An Assessment of Intentional and Incidental L2 Vocabulary Learning of Engineering Students of JNTU

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This is to certify that I, Jonnalagadda VNL Mythili, have carried out the research embodied in the present dissertation for the full period prescribed under Ph. D. ordinances of the University.

I declare that, to the best of my knowledge, no part of this dissertation was earlier submitted for the award of research degree of any University.

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Contents

Chapter 3 - Research Methodology

Chapter 4 - Analysis of Results

Chapter 5 - Discussion

Chapter 1

Introduction

1.0 Background

The present research aimed at measuring the second language vocabulary growth of first year engineering students. As vocabulary is crucial for effective communication, engineering students need to be proficient in the use of appropriate vocabulary. If not, their word-choice will be limited which leads to poor communication. The current research arose from the observations of the research scholar as an English lecturer in a private engineering college. It was noticed that engineering students were not using appropriate vocabulary in their speech and writing. As a result, their communicative purposes were not properly realized. It was also observed that learners who were good in their lexical choices were scoring more marks than those who could not do so, even though the content was the same. Even the campus interviewers were dissatisfied with low vocabulary knowledge of a large number of students.

Campus interviews are generally held when students are in their third year of engineering. As English is prescribed as a course of study only in the first year, either the English textbook should be able to help students in their lexical growth; or, learners should be able to improve their levels of vocabulary through incidental exposure to their subject textbooks. So, the present research wanted to assess the effects of incidental and intentional vocabulary learning of first year engineering students. The specific research

questions are stated in section 3.1. As English is learnt as a second language in India, a brief discussion of it seems relevant.

1.1 English Language Teaching in India

Over the years, English has attained the status of an international language facilitating communication across the world. It has been acquired as a first, a second or a foreign language and has been used for internal, external and international purposes. It is the world's main language of communication in books, learned journals, newspapers, computers, science and technology and so on. As the world has become global, anyone can study, get employed and live in any other country. So, in many countries, English is learnt as a second or a foreign language. In fact, we find a large group of non-native speakers of English whose number is quite overwhelming in relation to the number of native speakers of English. Non-native speakers need to communicate effectively in English to be understood by the native speaker or another non-native speaker coming from a different country.

As a result, teaching English as a second language has become relevant and important. India is one of the countries where one can find a number of learners who learn English as their second language. Hence, India, an erstwhile colony of the British Empire, has a history of development of English and English Language Teaching.

The English language was introduced in India for the purpose of trade and commercial benefits of the British Empire. Slowly, a systematic English teaching programme evolved. The first blue print on English education in India was prepared by

Charles Grant, a director of the East India Company. He recommended the introduction of English as the medium of instruction to teach literature, natural sciences etc. Then came Macaulay, who wanted to educate Indians in Western literature and moral code through English education. Following Macaulay's Minute, a declaration was made to promote European Literature and science among the natives of India. English was made the official language of education in 1835.

But, slowly, the Indian Universities Commission of 1902 found that many students were not proficient in English even after university education. They were not proficient in their native language either. As a result, the Government of India Resolution of 1904 recommended that English should not be taught as a language until the learner has become proficient in his/her mother tongue.

Immediately after independence, the university Education commission was formed under the chairmanship of Dr. S. Radhakrishnan who recommended the continuation of English in India so that Indian students could acquire sufficient mastery of English to gain access to ever- growing knowledge in the world. Later, Prof. D. S. Kothari, who headed the Kothari Commission, was the first person who saw the necessity of teaching English as a skill and as a subject of study. Prof. V. K. Gokak submitted the report of the study group on English suggesting that men, materials and methods were necessary for the successful promotion of proficiency in English among the learners. In India the first step towards teaching English according to the needs and requirements of the students was taken by this report which recommended the introduction of special

courses like “Course in Spoken English”, “Course for Teachers of Spoken English”, “Course in Commercial English” etc.

After India got independence in 1947, some decisive steps were taken to strengthen the English language teaching situation in India. The British Council in India brought in the Structural Syllabus prepared by the London School and introduced it in Madras in 1952. The Structural Approach to teaching was accepted in India and the Government of Tamilnadu introduced teaching materials prepared by Indian teachers of English. The first English Language Teaching Institute (ELTI) was established in 1954 in Allahabad with the help of the British Council. The Central institute of English (later CIEFL, now EFLU) was started in Hyderabad in 1958. Its objectives were stated very clearly. They were to provide necessary training to teachers of English, to produce teaching materials, thus improving the standards of teaching English in India. The Regional Institute of English – RIE -was started in Bangalore with financial support from Andhra Pradesh, Karnataka, Kerala and Tamilnadu to improve the standards of teaching English in the South. Another RIE in Chandigarh and a number of ELTIs across the country were established subsequently.

In the 1960s, scholars from the USA and the UK started arguing against the Structural Approach. It was pointed out that the structural approach failed to enable learners to use English appropriately. The Communicative Approach was thought to be the appropriate approach to teaching English.

In the 1970s, a project called the Communicational Teaching Project (CTP) was undertaken by Prabhu and his team. The CTP aimed at proving that learners could learn a

language better if their attention was not on the language but on the task it was used for. The syllabus that resulted from the successful completion of the project was called Procedural Syllabus which deals with real-life or life-like tasks to be dealt with by the learners in the class. In short, we can say that English language teaching in India has gone through three different phases – the Traditional phase (up to Independence), the Structural phase (after Independence to 1970s) and the Communicative Phase (1970s to date).

After independence, in spite of all the problems, every effort has been made to teach English systematically which resulted in the demand for English. Mass media, Information Technology and developments in the areas of science and technology have created an international market for English. Technological development coupled with the development of computers and software has made English a tool for communication in international contexts. English has become a global commodity like oil and the micro chip; without the English language, the world will come to a halt. (Krishnaswamy & Krishnaswamy, 2006).

As a result, effective communication skills have got market value. Communicative competence has become one of the necessary qualifications for any profession. Proficiency in English is estimated from the standpoint of skill development, not from that of analyzing a literary text. English for facing interviews, writing resumes and reports, conducting campaigns, participating in meetings, discussions, conferences, interacting in social contexts, English for agreeing, disagreeing, convincing, narrating, requesting, ordering, explaining, apologizing, English for computer applications, business

transactions, call-centre training etc. have come to be the order of the day. It is communication skills in English that are useful globally, because English has become the language of business, media, IT-enabled services and so on (Krishnaswamy & Krishnaswamy, 2006). One's proficiency in English often opens gates to better employment opportunities.

Long before all this has happened, Indian realized the importance of becoming self-reliant in the areas of science and technology. They understood that one of the important means to continue being independent of foreign rule was to improve the country's technical and technological might. To promote technical education in the country, All India council for Technical Education (AICTE) was established.

1.1.1 AICTE

Technical education in India contributes a major share to the overall education system and plays a vital role in the social and economic development of the country. In India, technical education is imparted at various levels such as craftsmanship, diploma, degree, post-graduate and research in specialized fields, catering to various aspects of technological development and economic progress.

The All India Council for Technical Education – AICTE – was set up in November 1945 as a national level Apex Advisory Body to conduct a survey on the facilities of technical education and to promote development in the country in a coordinated and integrated manner. And to ensure the same, AICTE was given statutory

authority for planning, formulation and maintenance of norms and standards, quality assurance through accreditation, funding in priority areas, monitoring and evaluation, maintaining parity of certification and awards and ensuring coordinated and integrated development and management of technical education in the country.

The statutory All India Council for Technical Education was established on May 12, 1988 with a view to proper planning and coordinated development of technical education system throughout the county.

1.1.2 JNTU

JNTU – Jawaharlal Nehru Technological University - was established in the year 1972 with a vision to provide for the advancement of learning and knowledge in engineering and Technology, Physical and Social Sciences by teaching, research and experimentation or practical training. When the research was conducted, JNTU was a single body. But, now, it is split up into JNTU, Hyderabad; JNTU, Kakinada; JNTU, Ananthapur. On the whole JNTU has more than 350 private engineering colleges affiliated to it.

JNTU's curriculum included English a subject of study in I B. Tech. the following two textbooks are prescribed for study.

Learning English – A Communicative Approach. (2008). Hyderabad: Orient Longman.

Chowdhry, M. (2004). *An abridged version of wings of fire – An Autobiography of APJ Abdul Kalam with Arun Tiwari*. Hyderabad: Universities Press.

The first one, *Learning English – A Communicative Approach*, is the text prescribed for detailed study and *Wings of Fire* is for non-detailed study.

The syllabus (Appendix A) states that it has been designed to develop linguistic and communicative competence of engineering students. It is also mentioned that the stress in this syllabus is on skill development and practice of language skills. It can also be noted that one of the objectives of the syllabus is to improve the language proficiency of the students in English with emphasis on LSRW skills.

As the name of the textbook itself suggests, teachers are expected to follow communicative language teaching techniques. The textbooks are specifically designed for the students of engineering and hence come under the realm of English for specific purposes.

The next two sections discuss the rubrics of Communicative Language Teaching and English for Specific Purposes.

1.2 Communicative Language Teaching

Communicative Language Teaching – CLT – dates back to the late 1960s when the functional and communicative potential of language was discovered. Mastery of structures was no longer part of the objectives of a teaching course; developing

communicative proficiency became the order of the day. By mid 1970s, CLT was seen as an approach that aims to make communicative competence the goal of language teaching and to develop procedures for the teaching of the four language skills that acknowledge the interdependence of language and communication (Richards & Rodgers, 1986). The approach is flexible by nature. Practitioners from different educational background can interpret it in different ways and adapt it according to their requirements.

On the whole, the bottom line is that CLT starts from a theory of language as communication. It focuses more on the functional aspects of language like receiving or sharing information, negotiation, comprehension, participation in speech acts and so on. But, it is not totally devoid of structural aspects of language. As Littlewood (1981) states, one of the most characteristic features of communicative language teaching is that it pays systematic attention to functional as well as structural aspects of language. The goal of language is to develop what Hymes (1972) referred to as communicative competence.

1.2.1 Communicative Competence

The term communicative competence is defined by different persons differently. Hymes' theory of communicative competence was a definition of what a speaker needs to know in order to be communicatively competent in a speech community (Richards & Rodgers, 1986). Canale & Swain (1980) state that grammatical competence, socio-linguistic competence, discourse competence and strategic competence form what is known as communicative competence. Littlewood (1981) thinks of four domains of skills which make up a person's communicative competence.

- The learner must attain as high a degree as possible of linguistic competence. That is, he/she must develop skill in manipulating the linguistic system, to the point where he/she can use it spontaneously and flexibly in order to express his/her intended message.
- The learner must distinguish between the forms which he/she has mastered as part of his/her linguistic competence, and the communicative functions that they perform. In other words, items mastered as part of a linguistic system must also be understood as part of a communicative system.
- The learner must develop skills and strategies for using language to communicate meanings as effectively as possible in concrete situations. He/she must learn to use feedback to judge his/her success, and if necessary, remedy failure by using different language.
- The learner must become aware of the social meaning of language forms. For many learners this may not entail the ability to vary their own speech to suit different social circumstances, but rather the ability to use generally acceptable forms and avoid potentially offensive ones.

To achieve this communicative competence, we need to look at language as a system of expression of meaning. The primary function of language is for interaction and communication and the structure of language reflects its uses. The primary unit of language is not its structural feature but its functional and communicative meaning (Richards & Rodgers, 1986).

1.2.2 CLT – Syllabus

Different models of syllabus have been in vogue through the evolution of CLT. Starting from the notional syllabus, from the idea that discourse should be the centre of attention, to grammatically based syllabus, to task specification and organization, CLT has sustained many practices (Richards & Rodgers, 1986). Some have also pointed out that the syllabus concept be abolished altogether in its accepted forms, arguing that only learners can be fully aware of their own needs, communicational resources and desired learning pace and path and that each learner must create a personal, and implicit, syllabus as part of learning (Richards & Rodgers, 1986).

A communicative syllabus is learner-centred aimed at language learning as independent of teachers as possible resulting in language acquisition rather than language learning. Nagaraj (2008) describes the features of communicative syllabuses as follow:

- They aim at making the learner attain communicative competence i.e. using language accurately and appropriately.
- They focus on the learner. The teacher is a facilitator managing the environment and materials which in turn help the students become autonomous learners.
- They depend on authentic materials.
- The tasks set are purposeful and meaningful. This, in turn, means that the task can be judged by the learners for its success.
- Functions of language are stressed upon rather than the rules.
- The tasks aim to make learners fluent as well as accurate in their use of the target language.

1.2.3 CLT – Role of the Learner

As CLT is more learner-centred, the role of the learner becomes paramount. He/she is an active contributor of ideas who follows a give-and-take policy. Breen & Candlin (1980) describe the role of the learner as a negotiator between the self, the learning process and the object of learning. They also suggest that learners should learn in an interdependent way - gaining and contributing. Students are expected to communicate by communicating. They should make themselves understood even though they have inadequate knowledge of the target language.

1.2.4 CLT – Role of the Teacher

The teacher is seen as a facilitator who manages classroom activities. He / she should help the learners take part in activities which promote communication. Breen and Candlin (1980) describe the three important roles the teacher has to play in the classroom. The first one is to facilitate the process of communication among all the participants in the classroom. The second role is to be an independent participant within the teaching-learning group. The third one is to be a researcher and learner, contributing in terms of appropriate knowledge and abilities.

1.2.5 CLT – Vocabulary

It is surprising that CLT which gives importance to communicative competence achieved through appropriateness of language use does not give due recognition to vocabulary. It is a well known fact that appropriate use of language consists of appropriate grammatical structures and appropriate vocabulary. As Wilkins (1974) states,

knowledge of a language demands mastery of its vocabulary as much as its grammar. The learner is expected to get as much exposure to vocabulary as possible. CLT believes that as vocabulary development is natural in L1 through contextualized language, it will be natural also in L2 through communicative exposures.

1.2.6 CLT – Testing

As teaching and testing are mutually dependent and mutually influential, a discussion of CLT will not be complete without a look at how to test the communicative competence of learners. Weir (1990) suggests that the design of a test should be interactive and direct reflecting realistic discourse processing activities. Tests and tasks should be relevant to the intended situation of the target population. Ability should be sampled within meaningful and developing contexts and the test should be based on an explicit a priori specification. While appreciating that the conditions for real life communication are not replicable in test situations, one should still try and make tests as realistic as possible in terms of that situation.

1.3 English for Specific Purposes

The end of the second world war in 1945 threw open the gates to unprecedented development in the areas of science, technology and economic activity at a global level which in turn created a demand for an international language. As English became the international language, people started learning it to meet particular expectations. But, the existing course materials at that time were mostly literary in nature and were unable to cater to the professional needs of the learners. By the early 1960s, there was a growing

dissatisfaction across the world with the then language teaching practice which trained learners in literature irrespective of their aims, needs and demands. Students' frustration at learning the language which did not prove to be helpful in their career was increasing. Strevens (1971, cited in McDonough, 1984) pointed out the irrelevance of literary training to large numbers of learners for whom English was a tool in their professions. There was an increasing demand for a more relevant and appropriate teaching programme. This demand for appropriateness in teaching materials resulted in the analysis of scientific and technological language. A structural and lexical analysis of the scientific texts was carried out and *A Course in Basic Scientific English* by Ewer and Latorre was published in 1969. This was the starting point leading to the development of materials considering the learners' communicative needs, language skills, and professional demands and so on. Attention shifted from defining the formal features of language use to discovering the ways in which language is used in real communication (Widdowson, 1978). Research into these ways led to the view that language of one particular field of study was different from that of another one which in turn led to the idea that "if language varies from one situation of use to another, it should be possible to determine the features of specific situations and then make these features the basis of the learners' course" (Hutchinson & Waters, 1987, p.7). Slowly, the utilitarian purpose of language (Robinson, 1980) has gained significance redirecting the literature-oriented, traditional language teaching to examine the linguistic and communicative demands of other subjects. As a result, the distinction between language as a subject and language as service had to be made (McDonough, 1984). The concept of language teaching in service of other subjects is viewed by some to be restrictive in nature. But, in reality, it is not in

service of the other subjects, but is essentially in service of the learner and his/her professional and communicative needs.

1.3.1 ESP – Learner Centeredness

The main thrust in the development of ESP is focusing on the learner while designing the course materials. Once a learner's needs are identified, they will become the objectives of the course materials. Another significant development which has greatly influenced the ESP programme is a move towards the view of language as not only a set of grammatical structures, but also a set of functions (Kennedy & Bolitho, 1984). Effective, field-specific communication has become the guiding factor for all ESP materials.

In short, ESP starts with an analysis of the purposes of the learner and the communicative needs arising from that purpose. These communicative needs which help the learner to realize his /her purpose become the objectives of the teaching-learning process. Learners' interests and requirements are taken into consideration while designing the relevant course materials. The success of ESP has largely been dependent on the learner-centred approach it has been following. It has also been thought that the relevance of the course structure improves the learner's motivation and his/her efficiency in learning, thereby making "learning faster and better" (Hutchinson & Waters, 1987, p.8).

1.3.2 Aspects of ESP

A number of terms for the various types of ESP are in existence. These terms basically fall into two categories – one is English for Academic Purposes (EAP) and the second one is English for Occupational Purposes (EOP). If English is taught to listen to lectures, read relevant literature, present papers, exchange views, understand the course content, participate in seminars, write exams, then it comes under EAP. If English is taught to motivate others, to get things done, to supervise, to present a case, to present a problem to a senior/junior employee, to negotiate, then it comes under EOP.

In short EAP and EOP are not entirely two different aspects of ESP; but are the two sides of the same coin. EAP helps learners who need English to gain access to knowledge whereas EOP helps those who need English to communicate the knowledge they already have. EOP generally includes English for Airline Pilots, Air Hostesses, Hotel Staff, Secretaries, and Telephone Operators and so on. The list is almost endless. EAP includes English for Legal Purposes, English for Business Purposes, English for Medical Purposes and English for Science and Technology, the last being the most prominent one among others. Under EAP we also have independent ESP and integrated ESP. If English is a separate subject on the curriculum but with a related content to other subjects, then it called integrated ESP (Kennedy & Bolitho, 1984). Integrated ESP is also called content-based instruction.

1.3.3 English for Science and Technology

English for Science and Technology (EST) has become an important aspect of all ESP programmes as much demand for ESP has come from scientists and technologists

who need to learn English for a number of purposes connected with their specialisms (Kennedy & Bolitho, 1984). In fact, it is pointed out that English for Science and Technology has set the trend in theoretical discussion, in ways of analyzing language and in the variety of actual teaching materials (Swales, 1985, cited in Hutchinson & Waters, 1987). EST encompasses a list of vocabulary items, grammatical forms and functions that are common to the study of science and technology. For example, course books in science and technology generally use simple present tense and simple future tense. Passive constructions are preferred to the active ones. Conditional clauses and modal verbs are used in the books of science and technology. Coming to the lexis, vocabulary in the course books of science and technology is generally divided into three categories.

Technical vocabulary:- Highly technical terminology special to the subject in question forms this section. Examples are *diode, semi-conductor* etc.

Sub-technical vocabulary:- Words which take special meanings in certain scientific and technical fields come in this category. Examples are *current, control* etc.

General vocabulary: - Regular vocabulary necessary for explaining things comes under this area. Examples are *differentiate, integrate* etc. These words appear across scientific disciplines though they are also part of general and academic vocabulary.

1.3.4 Content-based Instruction

Content-based instruction aims at facilitating language learning coupled with learning the subject matter which is of interest and value to the learner. Krashen (1985) calls this type of instruction sheltered language teaching which provides a bridge between language class and academic mainstream. The sheltered class is a subject matter class

made comprehensible to the second language learner. Sheltered classes need not be taught by professional language teachers. Subject-matter teachers who are familiar with the process of language acquisition, who are tolerant of student output errors, and who are sensitive to the learners' comprehending abilities are very much appropriate for teaching a sheltered language class (Krashen, 1985). "Content- based second language instruction is based on the assumption that language can be effectively taught through the medium of subject matter" (Gaffield-Vile, 1996, p.114). Integration of subject matter content and second language learning, generally responds positively to the needs and interests of the second language learners. "There is also evidence that content-based approaches promote L2 proficiency and facilitate skill learning in ways that are relevant and important to the academic and professional goals of the L2 learners" (Pica, 2002, p.3). Content-based approach is more captivating than independent courses because learners learn to use language by using it in real contexts. At the end of the course, learners may experience a sense of accomplishment for learning two things simultaneously – language and subject-matter content.

1.3.5 Limitations of ESP

Even though ESP and its important constituent branch EST have gained considerable ground in the sphere of English Language Teaching, they have some limitations which exist with respect to the scope of EST and the ESP teacher.

EST refers to English for Science and Technology. But, it is too broad a term to be of any help in designing course materials which should cater to the needs of the learners. Because, an aerospace engineer's communicative needs are very different from

those of a chemical engineer or a nuclear scientist or a micro-biologist. To meet the demands of these individual learners with one common ground – EST – is not in any way helpful to the learner. If one is to go by the ideology of ESP in a rigorous fashion, specific courses and teaching / learning materials should be developed for each branch of science and technology. And one can never predict the number of ways a scientist or an engineer needs to use language in his/her profession to realize his/her purposes. One may have to present a paper, read journals, write a paper, exchange views informally, participate in group discussions, and take part in video-conferences and so on. The teacher has to deal with all these skills with respect to a particular field of study. And this brings us to the premises of the ESP teacher. The ESP teacher is expected to have considerable knowledge in the subject in question and in the rubrics of English Language Teaching. The latter may not be a problem; but, the former, to have sound knowledge in a field of science and technology is often beyond the abilities of a language teacher unless he/she is specifically trained to be an ESP teacher. Or, an ESP class should be dealt with collaboratively by a language teacher and a subject teacher.

At this juncture, one needs to remember that ESP is not a separate discipline per se, but only a part of the ELT which has moved towards a more communicative basis for teaching and learning. So, concentration on improving the communicative abilities of the learners to cope with any given situation or with respect to particular functions of language seems to be a desired and achievable goal.

1.4 The Importance of Vocabulary

"Vocabulary knowledge constitutes an essential part of competence in a second or foreign language" (Boggards, 2001, p. 321). Even in one's L1, vocabulary knowledge almost always lead to effective communication. Often, one's language ability is associated with his/her mastery of vocabulary. "Vocabulary is widely acknowledged as one of the key components necessary for second language proficiency" (Schmitt, 1999, p. 189). So, to speak fluently, to listen attentively with understanding, to write clearly, logically and effortlessly, to read and comprehend, to chat freely, to be a part of a team, an individual needs to have a good amount of vocabulary.

There has been considerable amount of research done with respect to the importance of vocabulary knowledge for second language learners in reading (Haynes & Baker, 1993), listening (R. Ellis, 1994), speaking (Joe, 1998), and writing (Laufer & Nation, 1995).

Schmitt (2000) observes that second language learners need to know 2,000 words to maintain conversation, 3,000 word families to read authentic texts and 10,000 words to understand challenging academic texts.

1.4.1 Vocabulary in Reading

No text comprehension is possible, either in one's native language or in a foreign language without understanding the text's vocabulary (Laufer, 1997a). This does not mean that the other factors like the main idea of the text, relevant background knowledge, application of general reading strategies do not play a role. They do, but not as significantly as the role played by vocabulary. Generally, an improvement in reading

comprehension is attributed to the improvement in lexical knowledge because understanding a text's content is dependent upon the reader's ability to understand, grasp, guess the meanings of the words used. If a word is not known, then what that word suggests or means is also not known which in turn results in confusion and inability at comprehending the whole text. Haynes & Baker (1993) came to the conclusion that the most significant problem for the second language learners is insufficient vocabulary in English. It does not mean that every word in the text should be known to the reader. But, 98% of the words used should be known for effective and trouble-free comprehension. As lexical problems obstruct successful comprehension, increasing one's vocabulary knowledge is almost inevitable.

1.4.2 Vocabulary in Listening

Of all the four language skills – listening, reading, speaking and writing – listening is the most difficult and demanding task especially when one is listening for meaning. It is difficult and demanding because the listener cannot control the speed of the information input. If one is reading a text, one can always go back to the previous page or section for better understanding. This is not possible in listening. While reading, one can look up a difficult word in a dictionary which is not possible in listening. One can read a text at his/her own pace. But, one has to listen and comprehend the information at the pace of the speaker. So, listening comprehension is not easy, and successful comprehension presupposes attention from the listener, sufficient background knowledge coupled with good vocabulary knowledge, especially knowledge of confuses words like *judicial-judicious*, *ingenuous-ingenious*, *official-officious* and so on. There are a number

of minimal pairs in English like *affect-effect*, *construct-constrict*, *prescribe-proscribe* etc. Lack of knowledge of these words results in confusion. Generally, listening does not allow time for guessing. In many instances, either one understands a word or one does not. Hence, a large amount of vocabulary is indispensable for successful listening comprehension.

1.4.3 Vocabulary in Speaking

Spoken language has become more important in language teaching with emphasis on language for communication (McCarthy & Carter, 1997). Speaking requires lexical competence. Speaking is always geared towards the listener. If the listener is not able to grasp the meaning of what is spoken, the whole communicative event becomes invalid. So, the speaker must have an appropriate estimation of the target listener's size of vocabulary and then should be able to modify his/her utterance. So, a speaker should have both breadth and depth of vocabulary. If the speaker understands that the listener is finding it difficult to understand the message, then, he/she should be able to communicate the message using a different set of words. The speaker should also have a rich store of defining or supporting vocabulary to help the listener understand the message. The speaker should also have correct pronunciation of the words to avoid any kind of misinterpretation. Above all, the speaker should know the use of discourse binders such as *even though*, *on the contrary*, *in fact* etc. which help the listener prepare for the content of the next idea. The speaker should also use gap fillers like *er, mm, erm* etc. to maintain discourse connectivity. These may not be words in the term's fullest meaning; but, they are in the top 20 of the frequency of occurrence (McCarthy & Carter, 1997).

1.4.4 Vocabulary in Writing

Spoken and written utterances are considered the productive use of vocabulary. While speaking, the speaker can take the help of gestures, body language, and intonation for clarity in communication. Writing does not have this advantage. Feedback is almost instantaneous in spoken communication and is almost unavailable for written communication excluding class progress tests and leave letters. So, the writer needs to be very careful in presenting the material in a clear and logical manner which is achieved through appropriate use of vocabulary and suitable grammatical structures. Use of formal vocabulary is important in writing. Words like *chap, guy* etc. should be avoided totally. Errors in written communication are taken rather seriously because it has a particular advantage. One can always read what has been written and make corrections if necessary. Excluding exam papers and leave letters, most of the time, the target readers are not known to the writer. So, the writer should carefully select the words he/she is going to use. Excluding serious academic writing, it is always advisable to use those words which are understood y a large number of people.

