A Needs-Based Approach to Teaching and Learning of English for Engineering Purposes

by
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CERTIFICATE

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This to certify that the thesis entitled "A Needs Based Approach to Teaching and Learning of English for Engineering Purposes" being submitted by Priya.S for the award of the degree of Doctor of Philosophy in Humanities and Social Sciences of NIT Rourkela, is a record of bona-fide research work carried out by her under my supervision and guidance. Priya has worked for more than four years on the above topic. Her research work at the Department of Humanities and Social Sciences from National Institute of Technology, Rourkela has reached the standard fulfilling the requirements and the regulations relating to the degree. The contents of this thesis, in full or part, have not been submitted to any other university or institution for the award of any degree.

Seemita Mohanty

ABSTRACT

The objective of this study was to assess the English language needs of learners of engineering colleges of Orissa. The main purpose was to examine the current English syllabus of different engineering colleges of Orissa and to study how effectively they have been implemented at the classroom level. It also attempted to find out how language skills along with life-skills can be learnt effectively by engineering students for proper utilization by them in real life situations.

The study attempted to answer the following questions:

First, is there a gap existing between the present English language syllabi in engineering colleges and students' academic and professional needs?

Second, is there a need to modify and revise the present English language course so that it meets the engineering students' needs to apply it in real-life situations?

The study involved 770 students and 63 teachers of 20 engineering colleges located in different regions of the state. The tools used for data collection comprised of questionnaire survey among students and teachers. After validating the validity and reliability of the research instruments, the questionnaire survey was conducted among students of 2nd, 4th and 6th semester Bachelor of Technology (B.Tech) students and the teachers' survey was conducted at a workshop conducted by the Biju Patnaik University of Technology (BPUT), the only technological university in the state which has around 100 engineering and management colleges affiliated to it. The survey was also conducted among students of other government run autonomous colleges and also at National Institute of Technology, Rourkela, and an institute of national importance. The survey was conducted during the academic year 2008-2009. The data collected from the questionnaires were analysed both quantitatively and qualitatively.

Based on the study, the findings were the following:

1. The goals and objectives of the present syllabus are only being partially fulfilled.
2. There is deficient acquisition of English language skills among students for proper application in the workplace context and also in real- life situations, and hence necessary measures need to be taken.
3. Teachers are not getting adequate training in the latest language teaching methods so that effective classroom teaching becomes a norm rather than an exception.

Based on the findings of the study it is recommended that learners be involved more in interactive sessions in classrooms so that they are able to strengthen their communicative competence. Additionally, teaching technical and business communication and technology assisted language learning are areas that should be taken up on a priority basis while learning English for engineering purposes. Thus, designing tasks and activities accordingly would help to achieve the goals and objectives of the course. It is also recommended that teachers are given enough opportunity for professional development so that they gain knowledge on effective teaching strategies that can be implemented at the classroom level, in the engineering context.

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CHAPTER-I

Introduction

Teaching and Learning English in Orissa

Orissa, one of the states of the Union of India is situated in the east coast of India touching the Bay of Bengal in the east and bordering West Bengal on the north-east, Jharkhand on the north-west, Chhattisgarh on the south-west and Andhra Pradesh on the south. According to the 2001 Census, the total population of Orissa is 36,706,920 persons, comprising of 18,612,340 males and 18,094,580 females.

In recent years, due to consistent government support, Orissa has become a major centre for learning in eastern India. The Orissa government official website lists1679 Degree colleges, 1112 Higher Secondary Schools, 6811 Secondary schools, 11, 510 Middle schools (Upper Primary schools) and 42, 824 Lakh formal primary schools, in the state. The medium of instruction for schools affiliated to the Board of Secondary Education (BSE) in Orissa is Oriya. In majority of the schools under BSE, English is taught from class III. Like other states in India, the teaching is carried out through the Grammar Translation Method (GTM) that puts stress on grammar and vocabulary. Generally, in these schools, the teaching process follows a system where the vernacular meanings of English words and phrases are given to the students and they learn it by rote. But, mostly it is seen that teachers themselves are not well-equipped to teach correct English pronunciation, speaking or reading skills to students (Tickoo, 2004). The reason being these teachers are the same people who have passed out from a similar educational system, where their exposure to ELT had been at the most basic level. Even trained graduate teachers who pass out from the Universities of Orissa are not exposed to phonetics or Standard English pronunciation as no university in the state teaches phonetics or spoken English during the graduate years. As most of the teachers themselves had limited exposure in mastering language skills, they complete their degree program with average language proficiency and in turn follow similar strategies in teaching their students. Specialized English teachers with Diploma in ELT are quite few in number and hence a vicious circle is created in the teaching-learning process.

This scenario is not specific to Orissa but is seen in most other states of India. Gokak (1964) points out that "The foundational years for the teaching of English in schools are in the hands of teachers who neither know enough English nor are familiar with the latest and far- reaching developments in the pedagogy of English" (p.65).

English is the medium of instruction in the schools affiliated to the Central Board of Secondary Education (CBSE), New Delhi, and to the Indian Council of Secondary Education (ICSE), New Delhi. These are the two central level boards that have schools affiliated to them throughout the country. But, interaction with the students, parents and teachers from some of these schools in Orissa, reveals that students get exposed to English language only for a few hours during the English classes, and for the rest of the classes, no real importance is placed on speaking and writing grammatically correct sentences. The students pass the secondary examination with English as a second language without getting real exposure to sound English teaching practices. As a result, even if they are able to cope with the English medium education at the Higher Secondary and under graduate level, their speaking and writing skills in English continue to remain inadequate. As pointed out by Tickoo (2004), the whole teaching-learning system could be stated to be at fault for this lack of English proficiency in our students, as they are taught by teachers who may not always be highly proficient in its use. The minimum qualification prescribed for English teachers by CBSE and ICSE and the Higher Secondary Boards of different states is a Post Graduate degree in the subject concerned, in addition to a Bachelor of Education (B.Ed.) degree. However, in many public schools in Orissa, Postgraduates without B.Ed. are teaching English in Higher Secondary classes, resulting in certain negative teaching outcomes, particularly in the language teaching process.

Most of the Higher Secondary Schools (Junior Colleges as they are known in Orissa) are affiliated to the Council of Higher Secondary Education (CHSE), Orissa. The Council has prescribed an English syllabus for 200 marks comprising some portions of Communicative English, vocabulary, grammar, essays, poems, short stories etc. for reading practice and for acquisition of the four basic language skills. The Communicative English course which claims to equip Higher Secondary students with the four language skills (listening, speaking reading and writing) does not achieve the targeted goals as the evaluation is done only on writing skills. In

effect, the course is not much different from that of secondary schools. Both teachers and students tend to neglect the other language skills. As per students' own submission, they refer to Guidebooks and Key books widely available in the market, and manage to clear the examination. Moreover, the teachers who handle the higher Secondary syllabus of CHSE are not properly trained to teach Communicative English as most of them are postgraduates in English literature. Very few of them have the ELT background essential to teach the Communicative English syllabus.

In Orissa, avenues for higher technical education remained inadequate until the mid- nineteen fifties. Students depended upon other states for education in Engineering, Medicine and Management. The establishment of the University College of Engineering (UCE) in 1956, presently renamed as Veer Surendra Sai University of Technology (VSSUT) at Burla, followed by Regional Engineering College at Rourkela in 1961, (renamed National Institute of Technology, and designated as an institute of national importance) heralded the dawn of engineering studies in the state. Later on, the establishment of Orissa University of Agriculture and Technology (OUAT) at Bhubaneswar in 1965 became a milestone in promoting technical education in the state. Another Engineering College in the Government sector, Indira Gandhi Institute of Technology (IGIT) was started later in 1982 at Talcher, and Orissa Engineering College (OEC), the first of its kind in the private sector, came up in 1986 at Bhubaneswar, the capital city of Orissa. At present, there are more than hundred science and technology institutes in Orissa, including government funded and self-financing ones, out of which around ninety institutes are affiliated to the Biju Patnaik University of Technology (BPUT), which is the source University of this particular Research Study.

Department of Humanities and Social Sciences (HSS), which includes English as one of its major subjects, is an integral part of every technical institute in India. In most of these institutes, the HSS component has been made compulsory for all Bachelor of Technology (B. Tech) students. There are, however, big problems that go with this inclusion of the HSS component into the curriculum. English classes sometimes have a higher student–teacher ratio than engineering classes, varying between 50 and 100 students per class. Therefore, it is extremely difficult for the teacher to give special attention to each student in such big classes. Many Indian

students also suffer from low confidence in their use of English, as English is not their mother-tongue. Other individuals and agencies have reported the lack of employability skills of the students quite frequently in the recent past. In the last few years, newspapers have repeatedly brought out reports about the un-employability of Indian engineering professionals in the global scenario. A *Times of India* (*Education Times* section) report dated 21 February 2008, states that, "As India rode the liberalization wave, the Indian youth, equipped with their inherent resourcefulness, intelligence, ambition and enterprise, were lapped up by Indian Inc and money-spinning MNCs… However, the past couple of years have witnessed a growing concern over the gradual erosion of the impeccable reputation of the Indian student… They are lacking in good communication skills and are deficient in analytical and process orientation skills." In 2007, MeritTrac, a Bangalore based skills assessment firm, conducted a study that found only 23 per cent of MBA students from tier two colleges were employable. Earlier that year, in another study, it had concluded that a staggering 74 percent of all engineering graduates were unemployable. MadanPadaki, Founder and CEO of MeritTrac says that, "A lot of our curriculum has been designed for rote learning, and hence, there is no scope for thinking." In addition, at a gathering of vice-chancellors during the 82nd annual meeting of the Association of Indian Universities, former President of India, Dr. APJ Abdul Kalam, asserted that only 25 per cent of graduating students were employable, and that students were lacking in areas such as technical knowledge, English proficiency and critical thinking.

Considering these adverse comments and criticism from the various stakeholders regarding the lack of adequate English proficiency among our students, it has become essential to conduct a needs assessment survey to bridge the gap existing between current ESP courses in engineering institutes of India and the expectations of an increasingly competitive industry. One of the factors that could aid the needs analysis of the learners in the first year of their engineering studies is an assessment of their English language competency gained during the Secondary or Higher Secondary levels. This assessment is to be done with students from both vernacular and English medium schools. As language acquisition related issues and problems are common for vernacular medium students throughout India, an analysis of the language ability of the students of Orissa is assumed to serve the purpose of all students.

Although researchers and educators agree that Indian engineering graduates are not proficient in English (Tickoo, 2004), few studies have been conducted to examine the procedures, measures and strategies of teaching and learning to improve engineering students' achievements in English. To the researcher's best knowledge all previous studies have focused on students' lack of English skills and the reasons for them. Not many studies have been conducted designed to explore the needs and requirements of students and thereby offer solutions towards improving their proficiency in English.

The engineering colleges of Orissa affiliated to BPUT, follow the Communicative English course and Business English or Professional English course for enhancing the language skills of engineering students at the undergraduate level. In most cases, it is either a two or a three-semester course, comprising of both theory and practical classes. In some deemed universities or colleges like NIT the colleges have the liberty to introduce it either in the first year (in either 1st or 2nd semester) or in the second year (either in 3rd or 4th semester) of the engineering programme. There are summative assessments for the two-credit theory papers and for the two-credit lab course, the performance of the students in the laboratory is assessed and credits recorded and forwarded to the University.

The goals and objectives of the course as noted in the syllabus are furnished below for better understanding:

- To develop listening, speaking, reading and writing skills.
- To cultivate the habit of reading newspapers, magazines and books to consolidate the skills already achieved.
- To familiarize the students with the sounds of English (Phonetics) in a nutshell.
- To provide adequate listening and speaking practice so that the learners can speak with ease, fluency and clarity in common everyday situations and on formal occasions.
- To be given practice to use grammar in meaningful contexts and perform functions like ordering; requesting, inviting etc.

Similarly, the Business English course sets its objectives as the following:

- To prepare the students to handle various written communications like reports, letters etc.
- To make notes or summarize documents, organize meetings, prepare agenda, draft resolutions, write minutes of meetings, make oral presentations,
- To be familiar with the techniques of managerial communication for information sharing, making presentations, and taking part in meetings, interviews, and negotiations.
- Every college is supposed to provide a well-equipped Language Laboratory. Students are required to practice listening, speaking and writing skills in the practical or laboratory classes.
- Certain tasks/assignments are suggested to be taken up in the practical classes.

Taking into consideration the various objectives of the course it could be designed to be a part of the English for Academic Purposes (EAP), English for Specific Purposes (ESP) or English for Occupational Purposes (EOP), as the goals of these three dimensions of English learning do not differ much from each other. Long (2005), in this context states:

> Instead of a one-size-fits-for-all approach, it is more defensible to view every course as involving specific purpose, the difference in each case being simply the precision with which it is possible to identify current or future uses of the L2. It varies from little or no precision in the case of most young children, to great precision in that of most adult learners (p.19).

The study covers the teaching-learning process of English language in government-funded institutions of engineering in Orissa along with self-financing colleges affiliated to BPUT. The course contents and credit system of government-funded institutes differ slightly from that of the colleges affiliated to BPUT. The target groups included students from different semesters, representing a cross-section of undergraduates. Colleges were selected based on year of establishment so that sampling of the statistical data was representative and objective. The target groups included learners from urban, semi- urban and rural areas of not only Orissa but also from other different parts of India like Bihar, West-Bengal, Jharkhand, Assam, other North-Eastern states and even from neighboring countries like Nepal and Tibet, pursuing their undergraduate

engineering studies in Orissa. The students are admitted according to their ranking in the Orissa Joint Entrance Examination (OJEE), which has various categories of listing according to caste and region. As a result, every college enrolls mixed ability students from different castes and regions.

Questionnaire survey among teachers and students of different semesters, discussion with teachers and focused interview involving students constitute the various tools for data collection. Other than recording comments and suggestions, objective information from questionnaires were analyzed by using statistical tools like SPSS software. The data collection was done personally, in classroom situations, by visiting the colleges and interacting with teachers, students and authorities concerned. A reliable interpretation of data based on questionnaire survey, observation and interaction with the respondents using triangulation method has been attempted. This researcher had been teaching Communicative and Business English courses in different engineering colleges of Orissa for around five years and is therefore quite familiar with the problems involved in the teaching-learning process.

Statement of the Problem

Since the English language skills of students who enter into the portals of engineering colleges differ considerably, it has become imperative to assess their capability to manage the syllabus of Communicative/Business English course prescribed for them. In the absence of adequate competency in English language skills, a majority of the learners find it difficult to master the technical terminologies of science and engineering textbooks written in English. Therefore, in order to facilitate engineering learning and to keep pace with the latest trends in the field of science and technology, they require an adequate level of reading and comprehension skills in English. An assessment of their language competence becomes crucial not only to refine their language skills but also to improve their technical knowledge. Once the language competency levels are assessed, it will become easier to devise teaching methodologies appropriate for different groups. 'Just as no medical intervention would be prescribed before a thorough diagnosis of what ails the patient, so no language teaching program should be designed without thorough needs analysis'(Long, 2005,p.1).

In today's world, where the students would be competing for job positions with a global workforce, it would be their English language proficiency that would be tested to the maximum, as English is the most widely spoken language in the world at present. Brookes (1964) remarks: "A report or paper must be written. Anyone engaged in scientific work who is incapable of making this kind of report is not a scientist but a technician, not an engineer, but a mechanic. Proficiency in his written and spoken dialect is a badge which cannot be counterfeit" (pp.115-116). Since individual language learning interests differ widely, a uniform teaching material and methodology may not achieve the desired results. This study suggests a viable, learner-centered methodology to match different learner groups for the acquisition of proper language skills.

In the Indian context, an engineering student's success in the on-campus recruitment is mainly based on their demonstration of communication skills. According to the National Association of Software and Services Company (NASSCOM) former president Kiran Karnik, only 25 percent of technical graduates are suitable for employment in the outsourcing industry because of their lack of abilities to speak or write well in English. (Karnik, 2007 as cited in P'Rayan 2008:1).

In the engineering colleges of Orissa, mostly in self–financing engineering colleges, English is approached casually because of which passing the semester-end examination becomes the sole objective. In spite of its innumerable instructional objectives like the aural-oral skills of listening and speaking, graphic skills of reading and writing, mastery in business communication, etc. the course is yet to achieve the targeted goals as revealed from the study conducted among a cross section of learners and teachers. The demand for candidates with good communication skills by employers, especially during campus placements, and the setting up of private Spoken-English institutes even in rural areas show that there is a need to modify the English teaching-learning process in the engineering curricula.

Quantitative expansion of private engineering colleges in a short span of time raises doubts about the quality of education being imparted in these institutes. The perspectives of the learners and teachers have been taken into account to find out the advantages and disadvantages of the English syllabus followed in engineering colleges of Orissa. Traditionally it has been seen that among the four basic language skills, listening activity has been the most neglected area, due to

the misconception fostered by many of us that this skill is imbibed with mental maturity. We take this language skill for granted under the assumption that without any conscious efforts, listening skills can be acquired in a natural way just as a child acquires its mother tongue. But, since we are not listening to English in a natural environment, practicing this skill becomes the only alternative.

The acquisition of speaking skills in classroom situation is far from satisfactory in the existing scenario in the engineering colleges of Orissa. In large theory classes where lecturing method is still practiced, there is little scope to impart practice in speaking. In the practical classes, this can be attempted, but in the absence of well-equipped language laboratories with logistics like movable chairs, individual headphones, relevant software and computer systems, speaking practices remain elusive. Here the teacher-centric instructions, without regular speaking practice, cannot achieve the desired level. Most of the teachers have neither acquired Standard English pronunciation themselves nor are they able to access the latest pronunciation improvement software due to lack of adequate funds and administrative apathy. The teachers themselves need to be provided with adequate resources and training to impart superior language teaching practices demanded of the course for their students (Tickoo, 2004).

Reading practice can be imparted in the practical classes to some extent, but time constraints to cover the prescribed syllabus create barriers quite often. The students can only be guided to acquire this habit and the students themselves have to show interest by reading books and materials of their choice.

Writing skills can be imparted properly in the practical classes provided the teacher is prepared to take extra effort to identify common mistakes in the assignments and get it corrected within the limited time that a teacher gets in a particular semester. Through peer feedback, the students could also be encouraged to avoid mistakes. Creating interest in students to write good English becomes essential for implementing it in their future work environments.

In this connection, the remarks of Bright &McGregor (1978) seem pertinent:

> Skills can be achieved only through practice, which is something we cannot do for our pupils. They have got to do it for themselves, which means that the good teacher of

language, even more than the teacher of other subjects, should spend a great deal of his time, listening, reading and *not talking.* Of course, he/she will have to talk quite a lot, but his pupils have got to talk and read and write very much more, under his guidance, if they are to make progress (p.4).

