Teaching Technical Jargon through Word Formation to the Students of Engineering and Technology

Problems and Some Perspectives on Strategies

P. Malathy, M.A, Ph.D. Candidate

Language in India www.languageinindia.com   347
9 ; 6 June 2009
P. Malathy, M.A., Ph.D. Candidate
Teaching Technical Jargon through Word Formation to the Students of
Engineering and Technology – Problems and Some Perspectives on Strategies

Teaching Technical Jargon through Word Formation to the Students of Engineering and Technology – Problems and Some Perspectives on Strategies

P. Malathy, M.A, Ph.D. Candidate

Students' Perception of Technical Jargon

The technical jargon of every field derives their terms from a variety of languages, although these are used in English. Students, who are generally not exposed to such terms in their vernacular, perceive these terms to be difficult to learn in the beginning and this leads to some struggle in comprehending the concept fully and remembering the terms.

English language teachers in engineering colleges need a better and intensive acquaintance with the processes for the formation of technical terms. And then they should also know how to use these processes integrated into their teaching of English.

Below I first focus on the importance of teaching technical English in engineering colleges, then present a brief description of the problem of teaching technical English, followed by a presentation of some of the processes that are prominent in word formation in technical terms. After this, I briefly discuss the strategies that we can adopt in teaching technical English in engineering colleges.

Mastery of Technical Jargon in Relation to the Mastery of Technical Concepts

Effective teaching of technical English to the students of engineering and technology depends on the effective imparting of technical jargon. We also should note that effective learning of engineering concepts depends upon the effective mastery of such jargon in English. New technologies have brought in the necessity of learning a wide range of technical vocabulary besides the coinages in the respective fields of engineering. The teacher is now required to update the kinds and number of technical jargon apart from the implementation of the use of such jargon effectively in a variety of engineering fields taught in her college.

What follows here is an attempt to describe how we can enable the mastery of engineering concepts and processes through teaching technical vocabulary to the students of engineering and technology.

Learning Technical English

Language in India www.languageinindia.com   348
9 ; 6 June 2009
P. Malathy, M.A., Ph.D. Candidate
Teaching Technical Jargon through Word Formation to the Students of
Engineering and Technology – Problems and Some Perspectives on Strategies

Technical English is not part of the learner's general cognitive development. It is associated with conscious learning of a variety of subjects in school. It is also associated with the acquisition and learning of mother tongue, which, often, is acquired first in the Indian context. Mother tongue directs this experience and thus become a major gateway to the concept of technical language. This inevitable situation in India challenges the English language teacher, especially those who teach English in engineering colleges, to devise ways and strategies to help their students overcome the influence of mother tongue and focus on newer concepts and the jargon attached to such concepts.

Resistance to the Mastery of Technical English

The conscious or unconscious resistance to learning of technical English persists among the students of engineering and technology for the following reasons.

1. The learning of technical vocabulary is not genetically triggered like the learning of mother tongue.

2. The jargon used in the texts of engineering and technology are quite distinct from the English text the students are exposed to in school as well as in college. The English textbooks at the school level till the students reach the higher secondary level focus on literature in the form of prose, short-story, autobiography, poetry, etc. But the English textbooks prescribed for use in the engineering colleges in Tamilnadu do not focus on literary pieces. Instead the students are exposed to the systematic strategy of using technical English. This sudden jump is rather unnerving and causes anxiety in students.

3. Moreover, the teaching of technical jargon is not specially concentrated on any one field, but is more is utility-based and application-oriented. The teachers of English become strangers to their class and to the focus of engineering fields at this level as integration becomes a basic problem.

Formation of Technical Jargon

The strategies involved in the formation of technical jargon are listed below.

1. Affixation — (Prefixing / suffixing – e.g. Degenerate, Generation)
2. Compounding — (e.g. Firewall)
3. Acronyms — (e.g. SARS)
4. Portmanteau — (e.g. Redox - Reduction Oxidation)
5. Clipping — (e.g. Cell - Cellphone)

Affixation

Language in India www.languageinindia.com   349
9 ; 6 June 2009
P. Malathy, M.A., Ph.D. Candidate
Teaching Technical Jargon through Word Formation to the Students of
Engineering and Technology – Problems and Some Perspectives on Strategies

Affixes are the pivotal point of word formation in Technical English. These affixes are added either before or after the root word or a free morpheme. The two major divisions of affixes are 'prefixes' and 'suffixes'. Generally, prefixes precede the root and suffixes follow the root. A suffix is a single or a sequence of phonemes constituting a bound morpheme that is generally added at the end of the root word, generally called as 'base'. They are classified into two broad categories namely, 'inflectional suffixes' and 'derivational suffixes'.

