chapters.

Each chapter should:
• begin on a new page,
• have a generic heading (e.g. **CHAPTER 2**, **CHAPTER 3**, etc.) centered in uppercase within the text margins,
• have a title, which describes the content of the chapter, centered in uppercase below the generic heading.

**Sectioning**

Sometimes it is necessary to divide the introduction and the subsequent chapters into sections, which may in turn be divided into **subsections**, and these into sub–subsections, and so on. Such divisions are customarily given titles, called **subheadings**, which are differentiated and designated respectively first-, **second-**, and **third-level subheadings**. For example, the subheading "3.2. Main Text" above is a first-level subheading; however, the subheading "3.2.2. Body" above is an example for second-level subheading.

The **subheadings** should:
• be numbered consecutively and placed flush with the left margin (For example, a single numeral for the first-level subheading (e.g. 3) add a decimal (3.1) for the second-level subheading and another (3.1.1) for the next level),
• have the same wording as the topical entries in the table of contents,
• be a brief title for the passages they identify,
• be in lowercase with the initial letter in each major word capitalized,
• have no other text on the same line,
• have no punctuation after them.

Only chapters should begin with a new page. Within a chapter, the presentation of sections and subsections must be continuous; partially filled pages of text are acceptable only on non-textual pages, such as those presenting tables and illustrations.

**Paragraphs**

Every paragraph in the text should have a topic sentence, which is usually the first one. The other sentences should stick to the topic and develop the main idea by details, examples, logical arguments, comparison, and or contrast.

In many cases, the main body of the text will include certain materials other than ordinary text, such as illustrations, formulas, and footnotes.

**Illustrative Material**

Illustrative material in a text includes tables and figures (such as drawings, charts, diagrams, photographs).

Certain guidelines apply to the illustrations, as described below:

- Illustrations may be inserted wherever the author feels appropriate, but as a general rule, should be placed as close as possible to their first references in the text.
- Illustrations must have headings (Figure or Table) and captions which should be prepared in the same typeface and point size used for the text.
- Illustrations of any kind must be numbered consecutively. This includes appendices, if you have them. You must use a decimal approach (e.g., Figure 1.1, Figure 1.2, Figure A.4, Table A.1, Table A.2), where the first digit is the chapter or appendix number, and the digit after the decimal point is the illustration number in this chapter.
- Table numbers and captions must be placed and centered one space above the top line of the illustration; figure numbers and captions must be placed and centered one space below the last line or bottom of the illustration.
- Illustrations of one-half page or less in length may appear on the same page with the text, separated from the text above and below by triple spacing; illustrations longer than one-half page are better placed on a separate sheet.
- Illustrations that are too large to be placed sideways between the left- and right-hand margins should be rotated counter-clockwise 90 degrees so that the top of the illustration runs parallel to the left-hand margin of the page. The caption or legend for such an illustration must also be rotated. When illustrations are presented in this manner, the usual margin requirements remain in effect, and page numbers, which are described in Section 3.7, should appear in their normal place.
• Illustrations may run longer than one page. In such cases all subsequent pages of the illustration must include at least the illustration number and the notation that is continued, e.g., "Table 1 (cont.)" or "Table 1 (continued)".

• Photographic illustrations must be originals or well-done photographic copies of the originals. Whenever required, mounting of illustrations should be done with a technique that ensures durable and good quality result (e.g., dry mounting). With dry mounting, the paper to which photographs are attached will not curl.

• Illustrations which are larger than the normal page size, which is described in Section 4.2, may usually be reduced photographically. If reduction is not feasible, as in the case of large maps, for example, the material must be folded and inserted in a white or manila envelope no larger than 16.5 by 24 cm, which must be mounted on paper of the proper weight for inclusion in the report (see Figure 1). Each page enclosed in the envelope must be included in the pagination of the report; the page on which the envelope is mounted should have a single page number or inclusive page numbers, as needed.

Figure 1. Folding and Insertion of a Large Illustration Material in an Envelope

Formulas

Sometimes mathematical equations and formulas may be used in the reports. In these cases, they should be centered within the text margins. They have to be numbered consecutively, and this number is placed on the right-hand side, which is right justified, and in parenthesis. This includes appendices, if you have them. You may follow a straight sequence (1, 2, 3, etc.) or use a decimal approach (e.g., 1.1, 1.2,..., A.1, A.2), where the first digit is the chapter or appendix number, and the digit after decimal point is the equation number in that chapter. For example,

\[ z = 3x^2 + 5y \]  \hspace{1cm} (1)

or

\[ z = 3x^2 + 5y \]  \hspace{1cm} (2.1)

Footnotes

Footnotes are not recommended. Their position at the foot of the page does not only distracts the reader's eye and interrupts reading continuity, but also creates difficulties for the person keystroking or typing the report.
3.2.3. Conclusion

The conclusion is the last major section of the main text. Like the introduction, it should emphasize the most important ideas, the conclusions of the report, and recommendations, if any. Make this section strong and as specific as possible. The conclusion should:

- be as brief as possible, with their main points drawn from the report's main body,
- be presented in descending order of importance; i.e. primary conclusion first, followed by subsidiary conclusions,
- satisfy the requirements established in the introduction,
- never advocate action,
- begin on a new page,
- have a generic heading CONCLUSION centered in uppercase within the text margins.

The most important thing to remember about conclusions is that they must never offer surprises; that is, they must present no new information. Everything they contain must have been discussed in previous sections of the report (i.e. in the main body).

3.2.4. Recommendations

This is an optional section if there are any specific and pertinent recommendations arising from the conclusions they should be mentioned here.