This study considers the extent to which the prescribed English course fulfills the students' needs of acquiring the four basic language skills successfully, in the prevailing system for undergraduates, in engineering colleges of Orissa. This study examines the issues and problems of English skill acquisition patterns based on responses elicited from students and faculty of colleges situated in different regions of the state and suggests certain measures to address the issues. Professional engineers use the latest communication techniques for both informal and formal communication and hence engineering students need to be trained in these practical skills for using it in their career. It is during the formative years of their graduate program that they have to accomplish it. This study aims at an assessment of the practicability of the present course that lists targeted ambitious goals.

Research Objectives

- To examine the existing English syllabus currently taught in the engineering colleges of Orissa and to ascertain how far they meet the students' communicative needs.
- To identify the academic and professional needs of engineering students at different engineering colleges in the Indian state of Orissa.
- To propose modifications and revisions in the existing curricula so that the communication needs of different learner groups are fulfilled.

The present study attempts to answer the following key questions:

Research Questions

- Which aspects of the present English language course (goals, content, materials used, technology involved etc.) in engineering colleges of Orissa need to be modified to meet the engineering students' communicative needs to apply it in real life situations?

- What are the academic needs and professional needs of the engineering students in the language learning context?
- Does the English language syllabus in the engineering colleges meet students' academic needs and professional needs?

Definition of Terms

The following terms have the associated meanings in the dissertation:

English for Science and Technology (EST)

Previous research in the field of engineering studies shows that English language is of paramount importance in the academic and professional lives of engineering students (Basturkman, 1998; Pendergrass et al., 2001; Reimer, 2002; Pritchard & Nasr, 2004; Joesba & Ardeo, 2005; Sidek et al., 2006; Hui, 2007; Venkatraman & Prema, 2007, Rayan, 2008).

Pendergrass et al. (2001) pointed out that English is an essential tool in engineering education, and therefore "integrating English into engineering, science and math courses is an effective way to improve the performance of engineering students in oral and written communication" (p. 1).

Pritchard & Nasr (2004, p. 426) emphasized that "English is of particular importance for engineering and science students because it is the principal international language of science and is looked upon as an effective means for enabling those students to become familiar with professional texts written in English".

Joesba & Ardeo (2005) stated that as English has become the de facto international language of science and technology, engineering students have to face this fact while they are students, since books, papers, handbooks, journals, etc. written in English are included in their reading lists. A study conducted on language needs of undergraduate students from different disciplines, including natural sciences, engineering, medical sciences, economics, administrative sciences, and arts and humanities by Zoghoul & Hussein (1985) in Jordan revealed the need of extensive use of English in both academic and professional settings. The ability to communicate in various forms includes written, oral, audio-visual and graphic presentations along with written business proposals for board room presentations.

Another study had been conducted by Atai (2008) on the academic language needs of Computer Science Engineering students of Iran based on English for Specific Academic Purposes (ESAP) programs. The participants agreed that 'written skills' and 'language components' are important for undergraduate learners of Computer Science engineering. The undergraduates perceived some difficulties with some sub-skills of reading, writing, speaking, listening, using general bilingual dictionaries, and translating subject-specific texts from Persian to English. Moreover, the General English Proficiency (GEP) level of the majority of the engineering students tested proved to be rather low.

Basturkmen (1998) reported on NA research done of students' needs, in seven departments, i.e. Petroleum, Chemical, Electronics, Computers, Mechanical, Industrial, and Civil engineering in the College of Petroleum and Engineering at Kuwait University. The findings proved the importance of English for engineering students' academic needs.

Abu-Rizaizah (2005) believes that satisfying learner's needs and interests has an important influence on their motivation to learn and achieve. According to Al-Fadly (2004, p. 17), the English language courses in most disciplines in the Hadhramout Governorate's Local Council University (HUST),Yemen "are not developed on the basis of an analysis of the English language needs of the undergraduates", and as a result, he argues that the students have not got the benefits they need from such courses. Al-Tamimi & Shuib (2008a), in their evaluation of this curriculum, found that it is more related to GE than to ESP and therefore far removed from the students' needs. This indicates that designing a syllabus suitable for the engineering students is an urgent need. In this account, many researchers (Hutchinson & Waters, 1987; Nunan 1988; Robinson, 1991; Dudley-Evans & John, 1998; 2003; Chen, 2006; Jiajing, 2007; Al-Tamimi & Shuib, 2008b) argue that identifying students' needs should be the first step in designing an ESP syllabus.

Thus English for engineering purposes is a course designed for potential engineers who would need to use the language to communicate with colleagues or clients. It aims at developing students' communication skills in English so they can more effectively contribute to meetings, discuss technical drawings and production methods, give presentations and deal with phone calls in English.

Needs Analysis

Berwick (1989) defines perceived needs as those that the educators make judgments about in other peoples' experience, while felt needs are defined as the ones that the learners have. Elsewhere, Brookfield (1988) defines felt needs as wants, desires, and wishes of the learner. Robinson (1991) states that all factual information about the learner e.g. language proficiency, L1 background, age, etc. form objective needs while cognitive and affective needs of the learner in language learning e.g. motivation, expectation, attitude, etc. form subjective needs.

Learners' English needs depend on various expectations, interpretations and individual value judgments (Berwick, 1989; Brindley, 1989). Thus, in language learning context, learners needs can be analysed as objective needs and subjective needs or from two different directions like target needs and learning needs. While objective needs are derived from various real life language use situations and current language proficiency and difficulties of learners, subjective needs derive information from affective and cognitive factors such as personal confidence, attitudes, learning expectations and learning strategies of learners.

As mentioned above learners' needs are also approached from two other directions - target needs and learning needs. Hutchinson & Waters (1987) define target needs as 'what the learner needs to do in the target situation' (p. 54). The categories that they include in learning needs are:

- who the learners are; age, gender etc.
- their socio-cultural background,
- learning background,
- background knowledge of specialized contents,
- background knowledge of English,
- attitudes towards English,
- teaching and learning styles with which they are familiar,
- appropriate or ineffective teaching and learning methods,
- suitable instructional materials and study location,
- expectations about what learners should achieve in the course and how necessary the courses are for the learners.

Over-reliance on learners' perceptions becomes an issue because many learners are not clear about what they want (Long, 2005a). Richterich and Chancerel (1977) recommend using more than one or two data collection methods for needs analysis; such as surveys, interviews and attitude scales. Learner needs should be analysed on an ongoing basis because they are likely to change over time, depending on contextual and human affective variables (Brown, 1995; Halliday, 2005; Hutchinson and Waters, 1987; Nunan, 1988; Richterich & Chancerel, 1977).

Communicative Approach

The term 'approach' refers to the theories about the nature of how language is learnt. It takes into account the basic units of language structure and also considers the psycholinguistic and cognitive processes involved in language learning and the conditions that allow for effective learning to take place. The Communicative Approach (CA) thus refers to the beliefs and theories of language teaching which emphasize that the goal of language learning is communicative competence (Richards, 1985). 'Communicative competence' here refers not only to a knowledge of the grammatical rules of a language and how to form grammatical sentences but also to know when, where and to whom to use these sentences in a speech community. (Richards, 1985, and Hymes, 1971). In the CA language needs of the learner is given primary importance.

Tasks and Activities

The concept of tasks is similar to that of communicative events as defined by Munby (1978). The difference is that language variables, rather than sociolinguistic variables, are highlighted in the task-based approach. They are significant for engineering students who are expected to perform real-world tasks. 'Communicative activities' refer to the techniques which are employed in the communicative method in language teaching. Examples of such activities are games, exercises, practices and projects which make use of the target language. The language-using activities for communication are not restricted to conversation alone and may involve all the four basic skills of listening, speaking, reading, writing or an integration of two or more skills.

Assessment and Grading Patterns

The term 'authentic assessment' or alternative assessment is appropriate for any type of assessment that requires students to demonstrate skills and competencies that realistically represent problems and situations likely to be encountered in daily life, or where students are required to complete tasks that have real world applications (Wellington Paul, 2002).Assessment patterns in the existing curriculum gives emphasis to active skills of writing and reading based on summative tests while it neglects listening and reading skills. The engineering colleges of Orissa have a 2-credit English theory paper in addition to a 2-credit language laboratory course. The grading is done taking into account the students' speaking and writing skills, for both the theory and lab courses.

Language Laboratory

A language laboratory provides an assortment of resources for students wanting or needing to improve their language skills. The learning resources provided include relevant language learning materials or links to various language learning sites, access to newspapers and magazines, access to online libraries, interaction with language specialists and multimedia facilities. Teachers can also include assignments and activities that provide opportunities for problem-solving in realistic and fictional situations that would ultimately work towards improving their speaking skills.

Significance of the Study

The significance of the study stems from the following factors:

1. It attempts to analyze the present English syllabus for engineering students of the state and subsequently conduct a needs assessment survey so that the students' English language requirements for the professional context are satisfactorily addressed.

2. This study will provide language teachers with specific language teaching procedures and guidelines which they can use in their classroom to enhance their students' achievement in English in the engineering curriculum.

3. The research results throw light on the strengths and weaknesses of the existing English language curriculum and envisage a paradigm shift for preparing global engineers in the context of fast emerging situations around the world.

4. The research results can be presented to teachers, learners and decision-makers in order to enhance engineering students' performance in English in their required professional fields.

Limitations of the Study

This study is based on theories of English for Science and Technology (EST).The limitations related to the subjects and instruments of the study are discussed in detail. The sample of students and teachers were chosen as per stratified random sampling to cover all categories of colleges. The instrument of the study was limited to questionnaire survey. The findings of the study are based on the ground situations prevailing in the engineering colleges of Orissa and hence cannot be generalized fully.

CHAPTER-II

Review of Related Literature

This chapter is divided into two sections; the literature review section and the theoretical framework section. The first section of the chapter reports the prior studies that have investigated EST curriculum and additional studies conducted on the engineering students' needs assessments in English language learning in different parts of the world and in India. It thus reports the prior studies that have investigated engineering students' needs in the English language learning context. The second section, i.e., the theoretical framework section, discusses the importance of a needs based approach in language teaching, how students' needs can be assessed, who assess students' needs in English-for-engineering courses and how effective EST curriculum can be designed and what should be their focus.

The review of related literature of language courses designed for engineering curriculum brings to light the fact that very often the interest of the learners lie elsewhere and the teachers fail to fathom it. Richterich, & Chancerel (1977) suggests three sources of information for present situation analysis; the students themselves, the language teaching establishments, and the user institution, for example the students' place of work.

Thai engineering students and engineers have expressed long-term dissatisfaction with their English ability (Wattanasakunpusakon, 1996).Very few reports on the needs of engineering students are available, and most of them focus on problems and desires in English courses rather than addressing actual needs in ESP courses (Ongsakul, 1984; Wittayapirak and Preechapanit, 1992). The ESP courses offered to these students have seriously not considered their specific needs.

Rayan (2007) stated that the involvement of ESP learners in designing their own courses will enhance their interest and motivation, foster critical thinking skills, make them take part in various language activities enthusiastically, resulting in effective learning. He also emphasized that such a step would make the teaching learning process enjoyable and pave the way for achieving course objectives. Robinson (1991) points out that observing past students who are working may be an effective means in seeing to what extent the ESP course has fully prepared

them for workplace needs. After such observation, the course designer is then able to reorganize the course materials for the successive batch of students.

According to Riemer (2002), the concept of ESP will achieve more in the education of engineering students by focusing on the learner's attention on the particular terminology and communication skills required in the workplace. Attributes identified for English proficiency of engineering students are: 1) spoken language fluency, 2) written language fluency, 3) regional/national dialects, 4) technical terminology, and 5) professional jargon. The author also suggests that engineering exercises incorporate oral and written communication skills throughout the curriculum. This includes presentation and communications as part of the assessment process.

The aim of the study conducted by Zaman and Tavakoli in Iran (2010) was twofold: first, to study the language skills and components of ESP textbooks offered to students at universities in Iran. Second, to investigate to what extent these ESP courses have been successful in fulfilling the job requirements of the prospective engineers. The results of the needs analysis revealed that ESP courses proposed at universities can make the grounds for the subjects' future job purposes but they are not sufficient to account for the specific job requirements of individual engineers. In other words, in-service ESP courses based on on-going analysis of the employees' needs should be administered in order to account for their specific job requirements.

A study that emphasizes the need to devise subject-specific language courses and materials for students of engineering and sciences is reported by Dlaska (1999). Dlaska argues that Language for Specific Purposes (LSP) courses offered in Higher Education should assess the situations and needs of learners. LSP courses need to be subject-based and the focus should not only be on the lexical and morph-syntactic levels but should also take into account the levels of text, content, context and the communicative characteristics of a specialist subject area. Thus, for improving the language competence level, grammar and the four core skills should always be practiced.

Flowerdew (1995) reports on a case-study that adopted a principled ESP approach in the courseware design of a job-seeking skills package designed for both undergraduate and postgraduate students, at the Hong Kong University of Science and Technology. The courseware

designed to devise self-access CALL materials relevant to students' learning needs is based on an eclectic needs analysis model which incorporates elements of the language-centered and learning-centered approaches in the pedagogic and methodological principles of the syllabus design. In the construction of exercises, Flowerdew reports that in addition to the target level needs and expectations determined by target situation requirements, the students' existing language proficiency or 'lacks' (Hutchinson and Waters, 1987) are also taken into account.

The Language Studies Unit of the Curriculum Development Cell, Indian Institute of Technology (IIT), Kanpur conducted a national survey in 1990 for the purpose of identifying English language needs for Technical Education. This survey was funded by the Department of Education, Ministry of Human Resource Development, New Delhi. Data was collected on the nature of language- related needs of technical students across the country to provide an objective database for developing a more learner-centered curriculum. Based on the findings, the following courses were developed: 1.Introduction to Technical Communication and, 2. Advanced Technical Writing.

Among the leading problems in engineering studies, the lack of communication skills is reported to be most prominent (Sageey & Romanowski, 2001). Jawhar (2002) stated that in the private sector, graduates are becoming unemployable as a result of lack of proficiency in the English language.

A qualitative study on needs analysis of Korean postgraduate engineering students in Imperial College Korean Society, a well-known institution of Science and Technology had been conducted by Shin (2008) which emphasized the inseparable relationship of reading and writing skills. This is probably because these skills constantly interact together in text processing (Johns, 1997, p 12) and the reading of source texts in the appropriate genres carefully and extensively provide resources, and promotes the modeling and recognition of typical features in the discipline (Flowerdew and Peacock, 2001).

In the Egyptian College of Technology, a research project was performed by Pritchard and Nasr (2004) to develop materials to help improve third-level engineering students' reading performance. As a first step in the project, an NA was carried out to find what the

undergraduates and their teachers might perceive as major required reading skills. This list of skills was then used as the basis for developing a reading improvement.

In ranking the importance of the skills, students ranked writing as their least competent skill and regarded speaking and writing as the most important skills needed to master the language (Othman, 2005). Studies on the mastery of the four skills (listening, speaking, reading and writing) indicated that although students perceived English to be important for their academic needs, the language was mostly used for reading purposes only (Tan cited in Othman, 2005; Kaur and Thiyagarajah (1999). The lack of proficiency in the writing skills as required in the workplace is demonstrated by a study conducted by Stapa and Jais (2005) where students stated that the English programme that they undertook before their practical job training was inadequate in preparing them for workplace writing tasks.

Tong (2003) in a study on identifying essential learning skills in students' engineering education stated that the majority of employers expressed dissatisfaction with students' communication abilities. This ranged from failure in both written and oral communication skills to presentation skills and other work-specific communication skills such as informal discussions, public speeches and interviews.

Splitt (1993) proposed in his findings to provide better ways for faculty to work with students and to help them enhance their people related skills as students should know how to work with other people, communicate and also to be inventive and creative and have different ideas and courage to see through them.

Curry, Sherry and Tunney (2003) report of a project to identify the transferable skills that graduates believed had been important to them in their careers since graduation. One of the main findings of the survey showed that oral communication skill was ranked as the most important transferable skill, ahead of presentation and writing skills. This finding is consistent with another study (Kwok, 2004) where students recognized the importance and the need to develop oral and written communication skills.

Academics and administrators have expressed their concern over the deteriorating level of English proficiency among the students in Malaysian schools and universities (Zaman, 1998). In

2000, the Malaysian Ministry of Education introduced the Malaysian University English Tests (MUET) with the objective of enhancing the English language ability of pre-university students. Findings from studies conducted by the Malaysian Ministry of Higher Education MoHE (2006) and Pawanchik (2006) however, revealed that more that 50 % of MUET scores were either in and 1 (extremely limited user), 2 (limited user) or 3 (modest user). Lack of English language proficiency has often been cited as one of the major factors contributing to graduate unemployment. (Sharif, 2005). Various surveys have been carried out on employers in relevant industries to gauge whether graduates are meeting industry needs and the recurring theme that emerged from these surveys has been the lack of English language skills among fresh graduates and workers (MoHE, 2008; Tneh, 2008; The World Bank, 2005; Ambigaphaty & Aniswal, 2005; Sibat, 2005).

In general, all these studies implied that the majority of graduates and workers were limited users of English, especially in writing and speaking. Analysis of the research data had also identified a list of important skill attributes in the workplace, and the four most highly valued English skill attributes were a combination of academic and specific job-related tasks: understanding technical documents, enunciating correct grammar, vocabulary and sentence structures, writing tests and investigation reports and questioning for clarification. The results of this study implied towards a need for changes in curriculum (such as in content and in mode of delivery) so that engineering graduates could meet their workplace expectations.

Mohanty (2009) mentions about the importance that organizations place on 'good communication skills' in the global market. This aspect deals with the humanistic aspect of the need to be well grounded in 'soft skills' as these soft skills help groom the whole personality of the individual. A person who can communicate well integrates into a team more easily and effectively, resulting in an increasing level of efficiency and productivity.

A study conducted by Riemer (2002) in Australia shows that engineers need excellent skill in communication, decision making and teamwork. Competencies in business acumen, marketing and public relations are also desired. However the academic educations provided by most

universities fail to inculcate these skills in their professionals. He further points out that 'Knowledge and technical knowhow are clearly important, but these must be presented with an excellent standard of communication skills particularly oral' (p.94). Therefore, promotion of oral skills should get due consideration in language learning process. It also sustains the interests of students and motivates them to be active participants. Moreover, it helps them immensely to cope with the future work place needs. Other skills expected to be mastered are:

- Intra and extra organizational communication
- Competent team-working ability
- Comprehension skills
- Report writing and oral presentation
- Risk analysis techniques
- Professional ethics
- Code of conduct of engineers
- Information accessing ability
- Source evaluation skills

The studies on language needs analysis and communication patterns in various workplaces identified that ESP practitioners need to collaborate with subject matter experts from specific professional areas such as business or engineering related subjects to better execute the communication tasks expected from students as highlighted by Mehisto (2007). She emphasized the need for a comprehensive needs analysis and collaboration with content specialists in order to avoid the mismatch between the workplace needs and ESP courses offered. To excel in the workplace engineers not only need to effectively communicate technical information but also need to have acceptable social and communication skills.

English for Professional Purposes (EPP) practitioners are (Bhatia, 1993, 1997, 1999; Dudley-Evans, 1997; Flowerdew, 2000, Henry and Rosebury, 1998; 2001).These studies have helped teachers to look at the linguistic activities of students to produce speech and writing. Cope and Kalantzis (1993) state four stages of the Genre Based Instruction (GBI) modeling, guiding, practicing and finally writing the genre.

