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Noun Strings: Lexical Problems in the ESP Discourse

The English for Specific Purposes Core Curriculum learning objectives for B2 level specifies language knowledge relevant to the students' specific needs [3]. By the end of the ESP course students will have a good range of relevant vocabulary (including terminology) needed in academic and professional areas.

The knowledge of vocabulary is of great importance in any ESP course. Harmer states: "If language structures make up the skeleton of language, then it is vocabulary that provides the vital organs and the flesh" [2].

This paper has grown out of extensive teaching of English for Engineering and research of the characteristics of written scientific and technical English.

Our research started with an effort to determine the essential nature of scientific and technical English. We found its major characteristics and differences from other forms of written English discourse, and developed the results of our research into teachable classroom materials [4].

We referred our research to technical vocabulary and noun strings as lexical areas that present a special problem for the majority of the students in the ESP course who have not learned yet or are not learning highly specialized lexis in their subject courses. The majority of the vocabulary is seen in reading before heard or discussed in the subject-matter classroom. These problems are often overlooked. The result too often is that the students find no definitions in the dictionaries that make sense in the context containing the word in question. With no definition to work with, they usually follow on of the two procedures. Those few students with more confidence in both their language and subject-matter ability will try to create a meaningful definition from their own knowledge of the subject matter. The less confident will ignore the particular piece of text and lose the information on the unidentified term and its surrounding context.

Sub-technical vocabulary, "context-independent words that occur with high frequency across disciplines" [1], may be recommended as examples used for summarizing the rules for both understanding and producing noun strings. The sub-technical vocabulary includes both the words that have the same meaning in several scientific or technical disciplines and the ones that occur with special meanings in specific scientific and technical fields. Another definition of sub-technical is that it refers to "those words that have one or more "general English meanings and which in technical contexts take on extended meanings (technical or specialized)" [5].

Noun compounds consist of two or more nouns and necessary adjectives (sometimes a verb or an adverb can be a part of noun strings). The whole nouns string "expresses a ´single noun´ idea" and so long phrasing in texts can be avoided [5]. However, as Trimble points out, noun compounding is not common to all languages. Thus, both understanding and producing noun compounds makes problems for many non-native students and to analyse them is useful to practise. "Compounds are usually formed from prepositional phrases or relative clauses and many can be back-formed into one or the other of these" [5].

Making up a single concept (expressing a single noun idea) for a noun compound can be challenging.

Not all of the compounds can be understood by simply applying the rules. It is often a challenge to decipher long technical compounds. Standard English dictionaries are not designed to give much help with unfamiliar noun strings. Besides, there are a great many compounds that refuse to yield to the rules and procedures. On the other hand, noun strings are a useful aspect of technical language, providing with short expressions for complex ideas.

The fundamental technique for unraveling adjective-noun strings is to read them backwards and break them into smaller modifying units, using prepositional phrases and sometime entire clauses. Here are some examples of noun strings:

- "the failure reason" is "the reason for failure";
- "the battery conditions" is "the conditions of the battery";
- "the battery recovery" is "to recover the battery".

They sometimes may be problematic, because they combine words in a concatenated form.

Noun strings become a problem for readers who are not familiar with the concepts being discussed. When nouns are used to modify other nouns, readers have difficulty determining the logical relationships among the words in the string; consequently, readers may interpret an expression in ways the writer did not intend. Let's have a look at the following adjective-noun string in its full sentence context: 'New motorcycle motor durability equipment tests are being performed by engineers.'

This could mean:

'Engineers are using new equipment to test the durability of motorcycle motors',

or:

'Engineers are performing new tests on the equipment that makes motorcycle motors durable',

or:

'Engineers are performing tests on the equipment that checks the durability of new motorcycle motors', or several other things.

It may happen when reading the prose of another professional who is prone to express himself in adjective-noun strings, you will have to ask for clarification. That is why new vocabulary should always be presented in context, particularly within reading texts. Moreover, students should be presented with strategies and methods to be used while learning vocabulary by themselves [6].

This is the way how compound nouns are translated beginning at the end and then working backwards:

the controller parameters ;
 1   2   1
the simulation technique ;
 1   2   1
a digital computer simulation model ;

1   3   2   1

the frequency dependent rate equations ;

 1   3   2   1

a gas filled high pressure cell ;

1   3   2   1

the conventional crystal growth method ;

        1   3   2   1

the important measurement parameters [4].

      1   2   1

Longer noun strings that contain more than three words may face the readers with some difficulties of translating the sentence and understanding the whole paragraph or even the whole passage (see the example above). There are some recommendations for those who write scientific or technical texts:

1. Break up noun strings with prepositional phrases.

2. If possible, turn some nouns into verbs.

3. Use hyphens to indicate closely related words.

4. Use acronyms when feasible.

5. Eliminate words that are not needed in the noun string.

6. Three nouns in a string is hard to understand; four or more nouns in a string is excessive.

The noun string is a common feature of scientific writing in English. Noun strings are possible because English allows you to turn modifying phrases and clauses into sequences of nouns without any connecting elements. Noun strings act as a kind of shorthand, much like technical abbreviations supplying information in the shortest or most concise way. They are extremely useful in scientific and technical writing.

Students learning English for Specific Purposes conclude that formal vocabulary is possibly a challenge for mastering ESP. Teachers can help their students improve technical vocabulary by:

- allocating a vocabulary slot to each lesson;

- selecting reading and writing materials from appropriate sources and contexts;

- providing students with models of good practice to emulate.

We are planning to broaden our research to take the new needs into consideration.

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