3.3. Back Matter

The back matter consists of the references and bibliography, the glossary, and the appendix.

3.3.1. References and Bibliography

Whenever someone else's facts and figures are required to be quoted while conducting the project, or an information is drawn from a textbook, journal article, report, letter, or even a conversation, it is customary to acknowledge the source of your information within your report. This is usually done in two sections called "References" (or "List of References") and "Bibliography".

The purpose of a reference material is threefold:

- To give your report credibility.
- To help readers refer to the same source if they want more information.
- To give credit to the originator.

If a material is specifically referred within the text, then it should be listed in the references; otherwise, it should be listed in the bibliography section. The information in an entry of a bibliography is almost identical to the one in a list of references, but the entries are presented differently. These differences are as follows:

- References are numbered and appear in the sequence in which each piece of information is referred to in the report. That is, the entries are preceded by an
identification number (e.g. starting at "1." or [1]) and arranged in the sequence in which each is referred to in the report.

- Bibliography entries are not numbered, and appear in alphabetical sequence of authors' family names first.

The references and bibliography should follow the conclusion and recommendations on a new page in which a generic heading "REFERENCES and BIBLIOGRAPHY" centered between the text margins and written in the same typeface and size used for chapter titles. Furthermore, the generic subheadings "References" and "Bibliography" should be placed flush with the left margin and written with bold face letters having 14-point font size. Two blank lines before and one blank line after the generic subheadings should be placed.

The common rules in a list of references and a bibliography are as follows:

- Each entry in the list of references or bibliographies should be single-spaced with double spacing between entries.
- The first line of each entry is flush left, and subsequent lines, if any, are intended five spaces to the left.
- The surname (or family name) of the first-named author should be given first and the personal name(s) given second (e.g. Çetinkaya, Ferda C.).
- When there are two or more authors' names, the remaining authors' names are listed in natural order, given name first and then family name last (e.g. M. Kudret Yurtseven).

The preferred methods for listing the more common documents are described as follows:

**Book.** The entry should contain:

- author's name (or authors' names),
- book title (in italics),
- name of publisher,
- city of publisher,
- date of publication,
- page number of specific reference, if applicable.

Example:


**Article or section in the book.** The entry should contain:

- author's name (or authors' names),
- article (section) title (in quotation marks),
- book title (in italics),
- editor's name (editors' names) if the book has an editor,
- name of publisher,
- city of publisher,
- date of publication,
- page number on which article begins.
Example:


**Article in a Magazine or Journal.** The entry should contain:
- author's name (or authors' names),
- title of article (in quotation marks),
- title of magazine or journal (in italics),
- volume and issue numbers (shown as numerals only, e.g. 20:9),
- year of publication,
- page numbers on which the article starts and ends.

Example:


**Technical Report.** The entry should contain:
- author's name (or authors' names),
- title of article (in quotation marks),
- the term "Technical Report:" (in italics) followed by the technical report number (in italics),
- name and location of organization issuing report,
- date of the report,
- specific page number(s) (if applicable).

Example:


**Article in Conference Proceedings.** The entry should contain:
- author's name (or authors' names),
- title of article (in quotation marks),
- the term "Proceedings of the" (in italics) followed by name of the conference (in italics),
- location of conference,
- date of publication,
- page number(s).

Example:

**Paper Presented at a Conference.** The entry should contain:
- author's name (or authors' names),
- title of article (in quotation marks),
- the term "Paper presented at the" (in italics) followed by name of the conference (in italics),
- location of conference,
- date of presentation.

Example:


**World Wide Web (WWW) Document.** The entry should contain:
- name of website owner,
- page title (in italics),
- webpage address,

Example:


### 3.3.2. Glossary

A report that contains many technical terms and phrases not likely to be familiar to the reader may include a list of these words, followed by their definitions.

Certain guidelines apply to the glossary:

- The glossary page must appear on a separate page.
- A generic heading GLOSSARY is required in uppercase and centered between the text margins. If a single page is not enough to list the terms, the generic heading should not be reused in the subsequent pages.
- The terms and phrases should be arranged alphabetically.
- Each term or phrase should be flush left.
- The first letter of all words constituting a term should be capitalized.
- Two to four spaces should be left between the longest term (or phrase) and its definition.
- The first letter of all other definitions and any runover lines (if a definition extends to more than one line) should be aligned with the first letter of the definition following the longest term (or phrase).
- Double-space between terms and single-space within the term definition should be used.
3.3.3. Appendices

An *appendix* is any item, which is attached to the end of a document, and contains complex analyses, statistics, detailed apparatus description, computer programs, manufacturers' data, large drawings and illustrations, photographs, detailed test results, cost comparisons, and specifications. That is, any information that would interrupt reading continuity, if included in the main text, should be placed in an appendix.

Try to get into the habit of asking yourself, as you draft the body of the report, whether your readers actually need to read all the information you are including. As it all necessary if they are to understand you and make their decisions, or is some of it merely extra substantiation, documentation, or amplification? For example, you are discussing the prices of seven popular laser printers and wish to make the point that Brand C is the least expensive. Why not simply write that Brand C is $175 cheaper than its nearest competitor (and add, if you wish, the price difference between it and the median-priced printer and the most expensive one)? Then, add a parenthetical note cross-referencing the appendix that gives the full listing of the prices. This way, a table does not clutter up the body of the report. Remember, when people see a graphic, they stop and study it. Unless they really need to know the prices of all seven models, save them the trouble.

