

# Unit One

## INTRODUCTION

### 1.1 Definition of the Term

#### 1.1.1 What is Report?

A report is a piece of informative writing that describes a set of actions and analyses any results in response to a specific brief. A quick definition might be: "This is what I did and this is what it means."

A good report is easy to be acquainted (aware of) with an issue raised as a subject because of the following reasons:

- its title is precise and informative,
- its layout and format are well organized, and
- the binding is easy to handle and opens flat to reveal both text and diagrams.

#### 1.1.2 What is technical Report?

By the way, there is no universally accepted definition. Many authors discuss the difficulties in defining "technical writing" and then offer their own definition.

Communicating results is a crucial aspect of doing research and accomplishing job-related tasks. Through such communication, other people can learn about and benefit from the findings. Often such communication includes a written document known as a *Technical Report*. The successful worker in a specific area must master this important written form.

The term "technical" refers to specific knowledge of specific area of study. This is to mean that the term "technical" refers knowledge which is not widespread or worldwide, but more the territory of experts and specialists. Whatever your specialization is, you need to develop an expertise and need to become specialist in a particular technical area. And whenever you try to write or say anything about your field of specialization, you are engaged in technical communications.

Technical communication is the delivery of technical information to specific audiences. The information should be of their needs, level of understanding and background or experience.

Technical writing is direct, informative, clear, and concise language written specifically for an identified audience. The content must be accurate and complete with no exaggerations. To deliver the intended message, the text must be objective and persuasive without being argumentative.

Technical Writing is a broad term that encompasses a wide variety of documents in science, engineering, and the skilled trades.

A **technical report** (also: scientific **report**) is a document that describes the process, progress, or results of **technical** or scientific research or the state of a **technical** or scientific research problem. It might also include recommendations and conclusions of the research. Or it is a formal report designed to convey technical information in a clear and easily accessible format. It is divided into sections to allow different readers access

different levels of information. The main purpose of a technical report is *to convey information as clearly and adequately as possible & to stimulate and entertain.*

Technical reports are documents that are prepared for supervisors, subordinates, peers, customers, clients, and various government agencies. Typical technical reports include

- Progress reports
- Feasibility studies
- Specifications
- Proposals
- Facilities descriptions
- Manuals
- Procedures
- Planning documents
- Environmental impact statements
- Safety analysis reports
- Bug reports

There are many other types of reports, of course, but all have a unity of purpose: to convey specific information in an archival way.

All in all, technical writing can be defined as writing about a technical subject to convey specific information to a specific audience for specific purpose (Markel, 1988). Much of what we read every day is a technical writing. Textbooks, the manual for TVs or tape recorders, cattery cookbooks, etc. are among these.

Another point that we need to underline is that technical reports are factual. The words and graphic aids of the report are meant to be practical, i.e. to communicate a body of factual information that will help an audience understands a subject or carryout a task. For example, a manual for an automobile describes how to operate and maintain that particular car.

### **1.1.3 Who Writes Technical Report?**

Lists of professionals who must write technically include engineers, scientists, architects, physicians, lab technicians, and so forth. In the broadest sense, virtually any trade or profession can be considered to have a technical component, and its practitioners must prepare technical writings. Think about doctors, nurses, farmers, lawyers, and experts of all types. Every one of these persons will write in the jargon of their discipline—a kind of technical writing.

### **1.1.4 Characteristics of Technical Report**

A technical report differs from other compositions in as much it is written in more or less conventional forms to meet a specific need or requirement. It is not an outburst of powerful feelings or an expression of *recollected emotions*, nor is it written because one feels an irresistible urge to unburden one's heart. His conclusions and recommendations are strictly based on the facts included in the report. As Shearring and Christian (1965: 131) once stated, *a report is like a bathing suit*: "It covers everything that has to be covered but nothing more..." It does not distract attention from the content by unnecessary frills. But within these limitations there is scope for freedom regarding the choice of diction, structure, and technique of presentation that subjects to the paramount need of precise and clear communication to the target.

The report should place as few hindrances as possible between the mind of the writer and the mind of the reader. There are people -- a tiny minority -- who can inform and entertain at the same time. You have to make a choice between the two that you should try to

inform rather than to entertain. Of course, if you were writing a novel the priorities would be reversed; but in report writing it is the information that is paramount.

In general, technical writing has a degree of formality, and it generally focuses on a specific subject with the purpose of making something happen or sharing useful information or knowledge.

Ten general attributes of technical writing are listed and described in the following sections:

1. It pertains to a **technical subject**.
2. It has a **purpose**. A technical document always is written for a reason, and the purpose of reports may be to explain what was done, why it was done, and/or the results of a study. The purpose of reports on investigations is usually to present the results of the study.
3. It has an **objective**. The objective of a technical report is the overall reason for doing the work. In an industrial situation, the objective of any work is usually to make or increase profits.
4. It conveys **information/facts/data**. Technical writing should have substance in every statement. If a sentence does not convey information pertinent to a study, leave it out. Technical writing is focused on the technology under discussion. A report without facts or scientific evidence to support an opinion also usually lacks credibility, and it is likely to be unsuccessful in achieving its purpose and objective. The use of data and factual information makes the work a technical report.
5. It is **impersonal (Third Person) Voice**. The use of first person pronouns is usually discouraged in technical writing. The intrusion of “I” makes the work less authoritative. Similarly, it is inappropriate to use names of people and/or trade names unless there is no other way to describe the item. With regard to using people’s names in reports, it is not necessary and it reads “unprofessional.” In addition, it adds length, and anything that adds unnecessary length to a document should not be done. If the intent of including names is to give credit, the correct placement of credits is not in the body of a report. Credits belong in end-of-document acknowledgments, which will be covered in a subsequent Chapter. Personal pronouns and names should be omitted because they are unnecessary. Trade names should be avoided because of liability considerations. The message can usually be conveyed fully without their use.
6. It is **concise**. Technical reports are usually written for business reasons. They are not intended to entertain; they communicate information to an identified person or group. Say what you want to say and get out! Wandering sentences and extra words reflect badly on the author and often have a negative effect on the readership that you are trying to reach.

Concision can become an acquired writing trait. There are text books on the subject, but a major source of extra words are phrases such as “it follows that,” “in any case,” and “nonetheless.” It is often possible to replace these phrases with a punctuation mark.

7. It is **directed**. Technical reports must be directed to a particular readership. The author is responsible for determining the specific individuals or parties who will receive a technical document. Writing should be aimed at the readership. Directing

a report determines the technical level of the writing. If you direct a report to your coworkers, you do not have to bring them up to speed on the organization of your department. They already know it.

8. It is performed **with a particular style** and **in a particular format**. The attributes of technical writing also include style and format. Style is the way that you write; format is the ordering and physical layout of a document.

**The appropriate style** for technical writing is objective. Technical documents present data, facts, calculations, test results, and theories, and these must be presented in an accurate manner that is not opinionated. Conclusions are inferred from test results; recommendations are the logical outcome of the conclusions.

**The format** (the basic elements and their placement) of technical papers and reports is a more structured one than that used for other forms of writing. Formal technical reports have basic elements and a structure as follows:

- Introduction (why you are doing the work)
- Procedure (what you did)
- Results (what happened)
- Discussion (what it means)
- Conclusions (what was learned)
- Recommendations (what is to be done with the new information or knowledge)

This style and format have been agreed to by international technical journals, most educational institutions that teach in English, and most industries or organizations that employ engineers and scientists.

9. It is **archival**. An intrinsic part of the value of technical writing is that it is written in such a manner that it can be archived and produce valuable and usable information in the future. Conversely, technical documents should not be generated on transient issues or subjects that will not be pertinent in the future.
10. It **cites contributions of others**. Formal technical reports and papers must show sources of information and recognize contributions of others.

Formal reports also provide the opportunity to cite contributions or funding in an acknowledgment section at the end of a report. In summary, the proper use and citation of the work of others is another attribute that sets technical writing apart from other types of writing.

### 1.1.6 Types of report

Reports are classified according to 1) their style, 2) their purpose, and 3) format/structure. Based on their style reports can be formal or informal. As the main base for **the differences between formal and informal reports include tone, structure, scope, content and purpose**. Formal reports have a set structure: minimum introduction, body and conclusion. Thus, Formal reports are long, analytical and impersonal. However, informal reports can be structured in any way. Formal reports also have a formal tone and use third-person narrative, while most informal reports use first- or second-person narrative. Moreover, the scope of informal and formal reports is another major difference. Formal reports analyze a specific topic in great detail.

Formal reports also provide evidence to back up the information in the report. Since informal reports are brief, this is not included in this type of report. Formal reports usually include citations for the sources used to generate the report. Charts, graphs and statistical information are also common components of formal reports.

The formal reports have preliminary and supplementary parts such as title page, an abstract, table of contents, bibliography and appendix. Examples of formal reports are annual report of a company and external proposal. Informal reports, on the other hand, are shorter than formal reports and have no preliminary parts (such as title page, abstract...) and supplementary parts (such as bibliography and appendix). Informal reports are concerned with everyday matters that require little background. *Sales report* in which the writer summarizes sales for a specific period and *internal proposal*, which is used to analyze an internal problem and recommend a solution, are two examples of informal reports.

Informal reports are often very brief, short, and only include the most relevant information. For instance, each contains one to three pages of narrative, and short reports like *memorandums*, and *occasionally* attachments such as drawings, photographs, and calculations *with a title at the top of the page*. They may be transmitted using electronic mail.

Types of **informal** reports are:-

1. Incident Reports
  2. Field Trip Reports
  3. Reporting Conference Attendance
  4. Inspection Reports
  5. Progress Reports
- a. Incident Reports**

An incident report (sometimes called an occurrence or accident report) describes an event that has been happened, explains how and why it occurred, and indicates what effect the event had and what has been done about it. It may also suggest that corrective action be taken, or what should be done to prevent the event from recurring.