Note that already in describing the processes of word formation, we are required to master a few concepts such as phoneme, prefix, suffix, affixation, morpheme, bound and free morphemes, inflectional and derivational.

Inflectional Suffixes

The inflectional suffixes are those that serve a grammatical function and the derivational suffixes are used to derive new or grammatically different words from the 'base'. We need to understand what inflectional suffixes are and how these fit in the formation of technical terms and the writing of the technical discourse. For instance, the word 'sign' in a sentence with first person singular subject like, 'I sign the memorandum of understanding with Tata Consultancy Services' has to undergo a change by accepting the suffix,'s' in a sentence with third person singular subject like, 'Raju signs the memorandum of understanding with Tata Consultancy Services'.

Derivational Suffixes

Derivational suffixes are also called word formation devices as their prime function is changing the 'root word' or 'base' into other parts of speech. These derivational suffixes play a vital role in sustaining the harmony of the syntax. With the help of derivational suffixes, numerous words are formed. Derivational suffixes are indispensable for the creation of the open-set called lexical items.

The four kinds of derivational suffixes are

1. **Nominal** –Lever**age**, Govern**ance**, Emerg**ence**, Emis**sion**, Propell**ant**, Transmitt**er**, etc.
2. **Verbal** – Length**en**, Magnet**ize**, Propag**ate**, Solid**ify**, etc.
3. **Adjectival** –Transfer**able**, Termin**al**, Concern**ed**, Power**ful**, Revertible, Scienti**fic**, Inten**sive**, etc
4. **Adverbial** – Instantaneous**ly**, Length**wise**, Back**ward**, Side**ways**, etc

Word Formation and Noun Suffixes

Language in India www.languageinindia.com   350
9 ; 6 June 2009
P. Malathy, M.A., Ph.D. Candidate
Teaching Technical Jargon through Word Formation to the Students of
Engineering and Technology – Problems and Some Perspectives on Strategies

Noun suffixes help in transforming the base into a noun. As they derive only nouns from the base they are derivational in nature. Some of the suffixes that govern the noun formation in technical English are:

'acy' as in 'accuracy',	'age' as in 'drainage',
'ance' as in 'maintenance',	'ence' as in 'reference',
'ant' as in 'assistant',	'ar' as in 'beggar',
'er' as in 'drafter',	'or' as in 'protractor',
'ion' as in 'construction',	'ary' as in 'functionary',
'tion' as in 'estimation',	'sion' as in 'emission'
'xion' as in 'complexion',	'ist' as in 'technologist',
'ity' as in 'elasticity',	'our' as in 'contour',
'ment' as in 'employment',	'ness' as in 'brightness,
'dom' as in 'freedom', and	'ee' as in 'trainee'

Word Formation and Verb Suffixes

The suffix that changes the base into its verb form is called verb suffix. A few examples of the verb suffixes used in technical English are stated in the examples.

'ate' as in 'regulate'	'fy' as in 'solidify'
'en' as in 'strengthen'	'ize' as in 'standardize'

Word Formation and Adverbial Suffixes

The suffixes that derive adverbs from the base are known as adverbial suffixes. Some examples for adverbial affixation found in technical English are:

'ly' as in 'quickly'	'ways' as in 'sideways'
'wise' as in 'lengthwise' and	'ward' as in 'forward'

Word Formation and Adjectival Suffixes

The suffixes that transform words into adjectives are termed as adjectival suffixes. Some examples of adjectival affixation with respect to technical English are given below.

'ful' as in 'beautiful'	'ive' as in 'creative'
'ic' as in 'scientific'	'able' as in 'predictable'
'ible' as in 'visible'	'ous' as in 'infectious'
'al' as in 'retinal'	'ar' as in 'circular'.

Language in India www.languageinindia.com   351
9 ; 6 June 2009
P. Malathy, M.A., Ph.D. Candidate
Teaching Technical Jargon through Word Formation to the Students of
Engineering and Technology – Problems and Some Perspectives on Strategies

Compounding

Compounding is another common word formation process. It is probably the most common one in today's English because it is very effectively used in technical languages. Compounding is a process whereby two free morphemes are combined as one word. They differ from both derivational and inflectional affixation as they are the exclusive amalgamation of two free morphemes.

Use of hyphenated compounds in technical English is common and this makes comprehension a bit more challenging. In such cases, the concatenation further widens the scope of ambiguity.

> 'Fire-tube-boiler'
> 'Condenser-extraction pump'
> 'Butt-weld'
> 'Programming Language'

Acronyms

Acronyms involve the formation of words by combining the initial letters of the words in a phrase that serves as names to committee, conference, organization, individual body, a disease, a subject, etc. Generally, these acronyms assume the role of nouns in sentences. Acronyms are sometimes uttered as sequence of words. Despite this fact, the measurement and unit value are also stated using this methodology.

