CHAPTER V

VOCABULARY TEACHING

5.1 Introductory

5.1.1 One of our major aims in teaching a language is to open up to our students the world of language itself. Part of this world is the 'wonder of words', their multiplicity, their elasticity, their quality of changing in different environments and so on. Vocabulary is more than vocabulary items and their frequency. As a sub-system operating within a network of systems that constitute a language vocabulary teaching demands formulation of effective strategies and teaching techniques (cf. 4.3.2). Vocabulary is essential to ELT in all its manifestations, viz., EFL, ESL, ESP, CLT and the like. In ESP, however, it assumes special significance where it is to be treated as a frame of reference accompanying the professional activity. Special subject matter is crucial to any definition of ESP. The everyday understanding of ESP is realised in such labels as 'English for Engineers', 'English for Air Traffic Controllers', 'Nursing English' etc. There is an implicit suggestion, as Robinson (1983) points out, that "language use varies from subject area to subject area and that there will be variety in terms of the linguistic forms, language functions, linguistic activities and subject matter". 1 Special subject

matter, among other things, depends largely on a special vocabulary. The preoccupation with special subject matter has led to a strong interest in vocabulary. A review of ESP materials (cf. 4.3.16) substantiates the view that vocabulary is a central issue in ESP teaching. Indeed several series of textbooks are exclusively concerned with it. But the methods of vocabulary teaching, listing, testing and rehearsing, however, vary greatly. There appears to be an obvious tilt towards registral analysis of the subject specific lexicon. The pedantic urge to reduce every word to what 'it really 'means', and the statistical fallacy of lexical counts and frequency of occurrence is often misdirected. What is required is reformulation of our strategies incorporating our past practices in terms of their strength and drawing upon the contemporary insights in order to justify the ageold dictum so relevant today that the 'meaning of a word is its use'.

5.2 The Communicative Potential of Vocabulary

5.2.1 ESP professionals and materials' writers have employed several approaches and techniques to the teaching of vocabulary. A brief mention of a few of the important ones among them will not be out of place. Edwards (1974) teaching midwives and nurses in Nigeria suggests .. "esoteric terms were explained by the subject teacher whereas we should concentrate on
giving the students a good grounding in the vocabulary which it will be taken for granted they know.\(^1\) Edwards' suggestion obviously emphasises the general vocabulary i.e. 'core'. or 'foundation' vocabulary but implicitly it shows a disregard, may be, helplessness in handling the specialist vocabulary which is the main feature of ESP texts. Martin (1976) distinguishes "academic vocabulary which is sub-technical, occurs across disciplines. is often incorrectly used by the students but rarely recognised as a problem".\(^2\) Martin's suggestion points to a valuable direction in vocabulary teaching i.e., a consolidation of vocabulary items selected from allied areas of academic studies, to help foreign graduate students in the pursuance of their education in English. Evidently this is the area of EEP and not ESP but this approach can be extended to handle ESP texts as well. For instance, an ESP learner of Technology or Medicine needs to draw quite substantially upon the vocabulary of related fields within the broad framework of science and technology. Faning (1977)\(^3\) suggests that it is not single words which are always difficult but phrases, so that combinations of

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words should be taught, not just the individual items of a discipline. Fanning's suggestion stems basically from the viewpoint of levels of difficulty, in other words, phrases are more difficult than words, and this is the reason for his preference of the phrase, not their own value in the contexts of use.

5.2.2 Vocabulary selection and teaching strategies for ESP have to be governed by certain principles which correspond to the specific needs of the learners. One such principle will naturally be concerned with what Mackay and Mountford (1978) call "code features of the language system". But these features studied and analysed under the registral or purely formal framework where only percentage counts of certain specific items are given credence will not yield results conducive to what Widdowson (1979) calls "communicative features of language use". We can not teach the language itself nor for that matter the communicative features, we can at best give the learner the basic tools of creating language and the foremost among these tools are 'words' which in different contexts and structures assume different roles.

5.2.3 Again, vocabulary selection and presentation will depend on an adequate description of the language employed by the subject specialist discourse which the learner needs to handle. It must emphasise the communicative import of the code, i.e., lexical items within
given contexts. Meaning relations between items vary with the conceptual space of the subject area, e.g., the relation between 'invasion' and 'attack' in a medical text is not the same as in everyday use. A lexical item is not just a dictionary entry or a unit of the lexicon, it is a potential tool of communication. The very fact that items of general use assume technical and sub-technical meanings in certain contexts and acquire special connotative features is a pointer to their inherent communicative potential. Lexical items have, therefore, to be treated not simply as countable entities whose usefulness is determined on the basis of their frequency of occurrence and structural features but as 'instances of use', rendering by each of their occurrence a special communicative force to the type of discourse they are employed to build. We would obviously gain by enhancing the scope of the study of vocabulary by projecting what may be termed as the communicative potential of a lexicon.

5.2.4 The communicative potential of vocabulary manifests itself most effectively in one-word utterances. One-word utterance constitute a discourse by themselves, nullifying parts of the earlier utterance and making them redundant if repeated. They perform a sort of signalling job and their recognition is essential to the decoding of the message. Moreover, such signals exhibit the speaker's/author's intended organisation of the discourse and thus appear to be the essential tools wherewith a listener/reader interprets the discourse properly.
5.2.4 Items of a lexicon have a life of their own, they animate the units they make up and occur with. They exist in dictionary but they live in the context. We hear them in context, we learn them in collocations with other words and try not to 'break the code'. Quirk (1962) cautions us, "we should beware of thinking that the meaning resides in the word itself; it is rather spread over the word and the neighbouring words." Goknik (1972) notes that items like 'increased', 'changed', 'remained', 'constant' are implicit comparatives. She also notes the existence of items which refer to the whole of the previous discourse, e.g., 'this evidence', 'these findings', etc. Hoey (1983) suggests that "lexical signalling can take the form of a sentence, clause, or phrase." There is, strictly speaking, no boundary line as such, a word too is at times a lexical signal which functions as a vital link in the sentence or clause or phrase and carries the focus of communicative import. Farnes (1973) makes reference to "signposts along the route" divided into content and structure signals. The function of these signposts,


i.e., lexical items charged with a definite content, is naturally to foreshadow the subject matter. Words, phrases, phrasal verbs, idioms and even slang and colloquialisms are all lexical items or made up therefrom and all have their communicative potential. When they appear in combinations and stand for more than what they are generally supposed to be in a dictionary, they gather a special momentum and become highly communicative.