1.4.5 The Need for Vocabulary Growth

"Lexical knowledge is central to communicative competence and to the acquisition of a second language" (Richards, 2000, p. xi). Even without taking much help from grammar, vocabulary alone can enable an individual to communicate his/her message. As the world is revolving around effective communication skills, one needs to improve his/her size and depth of vocabulary i.e. one should know as many words as

possible and one should know different aspects like meanings, synonyms etc. of the words known. To achieve sufficient mastery over the required amount of vocabulary, one needs to engage oneself in constant development of the number of words and aspects of word knowledge. Though one's vocabulary knowledge is increased without any deliberate effort, those who want to aim for higher education and/or professional advancement need to develop their vocabulary volitionally.

Appropriate use of vocabulary is an important component of effective communication. As Swift states one has to use proper words in proper places. Inappropriate use of words mars the communicative event. When it comes to discourse, the selection of words is decided by the context or situation. Widdowson (1993) gives an example. If a wife asks her husband, *Have you put out the small domesticated furry feline animal?*, definitely the utterance is contextually out of place. Similarly, "Pass the sodium chloride, please" is a valid utterance in a chemistry laboratory but totally out of place at the dining table unless it is used deliberately to elicit laughter. Use of collocations also comes under the realm – appropriacy. For example, the phrase *strong coffee* is a valid collocation, but not *weak coffee*. Similarly, *heartfelt* is mostly used with *thanks* and *condolences*, not *congratulations*.

So, as vocabulary is central to one's communicative competence, sustains rudimentary communication, makes a communicative even effective, helps one in successful reading and listening comprehension, enables one to write lucidly, second language learners need to focus on their vocabulary growth.

1.5 Purpose of the Study

The purpose of the study was to measure the incidental and intentional learning capacities of engineering students before and after a course. This knowledge will help the teachers, syllabus designers and paper-setters in getting a better understanding of the amount and nature of vocabulary students need. So that, syllabus designers will include those aspects of vocabulary which are needed by students; teachers will change or modify their techniques of teaching vocabulary; paper setters will include the necessary vocabulary items while developing question papers. At the end, students will be able to improve their existing levels of receptive and productive vocabulary.

Engineering students study English in their first year alone. After that, they encounter English only as a medium of instruction. If the students are able to acquire vocabulary knowledge incidentally, there will not be any problem. If they are not able to do so, explicit vocabulary instruction should be provided to learners throughout their course of study. The pre-test gives an understanding of the vocabulary level of the students before the course begins and the post-test shows us the effect of instruction and the ability of the students to acquire words through incidental exposure.

Knowledge of students' level of vocabulary helps the teacher in paying systematic attention to the aspect of lexical development of students. The teacher may devise regular exercises and conduct regular exams on vocabulary, so that learners will have attained a considerable mastery of the words they need to know.

It is obvious that a top-down syllabus is almost always dealt with in the classroom keeping in mind the requirements of the question paper. If vocabulary is not given importance in the examinations, students and teachers will not be willing to spend time on it as it is not going to be assessed. Students' lexical knowledge will help the paper-setter in including relevant aspects of word knowledge in the question paper.

A brief description of the first year English syllabus, textbooks, testing pattern etc will help us understand the need to measure the effect of explicit vocabulary instruction and the importunities for, if any, incidental vocabulary acquisition.

Though all the second language learners need to improve their communicative abilities, students of engineering need it more than others because as future engineers, they have to work at different places in different countries, have to interact with several people coming from diverse language backgrounds. So, in order to help the students become effective communicators, the syllabus is designed more or less as per the principles of Communicative Language Teaching.

1.5.1 The Syllabus

CLT syllabus (1.3.2) generally aims at helping the learner attain communicative competence drawing on materials that emphasize the functions of language rather than the rules.

Accordingly, the syllabus for the prescribed English course work (Appendix A) also aims at improving the linguistic and communicative competence of the students with special emphasis on LSRW skills.

As one can see from one of the tasks included in the textbooks, it is understood that functions of language are, indeed, given prominence. One of the tasks contains a list of expressions used in both formal and informal situations to make requests and to respond to the latter. For example:

> Excuse me, could you help me, please.
> I am sorry to trouble you; but I need your help.
> Certainly, I shall be glad to help.
> Of course, by all means.
> Thanks a lot.
> You are welcome.

After listening to the expressions, students are asked to write and enact any one of the given situations. One such situation is given here.

> Mr. Joseph has just arrived in Guntur and asks a traffic policeman for directions to a hotel where his office has made arrangements for his study.

1.5.2 Role of the Learner

CLT (1.3.4) looks at the learner as an active participant who looks forward to learn in an interdependent way by contributing to the development of others and gaining from what others have to offer. The tasks in the textbook are set to make the learner co-operate and collaborate with the other students.

> Write well-constructed paragraphs on any two of the following topics. Use examples, arguments or explanations to amplify the statements. Discuss the topic with a partner before you start writing.

1.5.3 The Teacher

CLT asks the learner (1.3.5) asks the teacher to be a facilitator of learning offering advice as and when necessary. In the same way, the syllabus prescribed for the English course work, does not rely on any traditional methods of teaching such as lecture method.

1.5.4 Vocabulary

CLT (1.3.6) does not advocate paying any explicit attention to the teaching of vocabulary on the grounds that vocabulary is best learnt through contextualized language use. In this respect, the English syllabus prescribed for the first year engineering students deviates a little from the ideology of CLT. One unit of the syllabus is given for explicit discussion of vocabulary items such as one-word substitutes, phrasal verbs, idioms, words easily confused etc. Some tasks in the textbook also call for explicit discussion. Instructions given for the tasks make the point clear.

- Give the noun forms of the following with –ion, -ism, -ity etc.
- Add prefixes to convert the following words to their opposites.
- Give one-word substitutes for each group of the words below.
- Mark the right meanings or synonyms of the words in the sets given below.
- Match the words in column A with the meanings in column B
- Give abstract nouns corresponding to the following verbs.

1.5.5 Testing

CLT suggests that a test (1.3.7) should be as realistic as possible reflecting realistic discourse processing activities. But, the test design of the English course work does not confirm to the practices of CLT. It, in fact, goes totally out of the realm of CLT testing patterns. In doing so it also goes against the objectives of the syllabus itself.

JNTU makes use of both continuous assessment programme and end-examination pattern. Of the 100 marks, 20 marks are for continuous assessment and 80 marks are given for end-examination. Through out the year, three online exams and three off-line exams are conducted. On-line exams are conducted by the JNTU itself. The questions in these exams are objective in nature. Off-line exams are conducted by the respective colleges and the teachers concerned set the papers. Questions in these papers are mostly descriptive in nature. There is no scope for assessing the vocabulary knowledge of the students in the off-line exams. Online exams have twenty (20) questions and are conducted for twenty (20) minutes. The minute a student presses the submit button, his/her score is displayed on the monitor. On-line question-paper sometimes has one or two items on vocabulary assessment.

The year-end exam is conducted for eighty (80) marks. To reduce copying and to make the students go through the text more thoroughly, JNTU prepares four sets of test papers (Appendix B). Eight (8) questions are given to the students and any five are to be answered. One of these eight questions deals with items on vocabulary, grammar etc. One can see from the Appendix that the test design is not in accordance with the CLT

testing patterns. The questions do not replicate any realistic use of the target language. Look at some of the questions.

- Describe Datta and his modern frame work.
- Kalpana dreamed of reaching the stars. Did her dream come true?

Learning answers to these questions cannot have any possible use to the learners. Also, looking at these answers cannot give the teacher any idea of the linguistic or communicative information a student may have possessed. Vocabulary assessment part is also not well-constructed. The eighth question in Set No. 1 form May/June, 2006 question paper is repeated in Set No. 2 and 3 of the same year. Worse, the same question is repeated in Set Nos 1 and 4 of the year 2007. Eighth question in Set no. 4 of 2006 is repeated in Set No. 3 of 2007.

The negligence shown in setting a question paper to students studying in more than 200 colleges does not give any serious reason for the students to pay enough attention to the English course work. And the communicative tasks which are expected to increase the communicative competence of the students become almost meaningless. Learning these does not help the students get good marks in the examination. As a result, the whole teaching/learning situation which is supposed to be an interactive one becomes dull and vapid and lacks the spirit of the communicative approach.

1.6 Conclusion

Generally, in all private educational institutions, teachers are held responsible if students do not get good marks. Hence, the teacher's focus is shifted from helping the learners develop their language skills to preparing the students to write the exams well. As the test-tasks do not reflect what should be taught, teaching tasks aim at what is tested and how it is tested. As a result, teachers of English working in engineering colleges do not focus on the objectives set by the syllabus nor do they follow the instructions given in the textbooks. Their ultimate goal is to explain every paragraph in the classroom; so that students will not lose marks in the examinations.

Even though a good number of vocabulary items are not included in the test papers, teachers give meanings or synonyms of the difficult words as part of their mission to help learners get through the exams successfully and more importantly to safeguard themselves from the accusing looks of the management who constantly supervise the coverage of the syllabus and take regular feedback from the students on what is explained in the classroom and how it is explained. So, one can safely conclude that explicit vocabulary instruction is done in the English classroom

But, for the students of engineering under the purview of JNTU English is prescribed as a course of study only in the first year. After that, even though English is the medium of instruction students do not receive any explicit instruction. As they have to go through their subject textbooks regularly, there are plenty of chances for incidental vocabulary acquisition to occur. If the students are capable of incidental vocabulary acquisition, there will not be any problem. If they are not, then explicit focus should be

given to vocabulary acquisition activities which help students to acquire vocabulary incidentally.

So, the research aimed at assessing the effects of incidental and intentional vocabulary learning on the first year students of engineering. If vocabulary is learnt through interaction in and with the language, it is called incidental learning. If vocabulary is learnt deliberately it is called intentional vocabulary learning. This can be done in a de-contextualized manner as in providing dictionary meanings to the words in a list or in a contextualized fashion as in reading comprehension. A detailed discussion of these terms is provided in section. The present research aimed at measuring the lexical growth of engineering students under the influence of different variables such as medium of instruction, reading habits of the learners, learners' assessment of their own interests towards the different aspects of the language, help rendered by the English textbook, factors such as effect of word class and length of the word on the word's learnability etc. If the students do not have a rich store of vocabulary they go on clutching their lexical teddy bears (Hasselgren, 1994). Lexical teddy bears are the words which form part of the very basic vocabulary. For example, many second language learners use good in place of the underlined words in the following utterances.

- It is a comfortable journey.
- The teacher is very understanding
- This is an interesting book.
- It is a pleasant evening.
- He is a generous person.

As long as the learners are in the safety zone of their basic vocabulary, they cannot communicate freely. Fluent and confident communication is the requirement of the day.

It has been discussed how knowledge of vocabulary becomes almost indispensable in making use of LSRW skills. All second language learners, especially students of engineering, need to discover that their lack of vocabulary knowledge impedes their ability to comprehend or express themselves clearly in English (Folse, 2006).

Since vocabulary is the focus of this dissertation, the next chapter deals with the different aspects of word knowledge, importance given to vocabulary development by various teaching approaches and methods, work done in vocabulary development, advantages of vocabulary instruction and vocabulary acquisition.

Chapter 2

Review of Literature

2.0 Introduction

In this chapter, we look at different aspects of vocabulary: meaning and nature, theories related to vocabulary learning, testing and vocabulary testing as discussed in the literature.

2.1 Vocabulary

The fourth edition of *Oxford Advanced Learners' Dictionary of Current English* defines vocabulary as the total number of words that make up a language. It further states that the term vocabulary can be used to refer to the number of words known to a person or used in a particular book. That means, when words are looked at as individual entities, the term *word* is used. But, when a group of words are looked at in their totality, the term *vocabulary* is used. For example, if one is shown the particular arrangement of letters *term* and asked what it is, the response always is that it is a 'word'. One can never get a response that it is 'vocabulary'. But, one sees expressions like 'vocabulary' used in a book, nature of vocabulary, technical vocabulary etc. For example, *diode* is a technical word. A list of such words becomes technical vocabulary.

2.1.1 Word

The term *word* is always defined with respect to the individual language in question. In English, an item is called a word, if it fulfils six criteria. They include orthographical representation of the word, phonological and morphological possibility, meaning, indivisibility and independence (Mallikarjun, 2002).

In the written form of the English language, words are spaced on either side. For example, *Tom and Jerry* are considered to be three different words because they are properly spaced. *TomandJerry* would not be considered a word because of lack of space.

If a group of letters has a meaning attached to it, then, the group can be called a word. Words like *use, soap, here, small, coffee* etc. have meanings of their own.

Words like *blen, timp, reeb* are not considered words. These are called non-words in English. Non-words are those whose arrangement of letters is possible according to the morphological structure of the language; but, no meaning has been attached to them yet.

The next point deals with fulfilling the phonological criterion. Items such as *mkus, ndet* are not considered words because these structures are impossible in the English language because they cannot be pronounced at all given the phonological structure of the language. (Sailaja, 2004)

The next concept discusses the point indivisibility. If an item is a word, it is not possible to insert another linguistic unit into the word. If such insertion is possible, the item under consideration is not a word. For example, take the following unit.

weolsulusimpletggiha

This is the test used by Meara (1986, cited in Schmitt, 2000) in an early experiment to study the recognition speed of L2 readers. This is a string of characters where the word *simple* is embedded or inserted which means that the other characters surrounding *simple* are not words. So, the word *simple* could be inserted. One can even change the place of insertion like

weolsusimplelutggiha

But, one cannot insert another character into *simple* which confirms that *simple* is a word.

The last aspect deals with the concept of independence. If a unit can stand on its own, it is a word. Prefixes and suffixes are not words because they cannot occur individually in a sentence.

2.1.2 Lexical Unit

We have seen that a word has a meaning. In many cases, a word has many meanings. For example, the word *bank* has many meanings. In some other cases, a group of two or more words has one meaning. In most of the cases, these words individually have one meaning and together they form another meaning. For example, *run into* means *meet*. In the same way, *throw in the towel* is *to accept defeat*. These phrasal verbs and idioms are also called lexical units.

2.1.3 Estimating the Size of English Vocabulary

We have seen that words and lexical units form a part of the broader term 'vocabulary'. We have also seen that vocabulary is the total number of words in a language or in a book or the number of words that are known to a person. There are different ways of counting the number of words. They are tokens, types, lemmas and word families (Nation, 2001).

Tokens

One way to count the number of words is to simply count every word in an utterance or a book irrespective of the number of times some of these words occur. For example, the sentence, *we should not end a sentence with because because because is a conjunction* has 13 words in it even though *because* and *a* are repeated. Words counted in this way are called tokens. For instructions like *write an essay using not more than 500 words*, it is the token count of vocabulary that is considered.

Types

Another way of counting the number of words is to count every word omitting repetence. So, the sentence, *we should not end a sentence with because because because is a conjunction* has 10 words. Words which are counted in this way are called types. Words are counted in this way to answer questions like *how many words do you know in this passage?*

But, this is not possible always. Take for example, the sentence *I walk for two hours daily; but, today I walked for only one hour*. Sentences like these raise doubts

about whether *walk* and *walked* are considered two words. Similarly, *hour* and *hours* raise the same doubt. To solve this problem, the concept of counting lemmas came into existence.

Lemma

A lemma consists of a head word and some of its inflected and reduced forms (Nation, 2001). Usually, all the items included under a lemma are of the same part of speech. Hence, in the sentence, *I walk for two hours daily; but, today I walked for only one hour, walked* comes under the head word *walk* and both belong to the same lemma.

Lying behind the use of lemmas as the unit of counting is the idea of learning burden (Swenson and West, 1934, cited in Nation, 2001). The learning burden of an item is the amount of effort required to learn it (Nation, 2001).

For example, once a word *book* is learnt, learning *books* becomes very easy. Similarly, learning verb forms like *talk-talked, form-formed* becomes simple.

But, this is not always the case. Learning the plural form of *child* is different from that of *book*. In the same way, *bring-brought* does not follow *talk-talked*. In these examples, *children* and *brought* have to be learnt as individual words which makes it clear that all lemmas do not ease the learning burden. Let's look at another example.

I walk regularly because walking is good for health.

In this sentence, *walk* and *walking* do not come under the same lemma because *walk* is a verb and *walking* is used as a noun.

To solve these problems, counting word families came into existence.

Word Family

A word family usually includes the base word, all of its inflections and derivations. The term 'word family' has larger scope than the term 'lemma' which includes only the base word and its inflections. So, when researchers count the number of words in a dictionary or in any selected book or the number of words known to a person, they generally count word families as single units. Thus, *deny, deniable, undeniably* are counted as one word family. Knowledge of word families is important because there is evidence that the mind groups members of a word family together (Nagy et al., 1989). These word families help us in estimating the size of English vocabulary.

2.1.4 The Size of English Vocabulary

Estimating the size of English vocabulary is an ambitious task. The oft-cited study is done by Goulden, Nation and Read (1990). They considered word families as single units and counted the number of word families in the *Webster's Third New International Dictionary*. They found that the dictionary contains 114,000 word families excluding proper nouns. It is difficult for the native speaker also to learn all these words. It is not even necessary, nor possible to learn all the words in any language. In fact, we learn only those words which help us in giving or receiving information. There is a high degree of individualism involved in learning a language (Mobarg, 1997). But, as lexical competence is at the heart of communicative competence (Long & Richards, 1997), it is always

advisable for learners who aspire for higher education and/or growth in career to learn as many words as possible. Some of these words form a part of an individual's receptive vocabulary and others forma part of productive vocabulary.

2.1.5 Receptive and Productive Vocabulary

Words which are used for receiving information constitute receptive vocabulary. The latter is also called passive vocabulary. Words which are used for giving information are called productive vocabulary or active vocabulary. An individual's receptive knowledge of a word includes the ability to recognize the word when it is heard, being familiar with its written form, knowing the connotative and denotative meanings of the word, knowing the words which are synonymous with the word, understanding its grammatical behaviour, knowing its collocational use, and knowing the frequency of the word. In addition to the above-mentioned types of knowledge, productive knowledge of the word includes an understanding of the phonological and orthographic nature of the word, using the word in a sentence which is correct both grammatically and contextually, being able to produce synonyms and antonyms for the word, using the word with proper / appropriate collocations (Nation, 2001).

But, these distinctions are not hard and fast ones. Those words which were part of passive vocabulary of an individual at one time may become part of his/her active vocabulary afterwards. In the same way, one's productive words may become inactive and remain passive. So, this active - passive distinction is treated as a scale of knowledge

(Melka, 1982). It is a continuum on which an individual's knowledge of words moves back and forth according to the necessity of the use of words. As the individual goes on learning new words, or new uses of the already learned ones, one's active vocabulary may become passive and vice-versa.

Incremental nature of vocabulary growth

Many aspects of the words should be learnt for a word to become part of either receptive or productive vocabulary of an individual. All these different kinds of word knowledge cannot be learnt at one go. Every one of the word knowledge types is likely to be learned gradually over a period of time based on the type of encounters with the words as vocabulary acquisition is incremental by nature. Some aspects may be developed more quickly than others. Which aspects are learnt first and which are learnt later is not easy to assess (Schmitt, 2000). A high level of individualism is present here. Learning vocabulary is not a totally volitional process. Some words and expressions are learnt consciously and some others are acquired unconsciously. In other words, words are learnt either through explicit vocabulary instruction or incidental vocabulary acquisition.

2.2 Incidental Vocabulary Acquisition

Individuals possess a very large stock of vocabulary, be it receptive or productive. In an L1 context, most of the vocabulary is learnt through repeated exposure to words in different contexts. In an L2 context, learners start with learning by direct instruction and slowly and gradually move towards learning from context. As vocabulary learning is

incremental in nature, every encounter with a known word either adds strength to the existing knowledge of the word or provides additional information about the word. This is called incidental vocabulary acquisition. Vocabulary acquisition takes place in learners when they are engaged in meaningful and / or meaning focused communication through formal and informal sources. This is also called incidental learning of vocabulary where vocabulary growth is a by product of something else - comprehending a lecture or a text or a conversation.

N. Ellis (1994) talks about incidental learning as learning without any intention to learn. *Intention* seems to be the operative word here. This does not mean that the learner does not notice the word in question, but, his / her attention is on comprehending or understanding something and memory for the new word comes as a natural result of the process, a conscious effort to learn being unnecessary. Ellis differentiates this from implicit learning which suggests that "the meaning of a new word being acquired totally unconsciously as a result of abstract action from repeated exposures in a range of activated contexts" (N. Ellis, 1994, p. 219, cited in Gass, 1999, p. 321).

Schmitt (2000) observes that through exposure to language, spelling is the first aspect that is learnt. If the exposure is oral, pronunciation is what is registered in the mind. Later, meaning and word class of the word are learnt. One derivation of the target word may be learnt but not all the possible derivations. Similarly, core meaning is learnt, but not all the different meaning senses the word has. Collocations are the ones that are learnt at the advanced level.

Similarly, Paribhakt and Wesche (1999) point out that learning a word starts with the first meaningful encounter with a previously unknown word and continues through the successful integration of that word into their mental lexicon. *Meaningful* seems to be significant word here. In a context, if the word in question does not evoke any meaning sense in the learner, the word is totally ignored because learners do not see any need to learn such a word and do not pay any attention to it. That is, if the word is salient in the context, learners use different strategies to decipher the meaning of it. Which word appears salient to the learner and which one does not, is not an easy question to answer. Smith (1993, cited in Gass, 1999) argues that input can also be made salient by external sources to provide opportunities for better acquisition. These external sources include teacher, materials, textbooks etc. Sometimes students themselves think that a particular word is salient in the context and proceed to infer its meaning through the contextual clues. As Gass (1999) points out, when talking about incidental learning, pedagogically induced attention may not fit in with learner attention. That means learning occurs when the learners perceive a need to learn. As Ellis states, "that we have not been taught vocabulary does not entail that we have not taught ourselves" (Ellis, 1994 ,p. 7 cited in Gass, 1999, p. 321).

In addition to learner's attention, there are other factors that promote vocabulary growth incidentally. They are: existence of recognized cognates between the native and the target language, significant L2 exposure and existence of familiar words in the context in question.

Incidental learning of vocabulary has certain advantages. They are: a) it is contextualized, giving the learner a richer sense of a word's use and meaning, b) it is more individualized and learner based and c) it is efficient because it enables two activities - vocabulary acquisition and reading - to occur at the same time (Huckin & Coady, 1999). In spite of all the above mentioned advantages, incidental learning does have certain limitations. Even though Krashen (1989) is all in favour of vocabulary acquisition through natural exposure to comprehensible input, there are arguments against this type of acquisition. For example, it is pointed out that the richness of information which helps the reader guess the meaning of an unknown word from the context can also predict that the same reader does not try to learn the word because he / she can comprehend the text without knowing the word (Nation & Coady, 1988, cited in Huckin & Coady, 1999).

Incidental vocabulary learning presupposes that certain conditions should be met for it to occur. They are - precise interpretation, accurate word recognition, well understood context, good textual clues, substantial prior vocabulary knowledge, good reading strategies and so on (Huckin & Coady, 1999).

In addition to the existence of the above mentioned criteria, almost all of the surrounding words in the text should be known to the learner for successful vocabulary acquisition. So, knowing every word through incidental exposure is almost impossible for a second language learner. He/she should have received some amount of explicit instruction to know the very basic words, i.e. at least up to 3,000 to 5,000 word families (Laufer, 1997a) to acquire a word incidentally. Without this prior knowledge, incidental comprehension of meaning may occur, but not incidental acquisition (Lawson & Hogben,

1996, cited in Huckin & Coady, 1999). This brings us to the realm of explicit vocabulary instruction.

2.3 Intentional Vocabulary Learning

When compared to incidental learning, intentional learning of vocabulary is more formal in nature and presupposes that paying explicit attention to words in the classroom is beneficial for the L2 learners. It can be through providing glosses, encouraging learners to maintain vocabulary note books, providing example sentences and asking students to come up with their own sentences, discussing other words which mean more or less the same as the target words and so on. For a second language learner, explicit vocabulary instruction is a beneficial one. Nation and Newton (1997) propose that the most frequent 2000 words are essential for any real language use and so are worth the effort required to teach and learn them explicitly. The learning of these basic words cannot be left to chance, but should be taught as quickly as possible, because they open the door to further learning (Schmitt & McCarthy, 1997). Not only the first two thousand words, but, beyond that limit may also have to be taught in a second language classroom. Because, for learners who do not engage in extensive reading, who do not listen to much target language outside the classroom, and do not converse in the target language, explicit vocabulary instruction is the only way to get hold of new words. Sokmen (1997) surveys explicit vocabulary teaching and highlights some key principles that should be the components of any explicit vocabulary teaching programme. They are: to build to a large sight-vocabulary, to integrate new words with the old, to provide a number of encounters with

a word, to promote a deep level of processing, to facilitate imaging, to make new words real by connecting them to the students' world in some way, to use a variety of techniques and to encourage independent learning strategies.

While dealing with a text or a passage, sometimes, teachers explain a word by offering an LI translation, definition or synonym so that learners can go on continuing with understanding the text. Sometimes, if the word in question is very important, “rich instruction” (Beck, Mckeown and Omanson, 1987, cited in Nation, 2001) is provided by paying elaborate attention to the words, and going beyond the immediate demands of a particular context of occurrence.

Nation (2001) proposes three main advantages of direct vocabulary teaching for second language learners compared to direct vocabulary teaching to native speakers.

- Native speakers come to know around 5000 word families by the time they are five years old. This is most unlikely for a second language learner. So, at least the first 2000 words should be taught directly to the non -native speakers.

- Native speakers have a large number of opportunities to get input and to produce

output. Second language learners do not enjoy these rich language learning environments.

So, maximum and qualitative input should be provided in the classroom. Direct vocabulary teaching tries to bridge the gap between second language learners' present proficiency level and the proficiency level they ought to reach.

- Second language learners have less time for learning. Direct teaching accelerates the learning speed.

In spite of the advantages, direct teaching has some limitations, the first one being the amount of time spent in the classroom. The others include the number of words to teach, the amount of time spent by the teacher prior to the class, and so on. In addition, continuous vocabulary instruction may be very laborious, tiresome and boring task for the teacher as well as the students.

2.4 Incidental and Intentional Learning of Vocabulary

Explicit learning directly focuses attention on the target words, which gives the greatest chance for its acquisition. But, it is very time consuming and is to be done in a classroom in a formal teaching / learning scenario. Incidental learning is freer in nature and it can occur at any place. But, it is slower and it lacks the focused attention of explicit leaning. The consensus is that for second language learners at least, both explicit and incidental learning are necessary, and should be seen as complementary (Schmitt, 2000). As Sokmen (1997) points out, the pendulum has swung from direct teaching of vocabulary (the grammar translation method) to incidental learning (the communicative approach) and is now combining both - implicit and explicit learning.