Certain guidelines apply to the *appendices*:

- If the materials of different categories should be placed in separate appendices, each appendix should:
  - be arranged in the sequence in which each is referred to in the report,
  - be given a generic heading with an identifying letter (APPENDIX A, APPENDIX B, etc.),
  - be given a title, like a chapter or part title, which describes the content of the appendix and centered in uppercase between the text margins,
  - have page numbers written in the same typeface and size used for pagination throughout the report.

- The generic heading and the title of an appendix should:
  - appear centered between the text margins,
  - be written in the same typeface and size used for chapter titles,
  - be listed separately in the table of contents as a subdivision under the heading APPENDICES.

- If an appendix contains photocopied material, the photocopies should be of letter quality and given a page number.

- Spacing need not be the same for each of the appendices. Whether an appendix should be single- or double-spaced depends upon the nature of the material.
CHAPTER 4

BASIC DIRECTIONS FOR LAYING OUT THE TEXT

In technical reports accuracy and clarity are of vital importance; however, first impressions often depend on appearance. Regrettfully, it may influence a person's evaluation of the report in all other aspects. Thus, it is advantageous for the author to produce a report, which is also professional-looking.

The following recommendations are good practices and assure the report to have a "professional look".

4.1. Paper and Printing

To insure durability, permanency, opacity, the report must be:

- typed (or printed) double-spaced on only one side of good quality white bond sheets, 21 by 29.7 cm (A4), preferably 80 gram,
- typed (or printed) with a very good and fresh ribbon that will provide high resolution,
- submitted in its original copy, but you are recommended to keep a copy of the report for your reference.

Printing is an important consideration in the process of preparing the paper by means of a computer system. When ascertaining the requirements for the preparation process, give special consideration to printing needs.

Certain guidelines apply to the printing:

- Only, the reports printed by using the laser or ink-jet printers provide quality printing.
- No ink corrections, strikeovers, correction fluid or tape, paste-ups, insertions between lines, and letraset should be present on the final copy of the report.

4.2. Margins

Certain guidelines apply to the margins:

- The left margin (binding side) must be at least 4 cm wide to allow space for binding; the other three margins must be at least 2.5 cm (1 inch) wide (see Figure 2 below). Narrower margins may cause binding problems.
- A ragged right margin (i.e. not right justification) are not acceptable. For example, this text you are reading now is right justified. That is, in justified text the words are spaced so that every full line ends at the same point along the page. Thus the lines form a straight vertical right-hand margin.
- Absolutely nothing must appear outside the margins. This means that all headings, page numbers, tables, illustrations, text, etc., must be contained completely within the typing area bounded by the margins.
4.3. Centering

It is clear that the page centerline and the centerline of typing area are different (see Figure 2). Whenever it is required, all materials must be centered between the text margins rather than between the paper edges. After the manuscript is binded, centered material will appear to be centered on the page.

4.4. Fonts and Spacing

The font is the design of the type you will use to print your report; for example: Courier, Helvetica, Times New Roman, Universe, etc. However, the point size is the height (size) of the font you will use to print (or type) your report.

Certain guidelines apply to the fonts:

- The font style should be regular, but bold face letters and symbols, and italics may be used for special emphasis and foreign words.
- The font size should be 12-point, but different font sizes may be used to set off generic headings, chapter titles, section headings, etc. (see Table 1)

The text should be single-spaced unless otherwise is mentioned in the report requirements.

<table>
<thead>
<tr>
<th>Heading</th>
<th>Font Size</th>
<th>Font Style</th>
<th>Centred or Flush Left</th>
<th>Blank Line Above</th>
<th>Blank Line Below</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generic (e.g. CHAPTER 1)</td>
<td>16-point</td>
<td>Bold</td>
<td>C</td>
<td>None</td>
<td>1</td>
</tr>
<tr>
<td>Chapter (e.g. INTRODUCTION)</td>
<td>16-point</td>
<td>Bold</td>
<td>C</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Section (e.g. 3.1. Front Matter)</td>
<td>14-point</td>
<td>Bold</td>
<td>FL</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Subsection (e.g. 3.1.1. Title Page)</td>
<td>12-point</td>
<td>Bold</td>
<td>FL</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure 2. Typing Area and Margins
4.5. Word and Text Divisions

Certain guidelines apply to the *word and text division*:

- The words at the ends of lines should not be divided and hyphenated.
- All paragraphs must be right justified.
- At least two lines of a paragraph must appear together at the top and bottom of every page.

4.6. Pagination

Certain guidelines apply to the *pagination*:

- On the title page and pages facing large illustrations, if any, the numbers are not shown (i.e. they are not typed on the pages), but the pages are counted in the pagination.
- All page numbers must:
  - appear in the same location on the page. You have three choices for this location:
    - the upper right-hand corner,
    - top center, or
    - bottom center of the typing area (not the center of a page).
  - be at least two single spaces above or below the nearest line of text, but within the margin boundaries as stated above.
  - be in the same font and size.
- For the preliminary pages, use lowercase roman numerals (ii, iii, iv, etc.). Actual page numbering begins with "ii" since the page number is not shown on the title page.
- Use Arabic numerals beginning "1" on the first page of the text and continue throughout the rest of the report, including references, appendices, etc.

4.7. Binding

All technical papers and reports have to be binded before submission, unless otherwise is specified as a requirement of the report. In this section, you can find some ways of binding:

- Stabled by the left top comer and submitted in a plastic folder.
- Stabled in a double-hole transparent file.
- Stabled in a file with synthetic cloth if the document is tick for a folder.
- Collection of plastic folders in a synthetic cloth file, where each plastic folder contains two sheets or a section, which is stabled.
- Binded by a spiral spine with synthetic covers.