5.3 Vocabulary and Communicative Skills

5.3.1 Vocabulary embraces several aspects of linguistic communication. Communicative patterns of the kind, i.e., defining, classifying, describing, exemplifying, and even larger units like a report, an exposition, a legal brief etc. are linguistically realised with the help of the appropriate linguistic codes which mainly constitute the lexicon. A lexicon, therefore, provides raw material for the communicative features of language use. Major communicative skills are operated and enriched by the lexicon.

5.3.2 Speaking: Oral communication involves two (or more) people to react to what they hear, and make their contribution at a certain speed. Each participant has certain goals which he wants to achieve in the interaction. Effective interaction demands the ability to interpret what is heard, which is not usually predictable, and respond quickly in a way that takes account of what has just been said as also to grasp the speaker's intention at this point in the interaction. Much of the
participant's ability of interpreting and responding would depend on the amount of language at his disposal, mainly reflected in the amount of vocabulary appropriate for the occasion, that is, carefully chosen with regard to the role of the participants, their attitudes, intentions and the eagerness about the achievement of the goals. Vocabulary provides the interactants with an input for communication. Participation in the interaction of a specialist nature will evidently require a proficient lexicon. ESP learners must of necessity acquire a reasonable amount of the vocabulary of their subject/job specialism to participate in discussions, seminars, case conferences and contribute effectively therein.

5.3.3 **Listening**: It is the listener's ability to recognise language elements in the stream of sound, to understand how a particular element relates to what else has been said, and its function in the act of communication. It is at this stage that the listener selects what is relevant to his purpose (e.g., response) and rejects what is not equally so. Here again the focus will remain on certain highly significant and communicative words rather than on the whole stretches of utterances in the totality of their grammatically obligatory lengths and structures. The listener will select and make a mental note of certain essential points aided and associated with some brief but highly charged word-like units, i.e., lexical items, and store them
for ready reference and to be pressed into service to serve as an input to a response, if necessary.

5.3.4 For ESP learners listening situations in the pursuit of their goal are very many. With regard to the academic needs, we know that subject specialisms demand receptive listening to formal lectures, debates, symposia, radio reports etc. To cope with the referential and conceptual features of a spoken discourse we can not but emphasise an increase in the command of lexis with special reference to nominalised groups, idioms, and logical connectors (e.g., consequently, therefore etc.), referential items (e.g., anaphora, cataphora etc.) along with a recognition of stress and intonation which is equally important.

5.3.5 **Reading**: Reading is a communicative process. Books communicate linguistically. They also communicate non-linguistically by means of diagrams, maps, graphs, pictures etc. Symbols both visual and graphic/linguistic are used to convey messages. Reading requires a knowledge of how the linguistic symbols combine to make words and how words are used to make sentences, and what these words and structures made therewith convey. Reading, however, does not stop at understanding word/sentence patterns; sentences are arranged into larger sequences in order to present information in a logical way. The logical structure of a passage depends on how the writer wants to present the information in it and it is often signalled by certain expressive words and
logical connectors. A deficient vocabulary will be a serious obstacle to the processing of the message. Widdowson (1979) suggests that we must recognise "the patterns of language inside the sentence and between sentences by increasing our understanding of vocabulary." ¹ A good command of the lexis will speed up the process of reading.

5.3.6 Reading has a purpose. Developing purposive reading involves reading styles and techniques. Of the various styles -- namely, scanning, i.e., locating a known item, skimming, i.e., to gain an idea about the organisation of the text; search reading, i.e., for quick information gathering; receptive reading, i.e., to discover accurately what the writer wishes to convey, responsive reading, i.e., to reflect upon what the writer has written -- it appears that a prime consideration is the involvement of the reader in the process of the written communication. Among other factors, the basic motivation to proceed onwards, practically as well as psychologically, is a reasonable fund of vocabulary. Williams (1983) defines the communicatively competent reader as "one who can understand the text as the writer intended it to be understood." ²

5.3.7 Writers and readers communicate in the same sort of way as listener and speaker. Obstacles in

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¹ Widdowson, H.G. (1979). Discovering Discourse, Reading and Thinking in English, OUP; p.43.
reading communication mostly occur in the area of lexi-
con particularly because there is hardly any oppor-
tunity for feedback and a continuous negotiation of
meaning which is possible in the case of spoken inter-
action to some extent. But it...never means that read-
ing is a passive skill. More than being merely
receptive it is perceptive, involving exceedingly
active processes. The activity of interpretation
requires a simultaneous perception of the content
expressed and the language used, particularly the
lexical items characteristic of a field of discourse.
Swift and effective reading requires a high standard
of vocabulary proficiency to comprehend the message
as contained in the rhetorical structure of a text.
Lastly and very briefly, WRITING communicates infor-
mation mainly derived from reading and observation.
To convey precise information we have not only to
be careful but responsible in the choice of words.

5.3.8 An integration of the various skills leads
to efficient performance. Integration is a means of
providing natural contexts for language use. Sometimes
the context will call for speaking, sometimes for
writing and at times for a combination of skills.
The skills to be used depend on the activities
involved. Individual skills developed into an
integrated sequence aided at each stage with a pro-
cient lexicon will serve as an immediate and handy
device to quicken the process and maintain the spon-
taney of linguistic communication.
5.4 Generative Vocabulary - A Teaching Model

5.4.1 The acquisition of a proficient lexicon is mainly concerned with how best we form our strategies for exploring 'the world of words'. For this the dictionary can be an invaluable friend if used effectively and intelligently but making a recourse to the dictionary for each and every unfamiliar word is too combersome a procedure and at times not so very rewarding. Vocabulary acquisition may better be directed to the analysis of the internal structure of words systematically and regularly. One should feel or be made to feel how words are structured and built. Rote learning engenders boredom and defeats the purpose of pleasurable reading. A study of word-elements, their form and function, on the other hand, leads to better understanding, easier association and greater retention. A word is easily understood with reference to its derivational process. More so, many words when analysed into their constituent parts yield their own definitions. A knowledge of word-elements makes familiar words more interesting and strange words become less so with this knowledge to apply.

5.4.2 With this objective in view we propose a model of Generative Vocabulary based on the much emphasised and universally acknowledged principles of economy, i.e., designed to teach much through little. The model aims at providing a particularly useful shortcut to vocabulary development (see 4.10.9) thereby sparing a lot of time spent in making a repeated
recourse to the dictionary. It is possible, for example
to learn the meaning of fifty words and have that only,
but no more to show for that effort. It is also
possible to learn one thing in such a way as to
learn fifty nine other things in the process. The
proposed model is based on the latter approach,
i.e., on principles and elements that are generative
in nature and are best calculated to speed vocabulary
growth.