**b. Field Trip Reports**

Trip reports are written whenever people leave their usual place of work to do something elsewhere. Their reports can cover many kinds of events, such as:

- What did the report writer set out to do?
- What was actually done?
- What could not be done, and why?
- What else was done?

**c. Reporting Conference Attendance**

The trip report compartments can be used to describe attendance at a conference or meeting. The most difficult one to write is the Trip Activities compartment, and the most efficient way to organize it is to divide it into sub compartments that focus on

- what you expected to gain, learn, or find out by attending the conference,
- what the program promised would be covered,
- what sessions you attended and why you chose them (this is important for a conference with several simultaneous sessions),

- what you gained or learned by attending these sessions,
- what you gained or learned from meeting and talking to other persons attending the conference, and
- what other activities you attended.

#### d. **Inspection Reports**

An inspection report is similar to a field trip report in that its writer has usually gone somewhere to inspect something. Other typical situations that would require you to write an inspection report include:

- examination of a building to determine its suitability as a storage facility,
- inspection of construction work, such as a bridge, building, or road, and
- inspection of goods ordered for a job, to check that the correct items and quantities have been received.

#### e. **Progress Reports**

Progress reports keep management informed of work progress on projects that span a lengthy period, which can vary from a few weeks for a small manufacturing contract to several years for construction of a hydroelectric power station and transmission system.

There are two types of progress reports:

1. **Occasional progress reports** are written at random intervals and usually concern shorter-length projects.
2. **Periodic progress reports** are written at regular intervals (usually weekly, biweekly, or monthly) and concern projects spanning several months or years.

In general, formal and informal reports can be written using different formats. Formal reports are written in manuscript format.

Based on their purpose, reports can be categorized into three: *informational*, *interpretive (analytical)* and *persuasive*.

- a) An **informational report** contains only the data collected or the facts observed in an organized form. In other words, its objective is to present information or facts and includes very little analysis. It does not contain any conclusions or recommendations. It is useful because it *presents* relevant data put together in a form in which it is required by the management or concerned body to take decisions. For instance, how to administer first aid, what went wrong with an assembly line, how to operate equipment, what happened at a construction site.
- b) An **interpretive (analytical) report**, like an informational report contains facts, but it also includes an evaluation or interpretation or analysis of data and the reporter's conclusions. It may also have recommendations for action. An interpretive report which consists principally of recommendations is also called *recommendation or recommendatory report*. For example, why a system does not work, how a process can be improved, why an environment is changing, what the advantages are of maintaining, changing or selling a business.
- c) A **Persuasive Report** conveys information to the concerning body. Such kind of technical writing influences direction and decisions, for example, by showing how a company or city can save money, what changes are necessary to improve a situation, what can be done to counteract or take advantage of certain trends or practices.

### 1.1.7 The Role of Technical Writing in Working Fields

Technical writing can be a very useful form of writing and communication for projects, lab reports, instructions, diagrams, and many other forms of professional writing. It can be helpful to take a course in technical writing because through spending extensive time studying how to perfect the style of writing, it can help engineers become much better at the skill and be able to better communicate with individuals about how to do something or explain what they are doing. Since a lot of the work that electrical engineers do is largely based upon technical documents, such as designing audio equipment, which uses many different types of parts, this could help improve both the ability to comprehend and write the documents. In order to design electronic equipment, a lot of reviewing of data sheets is necessary, and being able to read these is very important. Also, many engineers are required to write detailed reports on the work that they are doing, and through a technical writing course.

In a world of rushing and pressure to save time, writing documents seems slow and time consuming. Why write a letter or a memo if you can make a quick phone call? Why spend time thinking about how to put into words information that can be transmitted spontaneously without the extra effort of heeding syntax and punctuation? This logical reasoning fails, though, when we come to consider the type of documents technical writers need to develop as well as the audience they are addressed to. On many occasions, communication is not just from one emitter to one receiver but rather from one to many, as is the case of memos addressed to company staff, or a report meant to be read by more than one person, for example. In addition, most documents generated in the technical field include information that cannot be easily transmitted unless it is orderly displayed on a document. In other words, oral communication may fall short when we need to transmit the information technical documents require. Hence, writing skills can be considered an important factor in the technical and scientific field because:

1. *In many different types of work, writing constitutes an important part of the everyday workload.* In a company, people write to inform about a project or activity (progress reports), to help managers in decision-making (recommendation reports), to communicate within the organization (memos), to ask questions (inquiry letters) and to contact colleagues, distributors, and mates in the same workplace (email messages). These various tasks reveal that writing is a key activity for many technical professionals.
2. *They facilitate communication with co-workers, clients and supervisors, that is, inside and outside the workplace.* Engineers and scientists' writing skills must be of a high standard in order to effectively communicate with the people with whom they work. It is not enough for them to be technically good, they must be skilful in communicating what they are doing and why it is important. As a last resort, their technical and professional value will very much depend on their capacity to convince others of the importance of their work.
3. *They are necessary for a successful career.* Organizations know the advantages of a well written document since the way they construct their documents reflects their image. Poorly written documents will reveal not only writers' inefficiency but also organizations' lack of seriousness. Thus, engineers who can communicate their thoughts clearly and efficiently are bound to be promoted to more challenging positions. Additionally, being good at written communication skills (in whatever

language) is likely to act as an *added value* that enhances your curriculum vitae and helps you stand out from other applicants in a job selection process.

4. *Writing skills contribute to saving time and money.* Good technical writing saves time and, therefore, money. If you create a document, a report, for example, for your superior, whom is clear and easy to understand, no time will be wasted on pondering the meaning.

### 1.1.8 What is Not Technical Report Writing?

Technical writing is different from an essay because essay is an outlet for the writer who wants to work through attitudes based on an area of interest to express certain belief. Essays are not as rigid as technical report to reflect one's own personal opinions, biases and prejudices, and to do so in an entertaining way. An essay is internally generated to persuade others. But report is a kind of writing which presents factual information which is free from the influence of the writer's own personal attitude or opinion.

Technical report writing is also different from writing themes as themes are more of academics.

Technical report is also different from narrative fictions since fiction focuses on one's imagination. In addition, fiction reflects drama around one's life.

In general, technical writing has a degree of formality, and it generally focuses on a specific subject. Reports and other technical documents are written to share useful information and knowledge or to make something happen. Technical writing should have substance in every statement. Technical writing also has a style and structure that sets it apart from other types of writing. Most important of these characteristics is that it should be objective and supported by facts and data and that every attempt is made to ensure that the information is correct (as well as the presentation).

### Review Questions

1. What is the main difference between a report and a literary work?
2. Distinguish clearly between an informational and interpretive report?
3. What are routine reports? How do they differ from other formal reports?
4. Based on the foregoing discussion, can you define what a technical report is?

## Unit Two

### THE Structures of a Technical Report

The *front matter*, *main body*, and *back matter* sections explain the commonly accepted **format** for a technical report; and give hints on how to go about drafting and refining a report in order to produce an accurate professional document.

#### A. Front Matter

1. The title page
2. Acknowledgements
3. Table of contents
4. List of illustrations
5. Abstract (also called executive summary)

#### B. Main Body

1. Introduction
2. Review of related literature
3. Research methodology
4. Discussion or description
5. Summary, Conclusions, and Recommendations

#### C. Back Matter

1. List of references
2. Bibliography
3. Appendices
4. Glossary
5. Index

## **A. Front matter**

### **Title page**

The title page of the research report normally contains four main pieces of information: *the report title; the name of the person, company, or organization for whom the report has been prepared; the name of the author and the company or university which originated the report; and the date the report was completed.*

### **Acknowledgements**

Unless you have given credit elsewhere, mention diligently the names of persons and organizations that have helped you in the production of the report. When you include published material and the list of sources is very long, use a separate page for the purpose. Clearly indicate that permission has been taken for the reproduction of copyright material, if any.

### **Table of Contents**

Most reports will contain a *Table of Contents* that lists the report's contents and demonstrates how the report has been organized. You should list each major section in your Table of Contents. Sometimes you may want to use additional descriptive headings throughout your report and for your Table of Contents. Using descriptive headings can help readers to see how your report is organized if the section headings are not clear enough. This is likely to be true especially if most of your report is contained in one long section called Body or Discussion that includes everything from the materials and methods you used to the results you found and the conclusions you draw. In this case, it might be best to include additional headings to indicate where readers can look specifically to read about your materials and methods or conclusions.

### **List of illustrations**

A separate list of illustrations is given immediately after the table of contents if there are a large number of tables and figures. Its layout is the same as that of the table of contents and it gives information about the number, title, and page reference of each illustration.

### **Abstract (Executive summary)**

An abstract is an accurate representation of the contents of a document in an abbreviated form" (Porush 75). An abstract can be the most difficult part of the research report to write because in it you must introduce your subject matter, tell what was done, and present selected results, all in one short (about 150 words) paragraph. As a result, you should usually write the abstract last. You will need to write an abstract when your dissertation for a higher degree (M.S. or Ph.D.) is accepted, when you submit an article for publication, or when your report will be disseminated to an audience that needs a summary of its contents.

In addition, an abstract serves an important function in a research report; it communicates the scope of your paper and the topics discussed to your reader and, in doing so, it

facilitates research. Abstracts help scientists to locate materials that are relevant to their research from among published papers, and many times scientists will only read paper's abstract in order to determine whether the paper will be relevant to them. Considering your audience and their needs will help you to determine what should be included in your abstract.

## **MAIN BODY**

### **Introduction**

The importance of the Introduction in all forms of exposition is that it prepares the reader to receive, with the greatest economy of effort, what the writer intends to present. Reports like any form of exposition, attempt to make information and ideas clear and convincing. The Introduction permits you to launch immediately into the task of relating your readers to the subject matter of the report. Specifically, the Introduction makes clear the precise subject to be considered, indicates the reasons for considering the subject, and lays out the organization and scope of the report. This is where you tell the reader what you plan to tell and why and how you will tell it.