The position of English as a global language is being strengthened day by day with the advent of modern communication systems and the concept of globalization gaining ground in the recent past. Existing learning theories such as behaviorism, cognitivism, and constructivism, have been in vogue before computer and internet were in its initial phase. The latest trends in engineering studies can be accessed only if the learners have a good comprehension skill in English as most of the latest science and engineering theories are written in English. Multilingualism is also the need of the hour as it provides additional advantage to people trotting the globe. Thus application of Information and Communication Technologies (ICT) in language learning can motivate learners to be prepared for the digital age.

"Technology reorganized our lifestyles, ways of communication and ways of learning" (Topolovec, Marinovic & Pavlic, 2008, p.301).They, further, cite certain learning principles suited for the neo-millennial learners:

- Fluency, use of multimedia, valuing each for different types of communication, activities, experiences and expressions it empowers. They prefer to work within a single medium best suited for one's learning styles.
- Learning based on collectively seeking, sieving and synthesizing experiences rather than absorbing a single source. They prefer to engage communal learning for diverse, tacit, situated experiences over solo integration of divergent, explicit information sources
- Active learning based on experience (real and simulated) that offers frequent opportunities for reflection. They value bi-centric, immersive frames or reference to enjoy direct participation
- Expressions through non-linear, associative networks of representation rather than linear stories. This includes representation with the help of richly connected, positioned simulations.

In another study by Vallance (1997), a unique Internet Aided Language Learning (INTALL) resource entitled 'Business Meetings' is developed for Business English learners wishing to review vocabulary and language expressions associated with conducting business meetings. The study shows that hypertext activities available on the internet that incorporate problem-solving and decision-making tasks can provide opportunities for sustained communication and linguistic

development. A questionnaire survey of students' response to the internet site indicates a favorable response and they reported that it seemed to provide them with a valuable resource that can be referred to at any time. It can be used either as a group activity or for individual self-study.

Mohanty (2011) states that students today are digitally literate and they live in a world immersed in visual literacy. Television, computer/video games, cell phones, social networking sites, e-mails, chat rooms and instant messaging are common forms of entertainment and communication among students of this generation. Thereby students gain the exposure to learn from the visual media. Visual literacy has become extremely important today in both education and in the wider world of business and industry; the latter because employers are increasingly demanding it of their prospective workers. Learning with technology fosters creativity in the learner as he or she is empowered to design individual representations of content using technology.

An investigation of students' perceptions of English in tertiary education, conducted by Hyland (1997), involved questionnaire responses of 1,600 undergraduates at five Hong Kong universities. It examined the importance that students attributed to English, their major difficulties with the language, and the value they placed on EAP classes. The results showed that students recognized the value of English for academic success, with considerable variations across the disciplines, proficiency levels, and years of study; both in the extent to which they valued EAP and in the confidence that they had in their own ability to meet the English demands of their studies. The findings had implications for language teachers in syllabus planning and are useful in sensitizing students and faculty to the significance of language in undergraduate studies. Unlike the previous needs analysis conducted in EFL context, this study lacks multiple instrumentation and procedures in gathering students' English needs. Various other tools like interviews and observations also could have been included.

Data for an English needs analysis of engineering students in Hong Kong University of Science and Technology (Noakes & Wong, 1997) was gathered by the triangulation method. Recommendations for the development of a new English Language curriculum for both groups of students were made as the follow-up of the needs analysis. Samples of second and third year engineering students' written work were also gathered. The information included types and

length of written work, skills needed, typical language functions, grammatical and lexical problems.

The purpose of the study conducted by Yasin (2010) was to investigate the English proficiency of Civil engineering students of a Malaysian polytechnic. A questionnaire, modeled after the Programme for International Student Assessment (PISA) approach and The Secretary's Commission on Achieving Necessary Skills report was developed and administered to 171 Civil engineering students. The post-industrial training survey, through the use of a self-report questionnaire, provided an important opportunity to capture crucial data from students regarding their English language skills. Findings of this study revealed that the students' frequency or ability of using the English language was low, irrespective of the type of workplace or level of study. Analyses of skill deficiencies revealed wide learning gaps between the acquired and required English skill attributes.

Aviv (2007) in her article 'Don't be shy' states, "Because speaking well is often crucial to getting a job nearly half of American colleges and universities require a public speaking or communications course, according to the National Communication Association."

The lack of awareness of the existence of needs analysis as a tool in course design tends to occur due to consideration of needs from syllabus designers observations and expertise. When converting learners' needs into course objectives, specifying precise needs sometimes can result in either restricted competence or multiple course objectives. To avoid the above limitations, the validity or reliability of the instruments used and the results obtained are required for an effective needs analysis procedure.

Warrier (2007) reports on the urgent need to improve technical students' communication skills. The Narayanan, vice chairman of Cognizant Technology Solutions and Chairman of NASSCOM, in an interview regarding the talent demand and supply gap and the role of the NASSCOM to help the industry bridge the gap comments: "The current situation is that, in terms of availability of talent, the numbers are good. The problem lies in the suitability of people. The industry has moved forward rapidly and technology also has changed but the educational institutions and the curriculum have not changed that rapidly. So, we have to bridge the gap by

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providing additional training to the people who are coming out of colleges so that they are industry-ready".

Rayan (2008) reports that most of the final year undergraduate students of engineering colleges in Tamil Nadu are recruited by reputed IT and core-engineering companies. In some of these colleges more than 90 per cent of the students are placed and recruiters attribute the success of the students to their ability to communicate well and think clearly. The candidates' technical knowledge, analytical, verbal reasoning, critical thinking, communication and group skills are assessed and the different stages of interviews and at each stage the unsuccessful candidates are filtered out. Those educational institutions which impart employability skills in their students are successful in getting most of their students placed in top companies. In many engineering colleges communication skills trainers have been employed on full-time basis to train their students.

A needs survey conducted by Venkatraman and Prema (2007) among the students of Bachelor of Technology (B.Tech) courses at SASTRA University, Thanjavur, India, on the language skills they need, reveal that communication skills are among their top priorities. The researcher designed and administered a questionnaire to identify their English language needs. In the globalized context, students of engineering and technology need a specific set of language skills for their success in education and career. EST poses a challenge to them. Industries are also voicing their concern about the need for better communication skills among students of engineering. Therefore, English for Science and Technology programs in Engineering colleges should be revamped to suit the requirements of the evolving curriculum and the world of work outside college. The professional profile of a modern qualified engineer should include well-developed communication skills and high English language proficiency to help him achieve success in the modern, competitive global work arena. In the process of educating future engineers special emphasis on EST becomes necessary. Students of Engineering and Technology are the main stakeholders of EST.

Gaur (2008) states that in order to teach communication skills, the traditional ELT methods are not enough. They have to be supplemented with a different knowledge base and have to borrow

heavily from behavioral sciences and management. Since the emphasis is on the use of English not only for the communication of one's own thoughts, but also on using persuasive techniques or making communication scientifically objective. The methods of analyzing the receiver's personality and the factors affecting the decision making process before the communication loop ends, have to be a part of the teaching and learning process.

Rayan (2008) reports in his study that the on-campus recruitment process in engineering colleges consist of four stages: 1) aptitude test, 2) technical interview, 3) group discussion, and 4) HR interview. During the four stages the candidates' technical knowledge, analytical, verbal reasoning, critical thinking, communication and group skills are assessed and at each stage the unsuccessful candidates are filtered out. Those educational institutions which impart employability skills in their students are successful in getting most of their students placed in top companies. In many engineering colleges communication skills trainers have been employed on full-time basis to train their students.

The major concern of the pre-final year students is to develop their communication skills and get placed in reputed companies. The Department of English has been given the responsibility of developing the students' communication skills. The question that we constantly ask is whether we should teach English as a subject and prepare students for examinations or should we teach it as a life skill and prepare them for the workplace. Rayan (2008) observes that over the last decade, increasing attention has been focused on the importance of communication skills for engineering students in India but not on the problems of Communication Apprehension (CA) in them and approaches for reducing CA. A simple definition of CA is anxiety or fear of communicating in different situations. According to Berger, McCroskey & Baldwin (1984), it is "the way a *person feels* about communication, not *how* they communicate". The fear or anxiety could be due to any of the following reasons: lack of proficiency in the target language, lack of practice, insecurity or any pre-programmed thought pattern. Even those who have high level of proficiency in a language can experience CA.

Srivastava (2009), comments on the aspects of language learning in the Indian scenario, "Looking in Indian context 'English for specific purposes' is at its infancy. Learners feel that the things they have learned in their educational institutions or training centers are not proving

helpful when they enter the workplace once they have completed their education. The problem does not restrict only to those students who have studied in Hindi medium schools but also with many who have got their education from good English medium schools". Generally the learners complain that the prescribed textbooks do not satisfy their needs. They feel high scarcity of appropriate words while at work place. Looking into the problem there is a need learners actually want.

Rayan (2008) mentions the need of commutainment activities, which refers to communication through entertainment. It is essential in the English as a Second Language (ESL) class as it creates an environment of communication and entertainment. It has been found that commutainment activities such as role-plays, puzzles and problem-solving exercises promote meaningful communication, provide fun, develop team-work, foster creative thinking and create opportunities for learners to interact with one another. In view of the underlying roles, such commutainment activities play in the ESL class, as an experiment, a class of students of engineering was split into a number of groups and each group was asked to work on different role-play situations. The experiment had different stages from conceptualizing situations to enacting them. Besides role-play exercises, funny anecdotes and jokes were also experimented in the class with the objective of facilitating learning. He discusses the MAP formula which stands for Motivate-Activate-and Participate.

To conclude, in the ESP context, as different groups of learners are believed to have specific language needs, adequate research has already been carried out internationally in NA. In Malaysia, for example, studies were conducted to investigate English language needs of ESP students (e.g. Chin, 2004; Rahim, 2005; Stapa & Jais, 2005) and employees at the workplace (e.g. Kaur, 1993; Lee, 2003; Shuib, 2005; Kaur & Hua, 2006). Some studies have also been reported in China (e.g. Xiao, 2006), Hong Kong (e.g. Chew, 2005), Hungary (e.g. Kormos et al., 2002), India (e.g. Venkatraman & Prema, 2007, Gaur 2008), Japan (e.g. Cowling, 2007), Pakistan (e.g. Khan, 2007), South Africa (e.g. Jackson et al., 2006), and the United States (e.g. Zhu & Flaitz, 2005). All these studies confirmed the importance of identifying learners' needs and showed the risk and dangers of ignoring NA in designing ESP courses.

Theoretical Framework

Needs Analysis and Importance of Needs Based Approach

Needs analysis is defined as a process of determining the needs for which a learner or group of learners require a language and arranging the needs according to their priorities (Richards and Platt, 1992, p.242). Needs analysis is basic to any program of ESP and hence the learners have to be taken into confidence to assess their learning needs. An appropriate methodology for needs analysis is to be devised to assess the goals of the learners, their preferred learning styles, previous level of English language competence and socio-cultural backgrounds. Nunan (1988a) states that for a needs analysis, information will need to be collected, not only on why learners want to learn the target language, but also about such things as societal expectations and constraints and resources available for implementing the syllabus. Therefore, while designing questionnaires and interviews for needs analysis surveys these factors are also to be taken into account.

Nunan (1988b) further suggests two types of needs analysis: (i) learner analysis to assess 'what background factors are the learners bringing into the classroom' and (ii) task analysis to know 'for what purpose is the learner learning the target language'. This indicates that background factors of the learner influence learning outcomes and the tasks prescribed for practice must be helpful for fulfilling the targeted goals. Needs analysis refers to students' study or job requirements as well as to what they like to gain from the language course. Needs analysis is an integral part of ESP. Any ESP program is to be preceded by actual needs analysis. According to Hutchinson & Waters (1987) learner need is the criterion to teaching/learning process.

It is imperative to carry out needs analysis to determine the specific reasons for learning the language (Hutchinson and Waters, 1987) or to specify exactly, what students need to achieve through the medium of English (Robinson, 1991). According to Nunan (1988), techniques and procedures for collecting information to be used in syllabus design are referred to as a needs analysis (Nunan, 1988a, p.13). The teacher is thus able to find out the potential knowledge and abilities that the learners possess at entry level and what they do not know and cannot do in English.

Richards and Rodgers (1986) state that needs analysis is concerned with identifying general and specific language needs that can be addressed in developing goals, objectives and content in a language program. This indicates that identifying general language needs is also vital in needs analysis.

According to Dudley-Evans and St. John (1998) needs analysis is the process of establishing the *what* and *how* of a course. They further state that needs analysis is the corner stone of ESP and leads to a much focused course. If the course design does not take into account the actual needs of the learners and set realistic objectives to target the needs, the ESP program may not succeed in attaining the goals.

Long is an authority on needs analysis for various purposes. He follows a scientific procedure for needs analysis in detail. According to him, needs analysis for ESP relates to the following aspects:

- Professional information about learners: Target situations of future use
- Personal information about learners: Factors affecting their learning methods, previous learning experiences, motivation, attitude
- Learners' language proficiency
- Gap between current knowledge and target situational needs
- Effective ways to fill the gap
- Professional communication information about the language and skills used in target situation
- Environmental situation of the course.

Though needs analysis have been carried out for course design in academic as well as professional contexts on various occasions, the methodology of needs analysis has been theorized by Michael Long (2005) in an authentic way in his article "Methodological Issues in Learners' Needs Analysis." He argues that:

> There is an urgent need for courses of all kinds to be relevant to the specific group of learners and to the society at large. In most of the needs analysis surveys in the teaching of English as a second language semi-structured interviews or questionnaires with little or no inside knowledge of the course concerned were used as tools to base the findings. The views

of the respondents alone may not be authentic as it forms only one aspect of the study. Just as initial questions asked by a physician to a patient does not help him to diagnose the disease and offer treatment, the need analyst cannot draw conclusive proof about language needs simply by obtaining the response of the learners (p.19)

EST Curriculum: Definition and Focus

Dudley Evans and St. John (1998) describe ELT as a continuum that ranges from General English courses to ESP courses. One of the first and most widely accepted definitions of ESP (Strevens, 1988), states that it refers to the teaching of English which meets the needs of learners, and is related to the content of particular disciplines, occupations and activities. According to Nunan the first step towards learner-centeredness is to make the learners aware of the goals, content, learning program and the pedagogical materials. He states that there is evidence, in fact, that interest and motivation are enhanced when the purpose and rationale of instruction is made explicit to learners (Nunan, 1995, p.136).

In the tree of ELT, Hutchinson & Waters (1987) position ESP as three branches: (a) English for Science and Technology(EST) (b) English for Business and Economics (EBE) and (c) English for Social Studies (ESS). David Carver (1983) identifies three types of ESP:

- English as a restricted language
- English for Academic and Occupational Purposes
- English with specific topics.

English used as a restricted language (e.g. Language used by air traffic controllers or by waiters), is the first category, English for Academic and Occupational Purposes, is identified as the second type though much distinction cannot be drawn between ESP and EOP. The English learned for academic purposes may well be utilized for occupational purposes later on. The second type of ESP identified by Carver (1983) is English for Academic and Occupational Purposes is related to the current study. Each of these subject areas is further divided into two branches: English for Academic Purposes (EAP) and English for Occupational Purposes (EOP). An example of EOP for the EST branch is 'English for Technicians' whereas an example of EAP

for the EST branch is 'English for Medical Studies'. The third and final type of ESP identified by Carter is English with Specific Purpose. It aims at a language for future needs in work situations. ESP can be divided into two main areas: English for academic purposes (EAP) and English for occupational purposes (EOP).There are further divisions as for e.g., English for Science and Technology (EST).The distinction of courses between EST and non-EST is noted by Strevens (1997) as:

> EST courses are usually distinct because they require the incorporation within them of a greater content of 'scientific English. This in turn entails the learning ways in which quantification of various kinds is expressed in English, the control of the 'international' vocabulary of scientific stems and affixes as they operate in English, and the selection of communicative purposes special; to science and technology (p.90)

But on closer analysis, much distinction cannot be drawn between these branches and it can be concluded broadly that ESP meets the specific needs of the learners with regard to their disciplines and later on their professions.

Though a lot could be written on the emergence of English for Specific Purposes (ESP), three reasons could be cited as the most valid ones: According to Hutchinson and Waters (1987), two key historical periods breathed life into ESP. First, the end of the Second World War brought with it an "age of enormous and unprecedented expansion in scientific, technical activity on an international scale for various reasons, most notably the economic power of the United States in the post-war world, the role (of international language) fell to English." Second, the oil crisis of the early 1970s resulted in Western money and knowledge flowing into the oil-rich countries. The language of this knowledge became English. As a result, English came out of English classrooms to fulfill the wishes, needs and demands of the elite around the world.

The second reason cited for the emergence of ESP was the revolution in linguistics. While traditional linguists were concerned with the features of a language, innovative linguists began to focus on the use of language for communicative purposes. Hutchinson &Waters (1987) point out the variation between spoken and written English. The conclusion drawn is that if language varies in different situations, tailoring language instruction to meet the needs of language learners is also possible. Thus in the late 1960s and early 1970s the idea of launching English for

Science and Technology (EST) dawned Gatehouse, (2001). The final reason mentioned by Hutchinson and Waters (1987) relates to learners' psychology. The focus is shifted from the teacher to the learner. Learners employ different strategies, use different skills, enter with different levels and are motivated with different needs and interests. Therefore, a learner-centered approach has been advocated by the ESP practitioners.

The selection of suitable methods of teaching, especially language teaching methodology has been baffling educators for a long time. Different approaches are put forth, each claiming to be superior to the other. But most methods prove to be insufficient when it comes to real teaching-learning situations. Larsen & Freeman (2000) classifies language teaching approaches into nine categories: Grammar-Translation Method, Direct Method, Audio-Lingual Method, Silent Way, Total Physical Response, Community Language learning, Suggestopedia, Communicative Approach, and Natural Approach. No single method can be perfect by itself. The teacher has to amalgamate different approaches intelligently to suit local needs and to fulfill the desired goals of the learners, taking into account their proficiency levels.

In universities having interdisciplinary programs, the teachers have to understand why a particular text is being taught, how they are taught and what types of text are used in these disciplines (Faigely & Hansen, 1985). In order to understand the discursive practices of the discipline or the profession, Bhatia (1997) suggests that it is necessary to know the repertoire of genres used in a profession and the contexts of its use. Mere linguistic competence will not help the acquisition of this code. On the other hand it is necessary to be equipped with knowledge of lexico-grammatical, semantic-pragmatic and discourse resources of specialist language. Students are required to produce a variety of genres in their future work places. It is not possible to predict all of them. Research by Flowerdew (1993) and others support this view.

Genre Analysis (GA) is the study of how language is used within a particular setting (Swales, 1990) and is concerned with the form of language use in relation to meaning (Bhatia, 1993).GA also examines the text patterning in genres to show statistical evidence of a particular linguistic feature in a specific genre and the specific features of the genre that the evidence envisages. Finally GA analyses the lexico-grammatical features of genres to communicate effectively. (Henry and Roseberry, 1998).