5.4.3 A generative model of vocabulary acquisition
designed to teach much through little has to be based
on (a) certain basic principles and (b) carefully
chosen language elements:

A. Principles:

(1) Learning to look analytically
at word-form;

(2) Recognising the underlying stems
through the application of the
knowledge of affixation; recognising the related forms and
the changes resulting from affixation leading to corresponding
differences in the syntactic function; developing word-analysis
insights by manipulating
prefix-root-suffix elements;

(3) Discovering the meaning of the
whole by an analysis of the parts;
moving from word-analysis to word building, i.e., from word to definition and from a given definition to building an appropriate word;

(4) Discovering the meaning of strange, unfamiliar elements/words by establishing meaningful associations.

B. Elements: (1) Affixes producing grammatically classed words;
(2) General suffixes attached to a number of words, adding special meaning to the same radical;
(3) Combining forms used in the formation of compounded forms of specialist use;
(4) Carefully selected root forms.

5.4.4 The model of the generative vocabulary will take the following operational procedure:

Stage I Memorization: of the selected roots and other word-elements (most of the memorisation will be reduced by developing skills of meaningful associations);
Stage II Identification: of the elements making up the word, e.g., roots, stems, affixes etc.

Stage III Application: analysis of the parts of a word leading to its definition; building words as per definitions given;

Stage IV Generalisation: producing word-forms not specifically learnt.

The proposed model of generative vocabulary may be used in teaching situations and manipulated to suit the various levels. It can be shown to serve as a pleasantly revealing exercise in learning the vital communicative tool, the 'word'. ...

Example I. We can take a base, e.g., JECT and then identify several derivatives:

inject          object          project
injection        objection       projection
injector         projector

Example II. We can recognise the formative elements in the structure of a word, analyse the word-form into its component units, produce the meaning of each unit separately and then combine the root-affix meaning
to arrive at its definition:

(a) INJECT  
\[
\begin{align*}
\text{in} & = \text{inside} \\
\text{Ject} & = \text{throw}
\end{align*}
\]

Definition: to throw inside (to inject a syringe)

(b) OBJECT  
\[
\begin{align*}
\text{ob} & = \text{before, against} \\
\text{Ject} & = \text{throw}
\end{align*}
\]

Definition: to throw against (thrown before the mind)

(c) PROJECT  
\[
\begin{align*}
\text{Pro} & = \text{forward} \\
\text{Ject} & = \text{throw}
\end{align*}
\]

Definition: to throw forward (an image, plan, idea etc.)

Example III. We take a definition and attempt to build a word:

Definition: a device for throwing (something) inside

\[
\begin{align*}
\text{inside} & = \text{in} \\
\text{throw} & = \text{ject} \\
\text{device} & = \text{or}
\end{align*}
\]

Word: Injector

Similarly the definition, 'an apparatus for throwing (an image) forward' would inspire one to build the form..Projector.
Example IV. We can move still ahead and discover a number of possible derivatives from one root element:

...JECT...

project projection projector
projective projectionist projectional
projectivity projectively projectivity

In the grammatical analysis words are assigned to word classes on the formal basis of their syntactic behaviour. While studying the derivational process of a word we can observe these formal changes with reference to a corresponding change in the grammatical function, by assigning labels to each derived form:

e.g.,
project = Noun
projector = Noun
projection = Noun
projectionist = Noun
projective = Adjective
projectively = Adverb etc.

Various derivatives of the same root can be handled with the help of word-analysis techniques and the manipulation of root-affix elements. A large number of words can be handled in this fashion and although meaning cannot always be inferred in this manner the analytical procedures will at least give the core meaning and an insight into the structure of the word.
Moreover, it must be admitted that this is not possible to provide a mode for each formation.

5.4.5 It is evident that the model of generative vocabulary presupposes a knowledge of analytical procedures and linguistic techniques of word-analysis usually designated as word-formation or word grammar which will be dealt with later but before we do that we must emphasise that the model of generative vocabulary is not only an aid to the acquisition and handling of the general vocabulary of English it is particularly helpful in the learning of specialist vocabularies. ESP learners can gainfully employ these techniques for consolidating their attainments in the general vocabulary of English (see 3.3.8) as also in the interpretation and generation of technical terms of their subject/job specific discourse. In pursuance of one of the projected aims of this study, below is presented the pattern of the analysis and generation of compounds used in the specialist discourse of medical sciences. A medical entrant is likely to feel threatened when he comes across for the first time such forms as:

I HEMANGIOENDOTHELIOSARCOMA

OR

II HYSTEROSAPLINGOOOPHORECTOMY

What appears to be a confused jumble of letters at first sight stands out clearly if analysed into its
constituent units, the meaning of each unit listed separately and then combining the meanings of all the units to arrive at a definition of the whole ...

Example 1.  **HEMANGIOENDOTHELIOSARCOMA**

<table>
<thead>
<tr>
<th>Element</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>hem</td>
<td>blood</td>
</tr>
<tr>
<td>angio</td>
<td>vessel</td>
</tr>
<tr>
<td>endothelio</td>
<td>pertaining to endothelium</td>
</tr>
<tr>
<td>sarcoma</td>
<td>a tumour, often malignant</td>
</tr>
</tbody>
</table>

Definition: a malignant tumour of the blood vessel with masses of endothelial cells.

Example II. **HYSTERSAPLINGOOPHORECTOMY**

Four constituent elements are recognisable in this compound. They can be analysed as under:

**HYSTER(O)**, **SAPLINGO**, **OOPHOR(O)**, **ECTOMY**

The meanings of these elements can be listed separately:

<table>
<thead>
<tr>
<th>Element</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>hyster(o)</td>
<td>pertaining to the uterus</td>
</tr>
<tr>
<td>saplingo</td>
<td>uterine tube</td>
</tr>
<tr>
<td>oophor(o)</td>
<td>ovary</td>
</tr>
<tr>
<td>ectomy</td>
<td>excision</td>
</tr>
</tbody>
</table>

The meanings obtained from these elements can be combined to produce the following definition:
Definition: Excision of the uterus (alongwith), uterine tube and ovaries

On the basis of the known elements the pattern can be reversed and fruitfully employed for the generation of other compounded forms from given definitions:

Example III

Definition: Excision of a malignant tumour from the uterus

excision = ectomy
malignant tumour = sarcoma
uterus = hyster(o)

Word: hysterosarcomectomy

Example IV

Definition: Excision of a calculus from the liver

liver = hepat(o)
calculus (stone) = lith(o)
excision = ectomy

Word: hepatolithectomy

Such an exercise insures active participation and affords pleasure of discovery and intellectual satisfaction. It encourages errorless learning and reinforcement by checking and verification of the right
answers. Lastly and most significantly it is based on a generative principle, i.e., while it negates the role of rote learning it provides an extra learning dividend which accelerates further learning. Instead of adding one word to our vocabulary at a time we get acquainted with several of them at the same time.