The Introduction should focus your readers' attention on the subject to be treated. It should enable them to approach the body of the report naturally and intelligently. Your prospective readers and subject material will influence both your point of view in writing the Introduction and the amount of material you use. The union of reader and subject must be achieved with a firm, but not heavy, hand. Readers should never be confused, unpleasantly surprised, or disappointed with what they are told throughout the report.

### **The (Main) Body of Your Report**

The body is usually the longest part of the research report, and it includes all of the evidence that readers need to have in order to understand the subject. This evidence includes details, data, and results of tests, facts, and conclusions. Exactly what you include in the body and how it is organized will be determined by the context in which you are writing. Be sure to check the specific guidelines under which you are working to see if your readers are expecting you to organize the body in a particular way. In general, the body of the research report will include three distinct sections:

- a section on theories, models, and your own hypothesis
- a section in which you discuss the materials and methods you used in your research
- a section in which you present and interpret the results of your research.

You will usually use a heading to identify the beginning of each of these sections.

### **Conclusions**

The conclusion gives the overall findings of the study. It is important to realize that 'conclusion' does *not* just mean 'the last bit of the report'. Your conclusions should really be statements that can be concluded from the rest of the work. A conclusion is not a summary. (You can include a summary as well, if you like). When I mark students' reports, one of the questions I ask about them is 'do the conclusions follow from the body of the report?'

## **Recommendations**

You may or may not need to include a section titled “Recommendations.” This section appears in a report when the results and conclusions indicate that further work needs to be done or when you have considered several ways to resolve a problem or improve a situation and want to determine which one is best. You should not introduce new ideas in the recommendations section, but rely on the evidence presented in the results and conclusions sections. If you find that you need to include a recommendations section you have another opportunity to demonstrate how your research fits within the larger project of science, and the section can serve as a starting point for future dialogue on the subject. It demonstrates that you fully understand the importance and implications of your research, as you suggest ways that it could continue to be developed. Do not include a recommendations section simply for the sake of including one; this will waste your readers’ time and take up unnecessary space in your report.

## **BACK MATTER**

### **References**

The reference list is placed at the end of the report. It is arranged in alphabetical order of authors' surnames and chronologically for each author. The reference list includes only references cited in the text. The author's surname is placed first, immediately followed by the year of publication. The date is often placed in brackets. The title of the publication appears after the date followed by place of publication, then publisher (some sources say publisher first, then place of publication). There are many other minor differences in setting out references (e.g use of commas, colons, full stops) depending upon personal preferences or house styles. The important thing is to check for any special requirements or, if there are none, to be consistent. Some lecturers require only a reference list. Others require, in addition, a bibliography. While the reference list includes only those texts cited in the body of your paper, a bibliography includes all material consulted in the preparation of your report. Notice that the titles of books, journals and other major works appear in italics (or are underlined when handwritten), while the titles of articles and smaller works which are found in larger works are placed in (usually single) quotation marks.

### **Appendices**

The appendices are where the author will usually place any material that is not directly relevant to the report, and will only be read by small number of people. I usually use appendices for mathematical proofs, electrical circuit diagrams and sections of computer programs. You should place information in an Appendix that is relevant to your subject but needs to be kept separate from the main body of the report to avoid interrupting the line of development of the report. Anything can be placed in an appendix as long as it is relevant and as long as you made reference to it in the body of your report. You should not include an appendix simply for the sake of including one, though. An appendix should include only one set of data, but additional appendices are acceptable if you need to include several sets of data that do not belong in the same appendix. Label each appendix with a letter, A, B, C, and so on. Do not place the appendices in order of their importance to you, but rather in the order in which you referred to them in your report. You should also paginate each appendix separately so that the first page of each appendix you include begins with 1.

## Glossary

A glossary is a list of technical words used in the report and their explanations. If, however, the number of such words is small, they are generally explained in the footnotes. Whether you should include a glossary in your report will depend upon who is going to read your report. If the reader's field of expertise is the one to which your report relates, there is no need for a glossary. However, if the audience is drawn from other areas, it is advisable to give a glossary.

## Index

The index is intended to serve as a quick guide to the material in the report. It enables the reader to locate easily any topic, sub-topic or important aspect of the contents. There is a need for giving an index only in bulky reports where the Table of contents cannot do this job. Entries in the index are made in alphabetical order and cross-referenced. All page numbers on which information about an entry is available are mentioned against it.

### **REVIEW QUESTIONS**

1. What elements must appear in the structure of every report and why?
2. What are the differences between an abstract and a summary? In what circumstances should both be given in a report? How do recommendations differ from conclusions?
3. What factors would influence your decision regarding the materials to be included in the appendix of a report?

## **Unit Three**

### **Process of Writing Technical Report**

Writing a technical report involves and explains what is done, why it was done, what has been discovered and what is the significance of the findings. And again, it should clearly state and explain what novel comes out of your work, and how it relates to prior knowledge.

#### **4.1 Planning (Preparatory steps in writing report)**

An effective report is the result of careful preparation and execution of the plan. A thorough preparation will save your time and make the writing of the report easier. It will help you keep your objective in view and realize it effectively. The following are important preparatory steps to writing a report:

- Selecting an appropriate and specific topic
- Identifying Clear Objectives for Writing
- Define your scope
- Determine your audience
- Collect the data
- Organize the material
- Make an outline

- a) **Selecting an Appropriate Subject Matter:** in the process of writing a technical report the first and crucial step is selecting a viable and practical topic. It is obvious that any writing without a topic seems like a boat without an anchor because it is the topic that determines whether the readers will decide to read the report or not. If the topic is a subject matter

that concerns them, they will be encouraged to read; unless, they won't. So a technical report writer should focus on the specific aspect of a subject matter so that it becomes manageable.

There are so many techniques of doing this, but the following are some of them:

- **Space (Locale):** this refers to the number of pages in technical reports. They have limited numbers of pages. Topics which are worldwide basis cannot be adequately treated in technical reports. So technical report writing highly deals with a highly specialized locale.

**For example:** Parks → National Parks → Semien Mountains National Parks → The Present Condition of the Endemic Species of Semien Mountains National Park

- **Using Specific Terminologies:** this can be done by moving from
  - General terms to specific one
  - Unmodified to modified
  - Unknown to known
  - Abstract to concrete

**Example:** Printed materials → Books → Textbooks → Technical Report Writing

- **Asking Journalistic Questions:** this is another important method of limiting a topic of technical report. Sometimes it is called the “**Wh**” question method.

- b) **Identifying Clear Objectives for Writing:** the other step in writing a technical report is having a clear reason of preparing the report normally what we call “objective”. This keeps the writer to move forward in a solid direction. The statement that states the purpose of the report known as the **controlling sentence or thesis** which directs the writer to the destiny intended to arrive on. The introduction of each technical report should clearly identify its thesis and an organizational plan for developing the thesis. But this statement should be structured in a complete declarative sentence as well as clear, specific and concise.

To identify the problem to be studied and the objective of the report; determine why you are writing the report and what you hope to accomplish. A clearly defined objective has a number of important benefits:

- It helps you decide what information to include – and leave out.
- It helps you pitch the report at the right level.
- It makes it easier to write the report.

An objective is not what you intend to **write**, it is what you intend to **achieve**. Writing a research report is not an objective, it is a *task*. The *objective* is to extend the readers' knowledge of the world by reducing their uncertainty and increasing their understanding of it. Writing a trouble-shooting report is not an objective, it is a *task*. The *objective* is to locate the cause of some problem and then suggest ways to remove or treat it. Concentrate on the **objective**, not the associated task.

It will clearly address the following areas concern in your report writing:

- So what do you want to achieve?
- What **results** are you hoping for?
- What do you want to happen next?

Prepare a written statement of the problem you will analyze in your report; you can express this statement either as an infinitive phrase or as a question, or as a statement:

- **Infinitive phrase:** The purpose of this report is to determine if the department needs new computer.
- **Question:** This report will answer the question “Does the department need new computers?”
- **Statement:** This report will determine if the department needs new computer.

In writing objectives, the very important reminder is the use of behavioral terms. It is highly advisable to use these terms because they show specific result. Some possible examples of such terms of overall objectives for a report writer:

- To inform
- To describe
- To explain
- To convince....
- To compare....
- To instruct
- To evaluate (and recommend)
- To verify...
- To evaluate....
- To provoke debate and
- To persuade
- To identify...

**Examples: Topic:** Machine Operator Training Programs in Kombolcha Textile Factory

**Objective:** To evaluate the effectiveness of machine operator training efforts in manufacturing companies

c) **Define your scope**

Scope refers to the boundaries of the report what will be included and excluded. Scope helps save your time and money by delimiting your area of focus.

d) **Determining the audience**

A report is always written with an audience in mind. If your report is based on instructions from an individual, it would not be difficult to figure out its objective. If, however, the audience is large and varied, you should find out carefully what they know and what they do not know. The difference in their training, experience and background should determine the presentation and style of your report. To overcome the difficulty of catering to the needs of a varied readership, keep in view the people who are farthest in knowledge from the subject of your report. Remember that a report is a piece of communication and can be considered successful only if it produces in the reader the desired response. One way of testing this is to place you in the position of the reader and then examine the effect it produces:

- Concentrate on points they will care about.
- Explain things they do not know.
- Address questions and concerns they would be likely to raise.

Often, however, you do *not* know your readers personally. Try to find out something about them. The following questions will prove useful:

- Are the readers alike or mixed?
- Are they used to reading and understanding reports?
- How much time will they spend on this report?
- What do they already know?
- What else will they need to know?

If any writer knows his/her readers, the next step becomes “bed of rose”.

