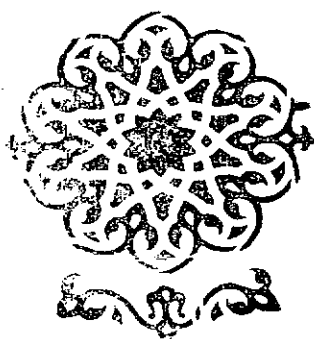


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## Notes

- (1) See M. A. K. Halliday and R. Hassan, *Cohesion in English* (London) Longman, 1976), p. 17
- (2) Of all the EST textbooks the "Focus series of OUP seems to be the only textbook series that deals with this aspect of textural cohesion.
- (3) It is quoted from C. Hallmark, *Understanding and Using the Oscilloscope* Tab books Inc., U.S.A., 1973.
- (4) This paragraph is quoted from G. W. Marr, *General Engineering Science in SI Units*, Vol. 1, Pergamon, 1979, Press, P. 124.
- (5) It is quoted from Al khatib, I. and A. Othman, *An English Course for Students of Biology and Agriculture* (Mosul: Mosul University Press, Iraq, 1987, p. 67.
- (6) See R. Quirk et al *University Grammar of English* (Longman, 1975), p. 294.
- (7) Daniel, F., *General Science*, Book I (OUP, 11th Impression), 1952, p. 112.
- (8) F. Daniel, *General Science* (Oxford, OUP, 1952), p. 13B
- (9) See P. Stevens, *Teaching English As an International Language*, Pergamon Oxford, 1980, p. 131.
- (10) See Greenbaum, S, *Studies in English Adverbial Usage*, Longman, 1969 and Winter, E. O. *Connection in Science Material in Science and Technology in a Second Language*, CLNT Report and Papers7 ., 1971.
- (11) See R. Makay and A. Mountford, *English for Specific Purposes*, Longman, London, 1979, p. 19 and Ahmed O. Mahammad, *An Approach to the Teaching of English to Medical Students*, Mosul : Mosul Univ). Unpublished M.A. thesis, 1982, p. 133.
- (12) William C. Flick and Janet Anderson, "Rhetorical Difficulty in Scientific English: A study in Reading Comprehension", in *TESOL Quarterly*, Vol. XIV No., 3, Sept., 1980, pp. 345-346 .

## CONCLUSION

1. The techniques suggested here are by the means exhaustive nor are they claimed to be the most effective ones.
2. Techniques on “ellipsis” and “substitutions” have been excluded, **on the grounds of occurring with low frequens in EST** . Both are characteristics of spoken language.
3. In teaching features of cohesion, teachers of ESP should concent rate **not only on the grammatical ways by means of which sentences are linked together but also the rhetorical value of these devices in creating coherent texts.**



To exercise an understanding of such devices we may employ the following techniques:

a. Multiple Choice Format:

In Line (X), Y refers to (i) a, (ii) b, (iii) c where a, b, c are grammatically (but not semantically) possible referents.

b. Direct questions: such as

(i) What do (es) Y refer (s) to in line/sentence X?

c. Sentence completion

(i) X in line/sentence X refers to .....

#### 4.1.2 Lexical cohesion

EST learners' attention to lexically equivalent expressions in a given text can be exercised by means of rephrasing exercises in which the student is required to substitute another expression from the text for one given in a sentence drawn from the text, or a reworded version of one aims at drawing the learners' attention to such overt markers of equivalent as "i.e.", "that is to say", "or", ... etc. as well as synonymic and hyponymic expressions; or studying words in context.

#### 4.2 On Discourse Markers Level:

A graded series of stages are suggested in the following technique for teaching/learning discourse markers:

4.2.1 The first stage involves "Insertion". Texts written by a d for native speakers frequently omet these markers of discourse without too seriously affecting the flow into ligibility for a native speaker since he is aware of their communicative Value. Understanding the communicative value of these markers by Iraq learners of science is an essential skill to be mastered.

4.2.2 The second stage which involves "substitution" could be alop- ted next. Discourse markers such as those expressing "addition" "contrast and "logical sequencei" which might be expressed by "moreover", "however" and "therefore" respectively can be replaced by ones such as "and", "but" and "so.

4.2.3 A further inportant stage in the graded technique suggested above, is to ask the learners to reorder a jumbled set of sentences using their knowledge of connectives. It is also reasonable at this stage of learning to present a paragraph structure indicate the connectives.

concerned with the rhetorical coherence of discourse rather than the grammatical cohesion of text. The following table might clarify the function of some of the most frequently used connectives in EST writings (10).