5.4.6 An ESP learner ought to enrich his vocabulary in a meaningful way. He should know how the words he has learnt are in fact used in the subject specialist discourse and where they serve the most useful purpose. Technical words of a highly specialised nature, as analysed above, are not so much of a problem in use. They are used within the fixed range of meaning only which they so overtly signify. Sub-technical items employed by a specialist discourse need special attention as to their use. A major reason for expanding our vocabulary and developing added word-power is to improve our communicative skills. An ESP learner can achieve these aims by exploring the crucial role of word-elements which have a tendency to recur and make up the specialist lexicon. A good vocabulary, among other things, helps to minimise wordiness. A learner with a meagre working vocabulary will often have to use several words to express an idea that could well be expressed in one if that were present in his working vocabulary. For example, instead of speaking about visiting 'a large building used for scientific experimentation and research' he might better speak of visiting 'a laboratory'. 
5.5 Word Grammar

5.5.1 Words are the most fascinating products of the human intellect. By paying attention to words and their parts we enrich our vocabulary. Words are part of the material into which utterances may be analysed and the ability to analyse the word into its constituent parts is a performative knowledge with which word grammar or word formation is chiefly concerned. Words are convenient units in the division of a language into manageable parts but the word is not the smallest unit of meaning. We can sometimes arrive at the meaning of a word by thinking about its parts. About the relative functions of the phrase, the word and the parts of a word Turner (1973) observes:

It is likely that people think mainly in phrases as we all do in all but strenuous conversations... it is the educated writer who learns to think in words, weighing the contribution of each element in sequences which are tailored to the occasion, enormously multiplying possible combinations of items by working with smaller parts. He depends on an educated reader able to think in the same way...the scholar goes even further in becoming a skilled writer or reader by understanding the parts of the word.1

Word grammar is firmly based on the notion that learning of the wholes proceeds largely from an abstracting and assembling of parts or to quote

Prof. Quine (1960) "a boat if we have to rebuild it we must rebuild plank by plank while staying afloat in it". We must also remember that Dr. Johnson, a lexicographer, demonstrated the reality of 'stone' by kicking it.

5.5.2 Interest in word formation has probably gone hand in hand with interest in language in general. Thus there are available scattered comments and sometimes detailed works on the subject of word formation from the time of Panini, who provided a detailed and the most authentic description of the Sanskrit word formation, right up to the present day. But our present day knowledge, as Bauer (1983 : 7) stresses, in many ways shows little advance on Panini's. In more recent years, however, the study shows signs of expansion as the linguists aided by philosophical and psychological insights have considered word formation from various theoretical viewpoints. No approach can claim perfection but the different approaches do provide a framework within which pedagogical models can be produced to facilitate the learners in making their own discoveries about words. The model of generative vocabulary (5.4) is one such attempt. In order to handle a generative approach and to ensure its effective operation certain amount of theoretical discussion and a familiarity with the basic concepts in the field of word grammar is inevitable.

1. Quine, W.V. (1960). Word and Object, MIT, p.X.
5.5.3 WORD: Defining 'word' has been for a long time a major problem. Various definitions that are available point more towards the attitude and the purpose of the scholar offering the definition rather than suggesting an all round working solution to what really counts as a word. Recognising words on the basis of what has often been referred to as 'printers' use of space' does not help a student of vocabulary much. We know that words are basic and elemental in our lives, they come to us naturally, yet we find how hard it is to say what exactly a word is. Bloomfield's (1933) classic definition of word as a "minimum free unit"\(^1\) is a great help undoubtedly in formulating analytical procedures of word grammar. Fries (1940) too offers a valuable definition .."word is a combination of sounds acting as a stimulus to bring into attention the experience to which it has become attached by use"\(^2\) ... but the definition is obviously too narrow in its scope and application for analytical purposes. The words of a language are a highly complex system of classes of items, interlocking classes as to form, meaning and distribution. Lado (1955) provides a significant direction in understanding the vocabulary system of a language when he remarks, "in dealing with vocabulary we should take into account three important aspects of words -- their


form, their meaning, their distribution --, and we should consider the various kinds or classes of words in the operation of the language". 1

Form : Some words are fixed and some variable. Words appearing only in one form are called invariable words such as English 'since', 'seldom', etc. The variables are governed by certain patterns. They undergo a partial but systematic change in their form which corresponds to a change in their grammatical function, e.g., 'walk' -- 'walks' -- 'walking', etc. The invariables may also vary but not functionally, only environmentally, e.g., 'not ..'nt', 'and ...'nd, 'n', etc.

Meaning : Meaning into which we classify our experience is culturally determined and modified. Meanings can be defined according to the form they attach to a) meanings that attach to words as words are lexical meanings, e.g., 'house', a building for human habitation; b) the meaning 'two' or 'more', i.e., plural, attached to 's' as in 'books' is morphological meaning; c) the meaning 'question' attached to the word arrangement in the sentence -- 'Is he a farmer?', is syntactic meaning.

Distribution: Grammatical, geographical and stylistic restrictions govern the distribution of words in utterances and have to be strictly adhered to for effective interaction.

Classification: Words can be classified into four groups:

1. Function words -- words which primarily perform grammatical function, e.g., 'do' signalling question;

2. Substitute words -- words which replace a class of words, e.g., 'he, she, they, so', etc.

3. Grammatically distributed words -- words which show unusual grammatical restriction in distribution, e.g., 'some, any, many, severa', etc.

4. Content words -- words which represent the structuring of experience and concepts, e.g., 'man, house, think', etc.

The first three groups have often been bracketed together and labelled as Form Words while the fourth group has also been named as Full Words. The number of words in the first three groups is very small but of frequent occurrence and gifted with a wide range of meanings and functions. The fourth group is the largest and constitutes the bulk of the vocabulary of a language. The content words are again sub-divided into items treated as things/objects, processes, qualities etc.