## e) Collecting data

After the purpose and scope have been specified and the audience determined, the next step is to gather the relevant data. Many reports turn out to be ineffective because the writer did not use the proper method, consult the right documents, approach the right people or secure the right answers. Let this not happen to you. Recognition of sources of information and culling the relevant data are essential for writing a good report.

There are a number of methods and sources for collecting data. Choose the ones relevant to your purpose. We may place them into the following categories:

- i. Methods (primary data)
  - 1. Personal observation
  - 2. Telephone Interview
  - 3. Personal Interview
  - 4. Questionnaires
  
- ii. Sources (secondary data)
  - 1. Internal Records
  - 2. Library

### **i. Methods of collecting data**

#### ***A. Personal Observation***

Some reports will be based on your personal observation. For example, you may be required to write a report on an experiment you conducted in the laboratory, a job you performed or an event to which you were an eye-witness. Since in these cases, you will have to rely on your sensory perceptions and memory you must develop the habits of careful observation and accurate recording –traits which even otherwise are helpful. Lest you should be caught unaware, it is advisable to keep a notebook and a pencil ready for jotting down notes.

#### ***B. Telephone interview***

Another method of collecting data is interview-personal or on telephone. If the information you seek is of a routine nature and only brief answers are required from a small number of people you may contact them on telephone, and save time on traveling. But, often you may not get as effective feedback on the telephone as in the case of personal interviews. Further, the information you collect may be unrepresentative because all the persons you need to contact may not be on the telephone. And if some of them are residents of other towns, long distance calls will be necessary and in that case this method will prove very expensive.

#### ***C. Personal interview***

Interviewing is an art that demands intelligence, patience, tact and courtesy on your part. Even though you need one type of data, remember that all individuals cannot be dealt with in an identical manner. You need to be shrewd, observant and sensitive to the reactions of the person you are interviewing. You should be quick to readjust your approach and attitude to suit each case. You must first secure a person's attention, excite his interest and

establish a rapport. He must open out to you and cooperate in giving you the information you want. And all this depends on your own knack of handling people.

How does one go about this business of interviewing people? First you must do your own homework well. You must first of all break up your problem into significant components. It becomes easier to handle it in this manner. Then carefully prepare a set of questions covering all these aspects. Next, you must fix an appointment before calling on a person. Tell him beforehand the amount of time you are likely to take. Before starting the interview, give him a brief introduction about yourself, your organization and the purpose for which you are collecting data. Do not embarrass him by asking personal questions or by seeking confidential information. If a person is hesitant about imparting a piece of information, do not press him. If he would like to be anonymous, respect his wish. Lead the interview but do not press him. If he would like to be anonymous to you, you should maintain a comfortable atmosphere throughout the interview and end the meeting gracefully. Do not prolong the interview unnecessarily.

#### ***D. Questionnaires***

When a wide geographical coverage is required and a large number of people have to be contacted, the most efficient and convenient method is to collect data through mail questionnaires. You can send thousands of questionnaires at a comparatively low cost. Since you cannot seek further clarification as in the case of interviews, you should take utmost pains in preparing the questionnaire. The following hints will be of help:

- (i) Each question should be clearly framed and should seek to elicit the information related to the topic of your report.
- (ii) It should be precise and not vague. For example, if you ask, "Do you see films regularly," your respondent will not understand what you mean by 'regularly'. And suppose he says 'yes', how will this answer help you? But if you say, "How often in a month do you see a movie?" He will understand what you want to know and his answer will be precise and useful.
- (iii) Avoid leading questions - questions which suggest or anticipate answers and thus condition or prejudice the respondent's mind.
- (iv) As in the case of interviews, do not ask any questions which may embarrass the respondent. Questions about sex habits, morals, religious beliefs, personal income, etc. are better avoided. When you have to write a report touching on such matters, obtain the consent of the respondent beforehand, if possible, and keep the information you secure confidential. In all situations, avoid asking questions which may hurt the respondent's self-respect, pride or ego.
- (v) Since you are making a demand on the time of strangers, ensure that your questions are easy to answer and the questionnaire is brief and convenient to handle. Leave plenty of space in it for answer. It would be irritating for the respondent to find that he cannot write what he wants. Often questionnaires remain unanswered because of this defect.

#### **ii. Sources of Data**

##### ***A. Internal Records***

Most activities of an organization are recorded in written documents- letters, memoranda, reports, contracts, agreements, transcript of talks, orders, office notes on files, etc. In

business organizations figures for annual statements of income and expenditure, sales, purchase, production, distribution, etc. are culled from account books and other records maintained by them. Very often you will find that the relevant data for the reports you have to write can be assembled from such records. In some cases, it may be necessary to get the photocopies made, facilities for which exist in most organizations. You should carefully note down the identification number of the records you have consulted so that there is no difficulty in referring to them in future. Sometimes, you may be able to collect the information you need by issuing a circular to the concerned officers and on the basis of their replies complete the information you require.

### **B. Library**

A library is place where written material is collected and kept for use by its members. One of the main aims of a library is to ensure that the best possible use is made of its collection, to bring the right reader to each book and the right book to each reader. The range of subjects covered by a library depends on the type of readers or organization it is intended to serve. Other services offered by some of the libraries are a reproduction of material in demand and securing of material from other libraries for the benefit of its members. Each library catalogues its books according to system. A reader should acquaint himself with the system to make best use of the library.

#### **f. Organization of Materials**

One of the major difficulties in writing with a large document is the rather burdensome task of addressing a full pad of blank paper. Additionally, the task of achieving good structure from the start is compounded by the countless of thoughts which one fit in, in an attempt to sort out the logical progression of the document. The key thing is, therefore, achieving both good structure (from the start) *and* decomposing the initially large problem into bite-sized chunks.

Logical structure refers the natural unfolding flow of an idea as the reader progresses through the document. This is achieved by going from the general to the specific, with the background material preceding the technical expose, which should lead *logically* to the conclusions.

We have to know that there are many who read the report from beginning to end and use it. This will be true if the length of the report is as certainly short as needed. Ten pages or so in length is the favorable length in technical reports.

To overcome the problems on the side of the reader, a writer should make each section clearly identifiable. As users often want to know the content of one or two sections only, they must see where each section begins and ends, and which sub-section is connected to which the major section. In other words, headings must be linked in form and layout to a notation system which is logical and easy to use.

It is obvious that if you start preparing the first draft straightaway, you are likely to be lost in the mass of data and it will be difficult for you to adhere to the sequence of your ideas. Thoughts do not always come in the order in which you would like to put them in writing. They are sometimes elusive and, occasionally, it becomes difficult to recall what you were thinking just a few minutes ago.

## **g. Making an Outline**

The best way to organize material is to prepare the outline of a report before you actually start writing it. The outline will provide you with a framework into which you can fit in an orderly manner various bits and pieces of information you have collected and your own conclusions. It will indicate the pattern of your report and provide you with a starting point for writing. It will also serve as a map, which will not only lead you to your destination but also enable you to ensure that you are on the correct track. The various headings and subheadings contained in it will act as traffic signs, directing you on the right course.

While constructing your outline keep the audience in mind. Reject the material which you think will be beyond your reader's comprehension or which will not help him take a decision or action. While collecting material you must have borne these factors in mind and hence may not have much material to reject at this stage. But it is advisable to have another look and to discard material which is of doubtful value. Often, only after looking at the total picture will you be able to judge the relevance or otherwise of its constituent elements. The following principles will help you to decide what to include, what to reject, and how to organize the selected material into the form of an outline.

Look at the following pattern:

### **1. MAIN HEADING**

#### **1.1 Lesser Heading**

##### 1.1.1 Small Heading

### **2. MAIN HEADING**

#### **2.1 Lesser Heading**

##### 2.1.1 Small Heading

Any report writer is free to organize his/her report in any way he/she thinks fit the purpose of the report.

For example, to write a short essay on 'Environmental pollution', a brief outline likes:

### ***ENVIRONMENTAL POLLUTION***

- |                               |                                       |
|-------------------------------|---------------------------------------|
| 1. Introduction               | 2.2. Water pollution                  |
| 1.1. Definition               | 2.3. Thermal pollution                |
| 1.2. Causes of pollution      | 2.4. Land pollution                   |
| 1.2.1. Population growth      | 3. Suggestions for Reducing Pollution |
| 1.2.2. Increased productivity | 3.1. Publicity about its hazards      |
| 2. Types                      | 3.2. Advisory Services                |
| 2.1. Air pollution            |                                       |

Remember that your outline is your report in a skeletal form.

As a mechanical structure, an outline is an arrangement of words, phrases or sentences which indicate the nature and sequence of topics and subtopics to be discussed in your report. The elements that constitute it are numbered, and sub-numbered according to their rank and relationships with one another. An outline thus shows which topics are more important, which are of equal status, and which are subordinate.

How do you go about organizing the material into an outline? This question is difficult to answer because there is no set procedure for doing so. You will with experience discover one which works. However, a few steps that may be helpful are suggested below:

- (i) Go through the entire material you have gathered and think of possible organizational patterns.
- (ii) Choose one pattern and then jot down the topics and Sub-topics as they come to you.
- (iii) Then arrange them on the basis of the principles discussed above
- (iv) Prepare a tentative outline, demarcating the material that could go under each topic and sub-topic.
- (v) Carefully examine it and make changes, if necessary.
- (vi) Write out neatly the final outline.

### 1. Outline Systems

The two most frequently used outline systems are alphanumeric system and the decimal system

<u>Alphanumeric</u>	<u>Decimal</u>
I. x x x x x x x	1.0 x x x x x x x
A. x x x x x x x	1.1 x x x x x x x
B. x x x x x x x	1.2 x x x x x x x
1. x x x x x x x	1.2.1 x x x x x x x
2. x x x x x x x	1.2.2 x x x x x x x
a. x x x x x x x	1.2.2.1. x x x x x
b. x x x x x x x	1.2.2.2. x x x
(1) x x x x x x x	
(2) x x x x x x x	
II. x x x x x x x	2.0 x x x x x x x
A. x x x x x x x	2.1 x x x x x x x
B. x x x x x x x	2.2 x x x x x x x

### 2. Outline Formats

The preliminary outline follows either the topical or the discussion format. In a topical outline (headings) - the words that start each section – describe in a few words the topics you have investigated. A discussion out line provides more information about the topics and the subtopics, the topics that are included under each heading.