> LASER   – **L**ight **A**mplified **S**imulated **E**mission of **R**adiation (Theory)
> RADAR – **Ra**dio **D**etection **A**nd **R**anging (Device)
> ASCII   – **A**merican **S**tandard **C**ode for **I**nformation **I**nterchange (Jargon)
> YAHOO – **Y**et **A**nother **H**ierarchical **O**fficious **O**rganization (Organization)

Portmanteau

The portmanteau words, otherwise called as Blends, indicate the blending of two words. Portmanteau is the name of a suitcase that can comprise different types of tightly packed articles. Similarly, portmanteau words are the combination of different words fused together into one (T.C. Baruah, 1991:88). Perhaps this type of word formation has become a common aspect as it enriches the scientific and technical jargon of scientists, engineers and technologists.

> **Mo**dular **Dem**odulator   – Modem
> **Red**uction **Ox**idation   – Redox
> **Bio**logical Electro**nics**   – Bionics
> **Mecha**nical Elec**tronics** – Mechatronics

P. Malathy, M.A., Ph.D. Candidate
Teaching Technical Jargon through Word Formation to the Students of
Engineering and Technology – Problems and Some Perspectives on Strategies

Clipping

Sometimes a long word is clipped into a short one for the convenience of use. The omission of two or more syllables of a long word for the convenience of simplified usage is called Clipping. This strategy of word formation simplifies the communication by projecting it precise and pithy. Clipping of course, proves the efficacy of the simplified usage of technical jargon.

Telephone	– Phone
Website	– Web
Sodium Thio Sulphate	– Thio
Bicycle	– Cycle

Strategies

A brief note on jargon, before a student is familiarized with its usage, is a preferable first step. I'd recommend selecting appropriate jargon from currently ongoing lessons and discuss language aspects of such jargon. This would require an understanding of the current syllabus and some co-operation from the teachers of these subjects. From its very nature, this step is an ongoing process.

Historical background to the structure and use of selected jargon may be presented to inculcate in students sensitivity to the terms they use. This part is also very interesting because of the stories involved. This would, again, need some preparation using dictionaries that offer historical information.

Description of the structural processes involved may be presented so that a variety of patterns adopted in a field of enquiry may be presented. Technical terms are not islands in themselves. They are connected to other terms through similarity of processes. Structural similarity may also be linked to some similarity in shades of meanings of the terms. Biological sciences differ from physical sciences in the derivation and coinage of terms. The state of art in engineering fields must be identified and presented for practice.

Spelling is an important process that also needs to be dealt with.

Placement of words within the limits and extension of their original meaning will be another strategy. How do we extend the meaning of a concept? Can this be achieved by extending the use of a term already established? What are the limits to the use of a term?

Use of the terms in grammatically correct and easily comprehensible sentences in English is the ultimate goal for all these exercises.

It is important that we begin to compile our own textbooks or compile materials that will extend the use of the textbooks prescribed for our courses.

Language in India www.languageinindia.com   353
9 ; 6 June 2009
P. Malathy, M.A., Ph.D. Candidate
Teaching Technical Jargon through Word Formation to the Students of
Engineering and Technology – Problems and Some Perspectives on Strategies

Conclusion

Among all the strategies of word formation discussed in this paper, 'affixing' plays a crucial role in engineering and technical jargon. Hence, the teacher of English may concentrate on imparting adequate exposure to word formation through affixing.

Language in India www.languageinindia.com   354
9 ; 6 June 2009
P. Malathy, M.A., Ph.D. Candidate
Teaching Technical Jargon through Word Formation to the Students of
Engineering and Technology – Problems and Some Perspectives on Strategies

BIBLIOGRAPHY

1. Bach, E.   1974   *Syntactic Theory,* Holt, Rinehart and Winston, inc: New York.

2. Bernstein and Tiegerman   1989   *Language and Communication Disorders in Children* P.4

3. Chandra Bose, A.   2004   *The Problems in Learning Auxiliary Verbs in English at High School Level,* Language in India, Volume, 5: 11

4. Sharma, B.D.   1987   *An Introduction to Linguistics and a Description of English Language,* Shalabh Prakashan: Meerut.

5. Thirumalai, M.S.   1979   *Language in Science,* Geetha Book House : Mysore.

P. Malathy, M.A, Ph.D. Candidate
Department of English
Kumaraguru College of Technology
Coimbatore
Tamilnadu, India
visitmalu@yahoo.com

Language in India www.languageinindia.com   355
9 ; 6 June 2009
P. Malathy, M.A., Ph.D. Candidate
Teaching Technical Jargon through Word Formation to the Students of
Engineering and Technology – Problems and Some Perspectives on Strategies