Certain words like high frequency words and technical vocabulary can be successfully dealt with in a teaching programme, but beyond that limit, it is better to encourage readers to learn incidentally.

As Ellis (2002) points out, even though language learning is implicit by nature, one cannot deny a role for explicit instruction.

In their study, Paribhakt and Wesche (1997) compared reading comprehension plus vocabulary enhancement exercises (RP) with reading additional texts that incorporated the same words (RO). The Vocabulary Knowledge Scale was used to elicit the subjects' knowledge about the target words. The results indicated that both instructional treatments resulted in significant gains in learners' vocabulary knowledge. But Reading plus (RP) had greater gains than Reading only (RO). Learners often ignore the meanings of unknown words, unless they are essential for text comprehension. Within a limited instructional setting, this learning strategy is not found advisable. It was concluded that "L2 vocabulary acquisition can be enhanced through instructional intervention in the context of meaningful language use"(Paribhakt & Wesche, 1997, p. 177).

Nation and Newton (1997) suggest that the teacher can follow either of the two approaches, namely, direct approach or indirect approach while providing instruction. These two approaches, the authors suggest, should be seen as complementary. In the direct approach to vocabulary teaching, explicit attention is given to vocabulary by means of word-building exercises, matching words with definitions, studying vocabulary in context, split information activities focusing on vocabulary and so on. In the indirect approach, the teachers' concern for vocabulary learning is not stated as obviously as in the direct approach. The teacher can incorporate vocabulary learning into communicative activities like listening to stories, information gap activities and group work. Whenever problems with vocabulary occur in activities, they will be dealt with in a principled way.

Tseng and Schmitt (2008) suggest that teachers should aim at helping learners become self- motivated experts in a language. They proceed to explain that self-motivated language experts should know how to change their negative attitudes into positive ones, should have a strong intention to learn and also maintain and protect that intention in order to reach their learning goals, should master a set of vocabulary learning tactics and be able to use them comfortably, spontaneously and effectively and above all, they should know that vocabulary learning is multi-dimensional and should endeavor to establish a large well-structured mental lexicon by improving both their vocabulary size and depth.

As any teaching programme should have its primary objective to make the teacher redundant at the end of the programme, explicit focus on vocabulary learning strategies seems to be a feasible option. Nation (2001) developed a taxonomy of kinds of vocabulary learning strategies.

General class of strategies	Types of strategies
Planning: choosing what to focus on and when to focus on it	Choosing words Choosing the aspects of word knowledge Choosing strategies Planning repetition
Sources: finding information about words	Analyzing the word Using context Consulting a reference source in L1 or L2 Using parallels in L1 or L2
Processes: establishing knowledge	Noticing Retrieving Generating

(Nation, 2001, p. 218)

This conclusion might not have been arrived at without understanding the roles different language teaching methodologies have played in vocabulary development. The next section provides an overview of the various language teaching methodologies with regard to vocabulary growth.

2.5 Theories of Second Language Vocabulary Learning

People have attempted to learn second languages from at least the time of the Romans (Schmitt, 2000). In this period of more than two thousand years, there have been various approaches to language learning. Each of these approaches has viewed vocabulary from different perspectives. Sometimes vocabulary has been given utmost importance and some other times, it has been totally neglected. The different approaches and the place of vocabulary in them are discussed in the following sections.

2.5.1 Early Approaches

The first learners in the West who had access to a second language were the Romans when they studied Greek. They started with the alphabet and reached connected discourse via syllables, words and phrases. Vocabulary was given due importance. Some of the texts gave students lexical help by providing vocabulary that was either alphabetized or grouped under various topic areas (Bowen, Madsen, & Hilferty, 1985 cited in Schmitt, 2000). Later, in the medieval period, grammar occupied a prominent place when students studied Latin. This over-emphasis on syntax annoyed some of the

educators. William of Bath and Comenius believed in contextualized vocabulary acquisition and wrote texts suggesting an inductive approach to language learning. The seeds for vocabulary control movement were sown here. Scholars such as William and Comenius tried to give predominant focus to vocabulary while promoting translation as a means of directly using the target language, getting away from rote memorization and avoiding such a strong grammar focus (Schmitt, 2000).

Even though the focus of language instruction remained on rule oriented learning of Latin grammar, attempts were made to standardize vocabulary. The first dictionary was Robert Cawdrey's *A Table Alphabetical* produced in 1604. The most prominent was the *Dictionary of the English language* by Samuel Johnson in 1755. The modern language teaching methodologies started from the beginning of the nineteenth century with Grammar - Translation at the helm.

2.5.2 Grammar - Translation Method

Grammar - Translation method was also called the 'Classic Method' because it was used to teach Classical languages, Greek and Latin. It was also called the 'Prussian Method' as it had its origin in Prussia. This method focused on translating the sentences giving great importance to accuracy. As a mastery of vocabulary was required for translation, it was taught through bilingual word lists; dictionaries and memorization of words and their meanings. The textbooks also contained vocabulary lists. In this method,

though vocabulary was given importance, it was not for the purpose of discourse, but for the purpose of translation.

2.5.3 The Reform Movement

As the name itself suggests, the advocates of the Reform movement under the leadership of Henry Sweet were totally against the principles of Grammar-Translation method. From translating sentences, the focus was shifted to fluent speech with accurate pronunciation. Sweet developed a curriculum which was divided into five stages. Students learnt Phonetics and transcription in the *Mechanical Stage,* studied grammar and very basic vocabulary in the *Grammatical stage* and proceeded to learn vocabulary in greater depth in the *Idiomatic stage. Literary* and *Archaic* stages were more advanced in nature and were reserved for university level students. Though vocabulary was studied in two stages of this curriculum, words which were simple and useful were selected, thus giving primacy to appropriacy and reality (Zimmerman, 1997).

2.5.4 The Direct Method

The Direct method, the best known of the several natural methods, was introduced towards the end of the nineteenth century as a result of the interest shown by scholars in developing principles for second language teaching on the lines of first language acquisition (Richards and Rodgers, 1986).

The Direct method received its name from the fact that meaning was to be communicated directly using the target language without any translation (Larsen-Freeman, 1986). The target language was used in question-and-answer exchange in small, intensive classes. Vocabulary was simple and familiar. Concrete vocabulary was explained with labeled pictures and demonstrations, while abstract vocabulary was taught through the association of ideas (Richards & Rodgers, 1986).

2.5.5 The Reading Method

The Reading method, as the name itself suggests, focused on the development of reading skills in learners by improving vocabulary skills. Michael West was probably among the pioneers who understood that reading and vocabulary development are complementary in nature. The primary thing in learning a language is the acquisition of vocabulary, and practice in using it (West, 1930 cited in Zimmerman, 1997). West recommended the use of word frequency lists for the selection of vocabulary in student materials. In 1953, West published *A General Service List of English Words* which became an instant success. Even today, GSL is said to be the most used high frequency word lists. Michael West was, still is, probably the best known scholar to harness the idea of frequency with second language learning (Schmitt, 2000).

Vocabulary control movement

Even though West was the well known scholar to link frequency with learning, GSL was not the first word list. The tradition of forming vocabulary lists dates back to

Grammar Translation. Objecting to these archaic word lists, Thomas Prendergast, in his 1864 manual, *The Mastery of Languages* or *the Art of Speaking Foreign Tongues Idiomatically* listed the most common English words based solely on his intuition which surprisingly seemed to be accurate (Zimmerman, 1997). In the 1930s C.K. Ogden and I.A. Richards developed a vocabulary list with only 850 words. This word list was called as Basic English which was said to be learnt quickly, thereby communicating any message clearly. This was done by paraphrasing. For example, the words *ask* and *want* were not included in Basic English, but could be expressed as *put a question* and *have a desire for* respectively (Carter, 1988 cited in Schmitt, 2000). As one can see from the example given, Basic English shifted the emphasis from learning many words to learning many meaning senses; thereby increasing the learning burden of the second language learner. It was estimated that the 850 words of Basic English have 12,425 meanings (Nation, 1983). Learning many meaning senses could not be easier than learning many words. In the end, many teachers felt that if courses were offered which claimed to teach Basic English, they should in fact learn basic English (Howatt, 1984 cited in Schmitt, 2000).

Basic English was published in the 1930s while GSL was published in 1953. The *General Service List* was compiled as a reaction to the Direct Method which did not give primacy to vocabulary or reading materials. Scholars who were working on the principles of language learning came up with the 'Interim report on vocabulary selection for the teaching of English as a foreign language' which is popularly known as the Carnegie Report. The Report recommended the development of a list of vocabulary that would be useful in the production of simple reading materials (Schmitt, 2000). This list was

developed using systematic criteria in selecting the most useful words for language learning. The criteria were

- Word frequency
- Structural value (all structural words included)
- Universality (words likely to cause offence locally excluded)
- Subject range (no specialist items)
- Definition words (for dictionary making, etc.)
- Word building capacity
- Style ("colloquial" or slang words excluded)

(Howatt, 1984, p. 256)

The list had two thousand words. The advantage of the *General Service List* was that the different parts of speech and different meaning senses were listed which made the list more useful than a single frequency count (Schmitt, 2000).

The general opinion at that time was that vocabulary was one of the most important aspects of foreign language learning. Vocabulary was also seen as an essential component of reading proficiency (Richards & Rodgers, 1986). This period also saw the publication of *The Advanced Learner's Dictionary of Current English* (1953), the first Dictionary for students of English as a foreign language, developed by Hornby, Gatenby and Wakefield.

The more recent vocabulary lists are *University Word List* (1984) and *Academic Word List* (1998) developed by Xue and Nation, and Coxhead respectively. The UWL was designed to consist of words not in the GSL, but those that occurred frequently over a range of academic texts. The AWL was compiled by Averil Coxhead with range, frequency and uniformity as the criteria. The list is divided into ten sub lists with 1 being

the most frequent and 10, the least frequent. The first sub list contains words which are more frequent and the tenth sub list has words that are less frequent.

2.5.6 Situational Language Teaching

Situational language teaching grew roots almost simultaneously with the Reading method. The leaders of this approach were the British Linguists, H.E. Palmer and A.S. Hornby. They believed that language should be taught by practising basic structures in meaningful situation–based activities; speech was the basis and the structure made speech possible (Zimmermam, 1997). Similar to the Direct Method, Situational language teaching also adopted an inductive approach to language learning. Learners were expected to deduce meanings of the new words and use of new structures from the way they were used in a situation.. New vocabulary was taught before students encountered them in reading. Vocabulary was chosen based on how well it could accommodate sentence structures. The whole approach was based on the principles of selection, gradation and presentation (Richards & Rodgers, 1986).

2.5.7 The Audio-lingual Method

The audio-lingual method grew into prominence during the Second World War. The rubrics of the method were based on the premise that teaching language could be as scientifically systematic as teaching linguistics. This method, which was also called the structural approach, was developed by American Structural Linguists when governmental

and institutional support was available for the teaching of foreign languages. Founded by Charles Fries, this approach suggested that many of the problems faced by foreign language learners were related to the structural system of the language and proceeded to see language as a process of habit formation. The method paid systematic attention to pronunciation and intensive oral drilling of basic sentence patterns through an intensive study of three months.

Intrinsically, this method looked at vocabulary from a completely unorthodox standpoint. As the objective of the method was to acquire structure patterns, vocabulary items were selected according to their simplicity and familiarity (Zimmerman, 1997). New words were introduced through drills. The number and nature of the new words was influenced by the drills in question (Larsen-Freeman, 1986). Fries thought that focusing on vocabulary would give students the false impression that learning vocabulary was the most important thing about learning a language with its dictionary (Fries, 1945 cited Zimmerman, 1997). Fries' idea was that learners would often make false assumptions about learning vocabulary - to think that words have exact equivalents in different languages, to believe that a word is a single meaning unit and to think that each word has only one real meaning and all the others are figurative in nature (Zimmerman, 1997). Fries argued against these assumptions saying that words are symbols that derive their whole content and their limitations of meaning from the situations in which they are used (Fries, 1945, cited in Zimmerman, 1997).

2.5.8 Communicative Language Teaching

Communicative language teaching - CLT - is more an approach than a method which aims at helping the learner achieve communicative competence which gives emphasis to the sociolinguistic factors which in turn govern effective language use. Communicative competence is defined as the internalized knowledge of the situational appropriateness of language (Hymes, 1972 cited in Zimmerman, 1997). Vocabulary was not the focus of attention in the CLT. More attention was paid to the appropriate use of language to suit the communicative event. Since vocabulary development occurs through contextualized input in L1, the proponents thought that the same would happen in L2.

2.5.9 The Natural Approach

Designed primarily to enable a beginning student reach acceptable levels of oral communicative abilities in the classroom (Krashen & Terrell, 1983), the Natural Approach emphasizes input which may in turn result in meaningful output. For a text to become comprehensible, vocabulary plays an important role. At the same time, explicit vocabulary instruction was not the focus. Learners should acquire vocabulary and structures as they understand the meaning of the text.

2.5.10 The Lexical Approach

The lexical approach is the outcome of the COBUILD dictionary project with John Sinclair as its editor-in-chief. The project resulted in the understanding that the lexicon of English consisted of mainly multi-word items of different types that collocated in a fairly fixed way or that occurred in fixed expressions (Nagaraj, 2008). Lewis argues that lexical items are central to language use and should be central to language teaching (1993, cited in Zimmerman, 1997). Lewis (1997), one of the advocates of the lexical approach, demonstrated that language mainly consists of multi-word chunks and prefabricated units rather than single words. Lewis calls these chunks 'lexical items'. Lexical items are socially sanctioned independent units. These may be individual words or full sentences - institutionalized utterances - that convey fixed social or pragmatic meaning within a given community. These lexical items include words (*Stop*, *Sure!*), poly words (*by the way*), collocations (*to raise capital*), institutionalized utterance (*I'll get it., There is a call for you*.) and sentences frames and heads (*secondly,…and finally, we come now to a number of important reservations*) (Lewis, 1997). Lewis proceeds to argue that to realize the true value of the lexical approach teachers need to respect receptive practice. Harwood (2002) concludes that if a lexical approach is implemented appropriately, learners will acquire lexis suitable for their need.

2.6 Extensive Reading and Vocabulary Development

Tudor & Hafiz define extensive reading as the reading of large amounts of material in the second language (L2) over time for personal pleasure of interest, and without the addition of productive tasks or follow up language work (Tudor & Hafiz, 1989). A major benefit of extensive reading is incidental vocabulary acquisition, the ability to acquire the meaning and use of unknown words when reading, without any specific information. According to the Input Hypothesis "…..language is subconsciously acquired – while you are acquiring you don't know you are acquiring; your conscious focus is on the meaning, not form" (Krashen, 1989, p. 440), He proceeds to explain that "good evidence exists that this assertion is also true for vocabulary and spelling: more comprehensible input, in the form of reading, is associated with greater competence in vocabulary and spelling" (Krashen, 1989, p. 441). He claims that comprehensible input coupled with a powerful internal language acquisition device results in successful language learning. Coady (1979, cited in Coady, 1997) argues that high levels of incidental vocabulary occur when the text is interesting to the learner even though the linguistic aspects of the texts are highly advanced in relation to the ability of the learner in question. Even if the subject matter is difficult, the motivation levels of the learner encourage and enable the learner to succeed in the task of comprehending the text. On the contrary, an uninteresting text does not result in effective vocabulary acquisition. In the next two sections, we discuss the positive and negative evidence for vocabulary acquisition to be the by product of extensive reading.

Negative evidence for extensive reading resulting in vocabulary acquisition

In an attempt to test the Input Hypothesis, Tudor and Hafiz (1989) set up a three month extensive reading programme using graded readers for sixteen students who were learning English as a second language. The authors claimed that the learners were free to choose any book and they were also allowed to take books home if they wished. No additional tasks were set to the learners except for an oral report on what they had read and their reactions to it. Even though dictionaries were made available, learners, in this study, preferred to learn the meanings of unfamiliar words from the experimenter. In spite of all the favourable conditions like pleasure reading, choice of books, no tasks, tension free environment and high motivational levels, there were not any significant gains in the vocabulary development of the learners. "Subjects' vocabulary base remained relatively unchanged" (Tudor & Hafiz, 1989, p. 164). It is concluded that the "retention of word meanings in a true incidental learning task is very low indeed" (Hulstijin, 1992, p.122, cited in Coady, 1997).

Positive evidence for extensive reading resulting in vocabulary acquisition

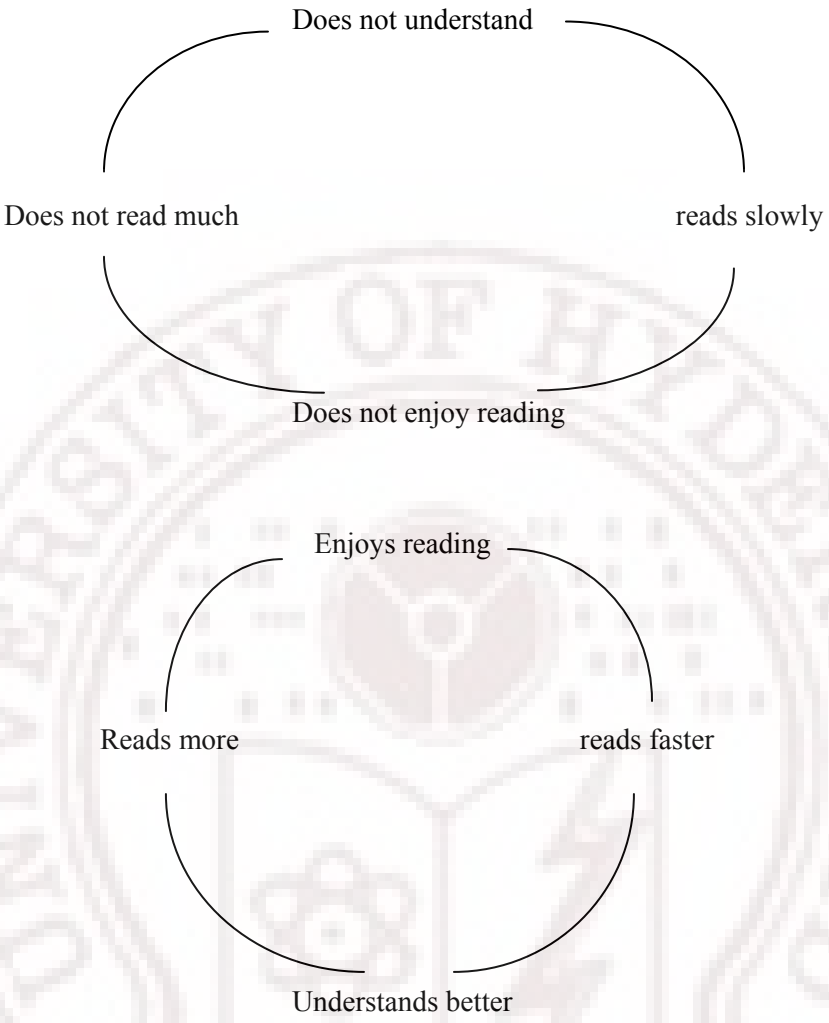
Krashen (1989), a leading proponent of extensive reading argues that language learners acquire vocabulary and spelling while reading. One of the pioneering studies was conducted in 1970s in Nieu, a small island in the South Pacific. Grade 3 students were introduced to fifty (50) high interest, short, illustrated story books. After one year, children under the programme outperformed the others who were in the traditional audio-lingual method in all three measures that were used, that is, reading comprehension, word recognition and oral sentence repetition (De'Ath, 2001, cited in Renandya, 2007).

The oft-cited example for the benefits of extensive reading is the study conducted by Elley and Mangubhai (1983, cited in Tudor and Hafiz, 1989). The two–year study focused on the effect of extensive reading on L2 skills development. Simplified readers were given to around four hundred students in a number of Fijian primary schools. After one year, students showed significant improvement in reading and word-recognition. By the end of the second year, substantial gains were identified with respect to oral and written production.

To the best of the researcher's knowledge, Elley and Mangubhai's is the only study which dealt with extensive reading in its true meaning in a second language setting, yielding positive results in both receptive and productive skills.

Conclusion

Even though research evidence has been quite inconclusive, advantages of extensive reading cannot be totally ruled out. But, for extensive reading to result in any significant vocabulary growth, learners are expected to have in possession at least 3,000-5,000 word families (Nation and Waring, 1997, cited in Schmitt, 2000). Once the learner crosses the vocabulary threshold and becomes an independent reader, he /she will be capable of learning words through context. Nuttall (1982, cited in Coady, 1997) proposes two circles of L2 reading. They are the vicious circle and the virtuous circle. The first one is the vicious circle and the second one is the virtuous circle.



She claims that "it does not matter where you enter the circle, because any of the factors that make it up will produce any of the others" (Nuttall, 1982, p. 167). She proposes that one has to break the chain if one wants to come out of the vicious circle.

Extensive reading potentially provides learners with the opportunity to process an unfamiliar word in its various natural contexts in order to acquire the complex prospects of the lexical item (Judd, 1978, cited in Rott, 1999). Print material gives more time to

process new words, whereas the word passes ephemerally in speech (N. Ellis, 1994, cited in Rott, 1999).

But, extensive readers are an exception, not the rule. If reading for pleasure is not introduced during the individual's childhood, there are fewer chances that he/ she may become an extensive reader. Camiciottoli's (2001) study revealed why extensive reading is considered important by some students. The reasons include: acquiring wider vocabulary, enhancing general literacy, usefulness for career, learning about other cultures, usefulness for English courses and for other courses. We can see from the above mentioned list that acquiring wider vocabulary has been placed first which makes it clear that not only teachers, but students also link vocabulary with extensive reading. The same study explored some reasons which are cited by the reluctant readers. The reasons include lack of time due to studies, lack of time in general, not knowing what to read, no access to English books, difficulty in understanding and lack of desire to read in English. These reasons hold good for any reluctant reader.

To help the reluctant readers become extensive readers, inclusion of an extensive reading programme with the following characteristics is proposed by Renandya (2007).

- Students read large amounts of material.
- Students usually choose what they want to read.
- Reading materials vary in terms of topic and genre.
- The material students read is within their level of comprehension.
- Students usually take part in post reading activities.
- Teachers read with these students, thus modeling enthusiasm for reading.

- Teachers and students keep track of student progress.

The above mentioned list is practical in nature. But, if post reading tasks are involved one has to think twice before calling it extensive reading or reading for pleasure.

Probably, the best study with respect to the implementation of extensive reading was done by Macalister (2008). The study was conducted in New Zealand in a class of 18 students who were in a 12-week university preparation EAP class. Every day, at the end of each morning, twenty minutes of sustained silent reading was practised with the teacher modeling good reading behaviour by silently reading during this time. Learners had access to the library of graded readers which had been catalogued into bands of difficulty. Learners were encouraged to choose the books from this library and read for pleasure alone. No post reading tasks were introduced. It was found that many students enjoyed this activity though some were of the opinion that they would not spend more time on reading. At the end of the course, many students reported that they found significant development in their vocabulary levels. It is concluded "that incidental learning from context during free reading is the major mode of vocabulary acquisition…and the volume of experience with written language, interacting with reading comprehension ability, is the major determinant of vocabulary growth". (Nagy, Herman & Anderson, 1985, p. 234)

2.7 Wash back of Assessment Procedures on Vocabulary Development

Learners in India, generally, judge the importance of learning material by carefully analyzing the test paper. While doing so, they consider three criteria – 1)

whether a particular aspect appears in the test paper, 2) whether the aspect yields good scoring, 3) whether it is easily learnt. That is why, in most tests, learners do not skip answering the grammar and vocabulary sections of the test paper. If vocabulary is tested in the exam, learners give importance to learning vocabulary. On the other hand, if vocabulary is not addressed during assessment, students may conclude that vocabulary does not matter (Schmitt, 2000) even though vocabulary is stressed in the class work. In a formal teaching-learning situation, students encounter two types of tests – Progress tests and Achievement tests. If vocabulary is assessed in both the tests, students are less likely to ignore it. If vocabulary is not a component in the continuous assessment programme, and is tested only in the end-examinations, students still pay attention to learning it. If vocabulary is not tested in the achievement test, but assessed in the progress tests only, there are not many chances for it to be given importance.

2.8 Testing

"Testing and teaching are so closely interrelated that it is virtually impossible to work in either field without being constantly concerned with the other" (Heaton, 1975, p. 1). There are two main facets of testing. The first one is used to reinforce learning, to make the teacher aware of individual students' performance and to help the teacher evaluate his/her teaching process. In this case, tests are used as teaching devices. The second is used to assess an individual student's performance and to make the students aware of their performance in relation to others' performance. In this case, the whole teaching process is determined by what is tested and how it is tested.

Any language test should indicate the learners' language ability, which consists of two components. One is language knowledge and the other one is strategic competence (Bachman & Palmer, 1996). Language knowledge is what learners know about vocabulary, grammar, spelling, sound system etc. of the target language. Strategic competence is how well a student uses his / her language knowledge for effective communication under normal time constraints (Read, 2000).

2.8.1 Purposes of Testing

Language tests are used for different purposes in an educational setting. They are:

- To determine readiness for instructional programmes
- To classify or place individuals in appropriate language classes
- To diagnose the individual's specific strengths and weaknesses
- To measure aptitude for learning
- To measure the extent of student achievement of the instructional goals
- To evaluate the effectiveness of instruction

2.8.2 Types of Tests

Based on the purpose of test, tests are divided into different categories. Heaton (1975) gives a clear picture of the nature of these different kinds of tests. They are:

Progress tests

Most classroom tests take the form of progress tests as they assess the progress of individual students. They are often used to motivate students. They also enable the teacher to assess his / her teaching methodology, whether the latter is successfully meeting the requirements of individual learners or not.

Achievement tests

Achievement tests or Attainment tests are generally conducted at the end of a teaching programme. They are generally based on a syllabus and assess whether the teaching-learning process has met the course requirements.

Proficiency tests

Proficiency tests are more related to assess a student's future performance in a specific task rather than his / her past achievement. Generally, they are not based on any syllabus. Students from various language backgrounds take these tests.

Diagnostic tests

A diagnostic test is primarily designed to measure a student's knowledge and skill before a course of study is begun and enables grouping of students. These are also called placement tests.

2.8.3 Characteristics of a Good Test

Educational programmes consist of many components - teaching materials, learning activities and tests. While the primary purpose of other components is to promote learning, the primary purpose of tests is to measure (Bachman & Palmer, 1996). The most important characteristics of any good test are Reliability and Validity.