#### Topical Outline

#### Discussion Outline

- |                                   |  |
|-----------------------------------|--|
| I. Characteristics of Voice Mail. | I. Voice mail offers latest technology for sending messages. |
| A. Speed                          | A. It offers speed.  |
| B. Cost                           | B. It costs no more than a telephone call.                   |
| C. Equipment                      | C. Special equipment is needed.                              |

The words, phrases, or sentences that you use for indicating the topics or subtopics of your outline should generally have parallel grammatical construction. Look at the following extract from the outline of report on nationalized banks:

3. Advantages of Nationalization
  - 3.1. Mobilization of national resources
  - 3.2. Promotes agricultural production
  - 3.3. Encouragement of new classes of entrepreneurs
  - 3.4. Channelizing people's saving towards productive purposes

You will observe that three types of construction have been used in the above extract, viz. noun formed from verb, verb (present tense form) and verb (present participle form). For proper organization one of the forms should be chosen and used as shown below:

### 3. Advantages of Nationalization

- 3.1 Mobilization of national resources
- 3.2 Promotion of agricultural production
- 3.3 Encouragement of new classes of entrepreneurs
- 3.4 Channelization of people's saving towards productive purposes

#### **I. Principles of Organization**

##### **i. Logical ordering**

Weigh and consider which ideas or pieces of information are more important than others, and in what order should you present them to achieve your goal. One obvious method is to order the material from the least important to the most important or vice versa. It has been suggested that the former is effective if the report is interpretive and the latter is advisable if the report is informational. It is argued that the reader of an interpretive report likes first to go through the material on which you base your interpretation and recommendations. On the other hand, the reader of an informational report wants to gather of the most important piece of information first and sometimes he is not interested in unimportant details at all.

Other methods of ordering are categorical, comparative and chronological. If you use the first of these, you will start with a general statement and then discuss particulars. For example, if you are writing a report on 'International Airports for description and discussion. Very often, you may like or be required to compare a procedure, a process or a system operating in your organization with those in other similar organizations. Then you will use the comparative method, usually in conjunction with another method of ordering. The last, viz. the chronological method is most convenient to follow because all you have to do is to go on describing, discussing, or analyzing the events as they occur or the action as it takes place. However, this method is useful generally for reporting laboratory experiments and describing industrial processes. In many other cases, it has been found unsuitable because things do not necessarily happen in a logical order. There could be other methods of ordering your material. The circumstance of the situation will tell you which one to use for your purpose.

##### **ii. Coordinating**

Topics or sub-topics which are of equal rank should be assigned the same level in the outline so that when you treat them in your report they receive approximately the same degree of importance and extent of coverage. For example, if your topic is 'Sources of Water, the following sub-topics which are for equal value should be assigned the same place in the outline.

1. Sources of Water
  - 1.1. ponds
  - 1.2. Rivers
  - 1.3. Lakes
  - 1.4. Seas and Oceans

##### **iii. Subordinating**

You should clearly determine which ideas can be grouped together under one topic or subtopic and in what order. This exercise will help you to find out where to fit in a particular

idea or piece of information. For example, in the outline for an essay on environmental pollution the various suggestions for reducing pollution are subordinate to the main topic (see 'Outline').

### **REVIEW QUESTIONS**

1. Discuss the advantages and disadvantages of telephone interviews as a method of collecting data.
2. What is a mail questionnaire? In what respects is it different from the list of questions prepared for a personal interview and in what situations would you use it?
3. How would you assess material before making notes from it? Why is assessment necessary?
4. How does an outline help a report writer to arrange his material suitably?
5. Assume that you are the chairman of a committee which has been asked to study and report on the working of the internal evaluation system which was introduced in your college two years ago. For this study your committee proposes to interview 200 students and 50 teachers. Prepare two lists of questions (one for interviewing students and the other for teachers) which the members of your committee will use for personal interview with them.
6. Prepare a list of questions that you would use for interviewing the ladies of your locality for a report on the cosmetics they use.
7. Draw an outline for a report on the spending habits of the students of your college or the colleagues in your office.

### **3.3. Qualities of Technical Reports**

Reports vary in content and in formality and also, of course, may have to follow the outline which is standardized in company templates. Nevertheless, there are widely accepted sections, all of which would appear in a long and very formal report: they must be adapted or amalgamated as the writer thinks appropriate for the reader's needs.

Most technical reports will not need such a detailed breakdown of contents as they are technical, but it is often helpful for writers to keep the scheme in mind in arranging the information, even if they know they will not use the headings in full as these sections form the framework of the report.

As a technical writing, the readability, professionalism, objectiveness and the impact of the report are expected qualities.

But regardless of the specific style used to prepare the technical report, keep in mind seven basic characteristics which must be met to produce good reports: accuracy (objectivity), clarity, comprehensiveness, accessibility and brevity.

1. **Accuracy:** conventions of grammar, punctuation and usage, spelling, accurate sentences, paragraphing as well as any appropriate format standards, and apply throughout the document.
2. **Clarity:** technical report should convey a single meaning. Figures must be understandable. On a large scale, clarity in technical writing is essential because of the cooperative nature of most projects in business and industry. If one link in communication chain is weak, the entire project could be paralyzed. So, the expense of unclear technical report is great. The cost of a typical business letter today, for instance, counting the time of the writer and the typist and the cost of the equipment, stationary and postage is high.

Clarity concerns targeting the readers. It must be seen from the readers' point of view. What may be clear to the writer as the author may not be clear to the readers because the author is intimately familiar with the work, but they are not. Therefore, examining continually the rough drafts with a reader's critical eye is very crucial. Readers should never become uncertain about what is being discussed in the document, why it is being discussed, or what plan of the presentation is. These kinds of “mental gymnastics” may force them to rebel.

3. **Comprehensiveness:** If a technical report is comprehensive, it provides all the information that the readers need. It describes the background so that readers who are unfamiliar with the project will be able to understand the problem or opportunity that led to the project. It includes a clear description of the methods the writer used to carry out the project as well as a complete statement of the principal findings-the results and any conclusions and recommendations.

Comprehensiveness is crucial for two reasons: firstly, the people who will act on the document need a complete, self-contained discussion so that they can apply the information effectively, efficiently and safely. Secondly, the document will be the official company record of the project from its inception to its completion.

4. **Accessibility:** refers to the ease with which can locate the information the readers seek. As technical writings are made up of limited and independent sections it is different from other types of writing. Audiences are different in their interest of the report as some are interested only one or several sections while others might want to read many or most of the sections. This informs the writer that it is his/her responsibility to make all the necessary parts/sections of the document available. This helps readers not to feel flipped through the pages to find the sections they need. This can be achieved by including well-detailed table of contents and using informative headings and subheadings. Including detailed table of contents will help readers get the different sections of the document as quickly as possible.

5. **Brevity:** Sometimes writers may take longer time to come to the point they want to say. This forces them to draw dozen explanations on the same point. On the other hand, in contrary, there are writers who are capable of explaining the point in very short and precise sentences. That is why some reports are long and others are short. But in some circumstances, the reports may become long because they contain a great deal of important information. But it doesn't mean that all long reports are in a great deal of important information. Some writers will find themselves in temptation as they feel that they didn't explain clearly the issue they want to say. That is why some reports are probably too long because the writer has explained the same point more than once as he/she is not sure that the meaning was clear at the first attempt. For example, it is better to say 'Presently' than 'At this present moment in time'. Such kind of report irritates our audiences who are busy in other businesses.

In report writing, there is no minimum or maximum page length requirement rather the length should be appropriate for what information should be included in the document. It is not common for technical reports to exceed 20 pages. Most often jargon and clichés phrases tend to be wordy as they need to be explained in detail. Jargons may be also misinterpreted. Regardless of length, writers should give great emphasis on the quality and conciseness of the document since quality and concise reports have the potential of attracting the attention of the readers. It is helpful to avoid long and complicated terms if shorter and more familiar ones are available.

If the report is developed in an impersonal style, it can become awkward or bulky. For instance, a report will become bulky if the writer say 'It was immediately apparent to the writers that ...' than 'We at once saw that ...'. Besides, if the policy of the employer or company permits, the active

voice ('I recommend' or 'We recommend') is preferable to the passive voice ('It is recommended that ...'). However, tact will sometimes dictate otherwise.

Technical writing is meant to be useful. Sometimes if the document become longer, it may become difficult to use it as it takes more the time of the readers. It should be underlined that most of the intended readers are busy in different personal or job affairs. Therefore, the information intended to be delivered should be expressed with the fewest possible and illustrations. It may seem that brevity or conciseness stands against clarity and comprehensiveness. And also it is true that if a technical writing to be absolutely clear, the writer must explain and describe every aspect of the subject in great detail. Here, there seems there is a conflict between brevity and comprehensiveness as report quality is often inversely related to report length but the solution to this conflict is to balance the claims of clarity, conciseness, and comprehensiveness. It doesn't mean that the report should be condensed at the expense of the understanding of the targeted audience. The document must be just long enough to be clear-given the audience, purpose and subject - but not a bulky and awkward just to keep our readers not to be irritated. Enough information should be given to enable them to understand clearly *what* is being described and *why by including the necessary components*. It is erroneous to assume that the readers will remember all details of a previous report or have even read it. Therefore, all details needed should be included to understand the current report. Generally, the report should be brief and comprehensible.

Technical reports are not mystery novel; get to the point as directly as possible. The document must be economical and correct. It is possible to shorten longer reports by eliminating irrelevant phrases and explanations to the result because the readers will be interested in the conclusion and the supporting evidences, choosing shorter words than the longer ones and using economical grammatical forms. This helps the readers save their time as well as no to loss the information they need to know.