Among these methods, you can choose the most appropriate one for your report. Other ways of binding are also acceptable, as long as the idea of keeping pages attached to each other is not violated. For example, for summer training reports the department strongly suggests the "spiral spine" method of binding, and for technical papers stabled pages in a folder or file is the minimum requirement.
CHAPTER 5

ORAL PRESENTATIONS

The material presented in this chapter is partially taken from [3] and [4], and the main purpose of this chapter is to give you advice on how to give formal oral presentations. There are several steps to giving a successful oral presentation: you must prepare properly, practice adequately, and deliver the presentation with energy and enthusiasm.

5.1. Preparation

The basic principle to keep in mind in preparing any kind of oral presentation is that all listeners have a limited attention span and can not be expected to follow everything you say. Their attention will probably wander from time to time, even if your presentation is only 10 minutes long. So, if you want to make sure that your listeners will come away from your talk with your main points clear in their minds, you must organize your presentation in such a way that these main points stand out.

Here is how to do it:

1. Analyze your audience, and limit your topic accordingly.
2. Determine your primary purpose.
3. Analyze the presentation environment.
4. Select effective supporting information and an appropriate pattern of organization.
5. Prepare an outline.
6. Select appropriate visual aids.
7. Prepare a suitable introduction.
8. Prepare a closing summary.

5.1.1. The Presentation Audience

There are audience issues that differ from those concerning written reports. It is important to know what level of expertise the audience has attained in your subject area, as well as whom they work for and what they do. But you should also consider the size of the audience. This tells you something about the size of the room in which the presentation will be held, and it limits the type of visuals you can use.

The answers to the following questions may suggest ways to organize your information, and may suggest what should be included and what should be left out.

- What do your listeners already know about the topic?
- What do they need or want to know about it?
- How much new information about it can they absorb?

5.1.2. Purpose of the Presentation

The second thing you must decide is the general purpose of your presentation. There are only two choices—to inform or to persuade. Of course, most persuasive technical
presentations are also informative, or at least they should be. However, deciding the general purpose of your presentation is by itself not much help. The important step is the next one. You should also decide on a specific purpose for the presentation. In other words, are you going to inform the audience about topic X, or are you going to persuade them to do project Y? Whatever it is, you should have it clear in your mind so that you can build your presentation around it.

5.1.3. The Presentation Environment

Where the presentation is to be held is another issue to consider. If possible, examine the room in which the presentation takes place. And try to obtain answers to the following questions before you arrive to make a presentation.

- Is it a large auditorium or a small conference room?
- Will the audience be seated theater-style or around table? This, too, affects the types of visuals you may use and your freedom of movement. It may even affect the formality of your presentation.
- Are there potentially distracting elements in the environment such as air-conditioners running inside the window or humming fluorescent lights? Distracting elements can make it difficult for your audience to pay attention. Many distractions can be changed or avoided. If you encounter those which can not, you will at least be prepared for them if you examine the environment prior to your presentation.
- What will the arrangement be for you, the speaker? Will there be a podium, a microphone, a table, and a visual equipment?

These environment questions are certainly not as important as topic-related questions or purpose-related questions. But the environment for a presentation does affect its acceptance. Do not forget to consider it.

5.1.4. Selecting Effective Supporting Information and the Appropriate Pattern of Organization

What kind of information will best support your main point? What kind of information will appeal to your listeners? They will probably be able to remember no more than three or four main supporting points and no more than two or three supporting details for each of these. So choose wisely.

Often, your supporting information can be presented according to a single dominant pattern of organization. For example, if you are trying to tell your listeners how to do something, you may want to organize your information into a list of instructions, chronologically ordered. On the other hand, if you are describing an experiment, you will be probably want to use the standard descriptive pattern; introduction, materials, procedure, results, discussion. There are many possible patterns of development to choose from. Whichever one you choose should be appropriate to the subject matter, to your primary purpose, and to your audience—and it should be followed consistently.
5.1.5. **Outlining the Presentation**

Try to obtain answers to the following questions before outlining your presentation.

- **Is there a time limit for your presentation?** The amount and type of preparation that goes into a ten-minute speech is vastly different than that required for a two-hour training presentation. And the ten-minute speech is more difficult!
- **Will questions be allowed during the presentation or afterward?**
- **What will the audience be doing before and after the presentation?**

When outlining a presentation, it is important to follow a few widely used guidelines. These are:

- Make sure that each level of the outline is similar in scope. This applies to subpoints as well as to main points.
- Limit each section of the outline to one idea, using a short phrase to remind you of the point you want to make. This makes the outline easier for you to follow if you use it as the notes for your presentation.
- Make sure that each section does not overlap, so that the audience is not confused.
- If you subdivide a main point, there should be two subpoints created by the division. Otherwise, it is like taking an orange, cutting it in half, and having a whole orange left-only smaller than the original.
- Focus on transitions in the outline. They are what enable the audience to follow your train of thought. Realize that introductions are transitions. They connect the audience’s not knowing about your specific topic to a readiness to be told the specifics of it. Transitions also should tie main points and subpoints together.

5.1.6. **Visual Aids**

Visual aids are an important addition to presentations. But that is all they are; they can not and should not take the place of language in lengthy communications. Rather, first of all, they should be used to serve as “cue cards”, allowing you to remember all your important points and stay on track without reading from a manuscript or from notes. Second, they have tremendous power as attention-getters. If you want to emphasize a point, by all means try to do it visually as well as orally. Studies have shown that people remember the visual parts of speeches far better than they do the verbal parts. Finally, visual aids can help clarify your message. If visual aids are to do this, they must meet certain criteria:

- They must be visible, large enough for the whole audience to see-even those people who insist on sitting in back row.
- They must be clear; their meaning must be obvious at a glance without explanation.
- They must be simple and easy for the audience to comprehend.
- They must be controllable, easy for you to use with your presentation.