Reliability of a test indicates how consistent the test is. "If a student takes a test at the beginning of a course and again at the end, any improvement in his score should be the result of differences in his skills and not due to inaccuracies in the test" (Harrison, 1980, p. 10).

Validity of a test is determined by taking into account whether the test has measured what it intended to measure. There are two important ways to measure validity. One is construct validity and the other is face validity. Construct validity determines whether the test assessed all the areas to be assessed in suitable proportions. Face validity is concerned with what the students and teachers think of the test. Face validity can be found out formally by means of a questionnaire or informally by discussion (Harris, 1962).

Discrimination, wash back, practicality, authenticity and interactiveness are the other characteristics of any good test.

If a test shows the differences in performance of the individual testees, then the test is said to have shown discrimination among testees as widely as possible. Progress tests and classroom tests are not generally designed to show discrimination among the learners.

They are geared towards assessing the extent to which the class has mastered the subject taught. But, achievements tests and proficiency tests are designed to show discrimination among testees.

The term backwash/washback refers to the effects of a test on teaching. If a test has good backwash effects, it will exert a good influence on the learning and teaching that takes place before the test (Harrison, 1980).

Another characteristic of a good test is its practicality or usability. If a test is economical both in terms of cost and time, if it is of sufficient length to yield dependable and meaningful results, if it is administered easily and scored comfortably and above all, if the instructions are clear so that the test taker understands what he/she is expected to do, one can say that the test is practical or useful (Harris, 1962).

Authenticity denotes the extent of relation between a test or test task and the real life language use or Target Language Use (TLU). Interactiveness is defined as the extent of the involvement that a test taker needs to complete the task. "…authenticity…pertains to the correspondence between test tasks and the TLU tasks,…interactiveness resides in the interaction between the individual (test taker or language user) and task (test or TLU) (Bachman & Palmer, 1996, p. 41).

2.9 Testing Vocabulary

Testing vocabulary is similar to testing in other areas of language knowledge and use (Nation, 2001). What is special about vocabulary measurement is how it is tested.

Vocabulary knowledge is generally tested from two stand points. One is measuring the number of words an individual knows. This is called breadth of knowledge. The second one is measuring the extent to which an individual knows a particular word; for e.g., the word's meaning, synonyms, collocations, registral variations and so on. This is called measuring the depth of knowledge. Most vocabulary tests are designed to measure the breadth or size aspect; because they are easy to evaluate, though difficult to construct.

The next aspect in vocabulary measurement is assessing receptive knowledge or productive knowledge of words. Word recognition, match the following, multiple-choice, collocations, etc. measure a learner's receptive knowledge. Word formation, writing definitions and synonyms, cloze tests, writing sentences using the target words etc. come under measuring productive knowledge.

Another criterion in vocabulary measurement is assessing one's knowledge about a word with and without the help of a context. These are called context-dependent and context independent assessment respectively.

Read proposes three dimensions of vocabulary measurement.

Discrete A measure of vocabulary knowledge or use an independent construct	Embedded A measure of vocabulary which forms part of the assessment of some other large construct
Selective A measure in which specific vocabulary items are the focus of the assessment	Comprehensive A measure which takes account of the whole vocabulary content of the input material or the test-taker's response
Context-independent A vocabulary measure in which the test-taker can produce the expected response without referring to any context	Context-dependent A vocabulary measure which assesses the test-taker's ability to take account of contextual information in order to produce the expected response

(Read, 2000, p. 9)

Discrete – Embedded

The first dimension focuses on construct which refers to the ability that a test intends to measure. In a vocabulary test, the construct is usually thought of as vocabulary knowledge of some kind. Construct gives meaning to the test results. Thus a discrete test is one which measures vocabulary knowledge as a distinct construct, "separated from other components of language competence" (Read, 2000, p. 8). On the contrary, an embedded vocabulary measure is one which forms part of another larger construct.

If a reading passage is given to the students for comprehension and vocabulary knowledge is also measured in addition to assessing the students' reading comprehension

ability, then, it is an embedded vocabulary measure. Because the students' language ability is not measured solely through measuring vocabulary knowledge.

If, from the same reading passage, some content words are selected and test items are written for each of these words to assess whether the learners can comprehend the meanings of the target words with the help of the contextual clues and all the test items are designed to measure vocabulary knowledge alone, then it is a discrete vocabulary measure. In this case, a student's performance is seen from the standpoint of his/her vocabulary knowledge.

Selective – Comprehensive

This dimension indicates the range of vocabulary to be included in the measurement. If the target words are selected by the test writer from a word-list or from a passage, then it is selective vocabulary measurement. This can be done in two ways. One way is to select the target words first and then incorporate them into separate test items. The second way is to choose a text or passage and then select some target words to be assessed.

In contrast, a comprehensive measure considers all the vocabulary used in a spoken or a written test. Here, particular words or expressions are not given importance. The learners are assessed on various criteria including their range of expressions to judge the quality of the test–taker's overall vocabulary use etc.

Context-independent --- Context-dependent

If the test taker can take help from the context to answer a vocabulary item, then the measure is context-dependent. Traditional view on context-dependent measure is to present a word in a sentence rather than in isolation. But, of late, the notion of concept has become broad to include whole texts. In fact, context-dependent measures should assess the test-taker's ability to make use of the context. In other words, if the students have to understand the context in which the target word is presented to answer the item, then it is context-dependent. Read gives an example:

> Humans have an innate ability to recognize the taste of salt because it provides us with sodium, an element which is essential to life. Although too much salt in our diet may be unhealthy, we must consume a certain amount of it to maintain our wellbeing.
>
> What is the meaning of consume in this text?
> a. use up completely
> b. eat or drink
> c. spend wastefully
> d. destroy
>
> The point about this test item is that all four options are possible meanings of the word consume. Thus, the test-takers need some understanding of the context in order to be confident that they have chosen the correct option rather than simply relying on the fact that they have learned 'eat and drink' as the meaning of consume.
> Read (2000, p.12)

On the other hand, if the target word is presented in isolation, or if the context does not help the learner in any way about the meaning sense in which the target word is used, then, the vocabulary measure is context-independent in nature.

The committee endorsed the proposal
a. discussed
b. supported
c. knew about
d. prepared

Another example is taken from Harris (1969).

nap
a. a brief sleep
b. a happy song
c. a sharp rock
d. a short meeting

Now, we look at four standard vocabulary tests.

2.9.1 The Eurocentres Vocabulary Size Test

The Eurocentres Vocabulary Size Test (EVST) is developed by Paul Meara. The EVST estimates the vocabulary size of a learner by using a sample of words from different frequency levels. The EVST is primarily a check- list test. It presents a list of words to the learners and asks the latter to indicate the target words they know. The list also contains non-words to adjust the score. Here is an example from Meara (1989, cited in Nation, 2001).

Tick the words you know

adviser	_____
ghastly	_____
contord	_____
implore	_____
morlorn	_____
moisten	_____
pitiful	_____
profess	_____
stourge	_____
discard	_____

Another important feature of this test is that it is administered by a computer even though a paper-and-pen format is not unavailable. A series of words is presented on the screen, each appearing one by one. The word and the question, “Do you know the meaning of this word?” appear on the screen. If the test-taker knows the meaning, he/she presses Yes and, No, if the meaning is not known. The test-taker is warned in advance that all the words are not real English words.

This test samples words from every 1000-word band up to 10,000 word level. From each 1000-band, the computer presents twenty words at random to the test-taker. If the test-taker's responses meet certain levels, the programme proceeds to the next 1000-word band. If the test-taker's performance is not up to the mark, then the computer programme understands that the test taker has come to the maximum limit of his/her vocabulary knowledge. Then, the programme presents another fifty words from the same level to estimate the person's vocabulary level more closely and effectively.

The EVST is a good placement test. It does not take much time, gives instant results and it is easy to interpret. One drawback with this test is that it does not measure whether the test-taker really knows the meaning of the word.

2.9.2 Vocabulary Levels Test

The Vocabulary Levels Test (VLT) was developed by Paul Nation in the early 1980s. It was developed for classroom use which helps the teachers to prepare a suitable vocabulary teaching programme. Meara calls this test “the nearest thing we have to a

standard test in vocabulary" (1996, cited in Read, 2000). The test is divided into five parts, representing five levels of word frequency in English: the first 2000 words, 3000, 5000, University word level i.e. beyond 5000 words and 10,000 words. Like EVST, VLT is also based on frequency counts. According to Nation (1990), the 2000-and 3000- word levels contain the high frequency words which are expected to be known by all second language learners for smooth and effective functioning in English. The 5000 – word represents the upper limit of the high frequency words. Words from the university word level are those that form part of academic reading material. Finally, the 10,000 word level covers the common low-frequency words in English.

The test is a matching item type. Six words and their meanings are given. As the test takers match the words to the definitions, Read argues that "the definitions are the test items rather than the words" (Read, 2000, p.119). An example from the 5000 word level is taken from Nation (2001).

1. analysis
2. curb _____eagerness
3. gravel _____loan to buy a house
4. mortgage _____ small stones mixed with sand
5. scar
6. zeal

(Nation, 2001, p. 419)

The test is designed to require little reading, and can be quickly completed. "The option words all have different meaning senses, so learners who have even a vague knowledge of a target word's meaning sense should be able to make the correct match" (Schmitt, 2000, p. 174).

Productive Levels Test

Laufer & Nation (1999) have developed a productive version of the vocabulary levels test. Here, the learners are presented with sets of sentences including a blank. A variable number of initial letters is given for each blank, so that only the target word fits in the blank. An example from 5000 word level is given (Nation, 2001).

> Do not pay attention to this rude remark. Just ign _____ it.
> The management held a secret meeting. The issues discussed were not disc _____ to the workers.
> We do not have adeq _____ information to make a decision.
>
> (Nation, 2001, p. 427)

2.9.3 Vocabulary Knowledge Scale

The Vocabulary Knowledge Scale (VKS) was developed by Paribhakt and Wesche (1997). Unlike the other two tests discussed, VKS measures the depth of vocabulary knowledge. It uses a five point scale to elicit knowledge of specific words in written form. The scale ratings range from total unfamiliarity of the target word to the ability to use the word accurately in a meaningful sentence. An example is taken from Paribhakt and Wesche (1997).

> Retaliation
>
> | | |
> |---|---|
> | I | I don't remember having seen this word before. |
> | II | I have seen this word before, but I don't know what it means |
> | III | I have seen this word before, and I think it means _____. (synonym or translation) |
> | IV | I know this word. It means _____ (synonym or translation) |
> | V | I can use this word in a sentence: _____. (Write a sentence.) (If you do this section, please also do Section IV.) |
>
> (Paribhakt & Wesche, 1997, p. 180)

2.9.4 Word Associates Test

The Word Associates Test was developed by Read (2000). It uses collocations to measure associative and collocational word knowledge. In the test, the target word is followed by eight options. Of these eight, only four options have some relationship with the target word. The options are related paradigmatically and syntagmatically to the target word. An example is taken from Read.

sudden

beautiful quick surprising thirsty	*change doctor noise school*

(Read, 2000, p. 184)

Another format for word associations was developed by Vives Boix (1995, cited in Schmitt, 2000). In her format, sets of three words are given. Of these three, two words are associated and one is not. The learners have to choose the unrelated word.

2.10 Vocabulary Learning and Acquisition

As Meara noted way back in 1987, the field of vocabulary studies is now anything but a neglected area. So, only a sample selected from different aspects is presented here

The effect of post-reading tasks on incidental word learning and retention

The work was done by Ahmadi (2005). The objective of the study was to investigate the effect of three different post-reading tasks – paraphrasing a text, answering reading comprehension, making questions from a text, on incidental word learning and retention. The study was conducted in Iran. One hundred and twenty eight pre-university students were selected based on their performance on the Oxford placement test. Five (5) target words were selected from a passage of approximately 250 words. A definition task was used to gain insight into the participants' word knowledge. Students were supposed to write a definition of each of the target words or to give a synonym for it; and if they could not do so they were asked to use it in a sentence. A vocabulary pre-test was conducted. Two weeks after the pre-test, students were given the passage to read. They were randomly assigned to one of the conditions; that is, reading the text and paraphrasing it, reading the text and making as many questions as they could within the time limit, reading the text and answering the comprehension questions, and just reading the text (control group). The definition task was again given to the students. It was found that paraphrasing a text was a more effective way of incidental vocabulary learning and retention followed by making questions and answering the reading comprehension.

Vocabulary notebooks: implementation and outcomes

This study was done by Fowle (2002). The objective of the study was to introduce vocabulary notebooks to the students to increase their lexical competence and to assist them in developing autonomous modes of learning. In the context of the study,

'vocabulary notebook' refers to a notebook kept by each learner solely for the purpose of recording new and useful lexical items.

At first, discussions were held and a workshop conducted among the teachers to discuss how best the concept of vocabulary notebooks could be presented to the students. It was decided to choose an A-Z format to organize the notebook. It was also decided to expose learners to different aspects of vocabulary like definitions, explanations, L1 translations, pronunciation information, collocations, synonyms and antonyms, and example sentences.

The concept was presented to the students as maintaining a ‘personal dictionary’. The teacher used a model vocabulary notebook to introduce the concept assisting the learners in organizing the notebook. Published materials were also used to help learners deal with a new word. Learners were asked to be responsible for deciding which words to include based on whether the word was new, useful or interesting to them to ensure that the acquisition of meaning is a process of discovery that enhances learner independence. After the vocabulary notebooks had become a key part of the programme, it was decided to include them in the continuous assessment of the students.

Though the outcomes in terms of vocabulary acquisition were not measured rigorously, it was observed that the students became more actively involved in the learning of vocabulary as a result of the notebooks. A questionnaire survey concluded that all the students liked the concepts of vocabulary notebooks. The teachers also responded positively and agreed on the effectiveness of the project.

L2 Vocabulary learning from context; strategies, knowledge sources, and their relationship with success in L2 lexical inferencing

The study was conducted by Nassaji (2003). The objective of the study was to examine the use of strategies and knowledge sources in L2 lexical inferencing and their relationship with inferential success. 21 intermediate ESL learners who represented five different language backgrounds participated in the study. Data consisted of introspective and retrospective think-aloud protocols. A panel of three ESL teachers helped the researcher in selecting a suitable reading passage. Data was collected in individual sessions in which the researcher met each learner in a quiet room for about 45-60 minutes. Initially, the learners were given some practice in the think-aloud procedure and were given training in verbalizing their thoughts. Then, the reading passage was presented and the learners were asked to read it aloud. As they encountered each italicized word, they were asked to try to infer its meaning from the context, all the while verbalizing their thoughts. They were also told that they could come back to the target word at any time they wished to infer its meaning again or to modify what they have already inferred. After they finished reading, they were asked to review the passage to make any additional comments about the new words or their thinking processes. Results indicated that intermediate-level ESL learners were not very good at inferring word meanings from context in a reading text. Coming to the strategies and knowledge sources, it was foundt that the learners used grammatical knowledge, morphological knowledge, knowledge of L1, discourse knowledge and world knowledge, the latter

being used most frequently. Strategy types included repeating, verifying, analyzing, monitoring, self-inquiry, and analogy. Repeating was the most used strategy type.

Coming to the relationship between successful inferencing and the strategies and knowledge sources used, it was found that morphological knowledge and verifying and self-inquiry led to successful inferencing.

The effect of type of written exercise on L2 vocabulary retention

The study was conducted by Folse (2006). 154 ESL students representing 14 different native languages took part in this study. Students' proficiency levels ranged from lower intermediate to upper intermediate to advanced level. The objective of the present study was to examine the effect of the type of written exercise on L2 vocabulary retention. Three types of written exercises were tested: one fill-in-the-blank sheet, three fill-in-the-blank sheets, and writing original sentences. All 154 participants practised the same 15 target words. The words were divided into three groups of five words each. Participants practised each group of words under one of the three exercise conditions. In condition 1, students were given six words and five unrelated sentences with blanks. Students had to fill in the blanks with the words given. One word was given as a distractor. In condition 2, target words were practised in three different exercises which were similar to the one used in condition 1. In condition 3, students had to write an original sentence with the given word. Input for the target words was provided by a mini-dictionary which was created especially for this study. A modified version of the vocabulary knowledge scale was used for both the pre-test and post-test. It was found

that multiple sentence-completion exercises could produce better vocabulary retention than single sentence-completion exercise or writing original sentences.

Derivative word forms: what do learners know?

The study was conducted by Schmitt and Zimmerman (2002). This study examined the ability of 106 graduate and under graduate non-native speakers of English to produce appropriate derivatives in the four major word classes i.e. noun, verb, adjective and adverb. 20 target words were selected from the Academic Word List. The students were first asked to rate their knowledge using a slightly revised version of the Test of Academic lexicon. Next, the participants were presented a series of four similar contextualized sentences with blanks and they were asked to fill in the blank using the appropriate derivative form of the target word. This was done to elicit a demonstration of the participants' productive knowledge of the derivative forms of a word family. The number of students who showed total unfamiliarity of the derivatives of the target words or full mastery of the word family was less. It was found that students knew some word classes better than the others. They were verbs, nouns, adjectives and adverbs in the same order. At the end teachers were asked to present derivative forms also while presenting a new word, to instruct learners in English affixes, to emphasize adjectives and adverbs as needed and to suggest academic reading when appropriate.

Receptive and productive vocabulary sizes of L2 learners

The study was conducted by Webb (2008) to investigate the relationship between receptive and productive vocabulary size of the learners. The experimental design used

equivalent receptive and productive test formats with different receptive and productive target words to provide accurate results. The participants in this study were 83 native speakers of Japanese whose proficiency levels varied from beginner to intermediate to advanced. One hundred and eighty target words were selected from the COBUILD dictionary for the study. Two instruments – receptive and productive translation tests – were used to measure the participants' vocabulary size at three word frequency levels. In the receptive test students were asked to produce the L1 translation of the target word. In the productive test the target word was to be written beside its L1 translation. Two versions of the test were prepared to ensure that there would not be any learning effect from seeing the same words in both the receptive and productive tests. The results indicated that a learner's receptive vocabulary is larger than his or her productive vocabulary. It was also found that both receptive and productive scores decreased as word frequency decreased. It was also found that one's receptive vocabulary size might give some indication of productive vocabulary size. Learners who have a larger receptive vocabulary are likely to know more of those words productively than learners who have a smaller receptive vocabulary.

Deriving unknown word meaning from context: is it reliable?

The study was conducted by Kaivanpanah and Alavi (2008) to investigate how accurately EFL learners assess their understanding of unknown words. 110 undergraduate university students took part in the study. Three short passages containing frequent words were given to a group of 25 EFL learners who were not part of the main study. They were asked to underline the unfamiliar words in the texts. On the basis of their responses, a

total of 40 vocabulary items was selected as items that would be unfamiliar to university students of a similar proficiency level.

Three short texts in which 40 items were highlighted were distributed among the participants. They also received a self–assessment sheet and were asked to read the texts and assess their understanding of the meaning of the highlighted words on a scale ranging from 0 to 3. Then, a vocabulary test was administered to the participants. They were asked to provide a translation, synonym, antonym, or explanation of the highlighted words to demonstrate their understanding. The self assessment sheets were again given to the participants to examine whether learners' initial assertions concerning the meaning of words were influenced by the presence of a vocabulary test. It was found that learners could not accurately identify words they did not understand. Furthermore, their assessments did not change considerably even after they had been tested on the items which would mean that participants significantly over-estimated their understanding of vocabulary items.

Vocabulary growth in a second language – Instruction versus facilitation of acquisition

This study was done by Abhra Jana (2001). The purpose of the study was to test the hypothesis that incidental learning from context during free reading is the major mode of vocabulary acquisition during school years. The study aimed at finding whether students acquire measurable knowledge about unfamiliar words while reading authentic texts. The study also looked at whether a certain level of proficiency in the language is a pre-requisite in order to guess meaning of new words successfully from context and whether vocabulary acquisition from context proceeds in terms of small increments.

First, a checklist vocabulary test was administered to students for finding their prior knowledge of the target words. Students then were asked to read a newspaper extract. They were then asked to answer a multiple-choice test where test items were constructed for the target words at each of three levels of difficulty. The research found that learning from context did take place for all the students irrespective of their prior knowledge of vocabulary and also of their general academic performance. The research also shows that word knowledge is incremental in nature.

2.11 Conclusion

Having seen the relation between receptive and productive vocabulary knowledge (Webb, 2008), factors that affect incidental learning and retention of word knowledge (Ahmadi, 2005; Folse, 2006), strategies used for effective inferencing (Nassaji, 2003), effect of vocabulary notebooks, (Fowle, 2002), learners' knowledge of the derivative forms of a word family (Schmitt & Zimmerman, 2002) and reliability of inferencing (Kaivanpanah & Alavi, 2008), we will move on to the next chapter which discusses the methodology for the current study.

Chapter 3

Research Methodology

3.0 Introduction

This chapter presents the research questions addressed in the study and the different stages of research.

It is stated in the literature that learners can improve their vocabulary levels through instruction and also through incidental exposure. So, the present research aimed at assessing the relative effectiveness of both instruction and acquisition. As engineering students need a good knowledge of vocabulary for their future endeavours, it was decided to collect data from engineering students. As many private engineering colleges are affiliated to JNTU, it was thought appropriate to select those colleges which are under JNTU. One more reason was that JNTU has colleges affiliated to it across the state. Hence, data could be collected from students in different districts. As the research wanted to assess the effectiveness of both instruction and acquisition, it was decided to collect data from the first year students of engineering because English is prescribed as a course of study only in the first year. It was also decided to conduct a pre-test at the time of admission and a post-test at the end of the course. A comparison of the two tests threw light on the acquisition of vocabulary by the students.

3.1 The Research Questions

The research wanted to explore whether

- Learners can acquire and use words from their subject textbooks as a result of repeated exposure to the textbooks.
- Explicit vocabulary instruction provided through English textbook can help learners in vocabulary development.
- Extensive reading can help learners in the effective use of vocabulary.

To assess the effectiveness of instruction, it was decided to take 150 target words that appear both in the English textbooks and the engineering textbooks. To assess the students' ability to acquire words without any instructional aid, it was decided to take 150 target words that appear in the engineering textbooks alone. To understand the student's existing knowledge of the target words at the time they start their course, a pre-test was administered. The post-test was administered at the end of the course.

A student information sheet (Appendix C) was given to the students both at the time of the pre-test and the post-test. In addition to the other questions like the student's name, college etc., students were also asked whether they read anything other than the prescribed course material. This piece of information was extracted to understand the effect of extensive reading on vocabulary development.

3.2 Stages of Research

The research was conducted through different stages including the administration of two pilot tests and the main study. The different stages are discussed in the following sections.

3.2.1 Identifying the branch

All the engineering colleges offer instruction in many branches like Civil Engineering, Chemical Engineering, Mechanical Engineering, Computer Science and Engineering, Electronics and Communication Engineering, Electrical and Electronics Engineering etc. Of these branches, Computer Science and Engineering (CSE) and Electronics and Communication Engineering (ECE) are very popular because of the number of career opportunities these two branches provide. Almost every college provides instruction in these two branches.

The prescribed text books for these two branches were gone through carefully with regard to the nature of general vocabulary used. The vocabulary in the text books of CSE is easier than the vocabulary used in the textbooks of ECE. The number of general words is also more in the textbooks of ECE. So, it was decided to collect data from the students of I.B.Tech, ECE.

3.2.2 Selection of Textbooks

First year ECE students have seven subjects to study. They are – English, Mathematics, Mathematical Methods, Applied Physics, C & Data Structures, Network Analysis and Electronic Devices and Circuits.

In addition to English textbooks, some other subject textbooks were also to be selected for assessing the learners' ability to acquire words. So, all the subject textbooks were gone through with respect to the vocabulary employed. *Mathematics* and *Mathematical Methods* were not selected because these books contain more figures than words. *C & Data Structures* was not selected because it has more number of programmes than theoretical discussions. If a textbook does not explain much theory, only a limited amount of vocabulary is used.

The textbooks prescribed for Applied Physics, Network Analysis and Electronic Devices and Circuits were finally selected for two reasons: all these three textbooks have theoretical explanations which results in considerable use of general vocabulary; all these three subjects are related to one another.

The three textbooks are:

1. Chandra Sekhar, M, Appala Naidu. P. 2005. *Applied Physics*. Hyderabad: VGS Booklinks.
2. Millman, Jacob, Christos C. Halkias. 1991. *Electronic Devices and Circuits*. New Delhi: Tata McGraw Hill.
3. Valkenburg, Van M.E. 2000. *Network Analysis*. New Delhi: Prentice Hall of India.

3.2.3 Selection of Target Vocabulary

All the five text books – two English text books and three subject text books – were gone through carefully. Every content word was noted down separately for each subject. These lists were carefully analyzed by the research scholar, two other English teachers and two students who were not part of the research sample, to select the target words. Then two lists were prepared. List 1- Only Engineering (OE)- consisted of 150 words that appeared only in the subject text books. List 2 – English and Engineering (EE) - had 150 words that appeared both in the subject text books and the English text books. On the whole, 300 target words were selected to assess the intentional and incidental learning processes.

3.2.4 Development of Test Papers

As the research wanted to assess the rate of increase in the knowledge of the students as a result of instruction provided through the prescribed English textbooks, and acquisition facilitated through repeated encounters with the engineering textbooks, it was decided to develop a test and administer it to the students. As mentioned earlier there were 300 target words. Developing one test paper using all the 300 words was not considered practical. So, it was decided to develop 10 of test papers; each having 30 target words. Each set of paper would have the same item types.

3.2.5 Pilot study 1

To determine whether the developed test paper was able to assess what it wanted to assess, a pilot test (Appendix D) was administered. Initially, one test paper was developed with 5 subtests using 30 target words. This test paper was administered to 20 students from a class of 60 students. 50 minutes were given to the students to answer the test paper. But, after all the other students had given back their papers, one student gave back the paper saying he was not interested. As a result, responses of 19 students were collected. After correcting the papers, the reliability estimate and construct validity (see 3.5 for the formulae used) were calculated and these were not very encouraging. Reliability is generally estimated to see how reliable the test scores are. Construct validity is calculated to see whether the test items are valid by correlating each subtest with the total test. The reliability estimate was calculated to be 0.57and the construct validity for the 5 item types was calculated by correlating each subtest with the total test and the result was given here. If the reliability of a test is estimated above .60, then the test is reliable and the validity of the construct generally falls between -1 and +1. The nearer it is to +1, the better correlation each subtest has with the total test.

Correlations of each subtest with the total test and the result are given here.