Content and language integrated learning (CLIL) was originally defined as a pedagogical approach with a dual focus, involving the integration of (second/foreign/target) language study with the study of a subject domain instructed in that language. After piloting some CLIL programmes in Estonia and gaining experience, Mehisto (2007), shows several concluding considerations and needs to be considered to successfully implement those programmes in the future, such as taking into account the environment in which the action takes place (involvement and support of stakeholders) as well as the learning environment, the personal information about the learners, their language needs, etc. Also essential for the successful implementation of the CLIL programme is the positive involvement of the social environment. Garrido and Gomez (2010) remarks that CLIL has to be known and valued by current and future students, employers, institutions, and even teachers not directly involved in CLIL programmes. The way the program is presented to them will very often determine its social acceptance. Other than a co-coordinator who conducts need analysis from the internal and external candidates and conducts follow up sessions too. The internal participants like the decision makers and policy makers need to be informed how such a program could be designed for their institution. The external participants are the teachers and students who are assigned roles in the program. Though difficult to attain, a close collaboration between the subject and language teachers is to be ensured. This can be introduced on an experimental basis and extended gradually in an institution. Collaborative team teaching between language teachers and subject teachers is an ideal situation worth experimenting, provided institutional support comes forth to suit local conditions.

Genre Based Instruction (GBI) is often confused with (i) product approach and (ii) process approach. According to Badger & White (2000), GBI is an integration of both these approaches and can be termed as process-genre approach. They further add that students recognize that writing involves knowledge about language (as in the product and genre approaches), knowledge of the context in which writing happens, and especially the purpose for the writing (as in genre approach) and skills in using language (as in process approaches) writing development happens by drawing out the learners potential (as in process approaches) and by providing input to which the learners respond (as in product and genre approaches).

Though oral communication in English is more important in modern business relationships across the globe, assessment of oral communication skills do not form a part of the summative assessment format in most Universities. Phonetics is taught in theory, but not in practice. MacCarthy (1967) points out:

> The error here consists in failing to appreciate that the theory to be found in the textbooks needs to be predigested and turned to practical account, if pupils are to be taught to pronounce a foreign language acceptably, and if they are to understand in their turn how phonetic theory can be profitably applied (p.106).

If assessment of pronunciation is considered for awarding grades in English language teaching and if students and teachers take it seriously, accent, intonation etc. can be improved to meet their future needs. If this can be done honestly in formative assessment mode, it will serve the intended purpose.

In formative assessment the students are made to involve in the assessment process unlike traditional assessment thus allowing them to watch and assess their own performance. They feel a sense of accomplishment and notice their level of improvement. Online assessment is also becoming popular where fellow students add textual feedback and can pose questions on the web. Scaffolded self-assessment promotes learning, critical thinking and confidence building which involves both teachers and learners (Visoi, 2007).

One of the best methods for relaxed language learning, especially for engineering students according to Carter (1999) is the access to a well-equipped Language Learning Centre (LLC). This centre is equipped with Internet, multimedia, DVD Library, Lending Library (fiction), reference library, journals, magazines etc. This is different from the usual language laboratories in that formal language practice is not imparted in LLCs, but the learners are allowed self-access at their leisure hours in a connected atmosphere. The teacher, whenever present may act as a guide, not as an instructor. Cooperative learning can also take place effectively. Activity-oriented teaching using latest language learning technology is also possible. A Lab Assistant can take care of the centre which is to be kept open from morning to late evenings. Since language learning is a continuous process, students will be able to make use of the LLCs even after they finish their summative examinations in English, and continue learning for the advancement of their language

skills which will keep them in good stead to face occupational avenues after they complete the courses.

Therefore, it is essential to adopt modern technological avenues in language learning as well. MS office (word, excel and Power Point) is essential as tools for easy communication. So also web pages are to be utilized. Theory without practice is unproductive. Video/audio grading with teachers comments can help learners realize their mistakes and correct it.

It is an undisputed fact that language learning takes place best in the social context. Since this social context is missing in learning English as a second language, 3-D Virtual Reality (VR) technology is used to teach language skills in a social context. Shih, Lin & Yang, (2007) give their views on virtual reality:

> In a VR based online environment, users' adventure into the virtual world control an avatar to interact, compete, or cooperate with other avatars played by real persons. When they become immersed in a social context, they acquire language as well as communicative competence. They also construct their knowledge through interactive online virtual environment and events (p.65.)

Learning advisors at Self-Access Learning Centre (SALC), Kanda University of International Studies (KUIS) in Japan, realize the importance of affective factors in independent study and incorporate affective considerations into their modules through explicitly raising awareness of the importance of affective factors. One of the units is "Affective Strategies" in which learners learn about internal and external motivation and reflect on ways in which they can maintain motivation for self-directed learning. The learning plan at the end of the First Steps Module and at the beginning of all other subsequent modules is built around a SURE+E model (Study-Use-Review-Enjoy-Evaluate). Learners are encouraged to ensure that their weekly activities are not only useful for attaining their language-learning goals, but are also enjoyable. In addition to meeting learners periodically throughout the module period, LAs write weekly comments on their assigned students' independent work. These comments are designed to help the learners think more deeply about the learning process, activate cognitive and metacognitive processes (Mynard, 2010).

Howard Gardener's Multiple Intelligence (MI) theory assumes that a child is gifted with one or more of these abilities and if the teacher can harness those abilities any challenging content can be transmitted to him/her. The teacher should be willing to explore the latent intelligences in his students and take into account his preferences and learning styles so that the outcome can be meaningful.

It is believed that if this theory is implemented the students will:

- Show increased independence, self-esteem, responsibility and self-direction.
- Show greatly reduced behavioral/attention/learning problems at school and home.
- Have improved cooperative skills.
- Show increased ability to work 'multimodally' (use multiple intelligences), when doing school reports, multimedia projects, etc.
- Demonstrate improved leadership skills.
- Retain information better.

The success of this approach in ESP context lies in the teachers changing their attitude to teaching by being only a facilitator not an instructor. The practice of testing only the wisdom of the learners should give way to assessing various other abilities also possessed by the students. West (1967) remarks "Language is a skill; its examination should be a test of ability to use the language but the tendency is always to make the examination a knowledge examination, to make it a sampling of facts" (p.45). Therefore, a fool-proof and transparent system of assessment is to be put in place so that various capabilities of the learners can be evaluated objectively and necessary revisions can be effected in the teaching/ learning process.

Nunan (1988) argues that the teachers should find out what their students think and feel about what and how they want to learn. Block (1994) remarks about the gap in the perception of the teacher and learner. Very often the learners are in the dark about the rationale for the task given to them. Though the rationale exists, it has not been spelt out to the learners. On adapting and modifying the curriculum to suit their needs, learners are capable of creating their own goals and content.

In this context, the remarks of Bright & McGregor (1978) appear to be pertinent. They state that, "The good language teacher keeps steadily in mind that when children learn a language they do not learn from their mistakes: they learn their mistakes. This means that the teacher must give his pupils as much opportunity as possible for the correct practice of language skills and as little opportunity to make mistakes (p.4)".

Concluding Remarks

To summarize, research findings show that a host of similar challenging problems exist in different engineering colleges in India. This study tries to seek alternative measures to overcome them. The level of students varies and tasks and assignments to suit different levels can be given to assess the ability of the students of a particular level. In the initial years when communicative English is introduced to them as in engineering colleges of Orissa the students come to the class with different mindsets. It is seen that students need not necessarily understand all that the teacher teaches in the classrooms. Mismatch at the learning process level is evident in such situations. Oral English teaching is also to be based on the limitations of the learners. The beginners will have to be given adequate support through scaffolding. Multiple Intelligence theory states that children should be evaluated by what they can do, not by what they cannot do.

The engineering institutions of the state run short of qualified teaching staff in core subjects as well as in ESP and CE. It is necessary for teachers to pursue a particular teaching strategy, which in her personal conviction must be appropriate and effective in the given situation. It is not only desirable to have a strategy but also necessary to explain to the learners how this strategy can lead the students to the targeted goals. It is probable that the learners often fail to fathom why they learn the content assigned to them. If the purpose is explained to them, they may be motivated to learn it with interest. In such a scenario recourse to e-learning can ease the situation to some extent. This can also bridge the gap between urban and rural students in accessing latest knowledge and information.

It also shows that English for neo millennial technocrats does not only remain as a subject but also an interdisciplinary aspect to improve the social status of their lives in both personal and professional fields. Integration of English as a subject into the engineering curricula thus needs

to develop the humanistic aspects in academic field and develop their personality. Learning proper English would give them a good grasp on the current usage of technical language which would turn them into culturally informative and socially responsible engineers.

The current study is similar to others from the standpoint of conducting NA to understand the existing gaps in the teaching learning process. But it differs from the studies cited above in certain aspects as mentioned below:

1. The current research focuses on needs of learners from various angles like language skills; syllabus design, cognitive and affective factors, and above all making English learning a positive learning experience.
2. Similar studies mostly focus on either academic needs or professional needs but this research explores both the needs not only from learners' viewpoints but also from the teachers' viewpoints.
3. It tries to find out the existing lacunas in teaching and learning process, methods and resources that remain as barriers to realize the actual linguistic needs.
4. Additionally, this study tries to provide suggestive measures to overcome the barriers identified so that engineering students can achieve proper communication skills to apply in real-life situations.

No research has been conducted till now in engineering colleges of Orissa on these aspects. Therefore the current research can examine various aspects of a needs based approach in the teaching and learning process of English for engineering purposes. Its results and implications will no doubt be of use to policy makers, teachers and also for students.

Restructuring curriculum on the basis of these suggestions will produce new engineers for the new generation. In a learner-centered curriculum, key decisions about what, how and when etc. could be decided on consultation with the learner. Learning-centeredness is empowering the learner decide what he wants to learn. Usually a student develops this ability at the end of a course. It does not mean abdicating the responsibility of the teacher to the student. Nunan, (1995) finds that a learner-centered curriculum will encourage learners to move towards autonomy at the end of the pedagogical continuum. This is what ESP/EST curriculum focuses upon.

Over the past decade increasing attention has been focused on the importance of communication skills for engineering students in India but not on the gaps in the implementation of the designed syllabus thus seeking measures to minimize the gap to help students achieve skills to transfer it in real world situations. No such study had been conducted yet in Orissa.

This literature review thus provides an insight into the certain theoretical foundations related to the research and discusses relevant teaching-learning theories and recent researches done in this area.

Chapter-III
Methodology

This chapter presents the methods and procedures that the researcher followed to conduct the English language needs assessment study of engineering students so that appropriate teaching methodologies and courses could be designed in future, keeping in mind the needs and competency levels of the diverse student population in Indian classrooms. It also enquires into the language skills acquisition patterns that correspond to the academic and professional needs of engineers. It seeks the right medium through which these skills can be acquired and subsequently implemented in the real world. The methodology followed was a questionnaire-based survey among students and teachers. The students were observed in a natural context, i.e. in the English language classrooms of different engineering colleges of Orissa.

The responses of the teachers were elicited from a questionnaire survey conducted during a three-day teacher training workshop at Bhubaneswar, the capital of Orissa, organized by Biju Patnaik University of Technology (BPUT), the affiliating University of most engineering colleges of Orissa, followed by discussions and interviews. The questionnaire survey conducted in different colleges under BPUT as well as other deemed universities are included in this study to ascertain the ground level realities of language learning and teaching experiences. The chapter begins with the description of the research subjects (students and teachers) and research instruments and concludes with a description of the methods and procedures that were followed to analyse the data.

Sample of Colleges:

There are as many as 55 engineering colleges concentrated in and around the capital city Bhubaneswar alone, out of the total number of around 100 degree engineering colleges in Orissa. The colleges visited included the oldest to the most recent engineering colleges in the state. Stratified random sampling was used to select the sample colleges within the whole population. Out of the hundred odd colleges, 20 colleges were selected. The colleges selected were situated in all the northern, eastern, western and southern parts of the state. It included universities,

government institutions and private (self-financing) institutions affiliated to the technological university, as per their year of establishment (before 1990, 1990-2000 and 2001-2010), to make it representative and give credibility to the study.

The engineering students in colleges of Orissa affiliated to BPUT follow a common syllabus comprising of the Communicative English course and Business English or Professional English course at the undergraduate level. The colleges have the liberty to introduce it either in the first year (in either 1st or 2nd semester) or in the second year (either in 3rd or 4th semester) of the engineering programme. In most cases, it is either a two or a three-semester course, comprising of both theory and practical classes.

The details of the colleges visited as their institutional name, the student population and number of students selected for the study, the type of college selected and their geographical location is tabulated below. The student population represents the total number of students admitted in different branches of the college who have Communicative/Business English as their compulsory/elective subject. Number of students selected for the study represents the total number of students from each college who participated in the questionnaire survey. The questionnaires were distributed in theory classes of 60 students and lab class of 35 students as per availability of classes. The students who were absent or abstained were minimal and differed from college to college.

Table.1 List of Colleges Selected

Sl.no	Name of college	Student populati-on	No of students selected for the study	College type	Location	District
1	Veer Surendra Sai University of Technology (VSSUT)	480	53	Government Autonomous College	Sambalpur	Burla

2	College of Engineering and Technology(CET)	300	26	Government Autonomous College	Bhubaneswar	Khurda
3	National Institute of Technology (NIT)	360	42	An institute of national importance	Rourkela	Sundargarh
4	Gandhi Institute of Engineering and Technology (GIET)	300	66	BPUT(Self-Financing)	Gunupur	Rayagada
5	College of Engineering, Bhubaneswar (CEB)	240	26	BPUT(Self-Financing)	Bhubaneswar	Khurda
6	CV Raman College of Engineering and Technology (CVRCE)	360	36	BPUT(Self-Financing	Bhubaneswar	Khurda
7	Gandhi Engineering College(GEC)	240	37	BPUT(Self-Financing)	Bhubaneswar	Khurda
8	Koustav Institute of Self-Domain (KISD)	300	35	BPUT(Self-Financing)	Bhubaneswar	Khurda
9	Krupanjal Engineering College (KEC)	300	42	BPUT(Self-Financing)	Bhubaneswar	Khurda
10	Silicon Institute of Technology (SIT)	300	28	BPUT(Self Financing)	Bhubaneswar	Khurda

11	Trident Academy of Technology (TIT)	240	30	BPUT(Self Financing)	Bhubaneswar	Khurda
12	Indus College of technology (ICT)	240	21	BPUT(Self-Financing)	Bhubaneswar	Khurda
13	Black Diamond College of Engineering and Technology (BDCET)	300	67	BPUT(Self-Financing)	Jharsuguda	Jharsuguda
14	Aryan Institute of Science and Technology (AIET)	240	20	BPUT(Self-Financing)	Bhubaneswar	Khurda
15	Gita Institute of Technology and Advancement (GITA)	300	52	BPUT(Self-Financing)	Bhubaneswar	Khurda
16	Institute of Advanced Computing and Research (IACR)	300	32	BPUT(Self-Financing)	Rayagada	Rayagada
17	Orissa Engineering College (OEC)	480	35	BPUT(Self Financing)	Bhubaneswar	Khurda
18	Majhighariani Institute of Technology and Science (MITS)	300	42	BPUT(Self-Financing)	Rayagada	Rayagada
19	Kalinga Institute of Technology and Science (KITS)	300	28	University	Bhubaneswar	Khurda
20	Institute of Technical Education and Research (ITER)	480	32	University	Bhubaneswar	Khurda

Student Sample

Maximum respondents belonged to Orissa which has been divided into four regions: The numbers of participants from each region are mentioned in brackets: Eastern Orissa (240), Northern Orissa (165), Southern Orissa (77) and Western Orissa (47).

There were quite a few numbers of students who had their secondary and higher secondary education from other states like from other states like Andhra Pradesh (5), Assam (2), Bihar (49), Gujarat (1), Jharkhand (57), West Bengal (11), Rajasthan (3), Uttar Pradesh (9) and Tamil Nadu (1). There were also a few students from neighbouring countries like Bangladesh, Nepal, and Tibet.

Figure – 1: Distribution of the Student Sample according to State in Percentage.
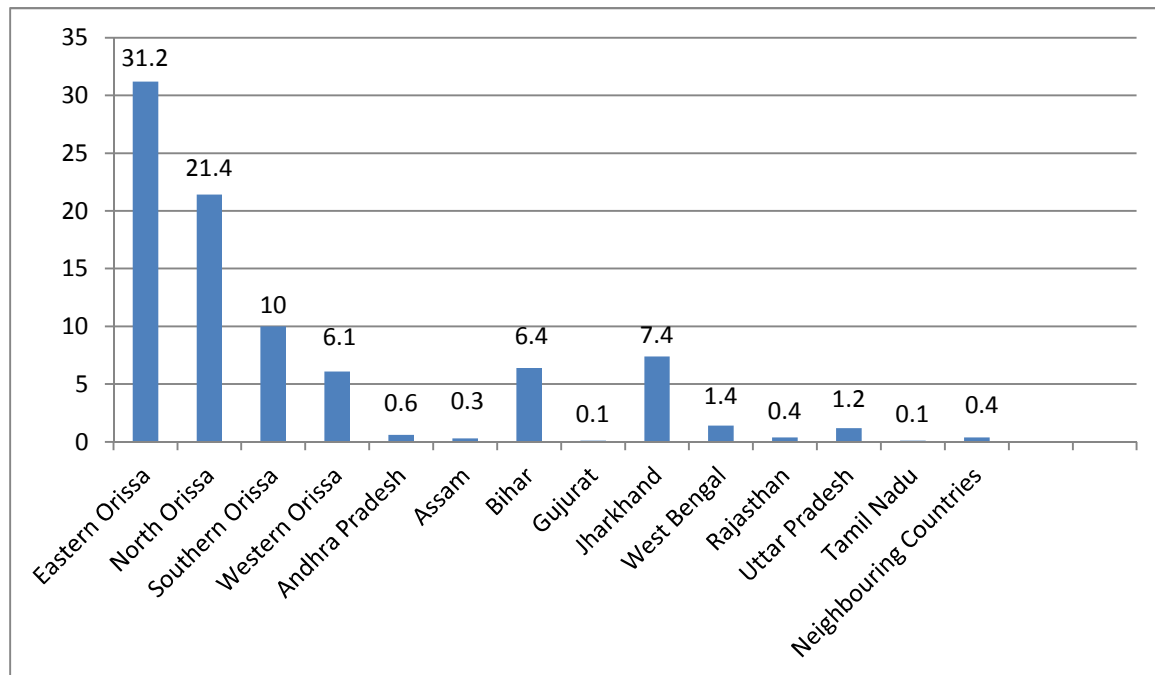
The demographic detail also included the area that the students belonged to; whether urban (420), semi-urban (247) or rural (88).