Rhetorical Value of Function	Connectives
1. Enumeration	
Listing	first, second;
Time sequence	in the beginning, next
Addition	and
Reinforcing	moreover, furthermore
Similarity	
Logical sequence	so
summarizing	overall, thus
Result/ Consequence	consequently, as a result
Deductive/ Inductive	therefore, hence
Explication	or
	in other words, that is
Illustration	for example
Contrast substitution	in other words
Replacement	alternatively
Antitetic	conversely
Concessive	however, nevertheless

Although these words may not be omitted from traditional EST textbooks; if they are taught, their grammatical/ structural function is generally stressed and their communicative, i.e. rhetorical value as markers of discourse has not received adequate attention (11).

#### 4. SOME PEDAGOGICAL IMPLICATIONS

##### 4.1 On Textual Cohesion Level:

##### 4.1.1 Syntactic cohesion:

As stated earlier, anaphoric and cataphoric devices are the most frequent features of textual cohesion used in EST writings. Yet they were not given their due importance in textbooks and EST materials. The reason for this is, possibly that their meaning appears so obvious. This is quite true for native speakers of English. For Iraqi students as foreign learners of English, the situation is altogether different (12). Failure to select the correct referent causes serious misinterpretation of what scientific writers say or intend to explain. This is quite apparent when the referent is not a close antecedent or it refers to large stretches of text.

Consider the following example where *the flower motif* is sustained by the collocation of flower with garden, smell, nectar, bee honey, butterfly, pollen etc.

“We have only to watch the flowers in a garden to see that various kinds of insects visit flowers. As a general rule, the flowers which are visited by insects are brightly colored and have a sweet smell. Insects, however, do not visit flowers because they like bright colours, but because they know that such flowers also contain the sugary liquid called nectar. Many insects, and some birds feed on nectar, while bees convert it into honey. Bees collect pollen, which they mix with honey to feed the young bees during the first few days of their life (8).

### 3. DISCOURSE MARKERS

Markers of discourse, i.e. connectives have been well described by Greenbaun (1969) and Winter (1971) and which can provide us with a frame work upon which to base teaching materials.

Connection can occur intra-sententially (within sentence units) or inter-sententially (across sentence boundaries). The latter is not only concerned with cohesion as a grammatical feature, but also as markers of rhetorical value in discourse, i.e. how sentences are used by the writer. Inter-sentential relationships have to do with the way in which sentences and groups of sentences combine to form units of discourse (9). The communicative value of such units may be explicitly marked by means of a connective or there may be no such explicit markers. Consider the following example:

1. The pollution by chemical waste of our seas is increasing daily.
2. If pollution reaches a certain concentration, marine life will cease to exist.
3. Therefore, it is essential that legislation be passed banning the dumping of toxic chemicals in rivers, waterways and in the open sea.

The semantic value of “therefore” introducing sentence (3) is to make the final sentence function (or act) as a logical conclusion or deduction based upon the information presented in sentence (1) and (2). Thus it is

# TEXTUAL COHESION AND DISCOURSE MARKERS

## 2.1.2 Substitution:

### IN EST

Frequently in EST writings, rather than repeat themselves, writers often use "proforms" to substitute for stretches of language ranging in size from single words to whole clauses or even paragraphs. Consider the following example: **University of Mosul**

1. **INTRODUCTION** "Plants grown this way, respond even more rapidly to poor growing conditions than they do to good ones" (5).

Cohesion is the label given to the various devices which link the parts of a written or spoken text. It will be noted that proforms seem to abound more in conversation than in written discourse. Perhaps mainly because "substitutions" is a characteristic of spoken language (6). Cohesion can be achieved by lexical or (in a spoken text) phonological means.

The latter will be ignored in the present treatment as we are mainly concerned with written discourse. The other types will be sufficiently considered in due course.

Students of science and technology for whom English is not the mother tongue, seem to be facing special difficulties with cohesive devices which link the various parts of written discourse.

## 2.1.2 Lexical Cohesion

Cohesion is also achieved in text through the patterned use of vocabulary items. This is of two types: those of "chain" and "Choice". The first type which is usually referred to as systemic cohesion choice could be achieved by the repetition of a lexical item or b. its synonyms or c. synonym.

Consider the following as an example of repetition of single lexical item: devices and their communicative value as markers of discourse that help build a cohesive/coherent text. Since English, particularly EST, tends to be brief and precise the function of these linking devices may not be as explicit as in other types of writing. This creates a problem for many students; if they do not understand how the various stretches of writing are linked, they are bound to misunderstand the text in reading. In writing the problem gets even worse, for if the student uses the wrong linking device, he will distort the meaning of the whole text. Textbook designers, writing scientific books, seem to presuppose that students can easily cope with these

The second type is referred to as choice cohesion. This is a pattern in language where the writer can also be seen to use of teaching systems which can be used frequently in English University. Some suggestions to be incorporated at the end of the paper for EST teachers to test their validity whether in teaching cohesive devices or markers of discourse.