5.5.4 Word, as has been pointed out, defies definition. We can, therefore, think of an abstract unit called 'lexeme' denoting all possible shapes that a word
can have, e.g., SHOOT, a key member inclusive of 'shot, shoots, shooting' etc. A particular shape that a word has on a particular occasion can be referred to as **Word-form**. A word-form has a phonological and/or orthographic shape. It realises a lexeme. For purposes of analysis every word-form is divisible into one or more meaningful units generally referred to as **Morpheme**, for instance, 'boy' in 'boys' is a free unit, it constitutes a word-form by itself while 's' is a bound unit and as such incapable of working as a word-form. Whereas a morpheme is defined as a minimal unit of grammatical analysis a segment of a word-form which represents a particular morpheme is called a **Morph**. Thus bound units can occur only if attached to other morphs whereas free units can occur independently. Further, a phonetically, lexically or grammatically conditioned member of a set of morphs representing a particular morpheme is called an **Allomorph**. A lexeme is said to be **Transparent** if it is clearly analysable into its constituent morphs, e.g.,

\[
\text{coverage} = \text{cover} + \text{age} \quad \text{but not so in}
\text{carriage} = \text{carry} + \text{age} , \text{which is known as Opaque.}
\]

**Affixation**: Morphemes may be divided into **Roots** and **Affixes**. Analysis of formative elements to the ultimate point takes us to forms which have been called **Roots**, the starting point in word analysis. **Root** is
a word form which is not further analysable. It is the nucleus of a lexeme shorn of all possible additives, e.g., in the word-form 'untouchables' 'un', 'able', 's', are additives while the ultimate point is 'touch' and that is the root. Roots of various types fused together result in the formation of stems. A stem is defined as that part of a word-form which remains when all inflectional additions have been removed, e.g., in the form 'untouchables', 's' is the inflectional addition, (that is, no further addition is possible) and after removing 's' we get 'untouchable' which is the stem. Similarly in 'touched' the stem is 'touch'. A stem can consist of two roots as in 'wheel-chair'. While the concept of stem is concerned with inflectional additions the concept of base is concerned with derivational additions, e.g., 'touchable' is a base which can produce 'untouchable'.

5.5.5 Inflection is the change in the form of a word which can express different grammatical relationships, i.e., the addition of -s to a noun to form plural (book - books) or -ed to a verb to form the past tense (book - booked) etc. The chief inflectional affixes of English are the plural marker -s, -es, -en; the genitive -'s (as in book's) the verbal endings -s, -es, -ing, -ed, (t), (d), (en); adjectival -er, -st and change of vowel as in 'goose - geese' and zero as in 'sheep'. The function of inflection is to indicate relationship between words in a sentence, e.g., 'the cow eats grass'/cows eat grass'. Inflectional affixes appear to be stable in function and meaning.
5.5.6 **Derivation** is a process by which new words are formed through the mechanics of affixation to a root-form already in existence. It is one of the commonest methods of word formation, for example, the root 'nation' exploited to produce 'national', 'nationalist', 'nationalisation' etc. Whereas derivation results in the formation of new lexemes by affixation **Compounding**, another process of word formation, is concerned with the formation of new lexemes from two or more stems. It is a process by which two words are joined with no part of either word being lost, e.g., 'highway', 'blackbird', 'riverbed' etc. Compounding yields not only one word but one conception, not just the sum of two concepts expressed by the two fused elements.

5.5.7 Both inflectional and derivational processes depend on affixation. By affixation we generally mean additions to a word-form either initially or finally. Such additions are referred to as **Prefixes** and **Suffixes**. Prefixes are by and large derivational in English, for example, 'un employed', 'il legal', etc. Suffixes can be both derivational and inflectional, e.g., 'man, man ly, man li ness', 'walk, walked', etc. Many derivational affixes have more than one meaning and can be added to more than one category of base forms" 'allowable knowledgeable' etc. Both derivational and inflectional affixes are grammatical rather than lexical elements hence relatively small and stable
in membership. Unlike lexical elements they are members of a system having complementary function and are interdependent. Again, derivational affixes are much larger in number than inflectional affixes and, therefore, less interdependent, less generalised in meaning.

5.5.8 Derivational affixation is two-dimensional, that is, class maintaining and class changing, the former refers to a process which produces lexemes belonging to the same form class as the base --

\[
\begin{align*}
    \text{e.g.,} & \quad \text{king (noun)}, \quad \text{kingdom (noun)} \\
    & \quad \text{legal (adjective), illegal (adjective)} \\
    & \quad \text{do (verb), undo (verb)}
\end{align*}
\]

--the latter refer to a process which produces lexemes which do not belong to the same form class as the base:

\[
\begin{align*}
    \text{e.g.,} & \quad \text{king (noun)} \quad \text{kingly (adjective)} \\
    & \quad \text{do (verb)} \quad \text{doer (noun)}
\end{align*}
\]

In English prefixation is mainly class-maintaining while majority of derivational suffixes are class-changing, that is, producing forms which behave syntactically very differently from their bases. Prefixes and suffixes have a life of their own. Many are inseparable from the rest of the word form they are attached to, e.g., 'dis' in 'disgruntled'. Many are used at will to form new words, e.g., 're-, un-, non-; -ness, -ise, -ist, -ish, -able', etc. found in such words as 'rethink, undo, non-existent, darkness,'
pluralise, racist, childish, bearable', etc. No two prefixes are exactly alike in sense. They undergo divergent developments in different words as, for example, in 'uninterested, disinterested'. Some prefixes different in origin and meaning have fallen together --'in' usually indicates movement inside/towards as in 'intrude, inject' but it is also a negative prefix as in 'insane, invisible', etc. Sometimes prefixes and suffixes get fused so completely with the rest of the word-form that they are hard to recognise, e.g., 'th' in 'warmth, length, strength', etc. Affixation also includes the concept of stress/tone that a word-form inherently carries and that is subject to variation as the form changes. This is usually referred to as Superfix. Many pairs of words in English are solely or chiefly distinguished by the superfix, e.g., 'present (noun) and 'present' (verb). The distinction between 'sheep' singular and 'sheep' plural is referred to as Infix. Infixes normally appear within the consonant and vowel sequences of root forms, e.g., 'man - men', 'foot - feet', etc.

5.5.9 In the light of the above discussion we can represent the word as follows:
5.5.10 For purposes of analysis word-forms are classified as Simple, Complex, and Compound.

**Simple** : The occurrence of a particular form independently constitutes a simple word. A simple word-form may be:

i) just a minimal base, e.g., cat = Base + (superfix)

ii) a base + an inflectional suffix, e.g.,

cats = Base + Inflectional suffix ('s' plural) + (superfix).