By now you are no doubt thinking that you have never seen visual aids that met all these criteria, particularly the one about their meaning being obvious at a glance without explanation. However, the fact that the majority of presentations fall short of these standards is not a justification for ours to fall short of excellence, as well. Good visual aids polish a presentation. For that reason alone, good visual aids should be our goal.
There are many types of visual aids available for the speaker to use, each with advantages and disadvantages. Pick your visual aids carefully. Generally, it is best to use the type of visual aid your audience expects. Here are some basic options:

1. **Words and Phrases**. Words and phrases are points upon which the speaker will elaborate. They should represent important matters in the presentation, and they should be short and simple. Frequently, speakers will present the audience with an outline of their presentation at the beginning of it. Although this treatment is a little heavy handed, it does work in that the audience is automatically oriented to the topic and to the order in which it will be treated.

Words and phrases might be presented on charts, slides, overhead transparencies, or chalkboards with equal success as long as the criteria for the use of each of these media is also met. Just make sure that you do not force listeners to do too much reading; if they do, they won’t be listening to you.

2. **Overhead Transparencies**. Overhead transparencies are useful for presenting information to relatively large audiences. By adjusting the projection distance, the images can be made quite large without a loss of detail if the projection equipment is good.

An important disadvantage of this type of visual aids, however, is the fact that they can be difficult to manipulate. They are prone to static electricity, so they stick together worse than wool socks in a clothes dryer. If you are the slightest bit anxious during your presentation and you have to contend with stuck transparencies, you will likely break out into hives. To combat stuck transparencies, far them out rather than placing them in a neat stack.

3. **Chalkboards and Marker Boards**. Chalkboards and marker boards are popular media for informal, small-group presentations. In spite of their popularity, most people who use them misuse them. If you are planning to depict information on a chalkboard or marker board during a presentation, write the information on the board before the presentation and cover it. Then you can reveal the information at the proper time during your presentation. Make sure that what you write on the board is simple and neat. Successful use of these boards requires a little practice; it is not as easy as it looks. The first time you do it, you will notice how odd writing at a vertical angle is and how difficult it is to write legibly.

Remember also that chalkboards and marker boards should be limited to fairly small presentation environments. People who are seated more than 30-40 feet from the board will have a hard time reading what you have written. And if you write very large, you will use up so much of the board that it will not be an affective visual medium. Remember, too, that if you are using a marker board, make sure you have a dry marker to use instead of a magic marker. If you don’t, you will create more problems for yourself than you can imagine: you can’t erase magic marker.

Finally, whatever you do, avoid turning your back on the audience, writing on a board, and talking to what you have written. This is a guaranteed way to distract an audience.
4. **Slides.** Slides are excellent for presenting information to large audiences. They make it possible to organize the entire presentation visually, store it in a carousel, and use it over and over again. Remote control is another advantage in that it allows you the freedom to move about in your presentation. The other types of visuals considered so far limit your movement.

Effective slides meet a different set of criteria. First, if you use them in a completely darkened room, be sure that you light yourself at the podium. Some people find it difficult to pay attention to disembodied voice in the darkness; they are likely to take a nap. Second, break the presentation into segments of six to ten slides with additional commentary between each segment. This helps to combat any rigidity or tedium a slide presentation might have. Third, prime the audience. Let them know what each slide means, what each segment of slides means. Tell them why each slide is important.

5. **Movies and Videotapes.** Movies and videotapes are possibly the most versatile types of visual aids available. They can even do away with your role as speaker. Unfortunately, this is often the tendency. The correct use of movies and videotapes requires that you again prime the audience, which you talk about the videotape or movie, explaining its relevance to the topic. If you use these visual aids to your advantage, they can be very effective, stimulating questions and discussion.

6. **Computer Screen Projections.** Use of computer screen projections as a visual technique in oral presentations has becoming popular. In such a case, the computer display is replaced with data projector, which activates as an overhead projector.

There are a few things that need to be considered if you work with some visual aids. These are:

- Keep the design of your visual aids as simple as possible. Include only details that you specifically discuss in your talk.
- For readability, use a mix of upper-case and lower-case lettering (all upper-case lettering is hard to read).
- Make the lettering large enough so that people in the back of the room can easily read it.
- Test your visual aids out in an empty room long before your presentation, so that you can make any necessary changes.

5.1.7. The Introduction

It is essential that your listeners have enough background information to understand and appreciate your presentation. Are you addressing some problem? Make sure you define it so that your listeners know exactly what it is and can appreciate your proposed solution. Are you taking sides on an issue and arguing for point of view? If so, make sure your listeners know exactly what the issue is. In short, if you have any doubts about the audience’s background knowledge, be sure to provide a basic orientation and to define important terms.
5.1.8. Closing Summary

Listeners are typically very attentive at the beginning of a presentation, less attentive as it wears on, and then suddenly more attentive again as it comes to an end. In other words, they perk up at the end, hoping to catch a final summarizing comment or recommendation. This is a well-proven phenomenon, common to all of us: just think about the times you have listened to someone else’s presentation and have come away remembering his or her final words best of all. In preparing your oral presentation, therefore, you should plan to take advantage of this fact of human psychology—you should prepare a good, solid closing summary. Take this opportunity to repeat and thus reemphasize your most important “bottom line” conclusions and recommendations, along with the major reasons for them. Make these closing comments crisply and emphatically.

