

## Scientific English Program at Prince of Songkha University \*

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### **Introduction**

We, the English teachers at the Prince of Songkha University are like many other English teachers at other universities in Thailand and in other countries whose official language is other than English, that is, we are faced with a difficult task. Here in the university, the students are called upon to show an acceptable level of linguistic performance with materials designed for native speakers, e.g. texts in chemistry, biology, political science etc. Thus, the most needed skill is reading even though the other three skills, listening, speaking and writing, should also be improved.

However, because the period of teaching and learning time in the university is limited between 2-4 semesters, our department has turned to EAP (English for Academic Purposes) since 1974. Through EAP the students will be equipped with the necessary tools for reading textbooks on various subjects written in English.

Our development of the EAP program seemed to go very slowly due to the shortage of teachers, the lack of experts, and the limited time in preparing materials as a result of teachers having overloaded timetables (16-20 hrs./p.w.). We have struggled for years with the commercial textbooks and home-made materials. Experience has given us valuable lessons of Technical, Scientific and later Business English.

After several trials and errors, we now have a program specially designed to meet the needs of the PSU students' level of English. Today in the name of the teachers of the Scientific English Program, I would like to share our experiences with you by showing you what we include in our Scientific English reading program. What is said here today covers only a small part of the whole Scientific English Program as the whole program still includes structure, writing and scientific descriptions. However, these areas are included to reinforce the development of the ability, reading not only for their own sake.

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## Reading Skills

Since scientific materials are saturated with ideas, they require careful and thorough reading. To be a good and proficient reader requires the coordination of a number of skills. A proficient reader must read rapidly as well as being able to understand profoundly what he is reading. Therefore, the reader must select the proper skill or skills to deal with his readings.

The syllabus of our reading program is designed to introduce the students to four aspects of reading that is skimming, scanning, comprehensive reading and critical reading. After these skills have been mastered, the student will be trained in taking his own notes which is the ultimate goal of the program. This program is applied to all science-oriented students even though the period of study varies from 2-4 semesters.

Today, I will organize the reading techniques into logical steps so it will be easy for you to follow. But please bear in mind that these techniques are not introduced in this order to the students. They are introduced as they seem fit to the reading materials as well as to their priorities.

### A. Skimming

Since there are large numbers of textbooks and materials related to each professional interest, the student should be taught to be selective. Skimming techniques will enable him to select only those which are worth reading.

### Methods of Skimming

1. Preview
2. Overview
3. Survey

In previewing, the student can find out whether the book or article is written by a person specialized in a certain field and whether it contains what he wishes to know or not.

In overviewing the student can gain the objectives and scope of the material, and can find sections which are of special interest to him.

After the survey, the student will get the general idea of what is contained in that material.

Skimming is, therefore, the skill which helps the student to read quickly and selectively in order to obtain a general idea of reading materials. Skimming has not been given a lot of emphasis in our program since it is a common practice which the students carry out when reading Thai textbooks.

### B. Scanning

Scanning is introduced to help the students search quickly for the specific information he wishes to get from the reading materials such as in finding the meaning of the word from a dictionary, in finding out under what topic and where the required information is contained from the index, in finding statistical numbers from tables, charts or graphs and in finding the answers to certain questions from the passage.

### **Scanning Procedure**

1. Keep in mind only the specific information you want to locate.
2. Decide which clues will help in finding the required information.
3. Move your eyes as quickly as possible down the page to find the clues.
4. Read the section containing the clues so as to get the information needed.

In this technique the student will be trained to think of clues to help him find the specific information. These clues may be a word or words, punctuation, alphabetical order, numbers etc. The students are also trained to move their eyes very quickly, looking only for the clues so as to obtain the information quickly.

Scanning skill needs plenty of practice so the student is encouraged to use scanning techniques randomly throughout the program. This technique is very challenging to the student and can ease the boredom during the class period.