Figure - 2: Distribution of the Student Sample According to Urban, Semi-Urban and Rural Areas in Percentage.
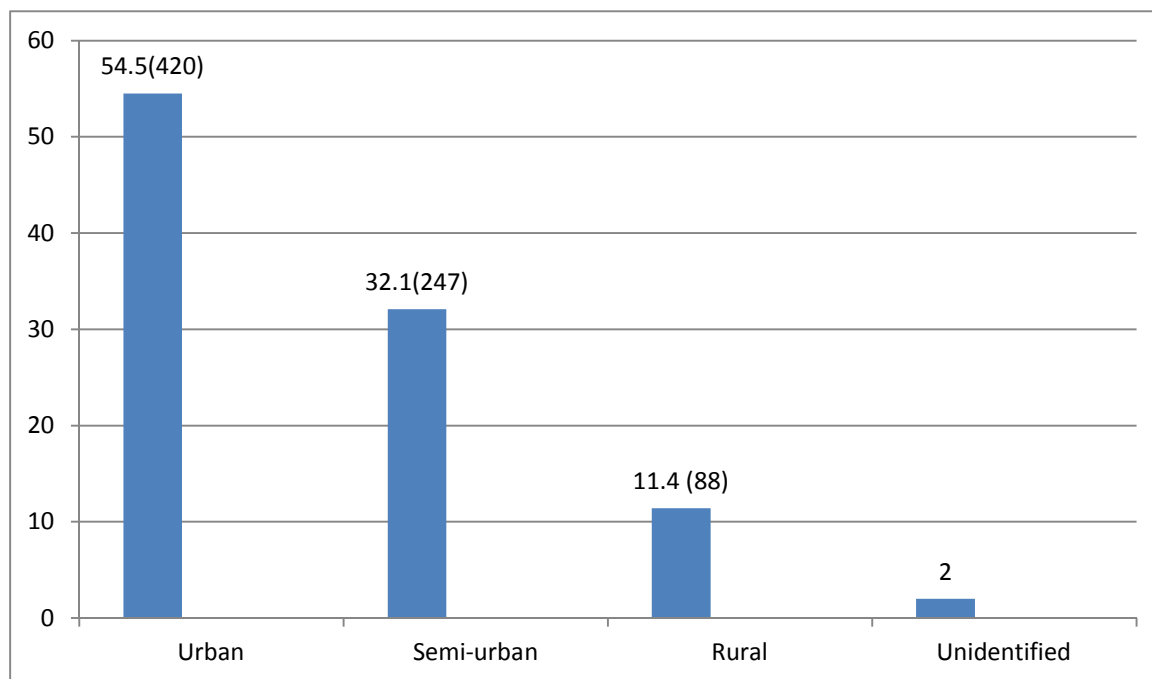
The students belonged to the age group of 18-21. The students get admitted into these colleges on the basis of their scores in a common entrance test either at the state level (Joint Entrance Examination (JEE, Orissa) or All India Engineering Entrance Examination (AIEEE), at the national level and therefore the students belong to a heterogeneous group belonging to different geographical locations within, and sometimes from outside the country too.

The sample included students from 2nd, 4th and 6th semesters from the above mentioned institutes. Further details of the respondents are presented in graphic representations.

Out of a total number of 770, maximum number of respondents were from 2nd semester (382/ 49.7%) followed by 4th (296/38.3%) and 6th (92 /11.9%) respectively.

Figure -3: Students Belonging to Different Semesters in Percentage
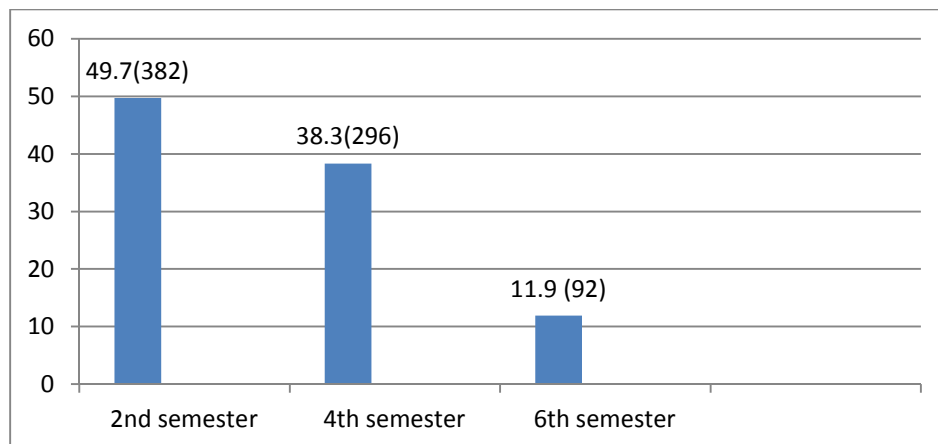
The number of engineering students selected represented 11 branches of engineering as follows: Electrical Engineering (EE, 39 students), Civil Engineering (CE, 52 students), Mechanical Engineering (ME, 148 students), Electronics and Communication Engineering (ECE, 133 students), Automation and Electrical Engineering (AEI, 43 students), Electronics and Technical Communication (ETC, 68 students), Electrical and Electronics Engineering (EEE, 87 students), Instrumentation and Engineering (IE, 24 students), Biotechnology Engineering (BE, 26 students), Computer Science Engineering (CSE, 131 students), and Chemical Engineering (CH, 18 students).

Figure – 4: Students Represented from Different Branches of Study
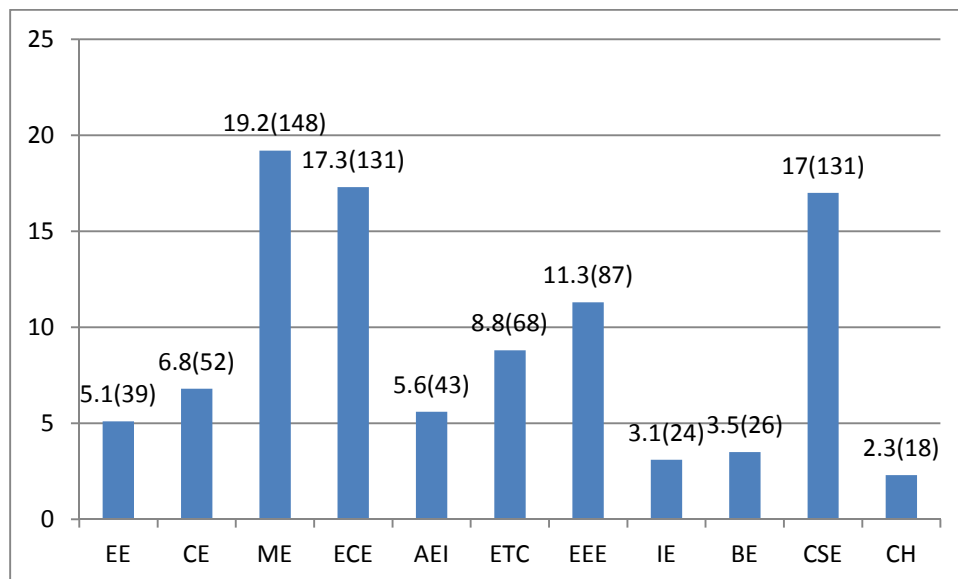
The details of matriculation boards from which the respondents have undergone Higher Secondary Education helped to differentiate the English language proficiency level of the students.

The matriculation boards from which the respondents passed their Higher Secondary Examination were:

1. 352 students passed the Board of Secondary Education (BSE): the board under the Government of Orissa, where English is introduced at the primary stage from Class-3 onwards. The medium of instruction is Oriya, which is the official language of the state, and English is taught as a second language:352)

2. 252 students passed the Central Board of Secondary Education (CBSE): An all-India board where English is the medium of instruction and two other Indian languages, the regional language of the state concerned as well as Hindi, the national language, are taught as second and third languages:252)

3. 103 students passed the Indian Council of Secondary Education (ICSE): an all-India board where English is the medium of instruction and two other Indian languages, the regional language of the state concerned as well as Hindi, the national language, are taught as second and third languages.:103)

4. 25 students passed the Secondary Boards (SB) (Hindi medium): These are the Secondary boards of neighboring states where Hindi is the medium of instruction and English is taught as a second language late in the primary stage:25)

5. 39 students passed the Secondary Boards (Other regional languages): These are the Secondary boards of neighboring states where medium of instruction includes languages like Bengali, Telugu, and Tamil etc. which are the regional languages of the state concerned:39)

Figure - 5: English Language Learning Background of Respondents in Percentage.
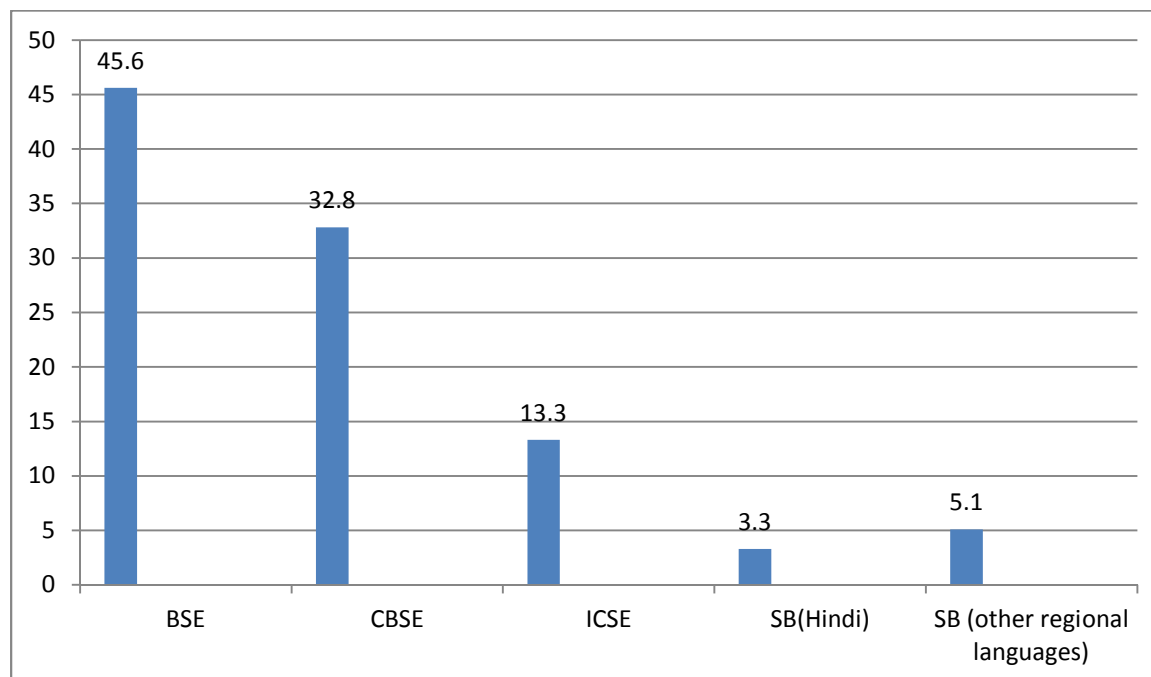
Teacher Sample

The teachers handling the Communicative English classes of different engineering colleges of Orissa were contacted for questionnaire survey during a teacher training workshop conducted by BPUT. The teachers were thus requested to fill in the questionnaires. The number of respondents stands at 63. The respondents included teachers from different engineering colleges of Orissa. The teachers were teaching the Communicative English and Business English courses of first and second year students in different engineering colleges. They belonged to different age groups ranging from 25 to 60 and had minimum of 1 year and maximum of 35 years of teaching experience. As in any mixed ability class, the composition of the teachers was also mixed, having diverse areas of interests and specializations.

Instruments of the Study

The researcher made use of two questionnaires (Appendix I & Appendix II) as research instruments through which both quantitative and qualitative data were collected. This instrument was used to achieve the purpose and objectives of the study. According to Nunan (1995) the

first-step towards making language learning learner-centeredness is to make the learners aware of the goals, the contents, the learning programs and the pedagogical materials. He states that there is evidence that interest and motivation are enhanced when the purpose and rationale of instruction is made explicit to both learners and teachers.

Students' Questionnaire Survey

The quantitative data collected from the student questionnaire used for the study was designed to satisfy three main objectives. The objective of the questionnaire was to identify the lacunas in the existing syllabus design, and also to identify the students' academic and professional needs in the language learning context. It had a total of 29 items in addition to the demographic details such as: the semester they belonged to, their branches of study, their language learning backgrounds, the state they belonged to, the area they belonged to, etc. (Appendix-1)

Firstly, it tried to identify the English learning experience of students and thereby the lacunas/gaps in the existing syllabus design and other related issues, in classroom settings (Section1 items 1-10).

Secondly, the questionnaire aimed to obtain the existing gaps in students' academic needs by considering the frequency of desired needs and the frequency in which it is available in colleges/universities (items Section II items11-20).

Finally, it aimed to elicit information regarding the existing gaps in professional needs by considering the frequency of desired needs and the frequency in which it is available in colleges/universities (items Section III items 11-28).

Item 29 -The qualitative data collected from this instrument was from an open ended question "*How would you like English to be taught in your college?*

Teachers' Questionnaire Survey

The questionnaire survey was conducted among the teachers handling the Communicative English classes of different engineering colleges of Orissa. This questionnaire (Appendix-II) aimed to collect both quantitative and qualitative data regarding the teaching practices that were being followed among teachers of engineering colleges.

The objectives of the questionnaire were to collect information regarding the existing syllabus design and how far it is being put into practice and then to identify different needs (academic and professional) of language learners in engineering context.

The **introductory Section** collected both the personal and professional details of the teachers. It included their educational qualifications and number of years of experience in teaching English.

In the **first section** nine statements were given where teachers were asked to fill in the blank spaces provided after the statements by choosing a number from the scale. The statements intended to find out how far teachers could conduct those activities in the classroom context.

The **second section** consisted of ten different needs identified. It took the opinion of teachers to ascertain how far the needs were considered important from their view point. They were asked to mark their views on a Likert scale of 1. Strongly agree, 2. Agree and 3. Disagree

The **third section** provided five different (Yes or No type) statements where teachers were asked to give their opinions. Q. No. (1-5).

The **fourth section** included one open ended question 'List three major needs of students of your college, as perceived by you, in learning English for Engineering purposes? Teachers were asked to share their views in the space provided below each question.

Validating the Students' and Teachers' Questionnaires

A pilot test was conducted at Padmanava College of Engineering, Rourkela, Orissa, among students of 2nd and 4th semester engineering students of various branches of engineering and technology. Certain questions needed modification as the students could not make out the exact meaning of the sentences. Students were not ready to give negative responses in the presence of their English teachers. They were interested to know how the skills could be developed. The teacher interacted with the students to understand and clarify the problems they faced in filling up the questionnaire.

The research findings after the pilot study conducted were:
1. The teacher's personal assistance was necessary in making the students fill in the questionnaire.

2. Some students were reluctant to respond to the open-ended question.
3. Students were to be assured that their roll number or their names were not asked for and so their responses would remain confidential.
4. The students needed to be rightly oriented to fill in the two page questionnaire.
5. Some students were interested to know how and when the ideas and suggestions mentioned in the questionnaire would be implemented.

The teachers' questionnaire was piloted among three teachers of MITS Engineering College Rayagada. They belonged to different age groups and had different levels of teaching experience. One of the faculty members was a retired professor with 2 years of teaching experience in the existing syllabus, another faculty had about six years of teaching experience in the same college and another lady professor was a fresher. The teachers raised certain doubts while filling in the questionnaire. Their views/doubts were taken into consideration before finalizing the questionnaire. This helped to gather three different viewpoints to bring necessary modifications to the questionnaires. Regarding the first section of the questionnaire they had high opinion and wished that some of the latest methodologies of teaching should be incorporated into the syllabus. Regarding the second section the students marked their views and results could be analysed. In the third section though all the statements had a positive response, the comments differed. The question based on the open ended question in the fourth section was to identify the needs of students from teachers' viewpoints. This question identified various needs of learners and thus supported the research questions.

Administration of the Research Instruments

The researcher personally visited and conducted the survey. A letter from the Head of the Department of the researcher seeking permission to conduct field work was addressed to the head of each institution, showing the purpose of the visit and details of the research program.

It was conducted in the academic year of 2009-2010. Administration of the questionnaires was conducted by the researcher over a period of 15 months. At the selected research sites the researcher got the permission to conduct the survey in the classroom atmosphere. She gave clear-cut instructions as soon as the questionnaires were distributed to fill in. After the questionnaire was distributed the researcher kept moving around the classroom to facilitate the students to

appropriately fill in the questionnaire and also encouraged them to clear doubts if they had any. In many cases, when the questionnaires were returned the researcher on the spot checked the blank cases and asked them to fill in the open-ended question which many had avoided to fill in.

Some students who were not interested to fill in data were asked to abstain from filling in the questionnaire. It differed from college to college. Finally, it was administered to 770 students. For a detailed interpretation, the total number of questionnaires collected from students of different semesters is mentioned:

- Number of questionnaires collected from 2nd semester students: 392
- Number of questionnaires collected from 4th semester students: 296
- Number of questionnaires collected from 6th semester students: 92

The teachers' questionnaire survey was administered to the teachers handling the Communicative English classes of different engineering colleges of Orissa. The occasion came when the teachers assembled at Bhubaneswar to attend a three-day orientation program in August 2008, organized by the affiliating University (BPUT), to familiarize the teachers with the newly introduced syllabus. This was an ideal opportunity not only to obtain the responses to the questionnaire distributed among them but to interact with many of them on the items contained therein.

Two different tasks aimed at developing communication skills of learners were designed and experimented among second year engineering students at the Digital Language Lab of NIT, Rourkela, to test the research outcomes. The details of the experiment are mentioned in Chapter - IV and the tasks designed are appended Appendix-IV).

Validity of the Research Instruments

Content validity for the survey instruments was established through a review by a panel of experts. The panel of experts consisted of faculty experienced in teaching Communicative and Business English courses, along with faculty from the Department of Humanities and Social Sciences of National Institute of Technology (NIT), Rourkela and MITS Engineering College

affiliated to BPUT, Bhubaneswar, who had research experience of utilizing questionnaires as research tools. They were asked to examine the clarity and suitability of the questionnaires (see Appendix -III), intended for both teachers and students.

Reliability of the Research Instruments

Out of the total 29 items in the questionnaire, the first 10 items (Section -1) were intended to assess students' views on diverse issues related to syllabus-design, language skills development and need for a learner-centered curriculum. Item 29 (Section - 4), the last item, was an open-ended question regarding students' personal choice of English teaching methods that they would like to be available in their colleges/institutes. These eleven items, along with the items in the teachers' questionnaire, were checked for their clarity and suitability for inclusion in the questionnaires by the panel of experts mentioned above.

The questionnaire intended for students consisted of a total of 29 items. Out of these, Items 11-20 (Section -2), were intended to assess students' academic needs (S2 -1 needs) and to what extent these needs were being fulfilled (S2 - 2 extent of fulfillment) by their colleges/institutes. Similarly, in items 21-28 (Section -3), the professional needs (S3-1 needs) and their extent of fulfillment (S3 -2 extent of fulfillment) were assessed.

The reliability statistics of the items 11-28, were tested through Cronbach's alpha. The Cronbach's alpha value has been mentioned against each item for better interpretation.