**Complex** : A word-form which contains a base and a derivational suffix and/or an inflectional suffix, e.g.,

player = Base + Der. Suffix(-er)+(superfix)

players = Base + Der. Suffix(-er)+ Infl. Suffix ('s' plural)+(superfix)

**Compound** : A word-form produced out of the linking of two or more elements expressing a single idea. A simple analysis yields the following types:

a) two elements, both simple e.g., foot ball

b) three elements, all simple e.g., son in law

c) two elements, one complex e.g., tax collector

d) two elements, both complex e.g., elevator operator

e) two elements, one or both compound e.g., football player

5.5.11 Compounding is an active process of word formation in English. The Elizabethans who were extremely free in the treatment of language took a most adventurous initiative in this field and since then
compounding has performed a unique job chiefly in the growth of the vocabulary of the poets, philosophers and above all the scientists. There are several stages in the making of a compound, namely, two distinct word-forms joined in thought by some sort of link in meaning, later on the distinction gets lost and the word-forms thus joined together come to be regularly connected in thought and writing. Such forms usually remain hyphenated in the early stages but the last stage is one of the fused word when the two ideas finally become one with no conscious analysis of the constituents. Sheard (1962) calls this, "a question of the degree of establishment" and further on he observes, "the modification of language by thought is best expressed in the formation of compounds for they are the result of the condensation of a mental image, two originally distinct images having been fused."¹ Bauer (1973) provides analytical insight in his definition of the compound. Bauer observes that a compound is "a lexeme containing two or more potential stems that has not subsequently been subjected to a derivational process."²

5.5.12. The normal English type of compound is one that has as its second element a word-form carrying the main idea and the first element is a qualifier or determinant, e.g., 'air travel, tea stall, steamship' etc. Some foreign types, i.e., initial determinants, are also found in use, e.g., 'court martial, knight errant', etc. Phrasal verbs have much in common with compound word-forms especially when the

verbs combine with adverbial particles, e.g., 'give in', 'let down' etc., they sometimes coalesce to form compounds, e.g., 'undergo, showdown, withstand', etc. Compounds are classified on the basis of their grammatical function as Nouns, Verbs, Adjectives etc. Sub-classification can also be attempted in many different ways -- by the form classes of elements that make up the compound, by semantic classes, by syntactic function and so on. The majority of compounded word-forms, both in general and special use, are, however, nouns. Some major categories can be classified as under:

Major Categories:

I)  Noun + Noun  e.g.  boy friend
    Adj. + Noun  e.g.  sweet meat
    Verb + Noun  e.g.  pick pocket
    Adv. + Noun  e.g.  over draft
    Part. + Noun  e.g.  off shore

II) Noun + Adj.  e.g.  sky blue
    Verb + Adj.  e.g.  (Rare)
    Adj. + Adj.  e.g.  ready made

III) Noun + Verb  e.g.  birth control
     Adj. + Verb  e.g.  white wash
     Verb + Verb  e.g.  make believe (Rare)
     Part. + Verb  e.g.  out live
IV) Phrasal Compound: Henry Sweet (1892) calls such compounds as "intermediate between true compounds and word-groups", e.g., a-pain-in-stomach-gesture, forget-me-not, devil-may-care, travel-now-pay-later-scheme etc.

V) Compounds formed by derivational/inflectional elements, e.g., foul-mouthed, open-eyed, long-legged, etc.

VI) Hybrids: Compounds made up of foreign elements attached to native roots are also called Hybrids. They are quite common in specialist vocabularies.

5.5.13. Word formation is linked with social needs and uses. Words formed for special effects or coined for special purposes travel long distances and undergo wide ranging transitory impacts before they get firmly established in the language. The instance of hyphenation pointed out earlier is a token of many such features. There is no consistency in the use of hyphen in most of the compounds. Much perhaps depends on the personal taste of the writer, the degree of fusion and the extent to which a form has been established. This gives rise to a number of other forms of which the following may be mentioned briefly:

Portmanteau or Blends: Part of one word combined with part of another resulting in a new word, e.g.,
squash = (squeeze + crash).

**Telescopig**: a tendency to drop syllables and make two words into one, e.g., don = (do + on)

**Abbreviation**: forms shortened for convenience, e.g., lab., exam., zoo, O.I.G.S.

**Acronyms**: preference for brevity sometimes leads to extreme cases when only the initials are used to form full words, e.g., WHO, NATO, UNESCO etc.

**Syncopation**: the beginning and the end of two forms retained but syllables are lost, e.g., pram, econ, etc.

**Back formation**: a fruitful scource of new forms, e.g., backbite

**Words from Proper Names**: e.g., Calico, Watt, Parkinsonism etc.

The above discussion about the working of word grammar can be diagrammatically summarised as under:

```
WORD GRAMMAR
  /     \
/      \
Inflectional  Word formation
  /       \               /       \
/         \             /         \ Derivation  Compounding
/           \          /           \ Class  Class
/             \        /             \ Changing  Maintaining
\               \      \               \ Comp. Nouns  Comp. Adj.
\             \    \             \
\           \  \             \\ Comp. Verbs
\          \   \           \\
\         \  \   Others
```


5.5.14 The vocabulary of a living language like English grows like a dynamic organism. While maintaining its luxuriant growth it keeps providing nourishment to the language in its mysterious and multifarious manifestations. Word grammar which primarily deals with the study of this organism, that is, with the analysis and formation of new lexemes from the given bases provides a link between syntax and lexicon. The techniques and procedures of word grammar can be extended further to study special patterns of word-forms and word-groups which manifest themselves most significantly in the following ways:

**Collocation**: Collocation is defined as some kind of lexical company. There is some kind of association in words, a sense of companionship which may appear to be quite natural to the native speaker but not so difficult for the foreigner too. New words should, therefore, be learnt with a focus on their collocational range - 'flock' (of sheep), 'band' (of soldiers), 'drive' (car), 'ride' (horse/bus) etc.

**Idioms**: A group of words peculiar to one language which by usage is given a special meaning is an idiom. But idioms, like collocations, have a lexical range. An idiom according to OED is 'a peculiarity of phraseology approved by usage'. Thus expressions like 'maiden name', 'maiden speech' have a lexical range and they can be handled by word grammar. But
if in an expression the total meaning is not immediately deducible from the parts of which it is composed it is called highly idiomatic. It has to be learnt as it is, e.g., 'virgin soil', 'cold war', etc.

**Proverbs**: Proverbs are defined as short, pithy sayings based on the affairs of everyday life. Most of them can be studied by analytical and associative processes... e.g., law and order, safe and sound = near synonyms linked by 'and' 
give and take = contrast'

**Dialect**: It is a form used habitually by a group of people most significantly marked by vocabulary.

**Slang**: Informal and not quite respectable, slang draws upon a quest for novelty. They rarely have a long life. If they do not pass out of use, as they generally do, they cease to be referred to as slang but rather survive as words. Slangs even before they are established perform a useful job and can not be ignored as such. Most of the informal conversations related to a particular context or subject depend vitally on slang.

**Register**: A form used only on certain occasions and in specified situations depending largely on a specified vocabulary.
Specialist Texts and Discourse: Specialist texts and discourse are the main consumers of specialist vocabularies consisting of learned, technical, borrowed or coined words of specialised use. An ESP learner is directly concerned with this area but success in the handling of purpose specific devices and codes depends largely on an understanding of how the total system of communication operates.