6. **Continuity:** The story discussed in a particular report should include logically and interestingly organized information. This requires continuity between successive sentences, paragraphs, and sections and even between the written text and the figures and/or tables. In order to keep the smooth flow of information in the report, the use of transitional words, phrases, sentences, or even paragraphs play a vital role. But one important thing that should be known is overusing transitions may become destructive as it may slow the pace of the narration.

However, the document may not interest the target audience if there is discontinuity without proper explanation. The average reader will lay aside the report for later reading and the chances will be slight that it will ever be read. To avoid such discrepancy, the presentation requires being logical, simple, and systematic.

7. **Modest writing:** As stated earlier, technical reports are formal in their nature. Formal writing refers simply writing in full, for example, writing "it is" rather than "it's", avoiding slang or colloquial expressions, but using words correctly. It does not mean that simple words are unacceptable. Using words correctly to mean that the reader's attention may be so caught by the constant use of pompous (arrogant) language that the substance is forgotten. There are words which said to be "leading" words phrases. The reader can be unobtrusively guided by these leading words to the right direction. Introducing sentences or paragraphs using phrases such as 'At the same time', 'On the other hand', or 'Bearing this in mind', for example, keeps the smooth flow of information and helps to catch the attention of the readers to the supplementary information which follows. Therefore, the language used should be, as writers feel, not merely formal, but ostentatious. Formal writing is more ordered and stately than speech, but it does not have to be 'literary'. These pointers contribute a tremendous help in the Conclusion of a report when the readers are assessing the

argument. Another example is starting a new sentence with 'This' which doesn't have any noun that it refers (stands for) before.

Good style should be unobtrusive. The reader will be aware only that the report seemed easy to read and interesting: the skill of the writing will have its reward in reader goodwill. The best way to develop such skill is to read a great deal, write often, to be self-critical and to be willing to ask for constructive comment from others.

After the completion of the major chore of writing the document, you may consider that your work is complete. If there is a higher authority to whom the project/document is done under the guidance of, you may consider that it is their duty to do the quality control on it. But this is wrong! While this individual may suggest modifications to structure or provide suggestions on some technical points, it is not his/her responsibility to correct spelling, grammar, etc. The primary liability for the quality of your document lies with yourself. It is worth taking that extra time to ensure that your document is professional and is free from grammatical and spelling mistakes.

Checking the report before its submission is great in keeping the validity of data, to assess the amount of explanation given and the logical flow of information. When they check the typing, writers should be patient and meticulous. It is good to get a natural speaker to check the document if the report language is not the writer's first language. But it is advisable if the writer take the responsibilities him/herself as other checkers can't read his/her mind yet.

Most often, immediate checking is useless. Rushing in the checking stage and process will not bring success in correcting and overcoming errors and mistakes. Leaving the report for longer time after the completion of the final draft will improve the checking greatly. Leaving it for a week and returning back to checking and checking line by line is helpful. At the same time numbers must always be checked digit by digit. You may feel that this is gallingly time-consuming, but it affects the reader's attitude to the report as a whole. This is also true of the appearance of the report. Consistency is important for the impact of the report: using different abbreviations for the same thing, for instance, gives an impression of carelessness which worries the reader. After passing all through these stages, the report is checked, its appearance is pleasing, it is easy to handle, 'interesting' and 'readable'. The readers should be delighted if the technical content is as good as the organization, writing, illustration and finishing.

### **3.4 Ordering Methods**

One of the most important aspects of presentation information is arranging it using different ordering methods as it calls. The responsibility of a technical writer is getting down the information gathered on a paper in a well organized fashion just to keep the report from being messy. Ordering requires you to make series of decisions on which information to make first, which in the middle, and which to make last. The following list gives you an alternative in choosing which **ordering method** best fits the information collated.

- 1. Chronological (Natural) Order:** This is one of the ways to arrange data which relates materials keeping the time sequence. Events are related the way they occur and the writer does not randomly impose on organization. This order is used when describing a process and reporting what has happened. The commonly used traditional words in such way of ordering are first, second, next, finally, etc. For example, when you give a play-by-play review of a football game, you start with the kickoff and end with the whistle.

The types of report which can usually be developed using this order are progress reports, process descriptions, and situational reports.

2. **Enumeration order** is the other way of arranging information in a document which focuses simply on listing the points. It is often used when writers do not want to show specific kind of relationships among section of their report. Here there is no need of considering the time sequence in which event had took place but if there are several points to make, the enumeration begins with the most important and ends with the least important.

For example, you simply enumerate when you list the factors influencing the fluency of students in a certain grade level of a certain school, or when you indicate the four significant elements the process of writing an essay.

3. **Spatial (Space) Ordering** considers the physical appearance of something. It usually guides audiences visually and directionally to help them have a vivid and accurate image of the object, product or place. The writer starts the description at an obvious point. The phrases which commonly and usually used are “to the left,” “behind,” “in front of.” These kinds of reports are descriptive as they give the tangible picture of an object, a product or a place. For example, to describe the floor plan of a language laboratory in a particular classroom, or describing the parts of a bicycle to be assembled.
4. **Cause and Effect:** When a report shows the why of something, why something happened, why something is true, or when a report shows the consequence of an event or decision, we often use this kind of ordering. The writer starts with a fact or verifiable situation and then either looks back and shows why that is the case or looks forward and shows what the effect(s) will be in the situation remains. It is the type of ordering often used in analytical report.
5. **Compare and Contrast** is used for analyzing the similarities and differences between any two objects, procedures, policies, etc. in detail. Comparison stands for the state of alikeness whereas contrast refers showing unlikeness between two or more events or things under discussion.
6. **Problem Solving:** this is used in reports when there is a problem or difficulty and need to propose for a change or solution or recommendation. It is good employing this kind of ordering information in proposal writing.

### 3.5 Writing the Report

#### A. Rough or draft writing

With a logically organized outline and the necessary illustrations already prepared, writing the rough draft should be much easier than you thought. But do not expect to write the final version in the first attempt. The rough draft should be the last of several versions, each an improvement of the preceding one. This final version is considered a "rough" draft because it still must go through a series of technical and editorial reviews. But it should be as polished as you can make it. From your point of view, it should be ready for printing and distribution to a critical audience.

Try to start writing the first version of the draft immediately after completing the outline while the ideas developed there are still fresh in your mind. Write this first version as rapidly as possible. Concentrate on *what* you want to say rather than how to say it. Keep writing down the thoughts as they flow into your mind, following your outline. Avoid going back over what you have written until you are through writing. Then review this version—but only for its technical content. Are all of the ideas you wanted to express included? Have you included

irrelevant ideas? Does the report organization still seem logical? Sometimes writing the first version will reveal some unexpected problems that require a change in the outline.

In the second version of the rough draft, writing style becomes important. With the technical content in a well-organized form from the first version, this is the time to concentrate on how you say it. Keep your readers in mind. Remember, your purpose in writing the report is to transmit the information needed to support your conclusions. To make sure your readers understand your conclusions, you must transmit your information clearly, logically, concisely, honestly, and tactfully.

## **B. Revising the rough/draft**

The last stage of report preparation, rough-draft revision, is just as important as the previous stages, but it is the one most scorned by inexperienced writers. Revising a draft is comparable to painting a house: the appearance is improved without influencing the structure. But a report's "appearance" (readability) may determine whether or not it is read. Before you can revise your rough draft, you must recognize that it is not perfect. Approach it with a critical attitude. This can best be done by setting the draft aside for a few days, or at least overnight. This time lag should give you a fresh viewpoint and allow you to change to the role of a reader. This change in roles is most important because you must try to see what is actually written rather than what you think you wrote.

Successful technical writers use a wide variety of methods to review and revise. One of the best involves three *separate* reviews of the report:

1. The first review is of the material in the report. In this check, ask yourself these questions: Are the conclusions valid? Is sufficient information given to support the conclusions? Is enough background information given to explain the results? Have all irrelevant ideas been deleted? Are the illustrations pertinent and necessary?
2. The second review is of the mechanics and organization. Are the subject and purpose clearly stated? Does the report flow smoothly from topic to topic? Are the relations between topics clear? Is each illustration clear and properly labeled? Are all required parts of the report included?
3. The third review is of spelling and grammar particularly punctuation and sentence structure. Is each sentence written effectively? Are the sentences varied in length and complexity to avoid monotony? Are the words specific rather than vague? Have all unnecessary words been deleted?

Make sure you can truly answer **yes** to all of these questions before you consider your draft finished. Do not try to make one review; do the work of three. Trying to cover too many categories in one review usually results in oversights and errors. Some common faults observed in rough drafts are (1) faulty grammar; (2) clusters of nouns and adjectives modifying a noun and conversely strings of prepositional phrases after a noun; (3) use of abstract nouns instead of action verbs; (4) nonparallel construction of words, phrases, and sentences in enumerations; and (5) more complicated phrasings than required.

## **C. Referencing of sources and originality**

References must be provided in your report if you use someone else's opinions, theories, data or organization of material, and this includes all occasions when you:

- paraphrase (use their same idea in your own words)
- summarize (use their main points)
- quote (use their exact words)
- copy (use their figures, tables or structure)

It is expected at university that students will present original work for assessment. Where any ideas or written work from other sources/authors appear in your report, you must acknowledge the sources by making reference to them. These references must be *in the text* as well as *in the reference list*. Failure to indicate the sources of your ideas may suggest that you are wrongfully claiming their ideas or words to be your own, which is known as 'plagiarism'. Universities impose heavy penalties on students who plagiarize. Referencing of sources is also encouraged because it strengthens a writer's argument. Referencing shows wide reading and identifies the critical aspects of other research.