Table 2: Reliability Data of Section -2 (S2) (Academic Needs)

Item No.	Cronbach's alpha
S2 -1- 11	.661
S2-1 - 12	.658
S2-1 - 13	. 652
S2-1 - 14	.654
S2-1 - 15	.652
S2-1 - 16	.671
S2-1 - 17	.653
S2-1 – 18	.655
S2-1 – 19	.654
S2-1 – 20	.652

Section 2 (S2-2) - Extent of Fulfillment of Academic Needs

Item No.	Cronbach's alpha
S2- 2 - 11	.796
S2 -2 - 12	.802
S2 -2 - 13	. 790
S2 -2 - 14	.801
S2 -2- 15	.794
S2 -2- 16	.806
S2-2- 17	.788
S2 -2- 18	.793
S2- 2- 19	.788
S2 -2- 20	.788

Table 3: Reliability Data of Section -3 (S3) (Professional Needs)

Section 3 (21-28) -Professional Needs

Item No.	Cronbach's alpha
S3 -1- 21	.777
S3-1- 22	.783
S3-1- 23	. 785
S3-1- 24	.762
S3-1- 25	.771
S3-1 – 26	.760
S3-1- 27	.762
S3-1 – 28	.761

Section 3 (S3 -2) - Extent of Fulfillment of Professional Needs

Item No.	Cronbach's alpha
S3- 2- 21	.818
S3- 2- 22	.804
S3 -2- 3	. 809
S3 -2- 24	.798
S3 -2- 25	.801
S3 -2 - 26	.814
S3 - 2- 27	.792
S3-2- 28	.795

It can be seen above that, the Cronbach's alpha values of all the items are in the range 0.65 and above, and thus confirm to the accepted level of item reliability (George & Mallery, 2003). It may be noted that the scales assessing the extent of fulfillment (S2-2 & S3-2) exhibit better alpha size compared to the respective needs scales (S2-1 & S3-1). The items in the professional needs

scale (S3-1) were found to have greater alpha coefficients compared to those in academic needs scale (S2-1).

The reliability coefficient of the Students' Questionnaire was found to be 0.89.
The reliability coefficient of the Teachers' Questionnaire was found to be 0.86.

Data Analysis

Both students and teachers participated in the questionnaire survey. Changes occurred in terms of sample size in collecting data from students. Certain questionnaires which were blank or the demographic variables not clearly mentioned were discarded. Observation and focused interviews as research tools recorded certain macro and micro details on the available infrastructure, learning assignments, grading system and the level of satisfaction in learning English among students. It also tried to understand the rapport between teachers and students, the professional development and research aptitude mentality among the teachers in their respective fields. It also considered the views of some administrators and policy-makers regarding the importance of English in engineering studies. The issue of conformability is dealt by providing a clear picture of how data were collected, how research sites were selected and how conclusions were drawn throughout the enquiry.

The student questionnaires were distributed personally in English language classes and the objectives explained to the respondents. While recording their responses, a close watch was kept on them jointly by the subject teacher and the researcher and notes recorded about their approach to various issues posed to them. Most of the English teachers were very cooperative and assisted this researcher to get feedback without inhibitions. Most of the respondents appeared to be serious about the problems posed to them as it directly impacted their future career options. Each group took a few hours to complete the questionnaires and oral responses. This method was applied to avoid the pitfall of mechanical responses from the subjects which affect the reliability of the data (Long, 2005). Some students met the researcher outside the class in the absence of the language teacher as because they hesitated to speak or open up their minds freely, in front of their teachers or peers. They discussed their problems of hesitation, stage fear, lack of English fluency or poor writing skills seeking measures to overcome them. Most of them were students

from vernacular medium or students from neighboring states. This has been planned to ascertain the degree of their understanding of the issues raised and elicit responses as reliable as possible

Stratified random sampling was used to select the engineering colleges within the whole population. The purpose to select a variety of colleges under these criteria was to make the data more varied, enabling to draw generalized statements, ensuring transferability to other contexts and settings. Transferability which refers to the extent, to which the findings from a study can be applied to other settings and contexts, can be applied in this research by providing readers with materials to determine how closely their situations match and how far the findings of this study can be transferred to their setting or context.

The study made use of 770 questionnaires to collect information from engineering students of the state. The sample included students from 2nd, 4th and 6th semesters from different colleges and universities of Orissa. Out of a total number of 770, maximum number of respondents were from 2nd semester (382/ 49.7%) followed by 4th (296/ 38.3%) and 6th (92/ 11.9%) respectively.

There were 10 questions in Section I of the students' questionnaire. The questions were framed to conduct a needs analysis of the current English syllabus of the various engineering colleges of Orissa. The major focus of this section of the questionnaire was on the prevailing syllabus and students' perception of their syllabus. Five point Likert scale was used to collect the information ranging from disagree to agree. The scoring of the section is based on summating all the items for each individual to get a raw score for a particular individual. The group data was analysed using the descriptive measures for frequencies and percentages.

Section II of the questionnaire was designed to understand the academic needs of the students, related to their English language learning. This section also has 10 questions. In this section, two aspects, such as needs and needs fulfillment have been investigated. It has 5 point Likert scale where 1 refers to Never and 5 refers to Always. Each individual's score is summated for their academic needs and their fulfillment, separately. The higher the score, the higher is the need and the need fulfillment. The lower the score, lower is the need and the need fulfillment. The group data was analysed using the descriptive measures for frequencies and percentages.

Section III of the questionnaire was designed to investigate the professional needs of the students. The response pattern and scoring this section is similar to Section II. Section IV of the questionnaire was an open-ended question regarding students' opinion on how they wished English to be taught in their colleges. Qualitative method is used to analyse data for this particular section.

Apart from the students' questionnaire the researcher also made use of a questionnaire for teachers to assess the English language needs of students from teachers' point of view.

There are 4 sections in the teachers' questionnaire. The First section assesses the current teaching methods being practiced by the teachers in their classrooms. This has a 5 point Likert scale that varies from 1 to 5 where 1 refers to Never and 5 refers Always. The higher the score, the higher are the activities being practiced in classroom teaching. Lower the score, less are the activities followed in regular classroom teaching. For each individual the scores were summated to get a raw score and for the group the frequencies and percentages were calculated.

The Second section assesses teachers' perceptions on the improvements required in the current English teaching practices being followed in the classrooms. This section follows a three point rating scale that varies from strongly agree to disagree. Here, the score for an individual is summated across the items. In this particular section a lower score refers to agreement, whereas a higher score refers to disagreement.

The Third section intends to assess the general needs of teachers that would aid in English language teaching in classrooms. This section of the questionnaire required dichotomous response from the participants in the form of Yes/No.

Section Four assesses the teachers' perceptions on their students' needs in learning Communicative English and Business English course. The common needs have been identified and reported in the thesis.

The strength of quantitative research lies in its ability to quantify generalized variables and measure factors in terms of amount, intensity or frequency. In contrast, qualitative research attempts to achieve a deeper, holistic understanding of the phenomenon being studied from a wider perspective. A questionnaire-based survey is used to easily obtain information from a large number of participants being studied in order to understand their beliefs. It is essential to ensure the trustworthiness of the data on which the findings of the research are based and hence the issues of validity and reliability are to be addressed. Reliability is the degree of consistency that an instrument or data collection procedure demonstrates, while validity is the quality of data collection procedure that enables it to measure what it is intended to measure (Best and Kahn, 1998). The issues of validity and reliability in quantitative research correspond to the criteria of truthfulness, reliability to internal validity, dependability to reliability, and conformability to objectivity (Denzin, 1970). The data for the study covering a large number of participants have been collected using a variety of methods such as questionnaires, observation and interviews, (for triangulation method) over a period of fifteen months (time triangulation). It has, therefore, considered the diversity to be applied generally by creating a multisite design and maximizing variation in the purposely selected samples.

Statistical Analysis

The group data of all the sections were analysed based on the frequencies and percentages. A schematic representation in the form of bar graphs is produced for all the sections.

CHAPTER - IV
Research Findings

This chapter presents the research findings on needs analysis conducted through a questionnaire survey, among students and teachers of engineering colleges of Orissa. Independent variables related to the research questions as curriculum design, academic and profession related needs in language learning context were taken into consideration. These variables were selected for data analysis which has been described in detail. The responses of students' questionnaire (both quantitative and qualitative) are calculated on SPSS 18.0 software. The quantitative data was collected from items 1-28 and qualitative data from an open ended question. The teachers' questionnaire also collected both quantitative and qualitative data. The findings relating to the research questions are discussed in detail. The quantitative data analysis is followed by the qualitative data analysis of both students' and teachers' questionnaire. (See Appendices I and II for details).

Results of the Students' Questionnaires

Students' Views of the First Research Question (Data Drawn from Section I (Items 1 – 10)

> *Which aspects of the present English language course (goals, content, materials used, technology involved etc.) in engineering colleges of Indian state of Orissa need to be modified to meet the engineering students communicative needs to apply it in real life situations?*

Out of the total 29 items in the students questionnaire, the first 10 items (Section -1) were intended to assess students' views on diverse issues related to syllabus-design, language skills development and need for a learner-centered curriculum. The results are analyzed quantitatively as reported below.

Syllabus Design and Other Related Issues

In the first section of the questionnaire, out of the ten items **1, 2 and 3** enquire the lacunas existing in syllabus design from students' point of view:

- More than 50% of the students felt that the syllabus has been overcrowded to be completed within one semester.

- Above 75 % of students needed individual attention in understanding the unfamiliar concepts included in the syllabus.

- An average of 65% felt that the goals and objectives of the course have not been achieved even after completion of the syllabus before the term-end examinations.

The key gap identified from Section 1 items, 1, 2 and 3 is Item 2 - need of individual attention

Figure 6: Need of Individual Attention to Understand the New Concepts in the English Syllabus.
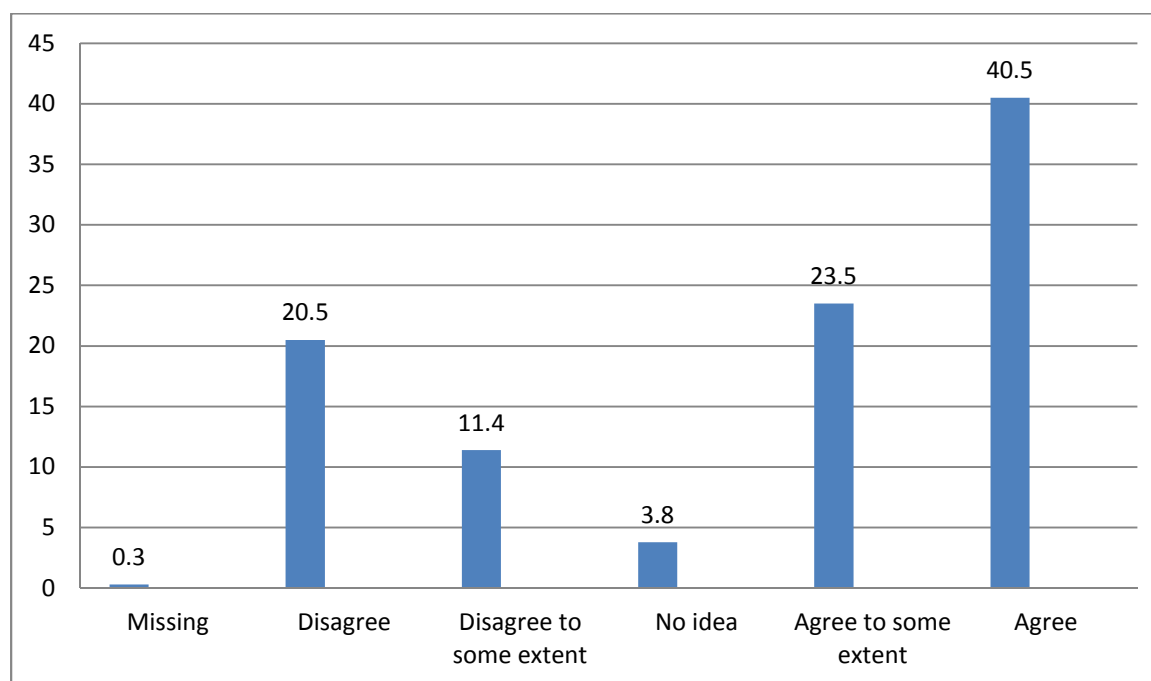
Data from respondents reveal that the group which wanted individual attention to understand the unfamiliar concepts included in the syllabus were students who have undergone their schooling in the vernacular medium (mostly Oriya and Hindi). They are of the opinion that they hesitate to speak in English fearing mispronunciation due to mother tongue interference and lack of adequate practice in speaking English. In schools they had little oral English practice. Maximum students opted for the need of individual attention in language classes by marking (4) agree to some extent, or (5) agree.

This shows that individual attention to cope up with the language tasks are not being provided in the engineering classroom context. This statement 'need of individual attention' seeks to look into the previous language learning background of respondents. Needs analysis through written questionnaires or formal discussions may be conducted and the syllabus modified to make it flexible to suit the needs of the learners (Long, 2002; Jasso, 2005).

As per the data collected from the students' questionnaire survey the opportunity for improving LSRW skills in language classes were examined in Items 4,5,6 and 7.

- Out of the four skills, exposure to listening skills were most neglected followed by writing skills though students mentioned that they gained less or no practice in drafting technical documents.
- The students were somewhat satisfied for improvement found in their speaking abilities though not completely happy in the progress.
- Students reported that neither guidance nor any activities were conducted to improve reading kills

One of the important goals of the Communicative English course is to equip the students with proper communication skills for effective usage in everyday situations and also to manage future workplace situations. Among statements; 4, 5, 6, and 7, 4- need of listening skills, 5-need of speaking skills, 6-need of reading skills and 7-need for proper practice in writing skills, maximum students opted for the need for proper practice in writing technical documents, as given in Item 7.

Figure   7:   Need   of   Proper   Practice   in   Writing   Technical   Documents
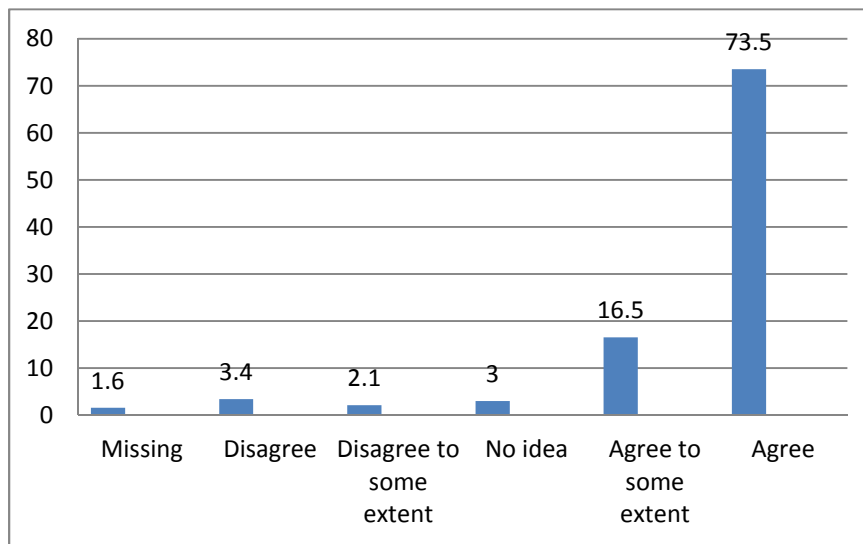
The graph indicates that majority of students (73.5%) marked Likert scale 5.Agree, mentioning that they needed practice in writing technical documents. Writing technical documents is one of the key aspects for future job prospects of engineers. Hence engineering students would benefit much if they are exposed to technical report writing. Among the ten questions this scored as a major need. Most of the students are not exposed to written communications except personal / business letter-writing formats.

Items 8, 9 and 10 were how far students preferred theory classes, language lab classes and the need of a learner-centered curriculum, respectively.

- The importance for lab classes were given due importance in comparison to theory classes.
- The need for continuation of language lab classes throughout engineering education was highly sought after.
- Most of the students desired a learner centered curriculum.

Among items, 8 (preference for the need of theory or lab classes), 9 (need of language lab activities throughout the semesters) and 10 (need of a learner centerd curriculum), maximum

students opted for, Item 9 - need of interactive sessions in language lab throughout the semesters, and item 10 - need of a learner centered curriculum by marking (4) agree to some extent, or (5) agree.

Figure 8: Need of Language Lab Activities throughout the Semesters
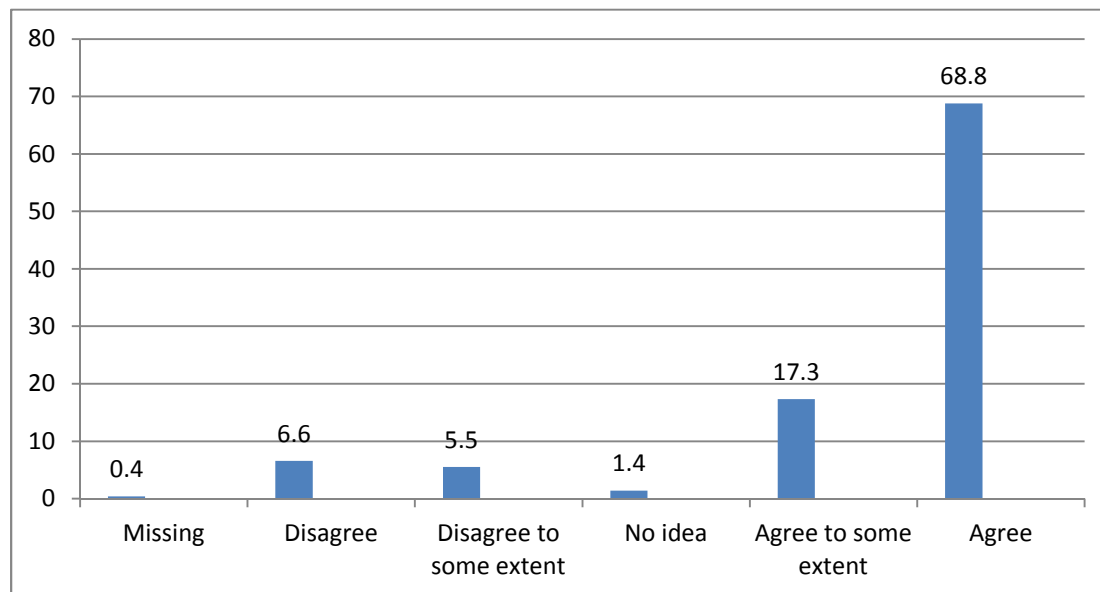
This item probes the preference of the students for practical classes. In response to the statement that if the Language lab sessions should be continued throughout the engineering programs, around 550 students (above 85%) agreed with this proposition. The data show that the students understood the benefit of lab classes and were in favour of getting practical exposure to learn English skills throughout the semesters in the Language laboratory.