5.6 Vocabulary Content and ESP

5.6.1 The problem of deciding upon vocabulary teaching strategies and the vocabulary content in ESP can not be seen in isolation from the total system. An analysis of the needs of the learner in his specified area is to be supplemented by an assessment of his level of proficiency in the use of language for general purposes. We can assume different levels of proficiency of general English but we can not altogether exclude the 'common core' on the basis of suppositions as to their 'knowledge of the language'. Various types of materials in broadly defined areas of study or vocation draw heavily upon the general or the core vocabulary of English. In highly specialised branches the dependence is rather twofold, in addition to the common core they draw upon their parent discipline as there is a mutual feedback among allied areas. Thus, for example, the problem of deciding upon vocabulary content in ESP for Medicine
is to be seen in terms of three stages, viz. (A) Defining and selecting the vocabulary of General English, (B) Defining and projecting the vocabulary of science, and (C) Defining and presenting the vocabulary of subject-specialism. Such a hierarchy poses considerable effort of a data collecting and analysis kind. We would, therefore, consider the three stages separately and observe how the model of generative vocabulary aided by the techniques of word grammar can be used to minimise this effort and to quicken the process of the acquisition of vocabulary to the best advantage of the learner.

5.6.2 (A) Defining and selecting the vocabulary of General English: The prospective user of English for specific purposes would be better advised to review and consolidate his attainments in the general vocabulary of English before getting ahead with a specialist vocabulary. As per the principles and elements focussed upon in the proposed model of Generative Vocabulary (5.4.2) below are listed some of the chosen elements/roots pertaining to the general vocabulary, having a direct bearing for generative purposes under the procedures outlined earlier.

(I) General Prefixes

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Meaning</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>a-</td>
<td>(on, in, out, from, of)</td>
<td>aboard, abed, alight</td>
</tr>
<tr>
<td>variant: ab-</td>
<td>(from, away)</td>
<td>abduct, abjure</td>
</tr>
</tbody>
</table>
ad- = (to, toward, at, near) adjoin, accept, accede
variants:
ac-, af-, ag-, affirm, aggregate, annex, applaud, arrogant, assume, attribute
at-, an-, ap-, ar-, as-,

ana- = (up, through) analysis, anatomy, antacid, ant-social, antedate
variants:
ant-, anti-,
ante-,

be- = (by, near) beside, below, beyond

bi- = (twice, two) bisect, biweekly

de- = (away) dethrone, decamp

es-, ex- = (out of) escape, expel

for- = (through) forgive, forbear

fore- = (before) forecast, foresee

in-, inter- = (in, inside, within) income, intervene, inland

out- = (out, outside) outcome, outlandish

over- = (above, beyond) overflow, overpower

to- = (this) today, tonight

under- = (beneath) underground, undergo

with- = (against, back) withdraw, withhold

re- = (back, again) return, recall

sub- = (under) subject, sub-division

trans- = (across) translate, transmit

mono- = (single) monoply, monologue

tele- = (far) telephone, telegram

pre- = (before) prehistoric, prental

post- = (after) postdated, postpone

self- = (self) self control

super- = (above) superman, supernatural.
(II) Prefixes added to certain roots for the formation of negatives or adding negative force:

IN-
variants: il-,im-,ir-, inactive, indecent, illegal, irrational, impossible, impolite
non- = (ill, bad) nonsense, nonentity
un- = (not,...) unkind, unjust
dis- = ..... dislike, disagree
mis- = ..... mistrust, misuse
a-(an-,anti-, ante-) = ..... apathy, atheist,

(III) Some of the commonly used Suffixes which produce grammatically classed forms:

(a) Of Nouns: denoting agent, doer, beneficiary etc.
-r,-er,-or = trader, player, actor
-ian = musician, electrician
-ist = artist, tourist
-ee = payee, trustee

(b) .... denoting state, action, result of an action, condition etc.
-age = bondage, breakage, leakage
-ance = brilliance, importance
-cy = accuracy, lunacy
-dom = kingdom, freedom
-hood = manhood, boyhood
-ism = socialism, patriotism
-ment = punishment, judgement
-ness = kindness, goodness
-ship = lordship, friendship
-ty = cruelty, penalty
-ure = pleasure, furniture

(c) Of Adjectives

-al = natural, musical
-ial = racial, potential
-able = respectable, acceptable
-ible = visible, audible
-ate = fortunate, fluctuate
-ic, -ical = basic, historical
-ful = wonderful, hopeful
-less = aimless, restless
-ed = gifted, aged
-en = wooden, golden
-ish = reddish, boyish
-ive = active, effective
-ous = famous, glorious
-some = handsome, wholesome
-y = dirty, wealthy

(d) Of Verbs

-ify = beautify, simplify
-ise(ize) = criticise, legalize
-en = frighten, darken
-ate = cultivate, assasinate
Of Adverbs

-ly = quickly, suddenly
-ward = homeward, upward
-wise = likewise, otherwise

Roots

As most of the English word forms are derived from foreign roots, selection of roots for vocabulary teaching is a challenging job. L.A. Stevens (Brown, 1964) in Coronet article "The fourteen words that make all the difference" provides the most useful shortcuts yet discovered to a bigger vocabulary. The fourteen words contain the most important fourteen roots found in fourteen thousand words of Collegiate dictionary size or close to an estimated 1,00,000 words of unabridged dictionary size. The roots are highly productive and can be used for the identification of the base in common English words leading to a generative manipulation by applying root-affix techniques. These roots, however, require a brief review for an efficient handling. Both in English and Latin verbs have a variety of forms. In Latin most of the infinitive forms end in ' -ere, -are, -ire', e.g., 'capere' (to take). To discover English words derived from Latin forms we can drop the infinitive ending and get the base: e.g., capero=cap (base) meaning 'to take or seize' as in English words, 'capture, captivity, capsule', etc. we can, then, move ahead and discover the variant forms of the base: cep as in 'accept',
The fourteen roots:

capere = (take or seize) receipt, except, conceive, perception, conception, caption, capital etc.
    cap(base)
    variants: cep, ceip, ceive, ceit

ponere = (put or place) postpone, component, deposit, composite etc.
    pon (base)
    variants: pone, pos, pose, posit, posite

ferre = (bear or carry) ferry, referee, confer, fertile, suffer, infer, prefer, differ etc.
    fer(base)

scribere = (write) describe, inscribe, script, scripture etc.
    scrib (base)

plicare = (fold) implicit, complicate, duplicate, accomplice etc.
    plic (base)

mittere = (send) emit, admit, transmit, mission, admission, compromise etc.
    mitt (base)

specere = (see or look) inspect, expect, suspect, suspicion etc.
    spec (base)

tenere = (have or hold) tenure, tenant, detain, continue, abstain etc.
    :ten (base)
ducere = (lead)  education, conductor, duke, duchess, conduit, conducive etc.
    duc (base)

facere = (make or do) facile, factory, edifice, fashion, perfection, effective etc.
    face (base)

tendere = (stretch) extend, attention, tension, extension etc.
    ten (base)

stare = (stand) distant, establish, status, station, obstacle, obstinate, etc.
    sta (base)

graphere (ein) = (write) graphic, phonogram, telegram
    graph (base)

logos = (speech, reason, logogram, logic, science, study) prologue, biology, etc.