#### **D. Quoting, Paraphrasing, and Summarizing**

This handout is intended to help you become more comfortable with the uses of and distinctions among quotations, paraphrases, and summaries. This handout compares and contrasts the three terms, gives some pointers, and includes a short excerpt that you can use to practice these skills.

#### **What are the differences among quoting, paraphrasing, and summarizing?**

These three ways of incorporating other writers' work into your own writing differ according to the closeness of your writing to the source writing.

- a. Quotations:** must be identical to the original, using a narrow segment of the source. They must match the source document word for word and must be attributed to the original author. Direct quotes are used when you take another author's ideas and exact words for use in your own paper. When we quote certain text from some source, we either use one of the following techniques based on the length of the text.

##### **1. Short Quotes**

Short quotes (fewer than 40 words) are enclosed in double quotation marks. In addition to the author and date of publication a page number must be included in the in-text citation.

Example:

She stated, "Students often have difficulty using appropriate study skills," (Kerr, 2002, p. 199), but she did not offer an explanation as to why.

According to Kerr (2002), "Students often had difficulty using appropriate study skills," (p. 199).

Kerr (2002) argued "Students often had difficulty using appropriate study skills," (p. 199); what implications does this have for faculty?

##### **2. Long Quotes**

Quotations longer than 40 words are placed in a block of text. The block quotation starts on a new line, indented five spaces from the left margin. The entire quotation is indented.

Maintain double-spacing throughout. The page number should come after the closing punctuation mark.

Example:

Rathbun's 2002 study found the following:

Students often have difficulty using appropriate study skills, especially in their first year in an undergraduate program. This difficulty could be attributed to the fact that many students have not been properly trained in these skills at the middle or high school level. It could also be due to the fact that many students have never been challenged academically to the point where efficient study skills were needed. (p. 99)

- b. **Paraphrasing** involves putting a passage from source material into your own words without directly quoting source material. A paraphrase must also be attributed to the original source. Paraphrased material is usually shorter than the original passage, taking a somewhat broader segment of the source and condensing it slightly. Anytime you are taking information from a source that is not your own, you need to specify where you got that information.

**A paraphrase can be presented in the following Form.**

- One legitimate way (when accompanied by accurate documentation) to borrow from a source.
- A more detailed restatement than a summary, which focuses concisely on a single main idea.

**Paraphrasing is a valuable skill because...**

- It is better than quoting information from an undistinguished passage.
- It helps you control the temptation to quote too much.
- The mental process required for successful paraphrasing helps you to grasp the full meaning of the original.

**Six Steps to Effective Paraphrasing**

1. Reread the original passage until you understand its full meaning.
2. Set the original aside, and write your paraphrase on a note card.
3. Jot down a few words below your paraphrase to remind you later how you envision using this material. At the top of the note card, write a key word or phrase to indicate the subject of your paraphrase.
4. Check your rendition with the original to make sure that your version accurately expresses all the essential information in a new form.
5. Use quotation marks to identify any unique term or phraseology you have borrowed exactly from the source.
6. Record the source (including the page) on your note card so that you can credit it easily if you decide to incorporate the material into your paper.

- c. **Summarizing** involves putting the main idea(s) into your own words, including only the main point(s). Once again, it is necessary to attribute summarized ideas to the original source. Summaries are significantly shorter than the original and take a broad overview of the source material.

### **E. Why we use quotations, paraphrases, and summaries?**

Quotations, paraphrases, and summaries serve many purposes. You might use them to . . .

- Provide support for claims or add credibility to your writing
- Refer to work that leads up to the work you are now doing
- Give examples of several points of view on a subject
- Call attention to a position that you wish to agree or disagree with
- Highlight a particularly striking phrase, sentence, or passage by quoting the original
- Distance yourself from the original by quoting it in order to cue readers that the words are not your own
- Expand the breadth or depth of your writing

Writers frequently intertwine summaries, paraphrases and quotations. As part of a summary of an article, a chapter, or a book, a writer might include paraphrases of various key points blended with quotations of striking or suggestive phrases as in the following example:

In his famous and influential work *On the Interpretation of Dreams*, Sigmund Freud argues that dreams are the "royal road to the unconscious" (page #), expressing in coded imagery the dreamer's unfulfilled wishes through a process known as the "dream work" (page #). According to Freud, actual but unacceptable desires are censored internally and subjected to coding through layers of condensation and displacement before emerging in a kind of rebus puzzle in the dream itself (page #s).

### **F. How to use quotations, paraphrases and summaries**

Practice summarizing the following essay, using paraphrases and quotations as you go. It might be helpful to follow these steps:

- Read the entire text, noting the key points and main ideas.
- Summarize in your own words what the single main idea of the essay is.
- Paraphrase important supporting points that come up in the essay.
- Consider any words, phrases, or brief passages that you believe should be quoted directly.

There are several ways to integrate quotations into your text. Often, a short quotation works well when integrated into a sentence. Longer quotations can stand-alone. Remember that quoting should be done only sparingly; be sure that you have a good reason to include a direct quotation when you decide to do so.

### **Some examples to compare**

#### **The original passage:**

Students frequently overuse direct quotation in taking notes, and as a result, they overuse quotations in the final [research] paper. Probably only about 10% of your final manuscript should appear as directly quoted matter. Therefore, you should strive to limit the amount of exact transcribing of source materials while taking notes.

Lester, James D. *Writing Research Papers*. 2nd ed. (1976): 46-47.

#### **A legitimate paraphrase:**

In research papers students often quote excessively, failing to keep quoted material down to a desirable level. Since the problem usually originates during note taking, it is essential to minimize the material recorded verbatim (Lester, 1976; 46-47).

### **An acceptable summary:**

Students should take just a few notes in direct quotation from sources to help minimize the amount of quoted material in a research paper (Lester, 1976; 46-47).

### **A plagiarized version:**

Students often use too many direct quotations when they take notes, resulting in too many of them in the final research paper. In fact, probably only about 10% of the final copy should consist of directly quoted material. So it is important to limit the amount of source material copied while taking notes.

## **G. Basic Rules for In-text citation (APA style)**

This handout is based on the rules set out in the publication manual (fifth edition) of the American Psychological Association (APA). The American Psychological Association (APA) format follows an “author-date” style of in-text citation. When using this style, the author's last name and the year of publication for the source material appears in the text. Every source used in the paper, direct quotation, paraphrase, summary or translation must be cited in the text of the paper and listed in the References. A complete reference listing for each source cited in-text (except personal communication) is listed in the “References” at the end of the paper. Failure to do so will result in the charge of “plagiarism” which will have serious consequences to an academic career.

### **1. One author**

Examples: Owens (2001) found students weak in study skills.

In a recent investigation of study skills it was found that students are weak in study skills (Owens, 2001).

In 2001, Owens found students to be weak in study skills.

### **2. Two authors**

Examples: Owens and Kerr (2001) investigated the role of note taking on grades...

In a recent investigation of note taking on grades, (Owens and Kerr, 2001)

In 2001, Owens and Kerr investigated the role of note taking on grades...

### **3. Three to six authors**

Examples: Owens, Rathbun, and Kerr (2002) discovered real problems in time management

across the university...

Wyrzten, Owens, Rathbun, and Kerr (2002) argue that time management is the most...

If there is a second in-text citation of the same authors use the first author's surname and “et al.”

Examples: Owens et al. (2002) also found that these time management problems...

Wyrzten et al. (2002) further argue that time management...

### **4. More than six authors**

If there are more than six authors of the source material, cite only the first surname and “et al.” For example if your authors were: Burgess, Owens, Kerr, Rathbun, Wyrzten, Mittan and Henderson use the following in-text citation

Example

Burgess et al.(2002) argue that the Center for Academic Development and Study Skills ...

### **5. Groups as authors**

Some source materials are written by a team of authors who act as a group. This commonly occurs in governmental publications, newspapers and magazines. In this case, use the name of the group as the author. For a first citation; write out the complete name of the group and the acronym in brackets.

Examples: The Center for Academic Development and Study Skills (CADS) has completed a number of investigations into student study habits. These studies (2000)...

A number of investigations into student study habits (The Center for Academic Development and Study Skills [CADS], 2000) show...

If there is a second in-text citation of the same group use the acronym as the author.

Example: These investigations further show (CADS 2000) the need...

### **6. Secondary Source**

You may want to use information that is cited in an article or book that you have found. Ideally, you would find the original source. However, if you cannot, you should cite the source in the text, "as cited in...". For example, if you read a paper by Hardcastle (2002), and in that paper he refers to an article by Rathbun (2001) you would cite this as follows:

Example: Rathbun (as cited in Hardcastle, 2002) recommends teaching academic skills intensively before students enter their areas of concentration.

In the reference list, you would include a reference for Hardcastle (2002), but not for Rathbun because that is the source that you read.

### **7. No author**

If there is no author to cite (as in a web page) use an abbreviated version of the title of the page in quotation marks to substitute for the name of the author.

Example: In a similar investigation of students study skills, ... ("Using Study Skills," 2001).

### **8. No date**

If there is no date to cite use "n.d." (for "no date")

Example: Mittan (n.d.) argues that study skills can be taught.

In his seminal study, Mittan (n.d.) argues that study skills can be taught.

### **9. No author, no date, and no page numbers**

If you are citing a work that has no author, no date, and no page numbers, you should be **asking yourself** about the credibility of the source.

If you still decide to use the source, use 1) the title of the page, in quotation marks, for the name of the author; 2) the abbreviation “n.d.” for the date; 3) and use paragraph numbers (if available) or leave out any reference to pages

Example: In a groundbreaking study of study skills in Morocco ("University Study Skills," n.d.), it was reported that...

## 10. Personal communication

If the source was, for example a professor, and came from an interview or discussion with the individual you use “personal communication” as the in-text citation. Personal communication is not listed in the “References”.

Example: Study skills it has been argued (Hardcastle, personal communication) can be taught...