I subtest – 0.272
II subtest – 0.79
III subtest – 0.214
IV subtest – 0.87
V subtest – 0.70

The reliability of the test is estimated to be 0.57 which means that the test needs some modification. A test cannot be reliable without being valid. So, construct validity affects the reliability of the test. Here, it is understood that two test items (subtest 1 and subtest 3) were not proved valid, thereby affecting the reliability of the test.

It was understood that the test paper needed modification. Low correlation of two subtests with the total test was the indicator that students did not feel comfortable with two item types. It was also understood that the test paper should have contained more than 30 items because all the 19 students gave back the scripts in less than 30 minutes even though 50 minutes of time was given to them. As one period is for 50 minutes, it was thought convenient to administer the test for a full period. Before conducting a second pilot study, some changes were made in the item types.

3.2.6 Selection of Item Types

It was decided to include five item types in every test paper. In pilot study 1 students did not feel comfortable with two options. As word knowledge is incremental in nature it was thought to be appropriate to start with an item type that was purely receptive and end with an item type that is purely productive. These five item types were: a) word recognition, b) matching words with their meanings, c) finding the relation between words in pairs, d) fill in the blanks and e) using the target words in own sentences. The following sections discuss the reason for selecting these item types.

Word Recognition

Recognition of a word is the first step in the learning process towards attaining a complete mastery of the word. Learning vocabulary, either deliberately or incidentally, does not happen without first recognizing the target word. If the target word is encountered in a meaningful situation, then the word is recognized. In due course of action, based on the nature and quality of the subsequent encounters with the word in question, meaning, use of the word, derivations of the word etc. are learnt. If a word is not recognized in the input material, there will be no question of learning that word. So, as word recognition is the first step towards learning a word, the first item type was to recognize the target words which appeared in the textbooks.

Matching words with their meanings

After a word is recognized the next meaningful encounter with the word helps the learner get partial knowledge of the word. In the English classroom, every difficult word is explained through meanings. Without learning the meaning of the word, the recognized status of the word eventually becomes null and void and the learner gradually forgets even the orthographic form of the word. And meaning is the aspect that opens doors for the possibility of using that word productively when the time comes. So, as learning meaning is the second step towards learning the word, matching words with their meanings was included as the second item type. In pilot study1, this particular aspect was assessed through multiple-choice item type. But, as the students were not comfortable with that item-type, it was replaced with the present item type.

Words in pairs

Almost simultaneously with learning meanings, one learns the other words which mean more or less as the target words. When one infers meaning from the context, if the contextual clues are available, one remembers another word whose meaning is equivalent to the target word. Hence, as knowing a word includes what the possible synonyms or antonyms of the word are, the third item type was designed to measure learners' knowledge of the relation between a word and its pair.

Fill in the blanks

After learning the meaning and synonyms / antonyms of the word, learners expand their knowledge of the word by learning the inflections and derivatives of the word. Hence, the fourth item type wanted to measure the productive ability of the students with respect to the target word. A passage was given with 10 blanks. 10 words were also given. And the learners had to decide which word would go with which blank and also whether it was necessary to change the form of the word according to the given sentence structure.

Using the words in own sentences

A word is considered to be learnt to a good extent, if the word is used in a meaningful and grammatically acceptable sentence in the sense that the meaning of the word is represented by its use in the sentence. Take for example, the word *unequivocally* and the two sentences using the target word.

He stated his intentions unequivocally.
Unequivocally is a word where un- is a prefix.

The first sentence clearly manifests the knowledge of the student about the target word whereas, the second sentence does not give any clue whatsoever to know whether the learner knows the meaning of the target word. Hence, the fifth and the last item type wanted to measure that kind of knowledge which the first example sentence illustrates.

3.2.7 Pilot Study 2

It is already mentioned that two separate lists of words were prepared. English and engineering (EE) contained words that appeared in both the engineering textbooks and English textbooks. Only Engineering (OE) contained words that appeared only in the engineering textbooks. These 300 words were used to develop six tests (Appendix E). Each test consisted of 50 target words. Of these 50, 25 words were taken from EE and the other 25 were taken from OE. Each test had five sub tests. All the six tests contained the same item types. Again, each subtest had 10 target words, of which 5 were taken from EE and 5 from OE.

A second pilot test was administered to 18 students and the reliability of the test was calculated at 0.71. The construct validity for all the five subtests was calculated as before. The result is given below.

I subtest – 0.72
II subtest – 0.78
III subtest – 0.79
IV subtest – 0.74
V subtest – 0.81

As the reliability estimate was encouraging and as it was proved that the five subtests had a positive correlation with the total test, it was decided to go on with the main study.

3.2.8 Student Information Sheet

A student information sheet (Appendix C) was given to the students to learn about their reading habits, medium of instruction up to 10th standard and in Intermediate and so on. The students were to fill in the sheet at time of the pre-test and the post-test. But, there was a small difference.

The first time, they were asked to answer the question, *Do you expect the English textbook to help you in the areas you need improvement?"* This question was asked to know the purposes for which the learners approach the English textbook. The second time the question was changed to *Has your English textbook helped you in the areas you need improvement?* This change was made to know whether the learners' assessment of their own knowledge was correct.

3.3 The Main Study

As 0.71 was an encouraging reliability estimate, it was decided to proceed with the main study. 6 test papers were developed and a pre-test was administered to 600 students studying in six different private engineering colleges affiliated to JNTU.

3.3.1 The Engineering Colleges

600 students from six private engineering colleges in Andhra Pradesh were selected for administering the test. The six colleges are located in five different districts. They are:

1. GVP College of Engineering, Visakhapatnam
2. MVGR College of Engineering, Vijayanagaram
3. Godavari Institute of Engineering and Technology, Rajahmundry
4. Vignan Engineering College, Guntur
5. Nimra College of Engineering, Vijayawada
6. Nimra Institute of Science and Technology, Vijayawada.

3.3.2 Participants

600 students coming from diverse social, cultural and linguistic backgrounds took this test. The students were very enthusiastic about the test. It was told in advance to the students that cheating would not serve any purpose. They were told that marks would be

awarded, not for their performance, but for the effectiveness of the English textbooks. As they understood the point that the marks they get would not add to their overall percentage, the students behaved in a very disciplined way and extended their cooperation to the researcher without creating any problem.

3.3.3 Test Administration

A 50 minute period was taken for the purpose of test administration. The researcher got prior permission from the principals of the respective colleges. The researcher did not ask for and was not offered the presence of another teacher in the class. It was thought that two teachers in one class would make the students feel uncomfortable. Most of the students completed answering the test papers well before the end of the allocated time i.e. 50 minutes. Since speed was not the point, time was not enforced strictly. Those who could not complete the test in time were given extra time.

3.3.3.1 The Pre-test

A pre-test was administered to the students at the beginning of their first year. As there were 6 test papers, care was taken that students sitting in one bench got different question papers. They were not told that the same exercise would be repeated at the end of their course work to ensure that no deliberate learning would take place between the pre-test and the post- test.

3.3.3.1.1 Data Analysis of the Pre-test

As mentioned earlier, reliability estimate was calculated for each test paper separately. The result is as follows:

Test A - .66

Test B - .74

Test C - .66

Test D - .71

Test E - .74

Test F - .74

The result makes it clear that the test is a reliable one because the reliability of a good classroom test generally falls between .60 and .80 (Valette, 1997). We now move on to decide the construct validity of each subtest for each set of test paper. Here, St means Subtest.

	St 1	St 2	St 3	St 4	St 5
Test A	.80	.71	.76	.83	.78
Test B	.75	.73	.80	.84	.83
Test C	.68	.78	.78	.75	.76
Test D	.86	.71	.75	.79	.81
Test E	.81	.71	.80	.82	.81
Test F	.87	.82	.79	.83	.80

The result shows that each subtest has strong correlation with the total test which makes the test valid.

3.3.3.2 The Post-test

The post-test was administered to the students at the end of their first year. Of the 600 students, 312 students wrote the same test as in the pre-test and 288 students wrote a different test. This was done to find whether the administration of pre-test had any effect on the learning process of students.

3.3.3.2.1 Data analysis of the Post-test

We will now look at the reliability estimates of the post- test for each set of test paper separately. The result was encouraging.

Test A - .75

Test B - .79

Test C - .76

Test D - .82

Test E - .81

Test F - .80

Construct validity for each subtest was estimated for each test paper.

	St 1	St 2	St 3	St 4	St 5
Test A	.87	.85	.82	.88	.86
Test B	.92	.86	.90	.90	.89
Test C	.91	.87	.86	.86	.84
Test D	.93	.90	.91	.90	.84
Test E	.91	.91	.92	.88	.85
Test F	.90	.88	.86	.88	.84

The result shows that all the subtests have high positive correlation with the total test which makes the test valid.

3.4 Method of Scoring

As the target words were grouped into different subtests according to their level of difficulty, a score of one was given to the correct response irrespective of the item type in which the target word was presented. Subtest wise results are given in Appendix F

Subtest 1

The first subtest presented 10 words to the students who in turn had to tick beside the words they knew. Explicit instructions were given to the test takers to tick beside the words they knew existed. They could tick even if they did not know the meaning of the word. If they had seen it somewhere, they could tick beside the word. There were 10 target words in this subtest. For every tick mark, a score of one was given. A test item is given below.

I Tick beside the words you know.

appreciable	exaggerate
orientation	expulsion
progressive	incoherent
eroded	ridiculed
indispensable	whirl

Subtest 2

The second subtest was a 'Match the Following' item type. 10 words and their meanings were given in two separate columns. The learners were asked to match the words with their respective meanings. For every correct answer, a score of one was given. A test item is given below

II Choose the right word to go with each meaning. Write the number of that word next to its meaning.

A	B
1. distort	having strong moral principles _____
2. intrinsic	that can be noticed _____
3. integrity	getting rid of something _____
4. abundant	twist out of its usual shape _____
5. eliminate	having traditional attitudes _____
6. consolidate	more than enough _____
7. conservative	put a limit on _____
8. observable	taking out _____
9. restrict	existing within _____
10. extracting	unite things into one _____

Subtest 3

The third subtest presented 10 pairs of words to the test takers. Words in pairs might share a similar meaning, or they were opposite in meaning or they were completely unrelated to each other. Learners had to find out the relation between these pairs of words. For every correct answer, a score of one was given.

III. Here are 10 sets of words. Words in each set may be similar in meaning, approximately opposite in meaning or completely different. In the space provided, write S if the words are similar, write A if the words are opposite and write D if the words are different.

1. adapt	adjust	_____
2. depletion	decrease	_____
3. compact	expand	_____
4. profitable	instruct	_____
5. rigorous	strict	_____
6. consumption	conservation	_____
7. predominant	trivial	_____
8. implicit	understood	_____
9. resulting	observe	_____
10. occupancy	abrupt	_____

Subtest 4

The fourth sub test offered the learners a passage with 10 blanks. 10 words were given to be used in these 10 blanks. Test takers had to change the form of the words, if necessary, to fill in a blank. This subtest tested the learners' ability to manipulate a given word according to the sentence structure. For every correct answer, a score of one was given.

IV. Fill in the blanks changing the form of the given words if necessary.

amaze	simple	effect	practice	frequent
economy	rely	tedium	relax	quite

A discussion between a sales person and a couple.

A. Good morning Sir, I am from 'Clean Home' Sir. Madam, Good morning ma'am!
B. We are busy at present. We don't need any vacuum cleaners now.
A. Okay, Sir! But, just have a look at the beautiful machine Sir. This is the _____bought vacuum cleaner Sir. Ma'am, this _____your work ma'am
B. I heard it is very costly.
A. Who told you that Sir? It is very _____and at the same time very _____also.
C. Any how, my husband has already told you that we don't want to buy it now.

A. You please sit down ma'am. Sir, your house is _____ beautiful, Sir. Ma'am, it's _____how you could do all this without a vacuum cleaner. Sir, if you buy one, ma'am can _____a bit.
C. Is this_____?
A. Sure ma'am. You need not have any doubt at all. 'Clean Home' is synonymous with trust ma'am.
B. Any way, I think I have some work.
C. Be_____, my dear. Why don't you buy that for me? You know how _____ house hold works are? You are always engaged with your work and I have to …….
B. Okay, okay, okay. What is the price of this cleaner? You haven't yet told me.
A. The price is quite affordable Sir. It is not a problem at all. You can even opt for installments. Ma'am you are lucky ma'am. Sir is a very nice person ma'am. Would you please give me a glass of water ma'am?
B. Sure.

Subtest 5

The last subtest was a production item type. 10 words were given in this section. The test takers had to use the target words in their own sentences. They could write 10 individual sentences or construct a small passage using all the 10 target words. If the sentence was grammatically correct and the target word was used in a meaningful context, a score of one was given for each correct response.

V. Use the following words in your own sentences. You are free to construct a small passage or a dialogue using the given words. You can change the form of the words, if necessary.

assume exclude intend reveal fundamental
denote insert omitted tempting negligible

3.5 Formulae used for Data Analysis

As there were 6 different sets of test papers, reliability estimate was calculated for each set of paper separately for the pretest and the main test.

First the mean score i.e. $\bar{x}$ was found out by using the formula $\frac{\sum x}{N}$

where x is the individual score of the learners and N is the total number of students who took the test. After finding out the value of $\bar{x}$ Standard Deviation was arrived at by using the formula

$$S = \sqrt{\frac{1}{n}\sum x^2 - (\bar{x})^2}$$

Where n = total number of students

x = individual score of a learner

$\bar{x}$ = mean score

After finding out the value of Standard Deviation, reliability of a test paper was estimated using the formula

$$r = 1 - \frac{m(n-m)}{ns^2}$$

Where r = reliability

m = mean

n = number of items in the test

s = standard deviation

The construct validity was estimated by correlating each subtest with the total test. The formula used to calculate the correlation quotient (ρ) between each subtest and the total test is as follows:

$$\rho = \frac{\frac{1}{n}\sum xy - \bar{x}\,\bar{y}}{\sigma_x \sigma_y}$$

Where n = number of respondents

x = scores of the total test

y = scores of the subtest in question

$\bar{x}$ = mean of the variable x

$\bar{y}$ = mean of the variable y

σ_x = Standard deviation of the variable x

σ_y = Standard deviation of the variable y

The result generally falls between -1 and +1 and the nearer it is to +1, the better correlation the sub test has with the total test. The result shows that all the subtests have high positive correlation with the total test which makes the test valid.

The results showed that the developed test papers were reliable and constructs had positive correlation with the total test which made the test items valid. This means that one can make valid and reliable inferences from the results. The results were analyzed in the next chapter using a paired Z-test and Pearson product-moment correlation coefficient.

Chapter 4

Analysis of Results

4.0 Introduction

This chapter analyses the results of the pre-test and the post-test using a paired z-test and Pearson product-moment correlation coefficient. This chapter also looks at the subset-wise scores received by words from Only Engineering (OE) and English and Engineering (EE). This chapter also looks at the information received through the student information sheet.

4.1 Paired Z-test

A paired Z-test was conducted to find the linear progression between the pre-test and the post-test taking all the students' scores in the two tests. The paired Z-test is an extension of paired t-test. A t-test is done for smaller samples and Z-test is done for larger samples. As the data in the present research was collected from 600 students a paired Z-test was done. The paired Z-test was carried out using the formula

$$Z = \frac{\bar{d} - \mu_d}{\frac{S}{\sqrt{n}}}$$ where $\bar{d}$ is the mean of the signed differences in the scores of the pre-test and the post-test.

Here μ_d is taken to be zero as it is assumed in the null hypothesis that there is no difference in the learning process of the students before and after the course of study.

S is the Standard Deviation of the differences of the paired data and n is the number of students.

If the Z value is greater than 2.326 (Bachman, 2004), the values arrived at are considered to be very significant. The values obtained for Z are given here for each subtest.

Subtest 1 – 26.60
Subtest 2 – 30.49
Subtest 3 – 27.45
Subtest 4 – 29.81
Subtest 5 – 25.46

The obtained Z-values here prove that the students were able to improve their overall vocabulary levels. As we see, the values are significant for each subtest. In other words, there is improvement in all types of knowledge related to vocabulary that were examined in the research.

4.2 Correlation coefficient

Correlation coefficient is a statistic that is calculated from data that summarizes the strength and direction of the relationship between two variables. The values can range between negative one (-1.00) and a positive one (+1.00). Positive coefficients indicate direct relationships, whereas negative coefficients indicate inverse relationships. The

larger the coefficient, positive or negative, the stronger the relationship, so that a correlation that is close to one, either positive or negative indicates a very strong relationship while coefficients near zero indicate very weak relationships.

The test developed as part of the research had five item types administered in the different subtests.. Each item type measured one aspect of knowing a word. So, this analysis was done to find the relation between different aspects of word knowledge. The results of the pre-test are looked at first.

The correlations for the results of each subtest (St) with the other subtests for the pre test is shown here. The different items each subtest tested are: St1 = Word Recognition, St 2 = Meanings, St 3 = synonyms or antonyms, St 4 = changing word forms and St 5 = using words in own sentences.

Table 1

Correlations between subtests in the pre-test

	St 2	St 3	St 4	St 5
St 1	.51	.52	.58	.60
St 2		.58	.54	.43
St 3			.54	.50
St 4				.63

These results tell us that word recognition had a positive correlation with using words in own sentences. The purely receptive item type, here, facilitated a purely productive item

type. And word recognition had considerable correlation with the other aspects of word knowledge as well. They also show that learning the meanings of the target words had some influence on learning synonyms and/or antonyms. One more surprising factor is that learning meanings did not greatly influence using words in own sentences. And the highest correlation here can be found between changing the word forms and using words in own sentences. The first one is a partially productive item type and using words is a purely productive item type.

Now, let us look at the correlations for the results of each subtest with the other subtests in the post-test.

Table 2

Correlations between subtests in the post-test

	St 2	St 3	St 4	St 5
St 1	.77	.74	.78	.77
St 2		.82	.70	.66
St 3			.72	.69
St 4				.74

This table shows us that word recognition had a very positive correlation with all the other types including matching words with their meanings, words in pairs, filling the blanks and using words in own sentences. Meanings had significant correlation with words in pairs In fact, meanings and words in pairs had the highest correlation. Only

meanings and words in pairs had a considerably positive correlation with using words in own sentences. And a very good correlation here can be found between changing the word forms and using words in own sentences. The first one is a partially productive item type and using words is a purely productive item type.

If we look at the correlation coefficients of the pre-test and the post-test, we will find that there are positive correlations among all the item types in the post-test. The I year engineering course has helped the learners put their vocabulary knowledge in an order. We can almost safely assume that word recognition influences the learning of other kinds of word knowledge. Meanings and synonyms/antonyms had the highest positive correlation with each other which means that either intentionally or incidentally, these two aspects of word knowledge are learnt together. It is understood that meanings or synonyms/antonyms do not have a significant correlation with the productive item type – using words in own sentences. Again, changing word forms had a good correlation with using words in own sentences.

4.3 Results of the Pre-test and the Post-test

Six hundred (600) students took part in the pre-test and the post-test. In the post-test 312 students took the same test as the one they had got earlier and 288 students got a different test from the one they received in the pre-test. The total results of the pre-test and the post-test are given in Table 3. The word *gains* here is used in the sense of showing difference between the scores for the pre-test and the post-test

Table 3

Total results of the pre-test and the post-test

Pre-test score	Score in %	Post-test score	Score in %	Gains in %
7471 / 3,000	24.90	12425 / 3,000	41.41	16.51

These scores include the total scores of the five subtests from the six test papers. And the post-test score also includes the score obtained from the students who wrote the same test (ST) or a different test (DT). 16.51% is a considerable gain given the fact that the grand score includes the scores for the words taken from EE (English and Engineering) and OE (Only Engineering)

We will now look at the total scores obtained for the EE and the OE separately. Table 4 makes the result clear.

Table 4

Total scores obtained for the words from EE and OE with % gains

	English and Engineering - EE					Only Engineering - OE				
Total	Pre-test	% score	Post-test	% score	% gain	Pre-test	% score	Post-test	% score	% gain
1500	4206	28.04	6691	44.60	16.56	3265	21.76	5734	38.22	16.46

It is really surprising that the gains obtained separately by EE (16.56) and OE (16.46) are very close to the total gains (16.51) which shows that learners were able to improve their vocabulary levels in a very consistent manner irrespective of instructional aid or incidental exposure.

We will now look at the scores received by each subtest for both EE and OE. As every test was written by 100 students, the mean score and the percentage score become the same.

Table 5

Scores received by each subtest – EE and OE with % gains

Subtest	English and Engineering - EE					Only Engineering - OE				
	Pre-test	% score	Post-test	% score	% gain	Pre-test	% score	Post-test	% score	% gain
1	1097	36.56	1514	52.46	15.9	878	29.26	1384	46.13	16.87
2	844	28.13	1365	45.5	17.37	661	22.03	1172	39.06	17.03
3	769	25.63	1263	42.1	16.47	621	20.07	1099	36.63	15.66
4	723	24.1	1238	41.26	17.16	545	18.16	1019	33.96	15.8
5	773	25.76	1251	41.7	15.94	560	18.66	1060	35.33	16.67
Total	4206	28.04	6691	44.60	16.56	3265	21.76	5734	38.22	16.46

In the pre-test there was 6.28% difference between the scores obtained by EE and OE. The difference was in favour of words from EE. In the post-test, the difference was 6.38%, again in favour of words from EE. And there was almost no difference between the gains received by words from EE (16.56%) and OE (16.46%) which shows that

learners were able to increase their lexical levels both intentionally and incidentally at the same pace. We now proceed to look at sub-test-wise results of the pre-test and the post-test in detail for EE and OE separately, in order to gain better insights.

Subtest 1

The first subtest was a word recognition item type. Students were asked to tick beside the words they knew. Tables 6 and 7 illustrate the scores for subtest 1 for the words taken from EE and OE respectively. They illustrate the number of correct responses given by the students (fig), the mean score (mean) of the responses and the Standard Deviation (SD) of the figure (fig).

Table 6

Number of correct responses given by the students for subtest 1 – EE

Test	Total	Pre-test			Post- test		
		Fig	mean	SD	fig	mean	SD
A	500	174	34.8	4.11	243	48.6	4.92
B	500	178	35.6	4.49	236	47.2	3.18
C	500	124	24.8	3.44	211	42.2	4.44
D	500	230	45.6	2.41	256	51.2	3.31
E	500	199	39.8	3.18	314	62.8	2.71
F	500	192	38.4	5.38	314	62.8	4.53
Total	1500	1097	36.56		1514	52.46	

The total score for subtest 1 – EE was 1097 which means 36.56% words were correctly recognized by the students. By the time of the post-test, the total score was 1514 with 52.46% correct responses from the students and the gain for this item type – Word Recognition – was 15.9% for the words from EE.

Table 7

Number of correct responses given by the students for subtest 1 – OE

Tesr	Total	Pre-test			Post-test		
		Fig	mean	SD	fig	mean	SD
A	500	126	25.2	2.71	218	43.6	4.12
B	500	154	30..8	1.6	212	42.4	3.77
C	500	88	17.6	3.92	178	35.6	3.61
D	500	184	36.8	2.4	212	42.4	6.62
E	500	165	33	3.28	278	55.6	5.67
F	500	161	32.2	2.85	286	57.2	30.8
Total	878	29.26			1384	46.13	

For the words from OE, the total score at the time of pre-test was 878 and percentage of the correct responses was 29.26. In the post- test the score increased up to 1384 with 46.13% correct responses. The gain for this item type for the words from OE was 16.8%.

In this item type, words from OE had a slightly better gain than the words from EE. One can observe that gains for both EE and OE were close to each other and also to the over-all gain.

Subtest 2

The second subtest was a Match the following item type. Words were given in one column and their meanings in the other. Students were asked to match the words with their meanings. Tables 8 and 9 give the results for the words from EE and OE respectively. The following tables illustrate the number of correct responses given by the students (fig), the mean score (mean) of the responses and the Standard Deviation (SD) of the figure (fig).

Table 8

Number of correct responses given by the students for subtest 2 - EE

Test	Total	Pre-test			Post-test		
		Fig	mean	SD	fig	mean	SD
A	500	119	23.8	2.48	202	40.4	4.02
B	500	96	19.2	.74	197	39.4	4.02
C	500	198	39.6	2.13	239	47.8	4.16
D	500	147	29.4	1.6	205	41	3.52
E	500	130	26	3.03	257	51.4	2.75
F	500	154	30.8	6.49	265	53	3.16
Total	1500	844	28.13		1365	45.5	

In the pre-test, words from EE had a total score of 844 with 28.13% correct responses. In the post-test, the score went up to 1365 and 45.5% words got correct responses. For this subtest the gain was calculated to be 17.37%.

Table 9

Number of correct responses given by the students for subtest 2 - OE

Test	Total	Pre-test			Post-test		
		Fig	mean	SD	fig	mean	SD
A	500	90	18	2.82	173	34.6	3.92
B	500	63	12.6	1.85	144	28.8	4.16
C	500	62	32.4	2.87	213	42.6	4.71
D	500	124	24.8	2.99	175	35	4.04
E	500	103	20.6	2.72	230	46	3.74
F	500	119	23.8	4.07	237	47.4	7.05
Total	1500	661	22.03		1172	39.06	

For the words from OE, the total score for subtest 2 at the time of pre-test was 661 with 22.03% gains and by the time of the post-test, the score increased up to 1172 and 39.06%. For this subtest, the gain was calculated to be 17.03%. We can observe that the gains for both EE and OE were close to each other and also to the overall gain.

Subtest 3

This subtest was designed to measure the students' knowledge of the words in pairs. In the given pair, the two words may be synonyms, antonyms or totally different in

meaning. Students had to find the relation. Tables 10 and 11 give the results for the words from EE and OE respectively. They illustrate the number of correct responses given by the students (fig), the mean score (mean) of the responses and the Standard Deviation (SD) of the figure (fig).

Table 10

Number of correct responses given by the students for subtest 3 - EE

Test	Total	Pre-test			Post-test		
		Fig	mean	SD	fig	mean	SD
A	500	191	38.2	3.70	197	39.4	3.82
B	500	107	21.4	2.49	185	37	4.69
C	500	113	22.6	1.62	199	39.8	3.42
D	500	141	28.2	3.46	197	39.4	2.87
E	500	141	28.2	3.54	238	47.6	6.52
F	500	148	29.6	5.12	247	49.4	4.84
Total	1500	769	25.63		1263	42.1	

Table 11

Number of correct responses given by the students for subtest 3 - OE

Test	Total	Pre-test			Post-test		
		Fig	mean	SD	fig	mean	SD
A	500	88	17.6	3.26	176	35.2	4.70
B	500	83	16.6	1.35	154	30.8	3.96
C	500	99	19.8	1.32	174	34.8	3.65
D	500	118	23.6	3	164	32.8	2.13
E	500	106	21.2	3.48	209	41.8	5.11
F	500	127	25.4	3.70	222	44.4	4.31
total	1500	621					

For this subtest, words from EE had a score of 769 at the time of the pre-test and 1263 at the time of the post-test with 25.63% and 42.1% correct responses respectively with 16.47% gain. For the words from OE, 621 was the total score for the pre-test and 1099 for the post test. In the pre-test 20.7% words received correct responses and in the main test 36.63% words got correct responses. The gains were calculated to be 15.66%. As in the previous subtests, in this subtest also gains for EE and OE were close to each other.