The study reveals that the students are more interested in laboratory activities than in theory classes. Team activities can be promoted in the labs and students enjoy it if properly implemented. It also provides opportunities for developing leadership skills, team spirit and cooperation. Role-plays, performing skits, puzzles, quizzes, slogan writing, creative writing, mock interviews, group discussions on current topics etc. are examples of useful lab activities that can help students acquire leadership and communication skills.

Similar response (above 80%) for the necessity of a learner-centered curriculum was found as per the data interpreted in **Item 10.** Most of the respondents felt that the existing gap in learner-centeredness curriculum should be minimized and match to their learning needs.

Figure 9: Need of Learner-Centered Curriculum.
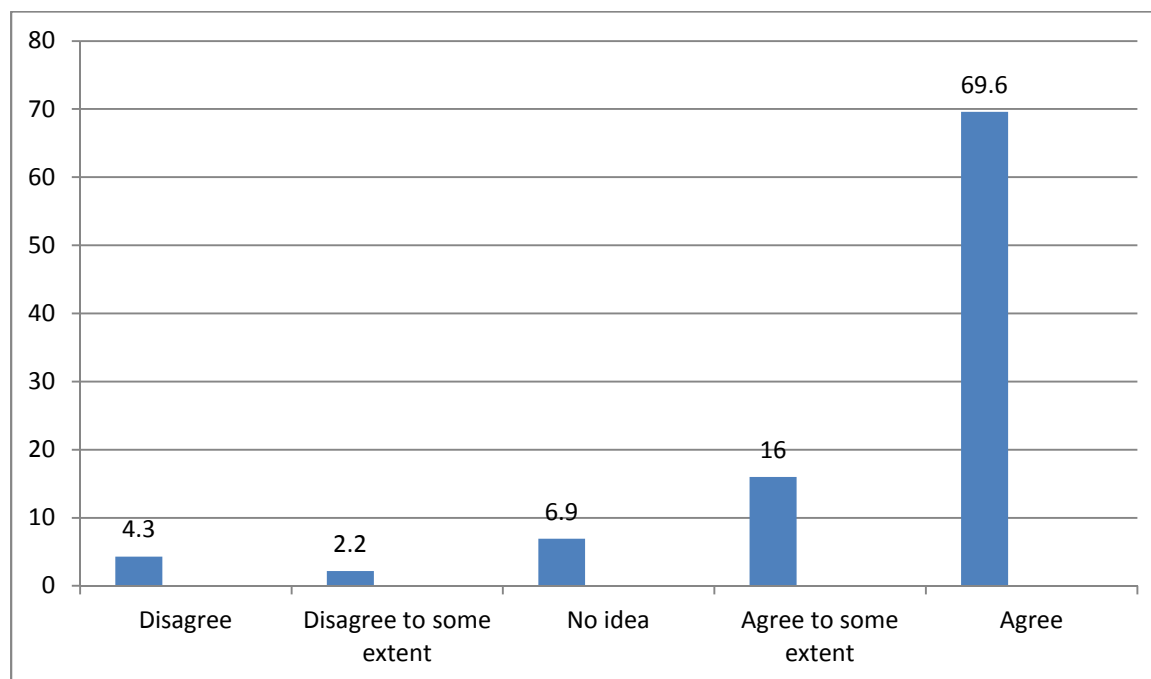
It is necessary to set achievable goals for students and encourage the students in self-directed approach to learning. The teacher's role is to make the relevance of a task clear to the students and provide a suitable environment to solve a problem at his/her own pace. Methods of instruction are to cater to the varying groups of learners, not the 'fit for all' mode, Michael Long, (2002), being followed now.

Section-1 including **items 1-10** of the questionnaire thus tried to identify the existing lacunas and necessary modifications essential for skills development needed in the existing syllabus, perceived from the learners' viewpoints.

Students' Views of the Second Research Question (Data Drawn from Section II and III Items (11 – 28)

What are the academic needs and professional needs of engineering students in the language learning context?

Academic Needs

Items 11-28 were provided two different Likert scale columns where students had to rate their preference for academic and professional needs in the first column. This was calculated on a five point scale. Out of the total 18 items which were related to their needs **items 11-20** were identified as their academic needs. Here students had to mention how far they considered it necessary for them. The prioritization has been made on the basis of their scores in Likert scale i.e. 1- **never** 2- **seldom** 3- **no idea** 4- **occasionally** & 5- **always.** The academic needs were based on needs of identifying previous knowledge of English, their language learning background, guidance and motivation, need of learner autonomy, personality development sessions, understanding and enjoying language lab activities, constructive feedback etc.

In the academic needs context the results, in order of priority, as responded by the participants are mentioned below. The ratings for the academic needs as on the Likert scale show the priority of needs as mentioned below. The preferred academic needs as of students per the quantitative data are:

1. (Item -17)-Need of orientation for personality dev.
2. (Item 20)- Need of constructive feedback.
3. (Item 16)- Need of freedom and options in doing assignments and tasks.
4. (Item 19)- Need of opportunities to participate in team activities.
5. (Item -13)-Need of understanding and enjoying activities conducted in lab.
6. (Item14) -Provision for learning resources.
7. (Item 18)- Need of conducting role plays and skits.
8. (Item 11)- Proper guidance in doing tasks and assignments
9. Item15)- Need of conducting oral tests
10. (Item 12)- Need of consideration of previous knowledge of English.

Among items 11-20, the graphic representation of item 17- need of personality development and item 16- need of freedom and options in doing tasks and assignments are graphically represented to support the second research question.

Item -17 - Need of Personality Development

Item 17 of this questionnaire survey aims at exploring the needs and provision of personality development sessions provided in the engineering colleges of Orissa. The graphs below clearly show the gaps identified. This need has rightly been advocated by more than 80% of the respondents. Figure 12 shows the importance of the need, as Likert Scale (5)Always, is highest whereas when asked about how far the orientation necessary for the fulfillment of this need in the respective institutes is being provided, only a small percentage, 16.5%, agreed fully. This highlights that only few students get opportunities for personality development as shown in Figure 13.

Figure 10: Need of Personality Development.
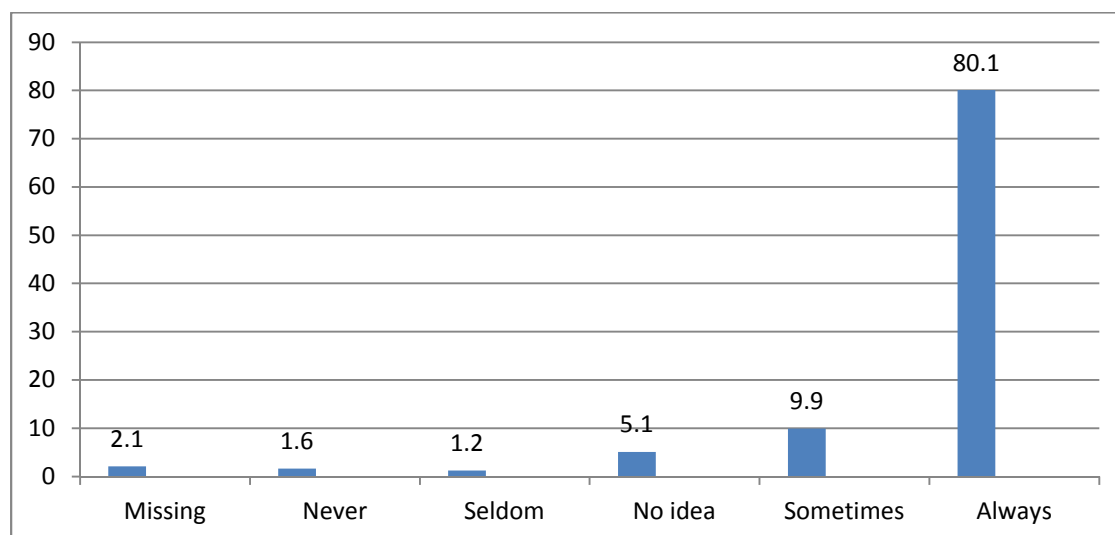
Item 16 - Need of Freedom and Options in Doing Tasks and Assignments

This item has been designed to know whether learner autonomy has been followed in the engineering colleges of Orissa. More than 55% of the respondents supported the need of this proposition as revealed in the following figure (item -16).When it was enquired how far

learner autonomy had been considered in their English classrooms, 1(Never) had been chosen by the maximum group 31% respondents choose from item -16. Only 12.7% of respondents opted for scale 5 (Always) and the rest opted for other scales.

Figure – 11: Need of Learner Autonomy in Doing Tasks and Assignments.
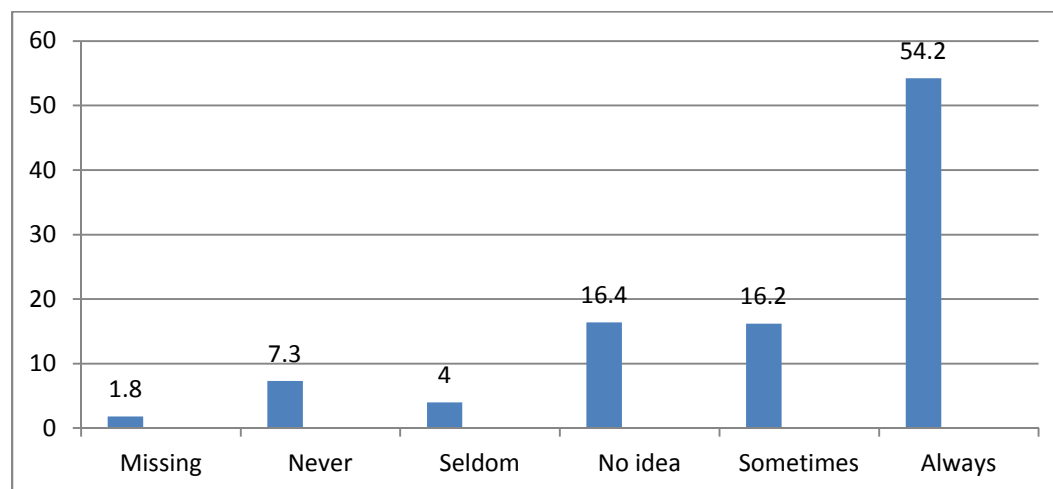
Professional Needs

All Items 21-28 support the research findings. All these 8 items, representing the Professional needs are needed to a great extent in the language learning context. The following list is arranged in order of students' preferred needs.

Out of the total 18 items which were related to their needs **items 21-28** were identified as their professional needs. Here students had to mention how the needs were considered necessary for them. The professional needs mentioned were the needs related to technical writing skills, need of ICT technologies in language learning context and the need of knowing the communication trends of their workplace. In the professional needs context the ratings in order of priority, as responded by the participants are mentioned.

   1. (Item 28) Students demanded the skill to take initiatives in group activities.

   2. (Item 23) Need to understand cultural communication of other countries.

   3. (Item 22) Practice in drafting project related documents.

4. (Item 21) Provision to interact with corporate experts for workplace communication.

5. (Item 26) Internet facility (ICT Technologies)

6. (Item 24) Read technical documents for vocabulary.

7. (Item 27) Decision making skills

8. (Item 25) Analytical skills for interpreting and writing notes on numerical and graphical data.

Figure 12: Need of Opportunity to Interact with Industry Experts.
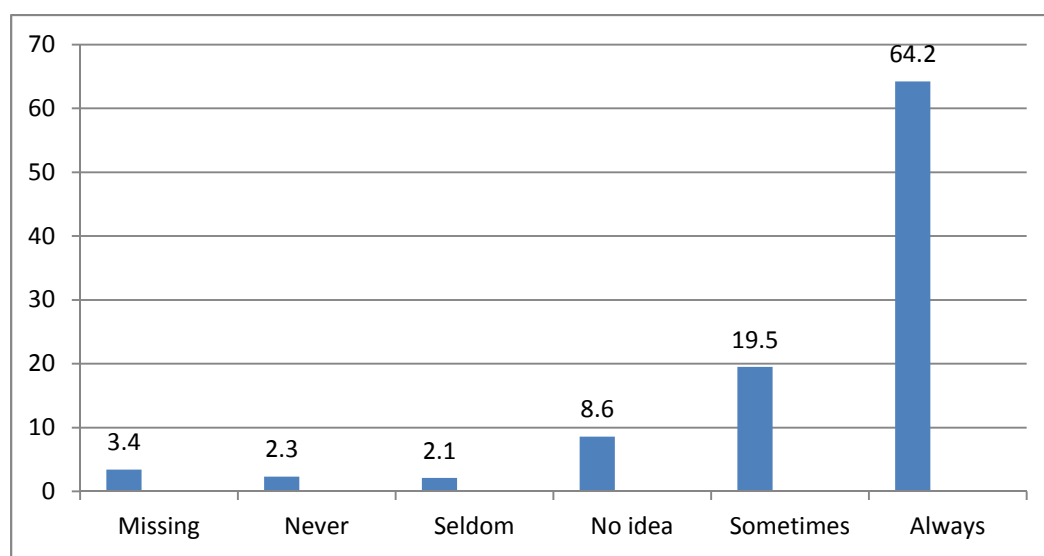
Information Technology has become an unavoidable aspect of modern communication scenario and hence effective communication depends on the use of these technologies today. The responses shown in Figure 16, Item (S3-1-26), reveal that about 70% endorsed this idea opting for Likert scale 5 (Always) and nearly 18% opted for scale 4 (Occasionally). When it comes to its implementation in the respective institutes, only 12.5% chose scale 5 and an equal number opted for scale 4 which means 75% of the respondents are deprived of these facilities in their colleges.

Figure 13: Need of Use of ICT in Learning English (item 26a)
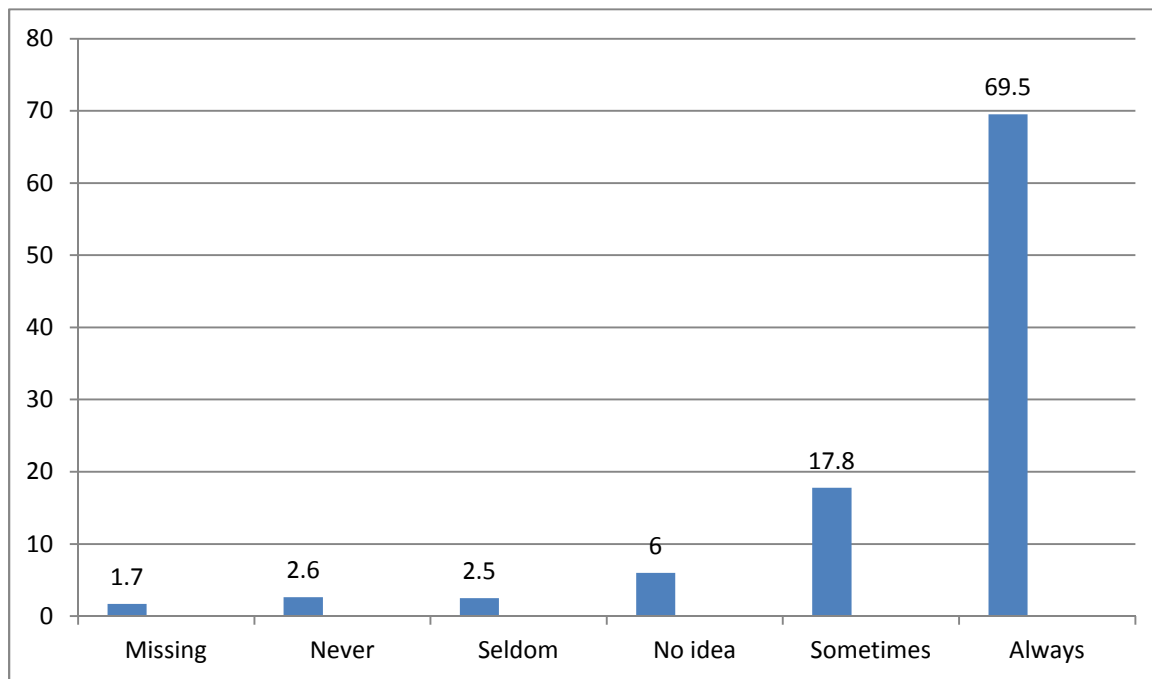
The prioritization has been made on the basis of their scores in Likert scale i.e. 1- **never** 2- **seldom** 3- **no idea** 4- **occasionally** & 5- **always.**. The preferred professional needs as of students are recorded below.

Students Views of the Third Research Question (Data Drawn from Section II and III Items 11 – 28)

> *Does the English language syllabus in the engineering colleges meet students' academic needs and professional needs?*

Students' Views on Fulfillment of Academic and Professional Needs

Section II items (11-20) and Section III (items 21-28) of the questionnaire assessed the extent to which students' Academic and Professional needs were addressed in their Institutes on two different Likert scales. In Section II, students were required to rate their existing Academic needs on a five point (need) scale and how far those needs were fulfilled by their institution on a five point (need fulfillment) scale. Similarly, in Section 3, students were required to rate their existing Professional needs and how far those needs were fulfilled by their institution on five point scales.

To find out the discrepancy between students' existing needs and the extent to which these needs were fulfilled, the difference between students' ratings on the need scale and that of need fulfillment scale was calculated for each of the items in both the Sections II and III. For a student, if there was no difference between his rating of an item on the need scale and that on the need fulfillment scale (i.e., difference is equal to zero), it indicated that the student's expectation for that item was duly met by his institute. Similarly, if his rating of an item on the need scale was higher than that on the need fulfillment scale (i.e., difference is greater than zero), it indicated that the student's expectation for that item was not duly met by his institute. A higher rating on the need fulfillment scale than that on the need scale for an item (i.e., difference is less than zero when the need scale rating is subtracted from need fulfillment scale rating) indicated that the institute fulfilled that particular need more than what was desired by the student. The number of students rating their needs duly fulfilled (difference is equal to 0), exceeding expectations (difference is less than 0) and below expectations (difference is greater than 0) was found out for each of the items (See Tables 4 & 5).

Academic Needs and their Fulfillment

Percentage of students rating their need fulfillment as below their expectations indicates that, on an average, the fulfillment of academic needs was below the expectation of the students. In case of almost all the Academic needs, more than 50% of students reported that the extent of need fulfillment in their institutions was below their expectations (<0). While this dissatisfaction was highest for item no. 17 (74%), it was lowest for item no. 13 (44%).

Table 4: Inadequacies in Academic Needs

Item Number	11	12	13	14	15	16	17	18	19	20
Number of students rating their needs duly fulfilled	170	281	357	316	264	198	166	286	249	174
Number of students rating their need fulfillment exceeding their expectations	88	94	77	69	64	64	32	62	42	37

Number of students rating their need fulfillment as below their expectations	512	395	336	385	442	508	572	422	479	559
Percentage of students rating their need fulfillment as below their expectations	66%	51%	44%	50%	57%	66%	74%	55%	62%	72%

All these 10 items11-20, representing the Academic needs, have been listed below in order of highest to lowest percentage of student's dissatisfaction. In other words, items are arranged in order of the availability of academic needs in the institutional level.