### Exercise

How would the following citations be entered in your text, and recorded in your reference list or bibliography?

1. A reference to James Elliot's article 'Nursing citizenship—a neglected issue', which appeared in 1985 on pages 53-61 of issue number 4 of the second volume of *The Australian Journal of Advanced Education*.
2. A quotation from page 15 of the book *Socialization after childhood*, which was written by Oliver Graham Brim and Sharon Wheeler, and which was published by John Wiley and Sons in New York in 1966.
3. A reference to the 1983 publication *Developments in design and materials in Engineering*, a book resulting from the joint authorship of Julia Elaine Miller and Grant McGrath, and published in Sydney by Science and Design Press.
4. A reference to an issue raised in 1986 by Susan Eisley in her article in *The Australian Podiatry Journal* (vol. 16, no. 3, pages 48-51) entitled: 'Regulation of podiatry: an emerging responsibility for the profession'.
5. A quotation from one of the contributions to a 1978 collection of papers/articles edited by Louise Norman under the title of *Ergonomics and computers* and published by McGraw-Hill in New York. The lines are taken from the first paragraph of 'Psychological factors in stress-related fatigue' by Alessandro Jacox, found on pages 36-42 of the book.
6. A reference to an article called 'Ethical issues for the surveyor' on pages 40-47 of the *International Surveying Review*. The article was written by Julia Claire McClosky in 1981, and appeared in an edition of the journal published in that year (vol. 28, no.2).
7. A reference to the second volume of the journal *Physiotherapy today*, to Brian K. Miller's 1985 article 'Just what is a professional?', found in issue number 4 on pages 21-27.

## Unit Four: Elements of Style and Language in Report Writing

### 1. Formatting guidelines

Appropriate formatting of reports improves the readability and accessibility of information. This section outlines essential formatting guidelines as required by your lecturers. An important principle underlying all formatting choices is consistency. Therefore, each report should maintain the same internal style and structure, which can be achieved.

## **A. Format of pages**

### ***Paper and margins***

- White A4 paper is appropriate, and printing on one side only is often preferred for assessment purposes
- Each major section of the report begins on a new page; this may be inappropriate for very short sections or short reports
- Wide margins are recommended; for example, allowing 2.5 cm on all sides
- Bound reports have a left-hand margin of at least 3.5 cm, and 1.5(cm?) on the other three sides

### ***Page numbering***

- The title page should not be numbered
- All other pages may be numbered either in the right-hand upper corner, or in the centre at the bottom of the page
- Roman numerals — i, ii, iii, iv etc. — are usually used to number the preliminary pages (Abstract, Contents etc.)
- Arabic numerals — 1, 2, 3, 4 etc. — are used to number the text from the Introduction page to the end of the Appendices.
- Alternatively, pages in the Appendices can be numbered internally, according to the letter of the individual appendix and the number of pages within each appendix — A1, A2, B1, C1, C2, C3 etc. (where Appendix A has two pages; Appendix B has one page, and so on)

## **B. Format of type and headings**

### ***Font***

- A serif font (such as Times) is usually chosen for the text of a report, as serif fonts tend to be easier to read
- A different font (such as the sans serif fonts, Helvetica or Arial) may be used for headings and tables
- The same font should be used throughout the whole report, unless a second font is chosen for headings and tables

### ***Size and style of type***

- 12 point type is the normal size for the text of a report
- 10 point may be used for long, indented quotations, figures and tables
- Italics can be used to emphasize text where necessary (but it should not be overused, particularly as there may be confusion with italicized titles)
- Underlining or bolding is avoided in emphasis of text as it is distracting
- The use of precise words may be sufficient to create the required emphasis

### ***Headings***

- Headings are numbered according to their importance, using the decimal numbering system
- Some writers do not use numbering, but differentiate between levels of headings through size and style (readability and access to information are the key considerations)
- Headings without text should never appear on the bottom line of a page

- Size and style of headings should vary according to the importance of the heading
- Headings can be differentiated using bold type, size and italics (overuse of underlining should be avoided as it makes reading more difficult)
- Capital letters are for the first letter of the first word in each heading only; except for any acronyms (e.g. WHO), trade names, or personal names and places, which may require more than one capital (aim for minimal capitalization in headings as overuse of capital letters slows reading).

### **C. Format of text**

#### ***Justification***

- All text and headings can be aligned against the left margin except for where indentation is appropriate (see about *Indentation and centering* below)
- Text may also be justified on the right-hand margin, and full justification (right and left margins) is often preferred for formal documents and theses

#### ***Line spacing***

1.5 Or double line spacing is generally used for work submitted for assessment; automatic line spacing (as provided with word processing) may be acceptable

- Line spacing should be greater at the end of a section so it assists in separating sections
- Line spacing may be decreased between headings and text so it assists in grouping information; the smallest line space (i.e. a four point space) may be appropriate before text such as a list of bullet points
- Extra line spacing should be used in the following cases:
  - To separate paragraphs
  - To separate figures, tables, equations and long quotations from the text
  - To separate a main heading from the section of text which comes before

#### ***Indentation and centering***

- Indenting text at the beginning of a paragraph is unnecessary when an extra line space is being allowed between paragraphs
- Indentation is appropriate for long quotations, complex mathematical expressions, lists with bullet points (dots •) and the list of headings on the contents page
- Long quotations are usually indented from both the left and right margins
- Figures and tables may be centered in the text
- Students may choose to indent each subheading with its associated text, as shorter lines of text are easier to read; overall length is then affected

#### ***Figures and tables***

- Figures include diagrams, graphs, sketches, photographs and maps
- Tables summarize data in rows and columns; a dash (-) indicates no data
- All figures and tables may be centered
- All should be labeled in bold with the appropriate consecutive number (figures are generally labeled at the bottom, and tables at the top)
- Another method of labeling figures and tables is to number them according to the major section where they appear
- Each should have a simple, descriptive caption which explains the figure or table; arrows, symbols, or abbreviations should be explained in the text
- all figures and tables must be referred to in the text (e.g. 'see Figure 14'); avoid using words such as 'Figure above' or 'Table below'

- All should be referenced (either author-date or numerical) if copied or adapted from another source
- Figures and tables can be separated from the text with extra line spacing; labels and captions can be separated using four point spacing

### ***Quotations***

- quotes of less than two lines (or 30 words) in length should be inserted ‘within your text within single inverted commas’ (Hadgraft, Robertson & Eaves 1994, p. 23).
- Quotes of more than two lines (or 30 words) should be: set off from the body of the text in a separate block, indented...and *single spaced*. Do *not* use inverted commas around block quotations. When using the block format, place the [author-date] citation on the line below the last line of the quote [or if using the numerical system of referencing, place the number directly after the quotation]. (Hadgraft, Robertson & Eaves 1994, p. 23)
- Changes or additions to a quote should be placed in square brackets  
e.g. ‘Ambiguity was caused by [financial] statistics being excluded from the report.’
- Words left out of a quote are indicated by the three points of ellipsis (...)  
e.g. ‘Ambiguity was caused by...statistics being excluded...’

### **D. Technical and structure of the report**

#### ***Technical language***

Effective use of technical language is a critical part of report writing. The important aspects of technical language to be considered are structure, grammar, vocabulary and punctuation. A report must be written appropriately for its *audience*.

#### ***Clear sentences***

Complex sentences are more difficult to read and often contain more grammatical errors. Reading the report aloud is one technique for locating errors. Students should aim to keep sentences as short as possible, although it is effective to vary sentence length. Shorter sentences are useful as summary statements and for emphasis.

#### **Grammar: Active and passive voice**

The passive voice is usually used in engineering reports where the writing is intended to be impersonal and objective. The passive voice is preferred when the human subject or agent is less relevant than the activity. In a passive sentence, the human subject is placed last or can be removed from the sentence.

e.g. The situation **has been monitored** by a researcher. (passive) (human subject at end)

e.g. The situation **has been monitored**. (passive)(no human subject)

The active voice emphasizes the human subject or agent by placing it first in the sentence. If no human is directly involved in the action of the sentence (e.g. the subject is a piece of equipment), then it is appropriate to use the active voice.

e.g. A researcher **has monitored** the situation. (active)

(human subject emphasized)

e.g. Temperature gauges **monitored** the air inside the cylinder. (active)(non-human subject emphasized)

The important issue in the choice between active and passive sentences is placing the *key aspect* — whether the activity (passive) or the agent (active) — at the beginning of the sentence.

## ***Tense of verbs***

Verb tense changes according to the section in the report, the purpose of the section or sentence and the type of information included. The following suggestions are a general guide only:

- use *present tense* to explain or discuss
  - continuing objectives e.g. The aim of this report **is** to...
  - general principles or laws e.g. Ohm's law **states**...
  - data or results e.g. These results **show**...
  - procedures or instructions e.g. **Identify** each item by code...
- use *past tense* (or the past perfect) to state or describe
  - what the objectives were e.g. The main purpose **was**...
  - what equipment was used e.g. The cylinders **were** reused...
  - what procedure was followed e.g. After careful cleaning, the test tubes **were**...
  - what happened e.g. The damage to the component **had been**...

The review of literature including other research may be written in either the present, past or the present perfect tense. Using the present tense is often less complicated.

e.g. The research by Elberg (1993) **shows**... (present tense)

e.g. The research by Elberg (1993) **showed**... (past tense)

e.g. The research by Elberg (1993) **has shown**... (present perfect tense)

## **Vocabulary: *Gender inclusive language***

Gender neutral language is language which includes women and men equally. Technical reports should avoid using male-only terminology such as 'he'. This can be achieved by:

- using both pronouns e.g. he/she; s/he; his/her ✓
- using gender non specific terms
  - e.g. The drafter was responsible for the plans ✓
  - Not The draftsman was responsible for the plans ✗
- restructuring the sentence to avoid personal pronouns
  - e.g. A report can be completed by the engineer ✓
  - Not The engineer can complete his report ✗