#### **C. Comprehensive Reading**

Due to the fact that scientific texts contain a great deal of information, most of which are facts, the student must read slowly and carefully so as to extract information and understand the material. For comprehensive reading, a combination of various types of knowledge and techniques must be acquired. These techniques are emphasized in our program because they can successfully deal with the problems which Thai students face in reading scientific texts.

To read scientific materials comprehensively, the students must learn and practise the following :

1. Vocabulary recognition
2. Sentence comprehension
3. Paragraph analysis
4. Illustration interpretation

Now each item will be discussed in details.

##### **1. Vocabulary Recognition Technique**

In reading any material in English, the student frequently faces a crucial problem—being unable to determine the meaning of words. This causes him to be unable to understand what he is reading. Concerning this matter the student is taught three techniques which will be helpful :

1.1 The simplest technique is to check the meaning of the word from a dictionary. This technique is considered to be the most favorable technique since it gives the student an accurate meaning of the word. Therefore, the student should be taught to use the dictionary effectively.

1.2 The second technique is to interpret the meaning by word analysis. The student is, therefore, taught to break down words into small elements--stem, prefix and suffix. Throughout the program, we introduce to the student the meaning of the frequently used stems, and affixes. The student is taught to find the meaning of the difficult word in the reading passage by breaking it to small elements, then interpreting the meaning of each element in order to obtain the meaning of the entire word.

1.3 The last technique is to guess the meaning of the word from the context by using context clues. Here, the student are taught to find the clues. The context may give some definition or contrasting statement in which the student can use to find the meaning of the unfamiliar word or the context may give a situation and from which the student can use his experience or imagination to guess the meaning of the word or the student can infer meaning from the context.

The student is encouraged to use word analysis and context clues to derive the meaning of unfamiliar words since these two techniques do not prevent a flow in reading. If these are not successful in obtaining the meaning, the dictionary will then be needed.

## 2. Sentence Comprehension

When reading textbooks, articles or any material in English, it frequently happens that the student knows every word in a sentence yet he is unable to comprehend what the sentence means, especially when he has to cope with a long and complicated sentence. Not understanding this type of sentences leads to incomprehensibility of the material. To be able to comprehend long and complicated sentences, four techniques are suggested:

- 2.1 Sentence analysis.
- 2.2 Recognition of punctuation clues.
- 2.3 Recognition of reference terms.
- 2.4 Recognition of signal words.

Now, these 4 techniques will be discussed in detail.

*2.1 Sentence Analysis* Whenever the student does not understand a sentence, he should be asked to analyze the sentence by breaking it down into parts. To analyze sentences properly, the student is, therefore, taught to recognize various sentence patterns. With this knowledge, when the student encounters a complicated sentence he should analyze it by looking for the main verb then the head subject (only the subject itself, excluding its modifier). If the main verb needs an object or a complement, he has to find the head object (excluding its modifier) or complement. The last thing to look at is the modifiers. Doing so, he will be able to understand sentences better.

*2.2 Recognition of Punctuation Clues* Like words, punctuation marks convey the writer's ideas to the reader. Therefore, it is essential that the student notice the use of punctuation since it helps him to comprehend what he is reading more easily. The usage of the frequently used punctuations marks is introduced to the student and throughout the course, the student is encouraged to use punctuation in deriving the meaning of the word and sentence.

*2.3 Recognition of Reference Terms* A reference term is a word which is used to replace another so that the writer does not have to repeat the same word again and again. Therefore, to be able to understand the sentence clearly, the student should be encouraged to find out what the reference term refers to.

*2.4 Recognition of Signal Words* A signal word is a word or a phrase which functions as a connector in a sentence, between sentences, or between paragraphs. In general, Thai students, in reading English materials, do not realize the importance of these words, consequently their comprehension of the reading materials is lessened. Therefore, the student is taught to pay attention to signal words and to try to interpret what they signal or indicate.