5.2. Practicing the Presentation

Nothing is more helpful to the ultimate success of an oral presentation than practice. Not even the best of speakers can give a totally effective presentation without practicing it first. Practice allows you to spot the flaws in a presentation and eradicate them. It enables you to work on making smooth transitions from section to section, instead of awkward stops and starts. And practice gives you an idea of how long your presentation will take; if it is too long, you still have time to make changes so that you can ultimately deliver it at a tempo that is comfortable for you. All of these benefits promote greater self-confidence, which in turn leads to a more convincing, emphatic, effective style of delivery.

The best way to practice a talk is by rounding up a few friends and trying it out on them. Ask them to hear you all the way through, taking as many as notes as possible but not raising any questions until you have finished. Then ask them for a complete “postmortem”; take note of spots where they had trouble following you, and immediately try out some other approach to see if it makes things clearer. Note also what the strong parts of your talk are: maybe you can use the techniques of strong parts in other places.

If you would not to force your friends to listen to you stumble through a practice session, a good alternative would be to use a videotape recorder and then critique your own performance. This is particularly effective in allowing you to spot nervous mannerism that you might not be conscious of while actually performing. An audiotape recorder, while not as useful as a videotape recorder, can also be effective, especially for the purpose of listening to yourself read from a manuscript.

Here are some specific things to work on while practicing your oral presentation:

- **Devise ways of reiterating your important points without being too repetitive.** Since your important points should all contribute to a single cumulative effect, it is a good idea to reiterate these points occasionally as you go along—especially in summary form at the end of your talk. However, since exact repetition of a point can become annoyingly monotonous the third or fourth time around, try to vary your wording.
• **Create smooth transitions between sections.** Take note of places where the flow of your presentation seems to break down, and see if you can not insert a phrase or two to act as a bridge. (If you can’t, there may be a fundamental flaw in the overall structure of your presentation; in that case, try to reorganize it.)

• **Familiarize yourself with the equipment you will be using.** It is embarrassing— and annoying to the audience—to waste precious time by fumbling around with data projectors, slide projectors, TV monitors, microphones, and other equipment when you are supposed to be giving your presentation. It is even worse if your presentation depends crucially on some piece of equipment and you can not get it to operate at all. Therefore, if you plan on using any equipment, check it out ahead of time and become familiar with it. Learn how to use it so that it will help your presentation, not hinder it, and be prepared with some backup system just in case.

• **Prepare yourself for questions.** Listeners may raise questions at any point in your presentation, and it is vitally important that you answer them satisfactorily. If you don’t, your most precious asset as a speaker—your credibility—may be endangered. So be sure you know your topic well. To test your knowledge, have some friends listen to you while you practice and have them deliberately throw tough questions at you; if they succeed in stumping you, go do some research.

It is not necessary that you have an answer for every conceivable question the audience might raise; there are questions for which no one has an answer (and you should certainly never try to fake an answer!). But if you have researched a topic well and have state-of-the-art knowledge about it, you will be able to answer most questions and will be able to say confidently about the others, “We don’t have an answer to that question yet.”

• **Develop your own speaking style.** Practice telling stories or jokes to a few friends at a time in an informal setting. Stand tall and face them as in an oral presentation; engage your listeners’ interest. Use natural, animated gestures, and vary your intonation and rate of speech. In short, be expressive! Let your enthusiasm show! At the same time, take note of any distracting habits you might have: leaning against something, biting your nails, playing with a pencil, and so on. If you are aware of such habits, you can often take measures to keep them under control while you are “on stage.”

5.3. **Delivery**

Assembly of the material is one aspect of a successful talk. The other main aspect is delivery of your oral presentation—speaking well, making good use of visual aids, and relating to the audience. There are two ways you may deliver the speech: speaking it extemporaneously or reading directly from the manuscript.

**Extemporaneous Speaking**

This is the more useful of the two methods in most corporate, industrial and professional setting. Extemporaneous delivery does not mean memorizing the speech word for word.
Instead the speaker takes each topic within the speech and practices delivering the information until it can be spoken rather than read. Sometimes, it is necessary to read an item that need to be quoted verbatim. In this case, hold the book or paper high.

You, as a speaker, can also prepare and use notes, if they help. There is shameful about that. Some rules to be followed by preparing the notes are:

- Notes are better written as headings than as sentences; then you can refer to them at a glance.
- Write occasional reminders on the notes to remember the speak-up points during your speech.
- Lettering on these notes should be large, clear and well spaced, in lower case, not capitals, so that you can read them easily.
- Number the cards.
- On the top card, write a list or items to take into the audience room: clock, marker, pen, overhead transparencies, exhibits, items that need to be quoted verbatim.
- If you have overhead transparencies, slides, items that need to be quoted verbatim, signal them with numbers on your notes in color. The audience will not appreciate your: “Oh yes; I should have shown this earlier.”

Some speakers, not knowing what to do with their hands, put them into their pockets. This is inelegant. Notes help, by occupying your hands.

*Manuscript Reading*

It is hard for most listeners to attend to someone reading a speech. There is little eye contact and little variation in pace or tone since the reader is not guided by audience response. Thus, this type of delivering a speech is not recommended. However, if you really must read the manuscript, practice so that you can look up regularly and at length.

5.3.1. Stage Fright

Also note that as the time draws near for delivering your oral presentation, you will experience what all speakers experience: nervousness! If you have adequately prepared and practiced your presentation, of course, you will probably be less nervous than if you have not. No matter how well prepared yourself, however, you will still be at least a little bit on edge.