Subtest 4

This subtest assessed the knowledge of the students about the derivatives of the target words. This item was a fill in the blank item type and the students had to decide whether a target word was to be changed to do the given task. Tables 12 and 13 give the

results for the words from EE and OE respectively. The following tables illustrate the number of correct responses given by the students (fig), the mean score (mean) of the responses and the Standard Deviation (SD) of the figure (fig).

Table 12

Number of correct responses given by the students for subtest 4 – EE

Test	Total	Pre-test			Post- test		
		Fig	mean	SD	fig	mean	SD
A	500	98	19.6	1.01	81	44.4	3.55
B	500	97	19.4	2.15	69	38.4	5.23
C	500	105	21	1.41	89	37.2	4.53
D	500	152	30.4	4.35	107	38.4	4.02
E	500	128	25.6	5.42	90	44.6	5.08
F	500	143	28.6	5.88	109	44.6	5.08
Total	1500	723	25.76		1251	41.7	

Table 13

Number of correct responses given by the students for subtest 4 - OE

Test	Total	Pre-test			Post- test		
		Fig	mean	SD	fig	mean	SD
A	500	81	16.2	1.32	160	32	2.36
B	500	69	13.8	2.48	139	27.8	4.21
C	500	89	17.8	2.92	157	31.4	6.77
D	500	107	21.4	3.44	163	32.6	5.74
E	500	90	18	2.60	201	40.2	3.86
F	500	109	21.8	3.86	199	39.8	2.71
Total	1500	545	18.16		1019	33.96	

Words from EE in this subtest received 723 (24.1%) correct responses in the pre-test and 1238 (41.26%) in the post-test with a gain of 17.16%. And words from OE got 545 (18.16%) correct responses in the pre-test and 1019 (33.96%) in the post- test with a gain of 15.8%. There was a slightly better gain for words from EE for this subtest.

Subtest 5

This subtest was designed to test the productive knowledge of the students about the target words. 10 words were given and the students were free to use these ten words in ten separate sentences or construct a passage using all these ten words. They were also free to change the form of any given word if necessary. Tables 14 and 15 give the results for the words from EE and OE respectively. They illustrate the number of correct

responses given by the students (fig), the mean score (mean) of the responses and the Standard Deviation (SD) of the figure (fig).

Table 14

Number of correct responses given by the students for subtest 5 - EE

Test	Total	Pre-test			Post-test		
		Fig	mean	SD	fig	mean	SD
A	500	128	25.6	2.57	217	43.4	3.66
B	500	109	21.8	1.32	182	36.4	4.54
C	500	134	26.8	2.31	192	38.4	5.35
D	500	138	27.6	2.72	184	36.8	5.03
E	500	125	25	4.60	238	47.6	6.88
F	500	139	27.8	3.96	238	47.6	7.44
Total	1500	773	25.76		1251	41.7	

Table 15

Number of correct responses given by the students for subtest 5 - OE

Test	Total	Pre-test			Post- test		
		Fig	mean	SD	fig	mean	SD
A	500	85	17	1.41	168	33.6	4.02
B	500	72	14.4	2.87	151	30.2	4.53
C	500	98	19.6	2.24	166	3.2	4.16
D	500	112	22.4	2.78	164	32.8	3.18
E	500	79	15.8	2.71	203	40.6	5.12
F	500	114	22.8	4.27	208	41.6	4.84
Total	1500	560	18.66		1060	35.33	

In the fifth subtest, words from EE gained 15.94% as the pre-test score was 773 and the post-test score was 1251. And the words from OE gained 16.67% as the pre-test score was 560 and that of the post-test was1060. Again, gains for EE and OE were close to each other.

In the next section, we will look at the scores of students who wrote the same test at the time of pre-testing and post-testing. These results are compared with those of students who wrote a different test at the time of the post-test.

4.4 Same Test and Different Test

We are aware that in the post-test, out of 600 students, 312 students wrote the same test as the one they were given in the pre-test and 288 students wrote a different test. This was done to ensure whether the administration of the pre-test had any effect on the post-test. Table 16 gives the subtest-wise analysis for the scores obtained through same test and different test.

Table 16 makes it clear that the administration of the pre-test did not have any significant effect on the learning behavior of students. Because, in the English and Engineering section those who wrote the same test scored an overall gain of 46.33% and those wrote a different test had 41.22% . The difference between these two is as low as 5.11%. In the Only Engineering section, 41.19% gain was achieved by those who wrote the same test (ST) and 35.01% by those who answered a different test (DT). The difference is 6.18%. The result shows that there was only an insignificant amount of difference between ST and DT.

Let us consider only the scores obtained by those who wrote the same set in EE and OE sections. The difference is only 5.14% in favour of EE. One can safely conclude that much vocabulary development could not be achieved through the present English textbook.

Table 16

Subset-wise analysis for the scores obtained through Same Test and Different Test

Sub-test	English and Engineering - EE				Only Engineering - OE			
	Same test - ST		Different test - DT		Same test - ST		Different test - DT	
	Score	%	Score	%	Score	%	Score	%
1	862	55.25	712	49.44	738	47.30	646	44.86
2	732	46.92	633	43.95	667	42.75	505	35.06
3	702	45	561	38.95	606	38.84	493	34.23
4	653	41.85	585	40.62	589	37.75	430	29.86
5	665	42.62	477	33.12	613	39.29	447	31.04
Total	3614	46.33	2968	41.22	3213	41.19	2521	35.01

N= 312 for the Same Set and 288 for the Different Set

The next section deals with the gains received by words for each subtest. This analysis was done to determine which word knowledge type was learnt by the students.

4.5 Gains Received by Words

Table 17 illustrates that the third subtest – knowledge of synonyms and antonyms – fared relatively better in the EE section. In the OE section, the second subtest – words and their meanings – got more scores than the other subtests.

Table 17

Gains received by words for each sub-test

Sub test	Gains in scores -EE	Gains in % - EE	Gains in scores - OE	Gains in % - OE
1	431	14.36	467	15.56
2	567	18.9	550	18.33
3	684	22.8	478	15.93
4	515	17.16	474	15.8
5	478	15.93	500	16.66
Total	2675	17.83	2469	16.46

4.6 Student Information Sheet

A student information sheet was given to the students for getting information about their medium of instruction, reading habits etc. This was given to the students at the time of pre-test and the post-test as well.

4.6.1 Gender

Out of the 600 students, 368 students (61.33%) were boys and 232 (38.66%) students were girls. In the pre-test, 23 girls (3.83%) and 21 boys (3.5%) got more than 20 marks out of 50. In the post-test, 7 boys and 5 girls got more than 40 marks. Also in the post- test, 37 girls and 30 boys received a score between 31 – 40. The result shows that there is not significant difference in learning on the basis of gender.

4.6.2 Medium of Instruction

Of the 600 students, 482 students received their education through the medium of English and 118 students studied in the L1. Of the 118, 89 students' L1 was Telugu and 29 students' was Urdu.

In the pre-test 29 (6.01%) students whose medium of instruction was English got more than 20 marks out of 50 and 15 (12.71%) students who studied through their L1 got more than 20 marks. In the post-test, 54 (11.20%) students who studied in English medium schools and 25 (21.18) who studied through their L1 got more than 30 marks out of 50. The result is very surprising as it shows that medium of instruction did not have a role to play in vocabulary development. Moreover, with respect to vocabulary development, the percentage of students whose medium of instruction was not English was greater than the ones who studied in English medium schools.

4.6.3 Extensive Reading

For the question *Do you read anything other than the prescribed course books ?* , in the pre-test, 39 students replied in the positive and in the post-test, the number increased to 112. Their preferences are given below.

Table 18

Number of students who read extensively

Interested in reading	Pre-test	Post-test	difference
Newspapers	34	98	64
Magazines	6	17	11
Journals	1	11	10
Fiction (Novels)	27	38	11
Non-fiction	8	19	11
Story books	15	21	6

N= 600 students

One can infer from the table that a good number of students took to reading news papers regularly. So, English teachers may think of using newspapers for the development of language skills of the students. Using news-papers is cost-effective also.

4.6.4 Help rendered by the English Textbook

For the question, *Do you expect the English textbook to help you in the areas you need improvement?*, all the 600 students replied in the positive. However, in the post-test, it seemed their expectations were not met. For the question, *Has your English textbook helped you in aspects you need improvement*?, 329 students said yes and 271 said no. Moreover, 129 students opted for the continuation of English in the subsequent years; 78 said that they had no objection but the design should be changed and 393 students did not like the continuation of English as a course of study.

4.6.5 Aspects Needing Improvement

The test takers were asked to mark those aspects in which they thought they needed improvement. The following table indicates their assessment of their skills.

Table 19

Learners' assessment of their language skills

Aspect in which improvement needed	Pre-test	Post-test
Vocabulary	600	600
Spoken English	487	528
Reading Comprehension	256	321
Spelling	12	9
Grammar	289	267
Writing skills	18	21
Taking notes from textbooks	329	118
Making notes from lectures	77	52

N= 600 students.

4.7 Conclusion

We have seen that the paired z-test showed a significant linear development in the learners' lexical knowledge. The correlation coefficient showed that learners were able to improve their knowledge about different aspects of knowing a word. We have seen that the English textbook was not of much help to the students when it comes to vocabulary development. We have also seen that medium of instruction and gender did not have much influence on the vocabulary growth of students. In the next chapter, we move to a discussion of the analysis of the results.

Chapter 5

Discussion

5.0 Introduction

This chapter discusses the results of the pre-test and the post-test with reference to the hypotheses that triggered off the present research. It also discusses the relation between vocabulary development and extensive reading. On a minor scale, it also looks at the role medium of instruction plays in the process of vocabulary acquisition.

5.1 Incidental Vocabulary Acquisition

When a word is learnt from the context, it is called incidental vocabulary acquisition (OE). The previous chapter – Analysis of Results – has shown us that vocabulary acquired incidentally as a result of repeated exposure to the subject textbooks had a gain of 16.46%. 16.46% gain indicates that learners were able to acquire and retain one unfamiliar word in six in a year. Surely, it is considerable gain because vocabulary development was not one of the objectives of the subject textbooks. Nagy et al (1987, cited in Nagy, 1997) found that sixth grade first language students could retain one unfamiliar word in eight words when they were tested a week after having read the text. Though the students concerned in the present research were first year engineering students and Nagy et al's students were sixth-grade ones, we also should not forget that Nagy's students were first language learners and the present students are second language learners; this fact makes the 16.46% gain a justifiably considerable one. Moreover, the

test was administered at the end of one year's course of study. Hence, there are strong reasons to believe that the words acquired by the students would be retained in the long-term memory of the students.

One more aspect worth considering is the gains each subtest received. All the item types (or sub-tests) received more or less the same percentage of gains. Word recognition item type got 16.87% gain, meanings got 17.03% gain, words in pairs got 15.66% gain, forming derivatives received a gain of 15.8% and sentence production item type received a gain of 16.67%. The gain each item type received is somewhere near the overall gain – 16.46%. Hence, it is clearly understood that not only the number of words, but the different aspects of word knowledge have also been increased by the students. So, incidental learning affects not just a single aspect of word knowledge such as recognition or meanings but also all the aspects of word knowledge assessed. The other aspects to word knowledge such as collocations might also have been increased.

Let us look at the factors that promote incidental learning and check whether they are applicable to the present study.

5.1.1 Factors Promoting Incidental Learning

In 2.2, several factors that help the learner infer from the context are discussed. They are comprehensible input, repeated exposures, availability of contextual clues, the target word's salience etc. Let us see whether these factors are applicable in the context of the present research.

Comprehensible input

Comprehensible input suggests that the overall meaning of the text is understood by the learner. Learners in question were talented students according to the results of the EAMCET examination and were studying the most sought-after course of engineering. The target words were taken from the core text books, not a newspaper extract (Jana, 2001) or abridged novels. The words were not non-words specifically introduced in the text to measure the learners' ability to acquire the words. Hence, we do not find any problem in the input material nor in the students' ability to comprehend the input. According to Krashen (1989), comprehensible input is what promotes incidental learning.

Repeated exposure

The test was not conducted after a single encounter with the target words. Nation (1990) points out that five to sixteen exposures are necessary for the full acquisition of the word. Students might have more than five encounters with the target words which appeared across three textbooks and these words are often repeated throughout any single textbook. Hence, one may conclude that individual learners had a chance to get sufficient number of exposures to the target word for it to be acquired.

Availability of contextual clues

If the context is rich enough for the student to guess the meaning of an unknown word, we say that contextual clues are available. This factor poses a problem because many second language learners are not in a position to make use of the context (Nagy,

1997) because the learners generally do not have a large sight-vocabulary (words which are known well enough to be recognized quickly and accurately). That is, if the surrounding words of the target word are familiar to the learner he/she can learn from the context. For example:

> It is true that each electron possesses a tiny amount of energy, but as previously pointed out; an enormous number of electrons is involved even in a small current, so that considerable power may be represented.

In this example, it becomes easy for the learner to guess the meaning of the word *enormous* because almost all the surrounding words are known.

> For large-scale phenomena, such as electronic trajectories in a vacuum tube, the classical model yields accurate results. For small-scale systems, however, such as an electron in an atom or in a crystal, the classical model treated by Newtonian mechanics gives results which do not agree with experiment.

In the above example, two unfamiliar words occur side by side. If the learners know the meaning of the word *yield*, they can guess the meaning of *accurate* and vice-versa. But, if the two words are not known to the learners, the sentence alone does not give any clues to understand the meaning. But the whole passage taken together helps the learners arrive at a rough guess of the two difficult words.

Word's salience

If understanding the target word is inevitable for comprehending the input, then it is said that the word is salient. If it is so crucial that without understanding the word, the

overall meaning cannot be grasped, then the word is most likely to be acquired. For example:

This result predicts an increasing mass with an increasing velocity.

In the above example, learners need to guess what *predicts* means to understand the meaning of the sentence.

Existence of cognates

Cognates are words that have the same source or origin as other words in another language. For example, *haus* in German and *house* in English are cognates. There are very few cognates between English and Indian languages. Most of the students' L1 is Telugu and the remaining students, L1 is Urdu. There are not many cognates between Telugu/Urdu and English. The available cognates did not come under the purview of the target words. The existence of cognates reduces the learning burden on the learners. In the present context, learners had to learn each word separately due to the absence of cognates.

Significant L2 exposure

Even though most of the target learners studied in schools where English is used as the medium of instruction, many L2 learners do not engage in extensive reading. Many of them do not even read newspapers in English. So, there are fewer chances that learners develop a large sight vocabulary which in turn helps them in incidental learning.

After a discussion of the applicability of factors that promote incidental learning, it becomes clear that learners were at an advantage with comprehensible input, repeated exposures, availability of contextual clues and word's salience and at a disadvantage with regard to the existence of cognates and significant L2 exposure. That means that learners had a chance to make use of only 75% of the aspects that facilitate acquisition.

5.2 Vocabulary Instruction

If vocabulary development is given attention in a formal course of study, it is called vocabulary instruction. The previous chapter – Analysis of Results – shows us that words that are part of the English and engineering textbooks (EE), which have the advantage of being encountered in different contexts, received a gain of 16.56%. 16.56% is considerable gain because the entire English course was not on vocabulary development and lexical growth was not even one of the stated objectives of the English syllabus. Students learnt vocabulary as part of other language elements and language skills. Moreover, we have observed the insufficient importance given to vocabulary assessment in the year-end exams. We also should not forget the fact that the students concerned are second language learners who do not have sufficient resources to interact with English, either receptively or productively and whose general English language interaction outside the classroom is not much. It is a known fact that any second language is learnt at a slower pace because it is not practised informally. Within such a bleak and gloomy environment for lexical development, 16.56% gain is a considerable one.

Similar to the results of incidental vocabulary acquisition, all the item types received more or less the same gains. Word recognition got 15.9% gain, meanings received a gain of 17.37%, words in pairs got 16.47% gain, forming derivatives received a gain of 17.16% and

sentence production received a gain of 15.94%. So, one can clearly infer that learners could improve their knowledge of different word-aspects assessed.

We now turn to the factors that help the learner in learning vocabulary intentionally.

5.2.1 Factors Promoting Intentional Vocabulary Learning

In the second chapter (2.3), a number of aspects that constitute explicit vocabulary instruction were discussed. They are - providing glosses, encouraging learners to maintain vocabulary notebooks, providing example sentences and asking students to come up with their own sentences, offering a synonym or an L1 translation, providing rich instruction etc.

Providing glosses

A glossary at the end of each lesson gives the meanings of the difficult words in the text. The prescribed English textbook has one or two tasks focusing on giving meanings to difficult words. But the target words were not in the glossary. So, learners did not have any chance to make use of the glosses.

Vocabulary notebooks

We have seen in the literature review how encouraging the learners to maintain vocabulary notebooks (Fowle, 2002) helped them in increasing their lexical competence. One important point in this study was the autonomy given to students in selecting the words that go into their notebooks. That means, it was recognized that vocabulary

development is highly individualistic in nature. In the context of present research, learners were not asked to maintain vocabulary notebooks.

Providing a synonym

This is what is commonly done in an English classroom and the present context is not an exception. While discussing the text, the meanings or synonyms of the target words were given. At times, giving an L1 translation was also not uncommon. Especially in the case of synforms such as *adapt-adopt, stationary-stationery*, L1 translation makes the task easier.

Rich instruction

If elaborate explanation is given for a target word going beyond the demands of the particular context, it is called rich instruction. Providing rich instruction is totally in the hands of the individual teacher. Sometimes, if the students think that a particular word is important, they might ask for more information than what is provided.

Example sentences

While discussing the text, generally, meaning and synonyms are offered. Sometimes, to make the word more learnable, example sentences are also provided. But, asking students to come up with their own sentences does not happen. Productive tasks were almost nil in the context of the present research.

Hence, except offering meanings, synonyms or L1 translation to the difficult words as and when they occurred, the other constituent aspects of explicit vocabulary instruction are absent. Considering these facts, 16.56% gain is really a considerable gain.

Before we move on to the discussion of incidental and intentional vocabulary learning together, let us look at the gains words received under EE and OE.

5.3 Gains Received by the Target Words

As 300 target words were used in six different test papers having 5 sub tests, the results are discussed according to the subtest for the words – taught and acquired.

Subtest 1

This subtest asked the students to tick beside the words they knew exist. They could place a tick mark, even though they did not know the meaning of the word. Recognition of the target word was the objective of this subtest.

Of the sixty target words in this subtest, 15 target words got less than 10% gains and only three words got more than 30% gains. Words which received less than 10% gains are given here. The numbers given here refer to percentages.

EE	OE
appreciable – 9	extraneous - 6
incoherent – 4	formulate - 5
fabricated – 9	susceptibility - 6
attribute – 5	digress - 6
impetus – 6	magnitude - 5
emphasize – 4	qualitative - 6
customary – 6	
perceive - 5	

It is surprising that only two students knew all the ten words in this subtest in the post-test and no student knew all the ten words at the time of pre-test.

There is research evidence that in word recognition tasks, the length of the word has a strong effect. Coles (1982) finds that long words produced more errors in recognition tasks. But, the present result does not support this claim. Length of the word did not affect the learnability of the word. In fact, the shortest word in this subtest *whirl* (10%) has not got very significant gains.

The present result is not very much in support of the idea of morphological transparency either. If a long word consists of several familiar morphemes, it is considered to be morphologically transparent. It is assumed that these familiar morphemes help the learner in better word recognition and acquisition. Take, for example, the word *interchangeably*. The morphemes *inter-*, *change* and *–able* are very much familiar to the learners. Hence *interchangeably* should have got significant gains. But, it got only 15% gains. Other examples include *irreversible* and *indispensable* which

got 18% and 19% gains respectively. The root words in these two words – *reverse* and *dispense* – are not as common as the root word *change* in *interchangeably*. But, these two words got more gains than *interchangeably*.

Another example is the similarity between the results of *vary* and *invariably*. Both these words were in the same test (Test B) and got 11% and 12% gains respectively. The concept of morphological transparency worked well here in the sense that both the words received a similar gain. These students might have known that *vary* is the root word for *invariably*. Hence, the gains were almost same. These two words are present in the English textbook also. Teachers, while discussing vocabulary, might have discussed the relation between these two words.

On the whole, one can conclude that aspects like word length, or familiar morphemes do not greatly make a word learnable. One cannot say why the words *discrepancy* and *artifice* got 31% gains in this subtest. These are not frequently occurring words. And these two challenge the established concepts of what makes a word easy to learn. One can only say that from the learner's perspective, these words are important.

Subtest 2

This subtest is *Match the following* item type. It asked the students to match the target words in column A with their meanings in column B. Recognizing the meanings of the target words was the objective of the subtest. In this subtest, five words received more than 30% gains. The numbers given here refer to percentages. Those five words are:

EE	OE
complex – 31	convert – 32
conceive – 37	ingenious – 39
	exemplify – 31

It is surprising that words like *ingenious* and *exemplify* got more gains than words like *essential l*(6%) or *probable* (11%). Following is the list of words that got less than 10% gains. The numbers given here refer to percentages.

EE	OE
eventually – 7	confirm – 8
essential – 6	abrupt – 8
feasible – 8	depart – 7
spontaneous – 8	consecutive – 5
inherent – 7	induce – 6

The fact that the word *probable* has got only 11 % gains is surprising. Students in their intermediate studied the aspect probability in mathematics. Students studied probability for their exams but did not know the meaning of it. The only explanation one can think of is that the learners did not know that *probability* is a derivative of *probable*. Even though they might have thought of it as a technical term, they should have known the meaning of the word. It challenges the idea of derivational transparency and Nation's (2001) idea that derivatives are easier to learn. Another surprising fact is that the word *stationary* (21%) did not get the expected gains. As synforms (synforms are similar lexical forms), *stationary / stationery* must have been dealt with in the English classes year after year with unfailing regularity.

Launch is a word which appears time and again in the text book *Wings of Fire*. As the book is the autobiography of the former Indian President Abdul Kalam who was behind the success of Satellite Launch Vehicles and Missiles, *launch* appears almost once in every three pages. Still, it did not get more than 11% gains.

Very surprising is the fact that *essential* got only 6% gains. Even the meaning given is not something weird. It is *extremely important*. *Essential* is also from the EE. It is possible that teachers thought that students would know the word and might not have discussed it in the classroom. Students might have their own inferences about the word in context and what they thought at that moment might have suited the context in question.

Subtest 3

This subtest presented 10 pairs of words to the students. Students were asked to determine whether the words in pairs are related to each other. If related, students had to decide whether they were synonyms or antonyms. This subtest assessed the students' knowledge of the target words with respect to the latter's synonyms and antonyms.

In this subtest, only two words got more than 30% gains and both are from the EE section. They are:

successive – continuous – 31%
resist – yield – 31%

Words that received less than 10% gains are given here. The numbers given here refer to percentages.

EE	OE
criterion – standard – 7	alter – retain – 8
predominant – trivial – 6	restore – convert – 8
repulsive – disgusting – 8	unbelievable – artificial – 8
excessively – moderately – 9	absurd – sensible – 8
respectively – certainly – 8	

In the EE section, two word pairs are synonyms, two are antonyms and words in one pair are unrelated. In the OE section three pairs of words are antonyms and one pair was unrelated. It seems, though learners do not know whether the words are synonyms or antonyms, they certainly seem to know when they are not related to each other.

The word-pair *query-answer* (20%) has got good gains. Students knew the word *answer*, but *query* was new to them. The word-pair *unbelievable-artificial* (8) must have got higher gains. The words in pairs are not unfamiliar. The word *unbelievable* is morphologically transparent and *artificial* is quite a common word. This pair should have got higher responses at the time of pre-test itself. It is really surprising that even after being in touch with the words in question for an academic year, students could not understand the relation.

Take the word pair *repel-like* (20). There is no way one could not know the word *like.* Even *repel* was not something new. 'Unlike poles attract and like poles repel' is one of the fundamental principles in Physics. If the word pair was *repel-attract,* it would perhaps have got more responses. But, learners were unable to link the meaning sense of *like* to that of *attract.*

Subtest 4

In this subtest, students were asked to change the form of the given word according to the given sentence structure. Of the given words 15 (50%) words were to be changed in the Only Engineering section and 17 (56%) were to be changed in the English + Engineering section.

No single word in this subtest received more than 30% gains. So, words that got more than 25% gains are given here. The numbers given here refer to percentages.

EE	OE
response – 29	deviate – 27
accuracy – 27	assert – 26
belief – 26	exceed – 28
amaze – 29	
unique – 29	
extreme – 30	

Except *unique, extreme* and *exceed*, all the other words had to be changed to fit in the given sentence structure. Words that received less than 10% gains are given here.

EE	OE
acquire – 9	practice – 6
avail – 7	crucial – 6
apparent – 7	violate – 9
commercial – 7	
relatively – 9	
expensive – 9	
impose – 6	

In both the extremes – highest and lowest gains- EE section outperformed the OE section which makes it difficult for us to come to a conclusion whether instructional aid helps one in forming derivatives.

Bauer and Nation (1993) observe that *–ify* is one of the affixes which are not easy to learn and *simple – simplify* got only 13% gains. They also suggest that inflectional suffixes including the plural, third person singular present tense, past tense, past particle, *-ing,* etc. are easier to learn. That explains the reason why *restrain – restrains* got 22% gains. The only challenging part here is the students' inability to get *available* from *avail*. The word has got only 7% gains. *Commerce – commercial* (7%) is not an easier derivative. But, *avail – available* should have got higher gains than they actually had. In another set, learners could get *undisturbed* from *disturb* with 25% gains.

Some students changed the form of words unnecessarily in the pre-test. Thus they wrote *acquisition* from *acquire*, *effectively* from *effective*, *imposition* from *impose, extremity* from *extreme*, *consequent* from *consequence*. They might have thought that the instruction *change the form of the words if necessary* was given only to distract their attention. Generally, in class tests, teachers do this. They use the phrase *if necessary* to test the real knowledge of the students about the target grammatical or vocabulary items. Learners might have thought that the same was the case.