In addition to these roots we can select other productive roots from the General Service of English Words (GSL) and use them for generative purposes, particularly at the lower levels. A sample selection is presented below:

agree = -ment, dis-, -able, dis-able
appear = -ance, dis--ance, dis--
avoid = -ance, -able, -ably, un-able, un-bly.
depend = -ent, -ant, -ency, in-ence
certain = -ly, -ty, un-ty
mad = -ly, -ness, -em
aim = -less, -lessly, -lessness
5.6.3 (B) Defining and Projecting the Vocabulary of Science

The vocabulary employed by scientific discourse can be defined as under:

i) words of general use, ii) words of general use objectively defined and delimited to serve the purpose of the scientific discourse, iii) technical terms of (a) general language of science and (b) of subject specialisms.

While projecting a vocabulary of science a reasonable amount of the general vocabulary of English (as outlined in A above) is taken for granted. We shall be mainly concerned now with (ii) i.e., words of general use serving the scientific purpose and (iii) technical terms of the language of science. Scientific discourse is governed primarily by the nature of the scientist's work which is broadly divisible into two major activities, namely, (1) Observation and experiment, and (2) description and explanation. Both these types of activities involve a large number of non-technical words and phrases which are essential to describe and explain things scientifically and thus
constitute a handy tool in the service of the scientific discourse. It will serve a useful pedagogic purpose if we compile lists of such words as an aid to vocabulary study. For purposes of compilation, however, the two major kinds of activities can be sub-divided into separate topics, viz., Observation ... dealing mainly with qualities of things and objects with reference to their shape, composition, texture, colour, taste, smell and so on, and Experimentation ... dealing mainly with performative concepts like action, motion, relation, technique and use of apparatus etc. A large number of words of general use are employed in these activities which could be listed under each: e.g.,

<table>
<thead>
<tr>
<th>SHAPE</th>
<th>straight</th>
<th>curved</th>
<th>bent</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>circular</td>
<td>angular</td>
<td>oval</td>
</tr>
<tr>
<td></td>
<td>conical</td>
<td>vertical</td>
<td>horizontal</td>
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<td></td>
<td>creased</td>
<td>grooved</td>
<td>toothed</td>
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<tr>
<td></td>
<td>perforated</td>
<td>punctured</td>
<td>slit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMPOSITION</th>
<th>solid</th>
<th>liquid</th>
<th>gaseous</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mix</td>
<td>purify</td>
<td>contain</td>
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</tbody>
</table>

<table>
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<tr>
<th>TEXTURE</th>
<th>hard</th>
<th>spongy</th>
<th>soapy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>waxy</td>
<td>dull</td>
<td>rough</td>
</tr>
<tr>
<td></td>
<td>salinat</td>
<td>dehydrate</td>
<td>dampen</td>
</tr>
</tbody>
</table>
similarly, the activities of Description and Explanation can be subdivided as mainly dealing with facts, concepts, processes, comparison, causation, classification etc. and respective lists be made, e.g.,
5.6.4 Most of the technical terms employed by scientific discourse are derivatives and compounds. One of the obvious features of these terms is the frequency with which several elements are used over and over again. They are highly productive. The shorter Oxford Dictionary lists fifty seven words using the element 'tele-', thirty five compounds of 'pyro', forty four of 'thermo', and as many as fifty four compounds of 'photo'. Here it may be noted that specialised dictionaries would naturally enhance the lists to frightening proportions. This leads to a consideration that besides the elements of general
use scientific discourse employs certain specific elements, not ordinarily in general use, for special purposes. Perhaps the use of prefixes is more common in scientific terms of technical use than others. A number of prefixes almost unknown outside the scientific world play an essential role in the scientists's vocabulary. Below are listed some of the most frequent word-elements (prefixes and suffixes) used in standard scientific texts which can be manipulated for word-analysis and word-formation apropos the generative procedures:

PREFIXES:

aeri-, aero- = (air) aeriform, aeronautical
al- = (Ar. Art.) algebra, alkali
allo- = (other) allograph
amb(i)- = (on both sides) ambidexterity
amphi- = (about, around) amphibious
andr(o)- = (man) androgen
anem(o)- = (wind) anemosis
antho- = (flower) anthomania
anthrop(o)- = (man) anthropoid
acqui- = (water) acquiline
astro- = (star) astronaut
audi(o)- = (hearing) audition
baro- = (weight) barometer
bio- = (life) biopsy
centi = (hundred) centigrade
chromo- = (colour) chromogram
cosmo- = (world/universe) cosmos
dyna- = (power) dynamo
dys- = (bad) dyspepsia
epi- = (upon) epicentre
equi- = (equal) equilibrium
geo- = (earth) geology
gyro- = (circle) gyroscope
helio- = (sun) helioscope
hemi- = (half) hemisphere
homo- = (same) homosexual
infra- = (below) infrasonic
iso- = (equal) isopod
macro- = (great) macron
mal- = (bad) malnutrition
meg(a)- = (large) megaton
micro- = (small) microscope
organ(o)- = (instrument/organ) organism
orth(o)- = (straight/upward) orthodontia
peri- = (around) peripheral
poly- = (many) polysystemic
phon(o)- = (sound) phonograph
physio- = (nature) physiology
tele- = (far off) telecast
thermo- = (heat) thermostat
ultra- = (beyond) ultraviolet

Suffixes:
-cide = (killing) germicide
-cle/cule = (diminutive) icicle molecule
-gen = (born, produced) hydrogen
5.6.5 (C) Defining and Projecting the Vocabulary of Subject Specialism

For deciding upon the vocabulary content in the subject-specialist communication ESP course planners will have to narrow down and delimit the larger field of science to the specified needs of a particular discipline. A detailed review of the subject specialist vocabulary, i.e., Medical English Vocabulary, its listing and teaching will be taken up in the following chapter.