How can you control your nervousness? Here are some ways of achieving this aim:

- Make sure you are properly prepared for your talk. This means getting all your visual aids and notes ready, and it also means getting your body and mind ready. Remember that giving an oral presentation is a physical activity. As with any physical activity, you should eat and drink properly beforehand and you should do some warm-up exercises. Exercising is especially effective in releasing tension. Also, make sure you are properly dressed and groomed. Your personal appearance is one of the most powerful “visual aids” you have. People will be looking at you throughout your talk, and they will be making judgements about your professional credibility partly on the basis of what they see. If you know you are looking your best, it will give you a boost in confidence.
• Try to establish some contact with your listeners before you give your presentation. Converse with them, see what they are interested in, try to get to know them a little. This will help you think more about your audience and help prevent you from being paralyzingly self-conscious. And it will encourage you to use a more natural, conversational style of speaking.

• As you are actually giving your presentation, concentrate your full attention on what you want to say. Stick to your outline; make sure you cover your entire main supporting points. Convince your listeners that the topic is important, and be enthusiastic about it. Show each of your visual aids long enough for the audience to understand and appreciate it, and then move on to the next one. Keep up the pace, don’t dally. If you provide a steady stream of well-organized, interesting information, people will pay attention to you and give you their support. If you don’t, they will lose interest.

5.3.2. Opening

Aim to begin well. The audience’s opinion of you and of the topic will form quickly and a bad first impression is hard to erase. The first few sentences should show that the talk will be interesting-make a surprising claim, argue that some familiar or intuitive solution is incorrect, or show why the problem to be studied is of practical consequence. The most two important points to be considered in the opening part of your presentation are as follows.

• Never plunge into a talk without some form of introduction. A surprisingly frequent omission is that speakers forget to say who they are! Show an overhead with the title of the talk, your name, the names of any co-authors, and your affiliation; and if there are several authors, make sure the audience knows which one is you.

• Outline the talk’s structure, but don’t begin by outlining the talk’s structure-first make sure that the goal of the talk is clear. That is, explain where you are going before explaining how you will get there. Here is a poor introduction:

“This talk is about new graph data structures. I’ll begin by explaining graph theory and show some data structures for representing graphs. Then I’ll talk about existing algorithms for graphs, then I’ll show my new algorithms, and then show why they are useful for some practical graph traversal problems.”

Not only is this a poor introduction, but the outlined structure is poor too. A better introduction is as follows, of a talk in which interesting material is discussed much earlier on.

“This talk is about new graph data structures. There are many practical problems that can be solved by graph methods, such as the travelling salesman problem, where good solutions can be found with reasonable complexity so long as an optimal solution is not needed. But even these solutions are slow if the wrong data structures are used. I’ll begin by explaining approximate
solutions to the salesman problem and showing why existing data structures are not ideal, then I’ll explain my new data structures and show how to use them to speed up the travelling salesman algorithms.”

5.3.3. Delivery Using Visuals

Some rules to be followed by using visual aids in your presentation are:

- A peculiar thing happens when people use transparencies, slides or computer screen projections. Instead of reading from a manuscript, they read from the illustrations. They bury their heads in the slides in the same way that shy speakers use manuscripts to escape looking at the audience. To avoid this, do not talk to the slides or transparencies. Talk to the audience.
- Step to the side of the screen and face the audience. This is difficult to do. Your illustrations are behind you, and there will be a strong tendency to turn away the screen. However, you need to maintain eye contact with the audience. Do this standing to the side of the illustration and using a pointer. In this way, you can indicate details on the screen without turning away from the audience.
- Try laser pointers or collapsible metal pointers that fit in a pocket or briefcase when not in use. A pencil or index finger won’t work. You will cast a shadow on the screen, obscuring the information just when someone needs to look at it.
- Do not turn the lights off. It is a sure way to send a portion of the audience to sleep, and to frustrate those who want to take notes. Instead, experiment so that you have to reduce only the light over rows immediately in front of the screen. The glare and machine noise are distracting.
- Whether you use transparencies, slides, or computer screen projections, allow at most two minutes per each. Remember that the heart of a speech is variety, and that you need to change what is in front of your listener to create a less passive experience. If it takes longer than two minutes to explain, it may be too complicated. In this case, try to divide the information so that you have two or three separate parts.

5.3.4. Eye Contact

A good speaker looks at the audience, not at the furniture, the ceiling, the floor, the walls, or his or her slides and transparencies, but does not stare at any one person. There will always be three or four persons interested in what you are saying. Return to them when you need feedback, and otherwise try to address yourself to each person in the room.

5.3.5 Voice and Verbal Style

There are a few simple steps that help to develop sufficient volume and project your voice without shouting. These are:

- Use a natural tone of voice.
- Breathe deeply, not by gulping air like a swimmer but by inhaling slowly to the bottom of your chest.
• Speak a little slower than you would in normal conversation; around five hundred word per three minutes is right for most people.
• Slightly overemphasis consonants, a habit that is particularly helpful to the 10% or so of your audience who are at least a little deaf.
• Speak to people at the back of the room. Then those at the front should hear too.

During your speech:

• Generally use short sentences. But if they are all short, deliver will be jerky. A pleasing sentence usually has two main verbs, but an occasional very short sentence may be used for emphasis.
• Finish every sentence.
• Use short words where you can: start, not commence; try, not endeavor; often, not frequently, etc. An uncommon word may express a writer’s meaning exactly. Examples occur in this booklet. A reader can consult a dictionary about an unfamiliar word. A listener can not do that, so a speaker should avoid such words.
• Avoid vogue words, unless they are really suitable.