Some students used totally unexpected word forms. For instance, some students wrote words like *proceduring, regularred, cruciality, apparence, uniquecity* and so on. About 2% of the responses were interlanguage forms. In a way, this phenomenon calls

for attention because these interlanguage forms never constitute the input received by the students. In the subtest 1, a vast majority of learners could not recognize a word they have seen in their textbooks. And many of them have come up with systematic interlanguage. As a result, we may have to conclude that input alone is not sufficient for language learning. A very significant point is that these interlanguage forms did not appear in the post test scripts. If the learners did not know the correct answer, they did not fill in the blank. Schmitt and Zimmerman (2002) found similar inter language forms in their study.

Subtest 5

This subtest tests the productive knowledge of the students with respect to the given words. In this section, 36 words are verbs and the remaining are adjectives, adverbs and nouns. Though the students were free to change the form of the words if necessary, 86% of the students did not do so.

The following is the list of words that got 30% and above gains. The numbers given here refer to percentages.

EE	OE
alternative – 32	explicit – 36
imaginary – 30	
represent - 30	

The following is the list of words which got less than 10% gains

EE	OE
exclude – 8	premium – 8
contribute – 4	derive – 9
scatter – 4	mislead – 7
illustrate – 5	resort – 9

52% of the correct responses were used in the context of engineering. For example:

- The waves were scattered due to radiation.
- Illustrate the working of a spectrometer.
- Derive an equation to calculate the time period of a simple pendulum while executing simple harmonic motion.
- Kirchoff's laws are explicitly used in A.C. circuits.
- Calculating logarithms appropriately is not an easy task.
- Analyzing the experiment is important.
- In Mathematics, we solve many problems by making assumptions.
- Ohm's law is not a fundamental law.
- The value of Pi is 3.14 and is denoted by π which is a very important mathematical value.
- Rutherford predicted that an electron would accelerate around the nucleus.
- Illustrate the differences between CE and CB configuration.
- Computer is an electronic device.
- The components in the circuit are not working properly.
- Rockets should be accelerated to an initial velocity of 1000 km/x to go into the space.
- The variable 'Q' denotes charge.
- Voltmeter is a device which measures voltage.
- Derive the equation v=u+at.
- Illustrate the difference between CE & CB configuration.
- Newton derived laws of Gravitation.
- For this problem, the assumed value of x is zero.
- We got appropriate readings in the EDC lab exam.
- When a body accelerated non-uniformly, it is difficult to predict the exact values of is components. But, such cases are unusual.
- For inserting a picture in the Power Point we should go to clip art.
- The teacher asked the students to derive the formula.
- Any electronic device will not work properly if a small component of it is missing.

The other contexts in which maximum responses were given were related to cricket (15%), personal development(6%) and love (8%). For example:

- V.V.S Lakshman is a typical Hyderabadi batsman.
- He tried to retain his place in the Indian Cricket Team.
- Sehwag was excluded from the Indian cricket team because of his poor batting performance.
- There are enormous number of fans for Sachin.
- Dhoni became the captain of Indian cricket team only after crossing many obstacles.
- Mistakes occur in life.
- We should not take hasty decisions.
- Remain a good citizen.
- Contribute something to the society.
- Pursue your dreams irrespective of the problems.
- She permitted me into her heart.
- She revealed her love too me.
- We intend to get married soon.
- We should analyze other person's character before falling in love.
- Love finds no obstacles.

These students are regular readers of newspapers. They might have encountered these expressions in the newspapers.

In some cases, words like *insight, intense, resort, omit* were understood wrongly. These were taken as *in sight, in tense, re sort (sort again),* and *vomit.* For example:

- The snake was in sight.
- He felt in tense while answering the question.
- We should re sort our problems.
- The baby omitted the milk she had drunk.

Laufer & Bensoussan (1982, cited in Laufer, 1997) found the same kind of deceptive transparency in words like *outline* and *falsities*. Their subjects understood *outline* as *out of line* and *falsities* as *falling cities.*

5.4 Effect of Extensive Reading

The third hypothesis (3.1) states that extensive reading results in better vocabulary development and it has been proved again. Those who read extensively made good use of the target words. Let us look at two responses for the last subtest. The underlined words are the target words. Students were asked to use these words in their own sentences or construct a paragraph.

> The field of mobile communications has grown enormously in the past decade. Nowadays every person has his/her mobile device which represents his/her unique personality. There is intense competition between mobile phone companies which regularly modify their strategies in order to keep up with the competition. If we verify some facts, we can notice that one in every twenty people in India owns a mobile phone. Carrying a bulky phone is no longer an obstacle, as phones are being made smaller and smaller with new technology. Phones are being modified constantly and new features being added. Whilst buying a phone, we can specify the features we want and select a model accordingly. (Student No. 65)

> The question was to illustrate and derive the expression for the Schrodinger Wave Equation. I did not know the answer. The previous day, I was misled by my fried that that particular question would not be asked and I need not prepare for it. I was feeling tense. I began to have headache, but the pain was tolerable. I had two sides in my mind. One was to copy the answer from another person and the other was to quit answering the question. Suddenly, the person sitting beside me acknowledged my tension and made a proposal. He said that resorting to copy the answer was risky and wrong. He asked me to devise my own answer from the scattered thoughts I had about the concept. So I did. I had answered the question in my own way by simultaneously using my own knowledge and also the concept I had learnt from the prescribed textbook. (Student No. 396)

In all the five sub tests, extensive readers received significant scores. These students received scores between 30-42 in the post-test and 19-32 in the pre-test. These students were the ones who could write a paragraph using all the given words which indicates their creativity and spontaneous thought. These extensive readers seem to be compulsive writers as well. Because, for the question *Do you think that English should be*

continued in the second and third years as well?, these students wrote paragraph answers explaining the necessity of learning fluent and accurate English which will help them in their future endeavors etc. But, the expected answer was only a Yes or a No. There are, of course, eleven students who are not extensive readers, but still got good marks in the tests. For example, one student got 40 marks in the post test and 29 marks in the pre-test and these students did not claim having a habit of reading extensively. In the questionnaires given at the time of the pre-test and the post-test, these students did not say that they read anything other than the course books. One point worth mentioning is that not all the learners who took to reading during the year improved their vocabulary levels. It may take some more time for the development to occur.

5.5 Effect of Word Class

Word class has had a significant effect on the students when it comes to the difference between acquisition and instruction. In subtest 1, of the words that appeared only in the engineering textbooks, 83.33% of the verbs got higher gains followed by adjectives and adverbs. Nouns did not get higher gains. But, when it comes to EE, only 22% of verbs got higher gains and 83.33% of nouns have got higher gains. In the engineering contexts, students noticed only the action words – verbs – which were necessary for them to understand the subject. In the words that appeared in the English textbooks also, nouns might have been discussed greatly. These nouns appear in two contexts- in the engineering textbooks and in the English textbooks. Looking at these

words from two different contexts might have helped better acquisition. In subtest 2, 35.7% of verbs got higher gains followed by adjectives (22.3%). For the words encountered in the engineering textbooks and for the words that were discussed in the class, verbs have got the highest gains. In the engineering contexts, understanding verbs is crucial; so, better acquisition of verbs is understandable. In subtest 1 noun got higher gains from the words discussed. And there was a swing of the pendulum and nouns did not get significant gains. So, when it comes to meanings, in whichever context they appear, engineering students learn verbs better than others. In subtest 3, 50% of gains were for verbs in the EE (English and Engineering) words and 48% gains for the OE (Only Engineering) words. 25% were the gains for nouns for EE and OE words. Again, verbs fared well in this subtest also. In 4th subtest, forming derivatives from verbs to other forms was easier than the other ways. Especially, forming nouns and adjectives from the verbs was the easiest. Of the words that did not need any change 83% of verbs got higher gains for both OE and EE words. In subtest 5, 75% and 87.3% gains were for verbs for the OE and EE words respectively. Nouns got 25% gains and adjectives 12.5% gains.

So, on the whole, engineering students found verbs most easy to learn than the other word classes. It is, of course, natural considering the fact that the study of engineering deals with what to do in order to get some result. So, obviously, verbs followed by nouns become the priority. In the chapter, Review of literature (2.10) we have seen that the same kind of results were obtained by Schmitt & Zimmerman (2002). In their study, students found verbs to be easier to learn and this was followed by nouns.

5.6 Effect of Medium of Instruction

Of the 600 students, 482 students received their education through the medium of English and 118 students studied in the L1. Of the 118, 89 students' L1 was Telugu and 29 students' was Urdu.

In the pre-test 29 students whose medium of instruction was English got more than 20 marks out of 50 and 15 students who studied through their L1 got more than 20 marks. In the main test, 54 students studied in English medium schools and 25 who studied through their L1 got more than 30 marks out of 50.

Surprisingly, medium of instruction up to 10th class or Intermediate did not affect the word knowledge of the learners. There were students who studied in English medium schools but could not show a clear knowledge of the target words. And there were students who studied in Telugu medium schools, yet, fared well in the tests. Below are some examples to illustrate the point. The following sentences were written by students who studied in English medium schools.

- He misleaded the class.
- The mother was unable to tolerable at the child's cry.
- Every citizen should be explored.
- I tempted a red dress in the shop.
- I was revealing with my science project.
- English is not excluding subject in engineering.
- Omitted cell phones in classrooms are necessary.
- I hate assume.
- It is an negligible computer.
- We all must be preserved.

The following sentences were written by students who studied in Telugu medium schools.

- Some things are easy to imagine but difficult to work out.
- The teacher specified that only 30 members should come with her.
- The colour white represents peace.
- Certain rules regarding the educational system need to be modified.
- The music composed by A R Rehman is unique.
- India had enormous amount of wealth in its glorious past.
- Illiteracy is an obstacle for our development.
- You must read the prescribed textbooks.
- He can do many things simultaneously.
- Don't resort to anti-social activities.

It was found that 54% of students (English medium) got less than five marks in the last subtest whereas 59% of students (Telugu medium) got less than five marks.

But, students from Telugu medium schools found the 4th subtest particularly difficult. 86% of the students got less than 5 marks in this subtest. Manipulating a given word according to the sentence structure proved to be more difficult than writing a sentence using the target word.

Let us move to the discussion of incidental and intentional learning of vocabulary.

5.7 Incidental and Intentional Learning of Vocabulary

The paired Z-test (4.1) reveals that very significant gains ($p < .01$) were achieved by the students for both incidental and intentional vocabulary learning. The Pearson product-moment correlation coefficient (4.3) indicates that there is a very positive

relationship between the assessed aspects of word knowledge. The correlation between the results of the pre-test is considerable but the correlation between the results of the post-test is highly positive which indicates that the students were able to improve their knowledge of different word aspects. It may be thought that the pre-test helped them, perhaps unconsciously, to become consciously aware of the different aspects of word knowledge. It is not that the learners did not know anything about the types of word knowledge before the administration of the pre-test. It is that they become aware of these types of knowledge consciously.

One can clearly observe the growth in learners' knowledge of different aspects of knowing a word from the pre-test to the post-test. But, there could not be any definite conclusion that the improvement was the result of explicit teaching or incidental learning. As the study has been measured over an year's time, one cannot know what happened in this period of time. Words that were discussed as part of the text might not have been learnt by some students. Also, some students might have looked up the meanings of words they did not understand while studying their subject textbooks. One can only say that students underwent a course of study and it helped them in their lexical development and it also helped them to relate one kind of word knowledge with the other.

A very surprising factor is that the gains for intentional and incidental vocabulary learning are 16.56% and 16.46% respectively which indicates that learners were not greatly helped by the existing English textbook. There are, of course, as discussed in the second chapter, some factors that affect the usefulness of these learning processes. Talking about the process of incidental learning, Nation & Coady (1988) point out that

the very redundancy or richness of information in a given context which enables a reader to guess an unknown word successfully could also predict that the same reader is less likely to learn the word because he or she was able to comprehend the text without knowing the words.

Vocabulary instruction is also not problem-free. Nation & Coady (1988) argue that meaning-based language use activities are not necessarily sufficient for internalizing all the aspects of word knowledge.

We see that learners could learn the different aspects of word knowledge by being in a course of study when special or explicit focus was not on lexical development. We se that incidental vocabulary learning presupposes the existence of certain factors like significant L2 exposure, attention etc. One more important factor is that the learners should have knowledge of at least 3,000 – 5,000 word families (Nation & Waring, 1997, cited in Schmitt, 2000) to guess the meaning of a target word successfully. Nation & Newton (1997) suggest that the first 2,000 words should receive attention because without these, it is not possible to use English in any normal way.

Incidentally, in the 300 target words, 65 words were from the first 2000 words. At the time of the pre-test itself, learners should have displayed considerable amount of knowledge about these words. But, it was found that not even fifty students had knowledge about any one of these words. After one year of study, 16 of these words did not receive more than 10% gains. 13 of these 16 words were in the EE list as well. That means, these words were present in the English and Engineering textbooks. Discussions

based on the context proved to be insufficient for the learning of these words. Hence as Nation (1997) suggests, learning these words should not be left to chance and explicit instruction should be given about these words in the initial stages of a learner's education. Lack of knowledge about these words must have been the major detrimental factor for the learners to acquire words incidentally. Schmitt (2000) suggests that the General Service List – GSL – is a good source to start with because most of these extremely frequent words are polysemous, GSL gives information about the frequency of each meaning sense. But, Nagy (1997) is of the opinion that precisely because words are basically polysemous in nature, context is the best source to learn all the meaning senses. He proceeds to give an example from Green (1989, cited in Nagy, 1997) who found that approximately 15% of words in naturally occurring texts were used in senses not included in existing dictionaries. Even then, after asserting that second language learners have a need to use context because they have to learn at a rate faster than the L1 learners, Nagy himself states that "a variety of reasons can be found for arguing that context plays a relatively less important role, and explicit instruction (i.e. definitions) a relatively greater role in the vocabulary growth of second language learners… and there is a greater pay-off instructionally" (Nagy, 1997, pp.75-76).

This again brings us into the realm of explicit instruction. Teaching the first 2,000 words becomes very important because the most frequent 2,000 head words account for at least 85% of the words on any page of any book no matter what the subject matter is (Nation & Newton, 1997). They also suggest three different kinds of vocabulary to be taught after the first 2,000 words. They are low-frequency words, academic vocabulary

and technical vocabulary. If the learners need English for social purposes or for reading magazines or novels or for occupations that do not require the reading of an academic text, teaching low-frequency vocabulary is the option. If the learners wished to go for higher education, then teaching academic vocabulary is the option. The third one is technical vocabulary. Because of its narrow range, it is better to deal with this vocabulary in a field-specific instructional set up. In support of his Input Hypothesis, Krashen (1989) gives an example from Miller (1941, cited in Krashen, 1989). Miller informally observed vocabulary acquisition without any instruction in junior high school students who completed a month's study on conservation of natural resources which included a good amount of reading. At the end of the programme, Miller remarks that her students learnt using words like *agrarian, conservation* etc. and concludes that extensive reading is the best source for vocabulary development. But, one can clearly see that the vocabulary the students acquired through one month's study was technical vocabulary. Field-specific vocabulary is easily learnt because it is necessary for the student to make use of this vocabulary.

Learners in the present context were engineering students and we have seen that there could not be any problem with the learning of technical vocabulary. As engineering students they were in pursuit of academic material. So, teaching words from the university Word List could be one option.

Of the 300 target words, 101 words are in the university word list. Of these 101, 16 words got less than 10% gains and 15 words got more than 25% gains. That means 70 words i.e. 69.38% words are moderately learned and that students were able to

infer the different aspects of these words from the context. So far, it has been suggested that the first 2,000 words should be taught explicitly in the classroom and strategies in learning from the context should be explained. But, engineering students will not study English as part of their course work after their first year. In the last year of teaching, teaching all these things would not be a feasible idea. There are only two options available to solve this problem. As students come from diverse language backgrounds, one cannot assume anything about their lexical knowledge. So, one option is to conduct a placement test in vocabulary and give direct instruction to those who need it separately and devise a programme which deals with learning strategies. The second option is to extend the study of English for another year and plan a programme that helps the students gradually move from instruction to acquisition. Whatever the option is, a course on vocabulary learning strategies is a must because it was made clear through the data analysis that learners were not able to learn vocabulary incidentally and the English textbook in its present form was not able to do so either. So, as a solution for these two problems, a course on vocabulary learning strategies coupled with direct vocabulary instruction can be thought of.

5.8 Vocabulary Learning Strategies

Having surveyed the shortcomings of both explicit teaching and incidental learning in the present context, introducing a course on vocabulary learning strategies seems to be a feasible option. That English is not learnt as a course of study after the first

year reinforces the idea of the said option. We have seen that many factors assist the learning of vocabulary – intentional and incidental – learning. The first step should be making the students aware of these factors. For example, many students might not have known that inferring is a widely recognized learning strategy. The other aspects include providing repeated exposure, encouraging learners to maintain vocabulary notebooks, focusing on productive tasks and conducting regular tests.

Before doing any of these, it should be recognized that language learning involves a high degree of individualism (Mobarg, 1997). Respecting the learners' choice of vocabulary to be learnt according their needs and interests is the prerequisite for any programme that focuses on vocabulary learning strategies.

Learning from context

Learning from the context is one of the best sources available for vocabulary development. Fraser (1997) points out those inferring results in higher rates of learning because learners have to do some problem solving to make inferences. She also suggests that learners seem to prefer inferring from the context. There is evidence (Paribhakt & Wesche, 1997) that inferring from the context followed by referring to a dictionary would promote high amount of vocabulary growth. Learners themselves decide according to their vocabulary levels which word is to be learnt. After the selection is made, then the point of repeated exposure comes into picture.

Vocabulary notebooks

Once the learner decides that a word should be learnt, then he/she should be encouraged to note down the word in his/her vocabulary notebook. Whatever information, the learner can get about the word should be noted in that book. Synonyms, antonyms, example sentences, L1 translation etc. all should be noted under the word.

Repeated exposure

After sufficient practice in noting down words in their books, they should be asked to go through the books regularly and add whatever they have learnt about the word or thought about it. There should be regular supervision of these notebooks.

Conducting tests

Unless there is a need to learn, students generally do not engage in regular learning activities. That need is best provided by conducting regular tests. This also helps the teacher in monitoring the progress of the students. These tests may vary from one person to the another based on the target words he/she has noted down in his/her book.

Following this procedure may result in better vocabulary learning and retention. But doing this is not easy. Certain pre-requisites are to be met for the implementation of such a programme. Those are the needs of the learners and the strength of the class

Learner

Learner is the most important and the most affected variable in any teaching-learning situation. Every individual learner is unique with his/her needs, requirements and aspirations. When they come into the classroom, they bring with them their needs and their problems too.

The first task of the teacher is to have an understanding of the problems. In the context of the present research, administration of a diagnostic test is a must. This can be the Vocabulary Levels test or Vocabulary Knowledge Scale or any other test which the teacher thinks will suit the purpose. The Productive Version of the Vocabulary levels test is also a good idea. Based on their performance, learners can be formed into different groups. This is not streaming. All the students will be in one class; but, in different groups. Then, the teacher can have a chance to develop different exercises for the different groups. It will also become easier for the students to work within homogeneous groups. Evaluation of the work can be done within groups or across the groups. In this way, learners will have a feeling that they are doing something. They play an active role in improving their knowledge and are not just passive recipients of the information. But for the successful completion of this activity class strength is another significant prerequisite.

Strength of the class

Every section in engineering consists of minimum 60 students. Intake is 60 students per year; but, detained students and students who have got transferred from one

college to another college are added up to this 60 and the total number comes to around 65.

A teacher-centred class is the only option for such a class. But, it should not be so if the objective of the teaching – learning programme is to develop and sharpen the LSRW skills. The syllabus of the English text book aims at promoting these skills and such a large class is not conducive for the development of the said skills. A class of 60 can listen to a lecture on Communicative Language Teaching; but, for the communicative approach to become successful, a class should not have more than 30 students.

If there are only 30 students in the class, teachers can pay individual attention to the students which promotes faster learning. Students can also participate in interactive, not noisy, discussions among themselves. And, whatever the activity is, all the 30 students can have a chance to participate, get their work evaluated and corrected, seek clarification for doubts and so on. If the classroom is provided with an LCD and a computer, various audio-video resources can be made use of and the classroom will become the best English class room.

5.9 Limitations and Suggestions for Further Research

The biggest limitation is that the spoken discourse was not considered. While writing, one, generally, thinks twice and then writes which is not the case with speaking. One has to speak on the spot. Second language learners generally use very basic

vocabulary in speech. Though the learners were able to use the target words in writing, they might not do so while speaking.

The second limitation is that the research did not rely on an embedded measure. While writing on a general topic, how many of these target words would be used by the learners was not looked into. Exploring these two areas can result in better knowledge about vocabulary acquisition.

5.10 Conclusion

The present research found that learners were able to improve their vocabulary levels by an overall gain of 16.51%. Words from EE had a gain of 16.56% and words from OE had a gain of 16.46%. It was noticed that the administration of a pre-test did not greatly affect the vocabulary learning process of students. It was also observed that there was not significant difference in learning on the basis of gender or medium of instruction. The gains for EE and OE were so close to each other and also to the overall gain – 16.51%. But, this growth in their lexical levels cannot be conclusively attributed to either incidental or intentional learning as the study was measured over a year's time.

The present research concludes that learners developed their vocabulary levels by simply being in a course of study. So, as learners were able to improve their lexical knowledge as a result of an academic programme, their ability could be enhanced through continuing English in the second year also by focusing on the lexico-grammatical aspects.

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Appendix A

Prescribed Syllabus for English,

Jawaharlal Nehru Technological University (JNTU), Hyderabad

2007-2008

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD

I Year B.Tech.

ENGLISH

1. INTRODUCTION :

In view of the growing importance of English as a tool for global communication and the consequent emphasis on training students to acquire communicative competence, the syllabus has been designed to develop linguistic and communicative competence of Engineering students. The prescribed books and the exercises are meant to serve broadly as students' handbooks.

In the English classes, the focus should be on the skills of reading, writing, listening and speaking and for this the teachers should use the text prescribed for detailed study. For example, the students should be encouraged to read the texts/selected paragraphs silently. The teachers can ask comprehension questions to stimulate discussion and based on the discussions students can be made to write short paragraphs/essays etc.

The text for non-detailed study is for extensive reading/reading for pleasure by the students. Hence, it is suggested that they read it on their own with topics selected for discussion in the class. The time should be utilized for working out the exercises given after each section , as also for supplementing the exercises with authentic materials of a similar kind for example, from newspaper articles, advertisements, promotional material etc.. *However, the stress in this syllabus is on skill development and practice of language skills.*

2. OBJECTIVES:

a. To improve the language proficiency of the students in English with emphasis on LSRW skills.
b. To equip the students to study academic subjects with greater facility through the theoretical and practical components of the English syllabus.
c. To develop the study skills and communication skills in formal and informal situations.

3. SYLLABUS :

Listening Skills:

Objectives

1. To enable students to develop their listening skill so that they may appreciate its role in the LSRW skills approach to language and improve their pronunciation
2. To equip students with necessary training in listening so that can comprehend the speech of people of different backgrounds and regions

Students should be given practice in listening to the sounds of the language to be able to recognise them, to distinguish between them to mark stress and recognise and use the right intonation in sentences.

- Listening for general content
- Listening to fill up information
- Intensive listening
- Listening for specific information

Speaking Skills :

Objectives

1. To make students aware of the role of speaking in English and its contribution to their success.
2. To enable students to express themselves fluently and appropriately in social and professional contexts.

- Oral practice
- Describing objects/situations/people
- Role play – Individual/Group activities (Using exercises from all the nine units of the prescribed text: *Learning English : A Communicative Approach.*)
- Just A Minute(JAM) Sessions.

Reading Skills:

Objectives

1. To develop an awareness in the students about the significance of silent reading and comprehension.
2. To develop the ability of students to guess the meanings of words from context and grasp the overall message of the text, draw inferences etc.

- Skimming the text
- Understanding the gist of an argument
- Identifying the topic sentence

- Inferring lexical and contextual meaning
- Understanding discourse features
- Recognizing coherence/sequencing of sentences

NOTE : *The students will be trained in reading skills using the prescribed text for detailed study. They will be examined in reading and answering questions using 'unseen' passages which may be taken from the non-detailed text or other authentic texts, such as magazines/newspaper articles.*

Writing Skills :

Objectives

1. To develop an awareness in the students about writing as an exact and formal skill
2. To equip them with the components of different forms of writing, beginning with the lower order ones.

- Writing sentences
- Use of appropriate vocabulary
- Paragraph writing
- Coherence and cohesiveness
- Narration / description
- Note Making
- Formal and informal letter writing
- Editing a passage

4. TEXTBOOKS PRESCRIBED:

In order to improve the proficiency of the student in the acquisition of the four skills mentioned above, the following texts and course content, divided into **Eight Units**, are prescribed:

For Detailed study

1. **LEARNING ENGLISH:** ***A Communicative Approach***, Hyderabad: Orient Longman, 2006. (Six Selected Lessons)

For Non-detailed study

2. **WINGS OF FIRE:** ***An Autobiography – APJ Abdul Kalam***, Abridged version with Exercises, Universities Press (India) Pvt. Ltd., 2004.

A. STUDY MATERIAL:

Unit –I

1. Astronomy from LEARNING ENGLISH: *A Communicative Approach,* Orient Longman, 2005.
2. Chapters 1-4 **from** Wings of Fire: An Autobiography **– APJ Abdul Kalam, an abridged version with Exercises, Universities Press (India) Pvt. Ltd.,2004**

Unit –II

3. Information Technology **from** LEARNING ENGLISH: *A Communicative Approach,* **Orient Longman, 2005.**
4. Chapters 5-8 **from** Wings of Fire: An Autobiography **– APJ Abdul Kalam, an abridged version with Exercises, Universities Press (India) Pvt. Ltd.,2004**

Unit –III

5. Humour **from** LEARNING ENGLISH: *A Communicative Approach,* **Orient Longman, 2005.**
6. Chapters 9-12 **from** Wings of Fire: An Autobiography **– APJ Abdul Kalam, an abridged version with Exercises., Universities Press (India) Pvt. Ltd.,2004**

Unit –IV

7. Environment **from** LEARNING ENGLISH: *A Communicative Approach,* **Orient Longman, 2005.**
8. Chapters 13-16 **from** Wings of Fire: An Autobiography **– APJ Abdul Kalam, an abridged version with Exercises, Universities Press (India) Pvt. Ltd.,2004**

Unit –V

9. Inspiration **from** LEARNING ENGLISH: *A Communicative Approach,* **Orient Longman, 2005.**
10. Chapters 17-20 **from** Wings of Fire: An Autobiography **– APJ Abdul Kalam, an abridged version with Exercises, Universities Press (India) Pvt. Ltd.,2004.**

Unit – VI

11. Human Interest **from** LEARNING ENGLISH: *A Communicative Approach,* **Orient Longman, 2005.**
12. Chapters 21-24 **from** Wings of Fire: An Autobiography **– APJ Abdul Kalam, an abridged version with Exercises, Universities Press (India) Pvt. Ltd., 2004.**

* Exercises from the lessons not prescribed shall also be used for classroom tasks.

