Introduction to Technical Reading

Chapter 1.

Before we get start, think about why it is so difficult for us to read a technical article.

- Vocabulary, grammar, professional knowledge
- Obstacle caused by nature process for develop language skills.--> *Exercise 1.*
  - Listening, speaking, reading, writing (process for native speakers)
  - Reading/writing, speaking, listening   process for non-native speakers
- No reasons, just thought it is difficult; I hate English…..

Face it and overcome it.

Fact: Reading a technical report is a tough job.

Fact: Reading a technical report takes time.

Fact: Once you can spend time on it and keep working on it, you will find that reading a technical report no longer makes you headache.

There is no fixed set of "reading rules" to be followed like a cook-book recipe but there are some useful guidelines indeed.

If you are an author, the following are the questions you have to concern.

1. What is the function or purpose of this paper?

Are you describing original and significant research results?

- ◆ New technology to solve old problems.   √
- ◆ New discover to answer old questions.
- ◆ New results to support a theory.
- ◆ New results to build fundament of certain fields.   √

Is your paper a review paper?

2. How is your work different from that described in other reports on the same subject?

Who is the audience?

What will you need to tell them to help them understand your work?

Getting started

- Analyze the structure of a technical article:

The standard format of a technical paper:

Components	
Title	(I)
Abstract	(III)
Introduction	Start with this section (I)
Experimental section	Difficult for you to read now
Results	(II)
Discussion	(II)
Conclusions/Summary	(III)
Reference	(IV)
Acknowledgment	-------

■ Style (Thinking pattern) in English writing
    Define an issue
    Explain the issue
    Define another sub-issue
    Explain the sub-issue

■ Analyze the structure of a paragraph
    A paragraph is a set of sentences.
    First thing first → Topic sentence.
    Find out all sentences.

■ Analyze a sentence.
    Find out subject and verb.

Noun: evidence, degradation, decomposition, destruction, mineralization, effect, treatment, process, system, development, decay, equilibrium.

Verb: (General) investigate, demonstrate, indicate, imply, observe, explore, reveal, lead to, result in, result from, suggest, attribute to, draw attention to, focus on, show, illustrate, identify, estimate, evaluate, determine, interpret, assess   **(Environment Specific)** remove, degrade,

Adjective: kinetic, advanced, novel, innovative, effective

Clauses: when, where, who, why, how, which, that,….

Patterns of a sentence

1. S+V
    It rained.

_____

2. S+V+O

    I bring a book.

_____

3. S+V+SC

    I feel good.

_____

4. S+V+O+O

    I send you a letter. (I send a letter to you.)

_____

5. S+V+O+OC

    I keep everything clean.

_____

6. S, wh. clause, V…

    The National University of Kaohsiung, a new university established in 1999, has attracted many outstanding students in Taiwan.

_____

Exercise: write down a sentence for each pattern.

- Verb tenses:

  Simple past tense is correct for stating what was done.

  Present tense is correct for statements of facts.

  Present and simple past tenses may both correct for results, discussion, and conclusions.

- Active and passive voice:

- Avoid first person statement that may imply personal opinions but use first person when it helps to keep your meaning clear and to express a purpose or a decision.

Example: Our recent work demonstrated that ……

    We present here a detailed study…..

    We feel that …..

Example:

Diffusion is a process in which a substance in solution or suspension (diffusing phase) migrates in response to a concentration gradient through another substance (the dispersing phase). Diffusion is one of the most basic processes in nature and at the molecular level accounts for most of transport that takes place. The diffusing phase can be gas, solid, or liquid. The dispersing phase, which for our purpose constitutes an environmental medium, is most often either a liquid or a gas.

Exercise:
1. Underline the topic sentence.
2. Identify the topic issue.
3. Define the topic issue.
4. Identify the sub-issue.
5. Define the sub-issue.
6. Glossary
7. Words you don't know

Where to find research papers?