Signal words that are introduced to the students are

- a. Signal words signalling *addition* : and, as well as, besides etc.
- b. Signal words signalling *cause-effect relationship* : hence, due to, as a result etc.
- c. Signal words signalling *condition* : if, when, unless etc.
- d. Signal words signalling *contrast* : but, though, despite etc.
- e. Signal words signalling *comparison* : like, unlike, in the same way etc.
- f. Signal words signalling *doubt or hypothesis* : possibly, probably etc.
- g. Signal words signalling *emphasis* : above all, really, in effect etc.
- h. Signal words signalling *sequence or order of events* : first, later, eventually etc.
- i. Signal words signalling *examples and restatements* : for example, that is, namely etc.

**3. Paragraph Analysis** Sometimes the student understands all the sentences in the reading material, but still does not understand what it is saying as a whole. This is because he does not know how the material is organized. Thus the student should be taught to realize the organization and the presentation of information in the passage. To be able to understand each paragraph profoundly, the student is taught to :

- 3.1 Find the topic
- 3.2 Find the main idea
- 3.3 Find major supporting details
- 3.4 Find minor supporting details

Being able to do the above, the student will then read with greater efficiency.

**4. Illustration Interpretation** Most scientific textbooks and materials are accompanied by illustrations to help the reader to understand the ideas presented better e.g. explanations or descriptions of processes, measurements and the presentations of facts. Illustrations which are frequently used are line drawings, graphs, tables, block diagrams and photographs. The students have learned about these illustrations from other subjects, therefore, we can only provide them with more practice to interpret illustrations quickly and accurately by means of scanning.

#### **D. Critical Reading**

Understanding all sentences and all paragraphs does not mean that the student understands the reading material profoundly. Therefore, he must also be taught to read critically. Critical reading will enable the student to understand the author's purposes, to distinguish between statements.....whether they are facts or opinions—to judge the reliability of the opinions presented, to interpret the statements further and to draw inferences or implications from what is presented.

To be able to read critically, the student must be taught to

1. examine the reliability of the material
2. distinguish facts from opinions
3. draw inferences from the material

**1. Examining the reliability of the material** is done by scanning i.e. by looking for the name and qualifications of the author, the name of the publisher and the source of the material, and the date of publication. The information gained will help the student to judge whether that piece of writing is worth reading or not.

**2. Distinguishing facts from opinions.** The student should be trained to recognize whether the statements are facts or opinions. This can be done through practice.

**3. Drawing inferences** As inferential reading can be used to predict outcomes, establish cause and effect relationships and correct sequence of events, students should be trained to draw a conclusion based on reasoning and known facts or events.

#### **Note-Taking**

The reading skills already discussed enable the student to comprehend what he is reading. However, to achieve more from reading, the student should take notes while reading since this will help him to understand better as well as to retain what he is reading. Towards the end of our reading program, we train our students to take good notes. To take good notes, the students are trained to

1. record key points
2. reduce language content
3. organize notes

**1. Recording key points.** The student should record only the main idea and the important details.

**2. Reducing language** The student should make short notes by reducing the language content. This can be done in several ways such as

- 2.1 Deletion of certain words e.g. articles, verb to be, verb to have, unimportant adjectives, adverbs etc,
- 2.2 Use of symbols and numbers instead of words
- 2.3 Use of abbreviations both standard and personal
- 2.4 Use of acronyms
- 2.5 Use of tables, charts and diagrams

**3. Organizing notes in a format easy to understand** As there is no certain format for notes, the students are encouraged to take notes either in form of charts, tables or diagrams, or by writing down words, phrases or sentences as seen suitable to their needs.

In conclusion, we have tried to equip our students with a variety of tools to be used in reading so that their reading ability can be improved. This program has not yet been thoroughly evaluated. Evaluating only from the teaching point of view, we have seen quite a remarkable improvement in students' reading skills. However, a lot of revision and rewriting is still needed in order to achieve the best possible results from this program.