Unit – VII

Exercises on

Reading and Writing Skills
Reading Comprehension
Situational dialogues
Letter writing
Essay writing

Unit – VIII

Practice Exercises on Remedial Grammar covering

Common errors in English, Subject-Verb agreement, Use of Articles and Prepositions, Tense and aspect

Vocabulary development covering

Synonyms & Antonyms, one-word substitutes, prefixes & suffixes, Idioms & phrases, words often confused.

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2. **Basic Communication Skills for Technology**, Andrea J Rutherfoord, Pearson Education Asia.
3. **Murphy's English Grammar with CD,** Murphy, Cambridge University Press
4. **English Skills for Technical Students** by Orient Longman
5. **Everyday Dialogues in English** by Robert J. Dixson, Prentice-Hall of India Ltd., 2006.
6. **English For Technical Communication**, Vol. 1 & 2, by K. R. Lakshmi Narayanan, Sci tech. Publications.
7. **A Hand book of English for Engineers & Technologists** by Dr. P. Eliah, B. S. Publications.
8. **Developing Communication Skills** by Krishna Mohan & Meera Benerji (Macmillan)
9. **Speaking and Writing for Effective Business Communication,** Francis Soundararaj, MacMillan India Ltd., 2007.
10. **The Oxford Guide to Writing and Speaking,** John Seely, Oxford

Appendix B

Year-end examination for English 2007-2008, 2006-2007, 2005-2006

Jawaharlal Nehru Technological University (JNTU), Hyderabad

Appendix B actually contains photocopies of the year-end examination question papers for English. As these are photocopies, they cannot be transferred to the Compact Disk. They are in the hard copy of the dissertation.

Appendix C

Student Information Sheet

Appendix C1 – Given at the time of Pre-test

Name:

Gender: Male / Female

Name of the school in which you studied up to 10th standard:

Medium of instruction up to 10th standard:

Name of the college in which you studied Intermediate:

Medium of instruction in Intermediate:

Name of the college in which you are studying Engineering:

Do you read anything in English other than the prescribed course books?
If yes, what do you read? (mark (√) appropriately)

- News papers
- Magazines
- Journals
- Fiction
- Non-fiction
- Story books

In which areas do you think you need improvement?

(mark (√) appropriately)

- Vocabulary
- Spoken English
- Reading comprehension
- Spelling
- Grammar
- Writing skills
- Taking notes from books
- Making notes from lectures

Do you think you need to study English as part of your course structure in I B. Tech?

Appendix C2 – Given at the time of Post-test

Name:

Gender: Male / Female

Name of the school in which you studied up to 10th standard:

Medium of instruction up to 10th standard:

Name of the college in which you studied Intermediate:

Medium of instruction in Intermediate:

Name of the college in which you are studying Engineering:

Do you read anything in English other than the prescribed course books?
If yes, what do you read? (mark (√) appropriately)

- News papers
- Magazines
- Journals
- Fiction
- Non-fiction
- Story books

In which areas do you think you need improvement?

(mark (√) appropriately)

- Vocabulary
- Spoken English
- Reading comprehension
- Spelling
- Grammar
- Writing skills
- Taking notes from books
- Making notes from lectures

Has your English textbook helped you in the areas you need improvement?

Do you think that English should be continued in the second and third years as well?

Appendix D

Pilot Study 1

Choose the synonym for the underlined word.

1. He is a man of highest integrity.
   a) ability b) wisdom c) honesty

2. He believed passionately in freedom of speech.
   a) completely b) eagerly c) earnestly

3. All his claims are extremely hypothetical.
   a) unbelievable b) imaginary c) valid

4. I have implicit faith in your abilities.
   a) absolute b) doubtful c) equal

5. He has a formidable list of qualifications.
   a) wonderful b) elongated c) terrifying

6. She disliked him intensely.
   a) truly b) extremely c) honestly

Match the following

A	B
1. accompany	a. exactly
2. criterion	b. contribute
3. impart	c. weaken
4. integrity	d. go along with
5. precisely	e. having strong moral principles
6. attenuate	f. standard

Write meanings of the following words in a word or in a phrase.

1. abundant
2. classify
3. eliminate
4. procedure
5. seldom
6. absorb

Fill in the blanks by changing the form of the words given in brackets.

1. He _____ the importance of careful driving. (emphasis)

2. I think we can safely _____ that the present situation is going to continue. (assumption)

3. Check your work for _____. (accurate)

4. The house has an _____ façade. (impose)

5. I can't remember _____ what happened. (precision)

6. The incident _____ the need for better security. (illustration)

Use the following words in your own sentences.

accurate	evident	insight
occur	stable	compromise

Appendix E

Test papers for the Main Study

Test A

I Tick beside the words you know.

appreciable	exaggerate
orientation	expulsion
progressive	incoherent
eroded	ridiculed
indispensable	whirl

II Choose the right word to go with each meaning. Write the number of that word next to its meaning.

A	B	
1. distort	having strong moral principles	_____
2. intrinsic	that can be noticed	_____
3. integrity	getting rid of something	_____
4. abundant	twist out of its usual shape	_____
5. eliminate	having traditional attitudes	_____
6. consolidate	more than enough	_____
7. conservative	put a limit on	_____
8. observable	taking out	_____
9. restrict	existing within	_____
10. extracting	unite things into one	_____

III Here are 10 sets of words. Words in each set may be similar in meaning, approximately opposite in meaning or completely different. In the space provided, write S if the words are similar, write A if the words are opposite and write D if the words are different.

1. criterion	standard	_____
2. impart	attain	_____
3. depict	describe	_____
4. precise	elaborate	_____
5. classify	categorize	_____
6. enhance	increase	_____
7. attenuate	possible	_____
8. repel	like	_____
9. absorb	exclude	_____
10. correspond	result	_____

IV Fill in the blanks changing the form of the given words if necessary.

absolute	response	evidence	stable
seldom	ambiguity	belief	accuracy
	compromise	procedure	

Placement officer giving suggestions to the students before the commencement of campus interviews.

Attending campus interviews is crucial to final year students. As a standard _____ students have to attend for a Technical interview, HR interview and participate in a group discussion. Even after sufficient practice students _____ think that they can get through it easily.

You have to bear in mind some rules which make the job easier. First and foremost, what you speak should be fluent and _____. You should be _____ in mind and thought and avoid making any _____ statements. Through your discussion, it should be _____ that, you _____ in what you say. Never _____ on your value system. _____ to the others with ease and confidence. Be _____ sure that your body language is in accordance with what you speak.

V Use the following words in your own sentences. You are free to construct a small passage or a dialogue using the given words. You can change the form of the words, if necessary.

accelerate	exact	insight	ensure
predict	component	hasty	occur
	unusual	refine	

Test B

I. Tick beside the words you know.

arbitrary	conspicuous
fabricated	invariably
vary	collide
extraneous	instantaneous
reciprocal	equivalent

II. Choose the right word to go with each meaning. Write the number of that word next to its meaning.

A	B
1. impede	go along with
_____ 2. compile	obtain gradually
_____ 3. accumulate	succeed in doing something
_____ 4. extensive	note differences
_____ 5. accomplish	as a first choice
_____ 6. preferably	not moving
_____ 7. accompany	delay the progress of something
_____ 8. stationary	large in amount or scale
_____ 9. distinguish	likely to happen
_____ 10. probable	collect and arrange in an order
_____	

III. Here are 10 sets of words. Words in each set may be similar in meaning, approximately opposite in meaning or completely different. In the space provided, write S if the words are similar, write A if the words are opposite and write D if the words are different.

1. adapt	adjust	_____
2. depletion	decrease	_____
3. compact	expand	_____
4. profitable	instruct	_____
5. rigorous	strict	_____
6. consumption	conservation	_____
7. predominant	trivial	_____
8. implicit	understood	_____
9. resulting	observe	_____
10. occupancy	abrupt	_____

IV. Fill in the blanks changing the form of the given words if necessary.

amaze	simple	effect	practice
economy	rely	tedium	relax
	frequent	quite	

A discussion between a sales person and a couple.

A. Good morning Sir, I am from 'Clean Home' Sir. Madam, Good morning ma'am!
B. We are busy at present. We don't need any vacuum cleaners now.
A. Okay, Sir! But, just have a look at the beautiful machine Sir. This is the _____bought vacuum cleaner Sir. Ma'am, this _____your work ma'am
B. I heard it is very costly.

A. Who told you that Sir? It is very _____and at the same time very _____also.

C. Any how, my husband has already told you that we don't want to buy it now.

A. You please sit down ma'am. Sir, your house is _____ beautiful, Sir. Ma'am, it's _____how you could do all this without a vacuum cleaner. Sir, if you buy one, ma'am can _____a bit.

C. Is this_____?

A. Sure ma'am. You need not have any doubt at all. 'Clean Home' is synonymous with trust ma'am.

B. Any way, I think I have some work.

C. Be_____, my dear. Why don't you buy that for me? You know how _____ house hold works are? You are always engaged with your work and I have to …….

B. Okay, okay, okay. What is the price of this cleaner? You haven't yet told me.

A. The price is quite affordable Sir. It is not a problem at all. You can even opt for installments. Ma'am you are lucky ma'am. Sir is a very nice person ma'am. Would you please give me a glass of water ma'am?

B. Sure.

V. <u>Use the following words in your own sentences. You are free to construct a small passage or a dialogue using the given words. You can change the form of the words, if necessary.</u>

assume	exclude	intend	reveal
fundamental	denote	insert	omitted
	tempting	negligible	

Test C

I. Tick beside the words you know.

assigning	constitute
governed	irreversible
interruption	comparative
formidable	interchangeably
superfluous	homogeneous

II. Choose the right word to go with each meaning. Write the number of that word next to its meaning.

A	B
1. eventually	brief and to the point
___ 2. confirm	get something with effort
___ 3. concise	go away
___ 4. abrupt	not deliberately developed
___ 5. depart	sooner or later
___ 6. essential	that can be done
___ 7. attain	extremely important
___ 8. spontaneous	take a certain direction
___ 9. tend	establish the truth
___ 10. feasible	sudden and unexpected
___	

III. Here are 10 sets of words. Words in each set may be similar in meaning, approximately opposite in meaning or completely different. In the space provided, write S if the words are similar, write A if the words are opposite and write D if the words are different.

1. incorporate	include	___
2. intricate	complicated	___
3. previous	later	___
4. patterned	hurried	___
5. incessant	continuous	___
6. complementary	superfluous	___
7. query	answer	___
8. designate	appoint	___
9. adopt	reject	___
10. triumph	emotion	___

IV. Fill in the blanks changing the form of the given words if necessary.

objective	strenuous	compose	acquire
adjacent	strive	concept	obvious
	crucial	regular	

My first day at the Engineering College

When the alarm went off at 6.00 a.m., I woke up with a start. Then, I remembered that I had to get ready to go to college. For a while, I sat on my bed, troubled by mixed emotions. How will I be received by my seniors? Will there be any ragging? How will my classmates be? I heard that some of the courses will be really _____. Will I be able to cope with the exacting demands? Will the Professors be co-operative?

Slowly, I dragged myself out of my room and got ready. Though I was really tense, I tried to appear cool and _____. I reached the college auditorium and saw some of my old friends in the _____ rows. I felt at home immediately. Programme sheets were given and it became _____ that the speakers were going to address all the _____ points.

Of all the speakers, I liked the speech of our Principal. When he started with, "the _____ of my speech are….."we expected an elaborate speech. But, it was up to the point. He emphasized the need to have _____ clarity, urged us to _____ the necessary skills and made us promise that we all would _____ our study habits and _____ for excellence.

I went home happily looking forward to meeting all the other classmates the next day.

V. <u>Use the following words in your own sentences. You are free to construct a small passage or a dialogue using the given words. You can change the form of the words, if necessary.</u>

contribute	explore	distort	rotate
regard	instruct	interpret	preserve
	analyze	premium	

Test D

I. Tick beside the words you know.

attribute	customary
impetus	perceive
emphasize	digress
formulate	magnitude
susceptibility	qualitative

II. Choose the right word to go with each meaning. Write the number of that word next to its meaning.

A	B	
1. affect	go before	_____
2. exert	existing as a natural feature	_____
3. inherent	following what is traditional	_____
4. consecutive	happening in the past	_____
5. precede	have an influence on	_____
6. induce	become known	_____
7. conventional	that is done intentionally	_____
8. historical	make an effort	_____
9. deliberately	cause something	_____
10. emerge	following continuously	_____

III. Here are 10 sets of words. Words in each set may be similar in meaning, approximately opposite in meaning or completely different. In the space provided, write S if the words are similar, write A if the words are opposite and write D if the words are different.

1. alter	retain	___
2. intuitive	instinctive	___
3. restore	convert	___
4. unbelievable	artificial	___
5. repulsive	disgusting	___
6. excessively	moderately	___
7. mutual	common	___
8. obtain	surrender	___
9. brisk	quick	___
10. substitute	replace	___

IV. Fill in the blanks changing the form of the given words if necessary.

accommodate	avail	immerse	favour
review	commerce	apparent	excel
	relative	different	

Small talk among three friends.

A. Hey, there is no class work today. I am getting bored. Let' s go to the biggest _____hit of the season.
B. Wait, wait. I am always confused about the term. How do you _____between a hit and a flop? Only through the money it earns?

A. Well, a hit movie should _____all the _____ elements like item numbers and fights which attract the youth.

C. Audience should get _____in the story line.

A. The _____should be_____.

B. Then it is _____that we cannot get tickets for this HIT movie. Let's go to a _____ average movie. At least, tickets will be_____.

V. Use the following words in your own sentences. You are free to construct a small passage or a dialogue using the given words. You can change the form of the words, if necessary.

derive	mislead	resort	tolerable
prescribed	devise	illustrate	proposal
	scatter	simultaneous	

Test E

I. Tick beside the words you know.

conservation	disintegrate
implication	potentially
visualize	discrepancy
inaccessible	perceptual
synchronize	subsequent

II. Choose the right word to go with each meaning. Write the number of that word next to its meaning.

A	B
1. innate	arrive at a conclusion
_____ 2. manifest	subject to change
_____ 3. infer	difficult to understand
_____ 4. propagate	possessed from birth
_____ 5. tentative	change from one form to another
_____ 6. artificial	exactly alike
_____ 7. convert	not supporting either side
_____ 8. identical	show something clearly
_____ 9. complex	created by people
_____ 10. neutral	spread an idea widely
_____	

III. Here are 10 sets of words. Words in each set may be similar in meaning, approximately opposite in meaning or completely different. In the space provided, write S if the words are similar, write A if the words are opposite and write D if the words are different.

1. successive	continuous	___
2. exhausting	refreshing	___
3. comparable	similar	___
4. advisable	graceful	___
5. absurd	sensible	___
6. credited	honoured	___
7. justify	support	___
8. irregularly	customary	___
9. expose	discourage	___
10. elapse	pass	___

IV. Fill in the blanks changing the form of the given words if necessary.

glimpse	deviate	assert	effect
expense	sufficient	fashion	disturb
	unique	restrain	

A hostler's letter to her mother

Dear mom,

How are you? I am absolutely fine here enjoying my studies. You asked me to write in detail about our new room mate. So, be ready to know about her.

You know that one week back our new room mate moved in. You also know that Shiela and I were very happy when Quenie became our room mate. She is good looking and always wears very _____ clothes. She takes _____care of her appearance and uses all sorts of cosmetics. She even maintains a _____ kit, as she calls it. If you have a

_____ at what this kit contains, you can surely open a beauty clinic.

You should see how she studies. She goes to an _____ place in the hostel and reads for three to four hours at a stretch without even looking up to see what is happening around. She enjoys compliments but _____ herself from praising others. As it provides a happy _____ from the regular studies, most of our friends discuss her _____ ways at length.

I know what you are thinking now. Don't worry. All this will now have any _____ on me. I _____ that I will remain your 'cute little girl'

Bye for now,

love,
Rani.

V. Use the following words in your own sentences. You are free to construct a small passage or a dialogue using the given words. You can change the form of the words, if necessary.

immediate	imaginary	pursue	appropriate
alternative	explicit	requirement	retain
	typical	permit	

Test F

I. Tick beside the words you know

consistency	embedded
incidentally	preliminary
reinforce	artifice
elementary	increment
prejudice	traverse

II. Choose the right word to go with each meaning. Write the number of that word next to its meaning.

A	B	
1. ingenious	arrive at facts by reasoning	_____
2. trapped	give opposite information	_____
3. exemplify	lacking something necessary	_____
4. deduce	form an idea in the mind	_____
5. phenomenon	locked in	_____
6. contradict	happening as a consequence	_____
7. deficiency	give an example	_____
8. resultant	start some thing	_____
9. conceive	very clever and original	_____
10. launch	a fact or an event	_____

III. Here are 10 sets of words. Words in each set may be similar in meaning, approximately opposite in meaning or completely different. In the space provided, write S if the words are similar, write A if the words are opposite and write D if the words are different.

1. content	satisfied	_____
2. illuminate	thoughtful	_____
3. wander	settle	_____
4. instant	moment	_____
5. extend	curtail	_____
6. adequate	sufficient	_____
7. resist	yield	_____
8. respectively	certainly	_____
9. sustain	support	_____
10. strategy	scheme	_____

IV. Fill in the blanks changing the form of the given words if necessary.

extreme	struggle	exceed	compensate
drastic	bitter	impose	consequence
	violate	suspect	

A discussion in the staff room about Ragging.

A. Have you seen the papers today?
B. No, what is special?
A. Nothing special. One more ragging case.
B. Where?
C. Here. In our city.
A. It is regularly stated that ragging is a punishable offence. But some students won't understand that.

B. We have to take _____measures to control ragging.
C. We are taking measures. But the juniors also should come forward and lodge a complaint against those who are ragging their juniors.
A. you see, most of the juniors don't do that because of fear and the seniors take advantage of it. They suffer silently even though the seniors _____their limits.
B. Even though we _____a lot, ragging cannot be controlled unless the seniors _____restrictions upon themselves.
C. They should understand that any _____action could lead to unpleasant_____.
A. _____of rules only makes them taste the _____fruits of life.
B. If some body takes an _____step, nobody can _____for the loss.
C. Hope the seniors understand this.

V. <u>Use the following words in your own sentences. You are free to construct a small passage or a dialogue using the given words. You can change the form of the words, if necessary.</u>

enormous	indicate	represent	unique
intense	device	obstacle	specify
	verify	modify	

Appendix F

Subset-wise results

Subtest 1

Target Word	Pre-test Score	Post-test Score	Difference
apppreciable	36	45	9
orientation	39	50	11
eroded	35	53	18
incoherent	37	41	4
ridiculed	27	54	27
progressive	20	43	23
indispensable	26	45	19
exaggerate	28	46	18
expulsion	26	48	22
whirl	26	36	10
arbitrary	33	43	10
fabricated	39	48	9
vary	40	51	11
conspicuous	28	44	16
invariably	38	50	12
extraneous	33	39	6
reciprocal	29	39	10
collide	32	44	12
instantaneous	29	41	12
equivalent	31	49	18
assigning	22	48	26

governed		26	37	11
constitute		23	41	18
irreversible		28	46	18
interruption	25	39	14	
homogeneous		15	41	26
formidable	14	29	15	
superfluous	19	39	20	
comparative	22	38	16	
interchangeably	18	31	13	
attribute		46	51	5
impetus		47	53	6
emphaisze	42	46	4	
customary		44	50	6
perceive		49	56	7
formulate		33	38	5
susceptibility		35	41	6
digress		39	45	6
magnitude	38	43	5	
qualitative		39	45	6
conservation		42	63	21
implication	43	59	16	
visualize		37	64	27
disintegrate	35	61	26	
potentially		42	67	25
inaccessible	31	50	19	
synchronize	33	63	30	

discrepancy	28	59	31	
perceptual	37	48	11	
subsequent	36	58	22	
consistency	36	63	27	
incidentally	34	65	31	
reinforce	37	54	17	
embedded	49	66	17	
peliminary	36	66	30	
elementary	30	54	24	
prejudice	31	56	25	
artifice	28	59	31	
increment	36	58	22	
traverse	34	59	25	

Subtest 2

Target Word	Pre-test Score	Post-test Score	Difference
distort	28	38	10
integrity	22	42	20
consoidate	22	40	18
conservative	27	47	20
observable	25	35	10
intrinsic	24	33	9
abundant	18	37	19
eliminate	20	32	12
restrict	16	30	14
extracting	17	41	24
accomplish	19	45	26
accompany	19	33	14
preferably	18	38	20
impede	20	42	22
distinguish	20	39	19
accumulate	12	34	22
compile	13	29	16
extensive	16	27	11
stationary	11	32	21
probable	11	22	11
eventually	35	42	7
attain	43	55	12

essential	44	50	6
feasible	39	47	8
spontaneous	37	45	8
confirm	32	40	8
concise	36	47	11
abrupt	31	39	8
depart	37	44	7
tend	26	43	17
affect	31	45	14
exert	29	44	15
inherent	28	35	7
deliberately	31	41	10
emerge	27	40	13
consecutive	25	30	5
precede	21	39	18
induce	29	35	6
conventional	27	40	13
hisotrical	22	31	9
innate	25	54	29
manifest	30	51	21
complex	24	55	31
identical	22	49	27
neutral	29	48	19
infer	22	48	26
propogate	25	41	16
tentative	19	45	26

artificial	17	44	27
convert	20	52	32
phenomenon	26	55	29
contradict	32	52	20
resultant	37	51	14
conceive	21	58	37
launch	38	49	11
ingenious	19	58	39
trapped	21	45	24
exemplify	21	53	32
deduce	29	39	10
deficiency	28	42	14

Subtest 3

Target Word	Pre-test Score	Post-test Score	Difference
criterion	31	38	7
impact	24	41	17
precise	20	37	17
absorb	22	35	13
correspond	24	46	22
depict	21	34	13
classify	15	32	17
enhance	14	29	15
attentuate	16	39	23
repel	22	42	20
adapt	18	41	23
consumption	22	33	11
predominant	24	30	6
resulting	19	42	23
occupancy	24	39	15
depletion	16	27	11
compact	19	32	13
profitable	17	38	21
rigorous	15	29	14
implicit	16	28	12
incorporate	20	44	24
intricate	23	37	14
query	23	43	20
adopt	25	40	15

triumph		22	35	13
previous		18	38	20
patterned		20	30	10
incessant		20	39	19
complementary	19	31	12	
designate		22	36	14
intuitive		25	37	12
repulsive		33	41	8
excessively	27	36	9	
obtain		24	39	15
brisk		31	44	13
alter		23	31	8
restore		28	36	8
unbelievable		26	34	8
mutual		20	30	10
substitute		21	33	12
successive	29	60	31	
exhausting	31	43	12	
comparable	27	48	21	
justify	22	45	23	
irregularly		32	42	10
advisable		19	49	30
absurd		27	35	8
credited		23	46	23
expose		20	38	18
elapse		17	41	24

content		23	53	30
instantaneous		30	43	13
extend		33	50	17
resist		25	56	31
respectively	37	45	8	
illuminate		23	48	25
wander		21	42	21
adequate		31	51	20
sustain		23	40	17
strategy		28	41	13

Subtest 4

Target Word	Pre-test Score	Post-test Score	Difference
ambiguity	20	42	22
response	20	49	29
evidence	19	39	20
accuracy	18	45	27
belief	21	47	26
absolute	16	29	13
seldom	16	33	17
compromise	18	36	18
stable	17	31	14
procedure	14	31	17
amaze	18	47	29
economy	20	31	11
rely	16	38	22
frequent	22	40	18
effective	21	36	15
simple	13	26	13
tedium	12	24	12
quite	11	30	19
relax	15	35	20
practice	18	24	6
objective	20	42	22
strive	22	39	17
compose	19	41	22
acquire	21	30	9

obvious	23	34	11
adjacent	17	23	6
strenous	13	24	11
conceptual	22	38	16
regular	18	33	15
accommodate	26	37	11
available	37	44	7
apparent	25	32	7
commercial	31	38	7
relatively	32	41	9
review	18	29	11
immerse	22	34	12
differentiate	24	36	12
favoured	17	28	11
excel	26	36	10
glimpse	33	51	18
expensive	29	38	9
sufficient	27	43	16
unique	21	50	29
effective	18	41	23
deviation	18	45	27
assertion	17	43	26
fashionable	23	34	11
restrain	16	38	22
disturb	16	41	25
extreme	23	53	30

bitter	27	38	11
impose	35	41	6
suspicious	22	45	23
consequence	36	46	10
drastic	24	38	14
struggle	19	41	22
violate	27	36	9
exceed	16	44	28
compensate	23	40	17

Subtest 5

Target Word	Pre-test Score	Post-test Score	Difference
accelerate	29	40	11
predict	28	47	19
exact	24	38	14
insight	22	46	24
ensure	25	46	21
component	17	33	16
unusual	15	36	21
hasty	19	40	21
occur	16	30	14
refine	18	29	11
assume	20	43	23
exclude	22	30	8
intend	22	37	15
reveal	21	33	12
fundamental	24	39	15
omitted	12	24	12
denote	11	30	19
tempting	16	33	17
insert	14	27	13
negligible	19	37	18
contribute	27	31	4
regard	28	44	16
explore	30	43	13
analyze	23	33	10

rotate	26	41	15	
instruct	16	29	13	
stretch	20	36	16	
interpret	23	34	11	
premium	20	28	8	
preserve	19	39	20	
devise	26	36	10	
scatter	24	28	4	
illustrate	32	37	5	
simultaneous	29	40	11	
proposal	27	43	16	
derive	21	30	9	
prescribed	19	36	17	
mislead	25	32	7	
resort	20	29	9	
tolerable	26	37	11	
immediate	32	52	20	
alternative	19	51	32	
imaginary	26	56	30	
pursue	21	41	20	
requirement	27	38	11	
explicit	12	48	36	
typical	17	41	24	
permit	20	34	14	
appropriate	14	36	22	
retain	16	44	28	

enormous	23	47	24
indicate	26	44	18
represent	32	62	30
obstacle	25	41	16
intense	33	44	11
specify	23	43	20
device	26	49	23
verify	16	42	26
modify	20	34	14
remain	28	40	12