5.3.6. Audience Participation

There are many techniques you can use to keep the audience attentive. These are:

• Avoid monotony, both in pace and tone. Some speakers start well but gradually lower their voice. On your notes write an occasional reminder to speak up.
• Pause. Look around before making a point. Change the tempo from time to time. Use a gesture or a step forward to emphasize a point. Some speakers employ demonstrations or hold up objects relevant to the discussion.
• If possible, present the argument in puzzle order. That is, instead of giving the answer, pose the situation and gradually work your way to the solution. If you are clever about this, you will do it in such a way that the audience will get there one jump ahead of your statement of the solution. This will give them the pleasure of solving the puzzle, add a little fair to the presentation, and make the speech a less passive experience.

5.3.7. Closing

Do not overlook conclusions. They are what brings a presentation to a successful completion. Do not apologize! Novice speakers finish their talks, look up, realize they’re done, and are suddenly smitten with nervousness. “Well,” they say uncertainly, “I guess that’s all.” And they shuffle off with an air of apology at having taken everyone’s time, in a sudden embarrassment at the silence and attention directed at them. Don’t do this. Crush any tendency to sound apologetic. Instead, wind up with a brisk summary of your central point. Then call for questions.

5.3.8. Questions

Encourage questions from the audience, but don’t let questions disrupt your presentation. Imagine before a talk what questions they will be asked, and then check to make sure
they have concise answers at hand. If you can not think of a short answer to a question, politely tell the questioner that you’ll respond to it later, during the Question and Answer time. Above all, do not show any antagonism toward a questioner. It will make your listeners feel uncomfortable, and since you are in charge, they will probably hold it against you, even if the questioner is unfair or unpleasant. It is best to defuse any such hostility in public and try to deal with in private.

Question time at the end of a talk is used to clarify misunderstandings and to amplify any points that listeners want discussed in more detail. Five or ten minutes is usually too brief a time for serious discussion. In the answer time:

- Keep answers brief and avoid debating with an audience member, because such debate is not edifying for everyone else.
- Respond positively and honestly to all questions.
- Never try and bluff when you do not know—you will inevitably look stupid. It is far better to frank and admit ignorance.
- Never be rude to audience members or dismissive of their questions.
REFERENCES and BIBLIOGRAPHY

References


Bibliography


*Instructions for Preparation of Theses*, Middle East Technical University, Ankara, January 1995.


# GLOSSARY

<table>
<thead>
<tr>
<th><strong>Abbreviation</strong></th>
<th>A shortened form of a written word or phrase used in place of the whole.</th>
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<tbody>
<tr>
<td><strong>Appendix</strong></td>
<td>Supplementary material attached at the end of a piece of writing.</td>
</tr>
<tr>
<td><strong>Binding</strong></td>
<td>Cover and material that hold the pages of a document together</td>
</tr>
<tr>
<td><strong>Entry</strong></td>
<td>A record or notation of occurrence, transaction, or proceeding.</td>
</tr>
<tr>
<td><strong>Glossary</strong></td>
<td>A collection of terms and phrases with their meanings.</td>
</tr>
<tr>
<td><strong>Format</strong></td>
<td>Shape, size, and makeup of something printed.</td>
</tr>
<tr>
<td><strong>Margin</strong></td>
<td>Part of a page or sheet outside the main body of printed or written matter.</td>
</tr>
<tr>
<td><strong>Phrase</strong></td>
<td>A group of words.</td>
</tr>
<tr>
<td><strong>Reference</strong></td>
<td>A source of information to which a reader is referred.</td>
</tr>
<tr>
<td><strong>Resolution</strong></td>
<td>The process or capability of making distinguishable the individual parts of an object.</td>
</tr>
<tr>
<td><strong>Strikeover</strong></td>
<td>An act or instance of deleting a typewriter character and replacing by another character.</td>
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APPENDIX A

SAMPLE TITLE PAGE FOR TERM PAPERS

IMPACTS OF INTRODUCING NEW TECHNOLOGIES IN ENGINEERING COMPANIES

A Term Paper

submitted to

Dr. Ferda Can Çetinkaya
and
Dr. M. Kudret Yurtseven

of
Eastern Mediterranean University

by

N. Cin Cingoz
and
Halim Selim

in partial fulfillment of the requirements for the course

EE 450 Industrial Management

in

the Department of Industrial Engineering

Gazimagusa, Turkish Republic of Northern Cyprus

April 25, 1996
APPENDIX B

SAMPLE TITLE PAGE FOR INDUSTRIAL TRAINING REPORTS

AN INDUSTRIAL TRAINING REPORT

submitted to
the Department of Industrial Engineering
of
Eastern Mediterranean University

by
N. Cin Cingoz

in partial fulfillment of the requirements for the course
IE 300 Industrial Training I
in
the Department of Industrial Engineering

Gazimagusa, Turkish Republic of Northern Cyprus

April 25, 1996
APPENDIX C

SAMPLE ABSTRACT

ABSTRACT

FLOWSHOP LOT STREAMING
TO MINIMIZE TOTAL WEIGHTED FLOW TIME

Ferda Can Çetinkaya
School of Industrial Engineering, Purdue University, West Lafayette, Indiana, USA

Jatinder N. D. Gupta
Department of Management, Ball State University, Muncie, Indiana, USA

June 1994; 32 pages

Lot streaming is the process of splitting a job (lot) into sublots (batches) so that its operations on the downstream machines can be overlapped to reduce the desired measure of performance. This paper develops algorithms to solve several cases of the flowshop lot streaming problem to minimize either the total flow time or the total weighted flow time where the weight assigned to a sublot equals its sublot size. For the total flow time criterion, a constant time algorithm is developed to solve n-sublot, m-machine flowshop lot streaming problem. For the weighted flow time criterion, polynomial algorithms are developed to solve several specific cases.