- Item -17 - Need of orientation for personality development (74% of students reporting dissatisfaction).
- Item -20 - Need for constructive feedback (72% of students reporting dissatisfaction).
- 1tem-16 - Need for freedom and options in doing assignments and tasks (66% of students reporting dissatisfaction).
- Item-11- Proper guidance in doing tasks and assignment (66% of students reporting dissatisfaction).
- Item -19- Need for opportunities to participate in team activities (62% of students reporting dissatisfaction).
- Item -18- Need of conducting role plays and skits (55% of students reporting dissatisfaction).
- Item -12- Need of consideration of previous knowledge of English (51% of students reporting   dissatisfaction).
- Item -14- Provision for learning resources (50% of students reporting dissatisfaction).
- Item -13- Need for understanding and enjoying activities conducted in language lab (44% of students reporting dissatisfaction).

In case of item no 17, that considers personality development as the most preferred academic need, the graphic representation given shows the students' responses. Maximum students opted for Likert Scale 3. No idea. This shows that a majority of the students were either unaware that the given tasks and assignments were targeted towards improving their personality or, were unsure as to how to answer this particular statement. The reason why this lack of surety prevails among students is maybe because, the current teaching methodologies practiced by language teachers do not directly spell out anything regarding personality development in students.

Figure 14: Extent to which Personality Development Sessions are being provided in the Colleges. (Item 17 b)
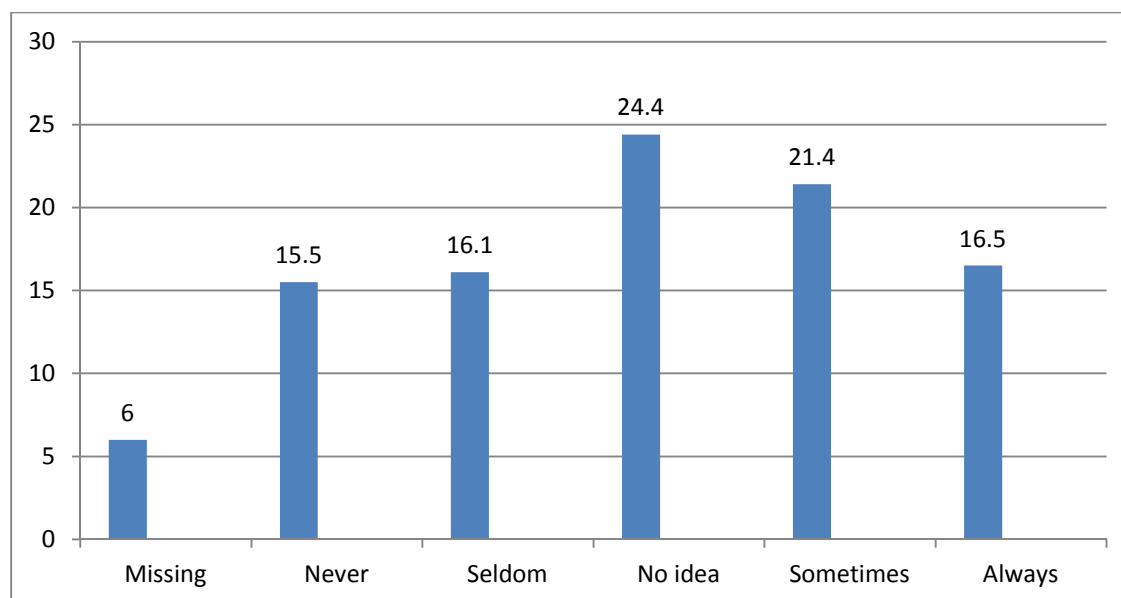
Item 16 b shows that uniformity in assigning tasks does not render effective English language skills in the context of classroom teaching in mixed ability classes. The option to choose from multiple tasks to suit the level of the learner will motivate even weak students to avail an opportunity to practice language skills and receive feedback at a comfortable pace, allowing the gradual building of confidence needed for public interaction (McKay, 2007).Choice in doing assignments should be provided to make the learners autonomous (Nunan, 1995).

Figure – 15: (Item 16 b) Extent to which Learner Autonomy is being provided in Doing Tasks and Assignments.
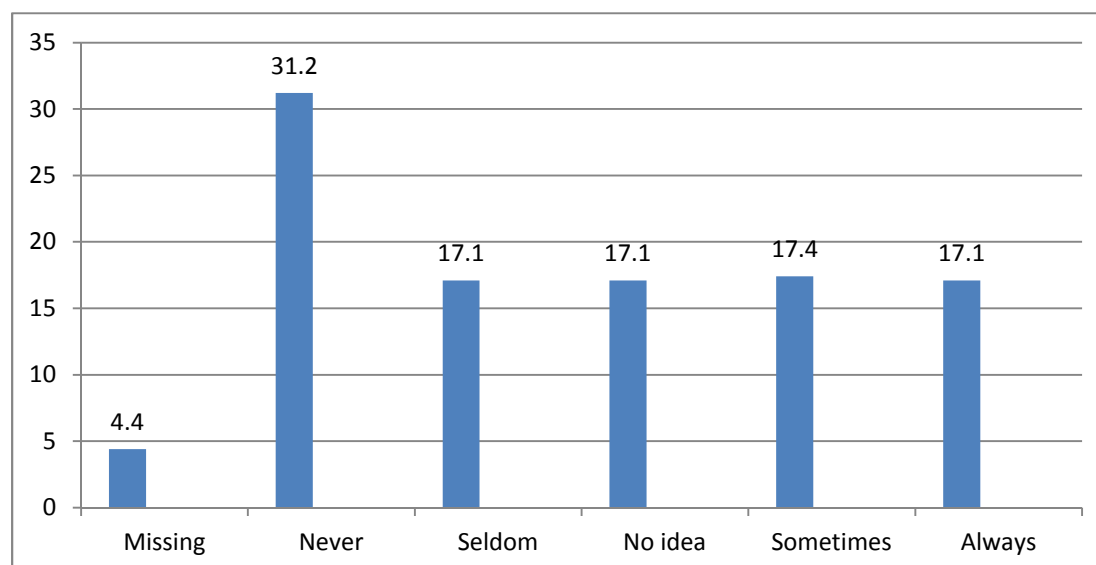
Table 5: Inadequacies in Professional Needs

Item Number	21	22	23	24	25	26	27	28
Number of students rating their needs duly fulfilled	108	120	104	135	172	145	125	148
Number of students rating their need fulfillment exceeding their expectations	22	29	32	28	46	34	38	20
Number of students rating their need fulfillment as below their expectations	640	621	634	607	552	591	607	602
Percentage of students rating their need fulfillment as below their expectations	83%	81%	82%	79%	72%	77%	79%	78%

Professional Needs and their Fulfillment

In case of almost all types of Professional needs Section III (Items21-28) , more than 75% of students reported that the extent of need fulfillment in their institutions was below their expectations. While this dissatisfaction was highest for item no. 21 (83%), it was lowest for item no. 25 (72%). All these 8 items, representing the Professional needs, have been listed below in order of highest to lowest percentage of student's dissatisfaction.

In other words, items are arranged in order of their priority of learners' needs in the professional context.

21. Provision to interact with corporate experts for workplace communication (83 % of students reporting dissatisfaction).

23. The need to understand culture and customs of other countries (82% of students reporting dissatisfaction)

22. Practice in drafting project related documents (81% of students reporting dissatisfaction).

24. Read technical documents for vocabulary (79% of students reporting dissatisfaction).

27. Decision making skills (79% of students reporting dissatisfaction).

28. Leadership skills in group activities.78% of students reporting dissatisfaction.

26. Internet facility provided (77% of students reporting dissatisfaction).

25. Interpreting and writing notes on numerical and graphical data (77% of students

   reporting dissatisfaction).

Students' expectations regarding availability of latest communication techniques including Internet facility, guidance in drafting project related documents, reading and understanding documents to gain technical vocabulary, acquisition of leadership skills and exposure to decision making skills etc. were found to be the most challenging ones.

Among items 21-28, all support the third research question. Item 21- need of interaction with corporate experts to know the communication trends of workplaces, and item 26, need of using internet for professional communication and the extent to which they are fulfilled are graphically represented below to show the difference in the need scale and the fulfillment scale.

Figure 16: Extent to which Students Interact with People from Industry at Present (Item 21b).
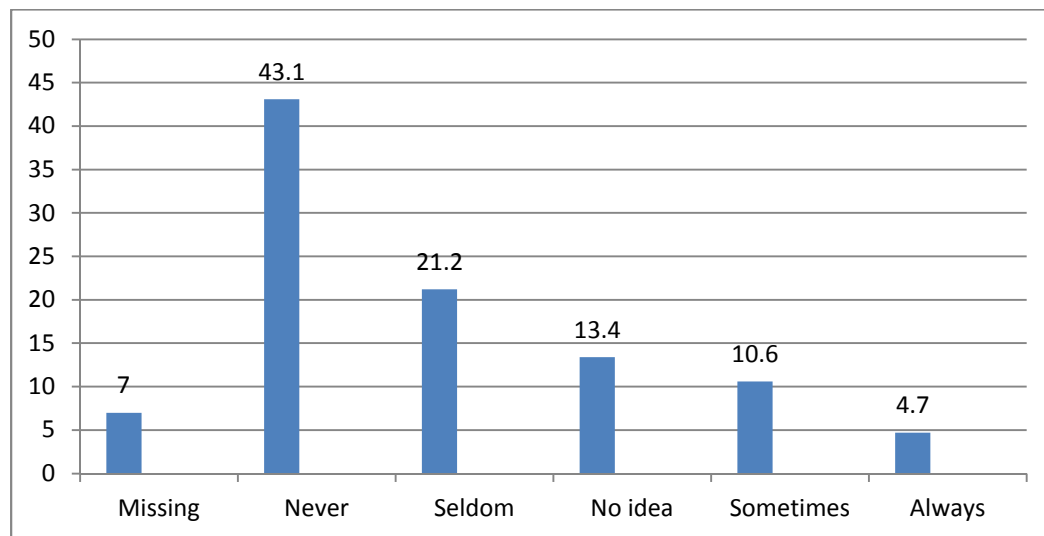
Item no 21, the gap in the need of opportunity to interact with industry or corporate experts to gain knowledge about the communication needs of workplaces had been considered the most preferred need in this section. The data interpretation shows that it is imperative to expose undergraduate engineering students to experts from industrial/corporate sectors to gain technical knowledge. Interactions with experts in specific fields would improve their knowledge of work place communication skills. 64% of the respondents opted for Likert scale 5 (Always) and nearly 20% chose scale 4 (Occasionally) which shows the awareness of the students about this need is comparatively high. But nearly 65% of the respondents reported that it is never or seldom being conducted in the colleges.

Figure 17: Extent to which ICT Technologies are being provided in the Colleges (item 26b)
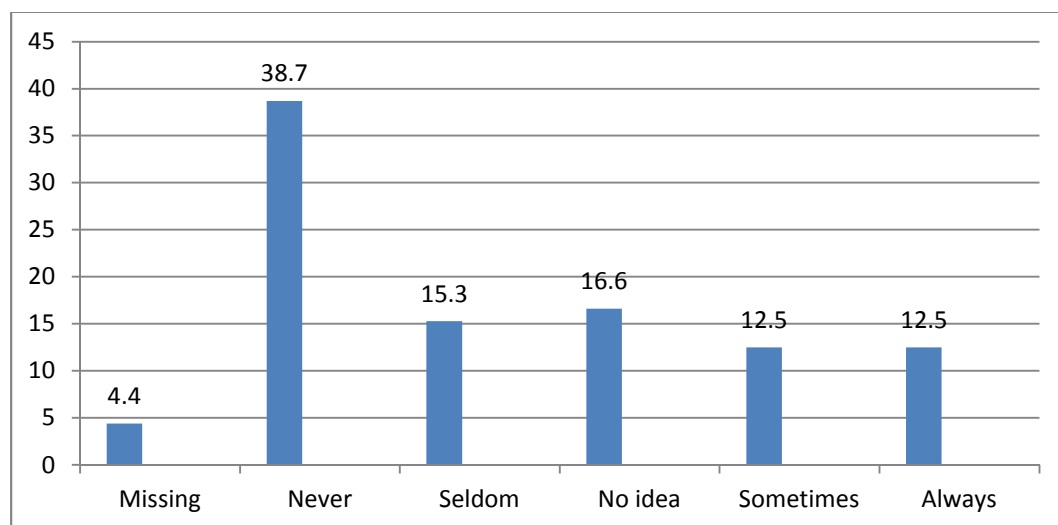
Engineering students need to be exposed to the use of Internet not only for communication but also to keep pace with the latest communication trends. Neo millennial learners are capable of seeking the help of modern technology to meet their current needs (Siemens, 2004).

The needs identified though cannot be categorized to be blindly accepted but gives an idea on the facilities they avail and the priority of needs which should be catered to match the needs of the learners of this generation.

Engineering students need to be exposed to the use of Internet not only for communication but also to keep pace with the latest communication trends. Neo millennial learners are capable of seeking the help of modern technology to meet their current needs (Siemens, 2004).

A comparison of frequency and percentage of students' dissatisfaction between Academic needs and that in Professional needs reveals that the gap between students' expectations and fulfillment was greater in case of latter than that in the former. Therefore, circumstances in the English teaching-learning scenario that calls for right action to address the problems were more acutely felt in case of learners' professional needs as compared to that of their academic needs.

Students' Views' of the First Research Question (Data Drawn from Item 29)

Qualitative data was drawn from students through the questionnaire with the help of an open-ended question given at the end, Section 4, item 29, '*Please mention how you would like English to be taught in your college.*' The responses were qualitatively analysed which revealed the students' preferred methods related to curriculum design.

Curriculum/Syllabus Design

- Interactive sessions - 178/770 of students **(**23.1%) reported this as an effective method of ELT.
- Tasks similar to real-life situations - 78/770 of students (10.1%) reported this as an urgent need.
- LSRW skills - 90/770 of students (11.7%) reported that they needed more practice in these skills, especially in listening skills.
- Life skills/ Interpersonal skills 17//770 of students (2.2%) reported that they wanted language activities related to these skills.

Need of Modifications in Syllabus Design

When designing courses for Communicative English it is necessary to confirm that the English teachers have reliable information on their learners' needs so that what is taught, how it is taught and what is tested, matches the learners' needs as closely as possible. (Nunan, 1988a). The most important need identified from these responses is personality development sessions followed by the need of interactive sessions in activities conducted. The need of learning LSRW skills appropriately to use it in everyday contexts also has been mentioned by maximum students.

Students' Views of the Second Research Question (Data Drawn from Item 29)

What are the academic needs and professional needs of the engineering students in the language learning context?

Data was drawn from students through the questionnaire with the help of an open-ended question, given at the end, Section 4, item 29 '*Please mention how you would like English to be*

taught in your college. The responses were qualitatively analyzed which revealed the students' preferred needs related to academic and professional needs.

The needs interpreted as academic and professional from the responses of open ended question are mentioned as per the maximum responses towards each need identified.

- Personality development - 208/770 of students (27.1%) reported that they wanted the English classes to assist them in improving their personality.
- Interview skills - 107/770 of students **(**10.1) reported that they wanted improvement in this skill.
- Provision of adequate learning resources - 144/770 of students (18.7%) reported that they wanted more help from their faculty and the administrators on this aspect.
- Technical English skills 78/770 of students (13.9%) reported that they wanted improvement in these skills.
- Positive learning environment - 73/770 of students (9.5%) reported that they wanted more help from their faculty and the administrators on this aspect.
- Guidance and motivation - 67/770 of students (8.7%) reported that they wanted more help from their faculty on this aspect.
- Clear cut instruction - 52/770 of students (6.8 %) reported that they wanted more help from their faculty on this aspect.
- Learner autonomy - 51/770 of students (6.6%) reported that they wanted more autonomy.
- Assessment patterns-37/770 of students (4.8%) reported that they wanted better assessment patterns.
- Constructive feedback- 17/770 of students (2.2%) reported that they wanted more constructive feedback from their teachers.
- Interview skills - 107/770 of students **(**10.1) reported that they wanted improvement in this skill.
- Technical English skills 78/770 of students (13.9%) reported that they wanted improvement in these skills.

The need of constructive feedback to gain learner autonomy has been stressed as the most needed academic need followed by learning technical English skills and exposure to job situations as the most preferred professional need.

Students' Views of the Third Research Question (Data Drawn from Item 29)

Does the English language syllabus in the engineering colleges meet students' academic needs and professional needs?

The qualitative data collated from Item 29 - *'Please mention how you would like English to be taught in your college.'* of the students' questionnaire analyzed helps to draw certain conclusions on how far the academic and professional needs had been fulfilled in language learning context.

Need of Skills Development Activities (Academic Needs)

Activity-oriented teaching like role-plays and conversation practices in pairs or with peers are rarely conducted or properly assessed. They expressed the need of pre-presentation practices before oral/written assessments as it is not provided in most colleges. The need for resources in the language classrooms were also mentioned, as also the need of authentic texts, published materials etc. and technology integrated resources of which maximum students expressed their needs for the latter. This shows that students of this generation are digitally literate and so selecting materials and designing activities for them need to be based on online resources available. This has been supported by data collected in response to item 13 - need of understanding and enjoying activities conducted, item 16 - need of learner autonomy, item 18 - role plays to be conducted and item 19 - opportunities to participate in different team activities like group discussions and meetings in the language lab.

Thus the most important academic needs identified were the need of proper instruction of activities conducted followed by constructive feedback.

Need of Appropriate Teaching Patterns (Professional Needs)

Most students who participated in this study admitted that there is some improvement in their personality after undergoing the English course but they do not feel it was adequate enough to meet the challenges of their future professional career in a highly competitive milieu. This has been supported by the quantitative data as in items 21,23,27,26.

Results of the Teachers' Questionnaire

As in students' questionnaire, the quantitative data analysis in the teachers' questionnaire is followed by qualitative data analysis based upon the three research questions and discusses the two variables - syllabus design and students' academic and professional needs and how far are they met in the language learning context.

Teachers' Views of the First Research Question (Data Drawn from Section 1 of the Questionnaire)

> *Which aspects of the present English language course (goals, content, materials used, technology involved etc.) in engineering colleges of Indian state of Orissa need to be modified to meet the engineering students communicative needs to apply it in real life situations?*

Syllabus Design and Students' Communicative Needs

Eight items from (a-h) were mentioned enquiring how far could the teachers conduct the activities as needed in a learner centered syllabus in their classes. The variables measured in the first section were, to find out, to what extent activities like: Grammar and vocabulary building, group discussions, reading practices, business communication, conducting paper presentations, and technology assisted language learning were being conducted by the teachers in the classrooms.

An analysis of the objective data collected from this section indicates that teachers lack proper training in conducting technology related activities in language classrooms. Many teachers need training in using relevant software for language learning and to facilitate interactive activities that would develop students' personality, like leadership skills, team activities, and interpersonal skills.

Activity Based English Language Teaching

The results shows that technology related teaching activities along with personality development sessions are very much necessary and those should be implemented by giving proper training to the faculty and language instructors of the colleges.

Table 6: Frequencies of Using Learner Centered Activities as Reported by the Teachers in Percentages

Items	never	seldom	sometimes	often	always
(a)Conducting grammar practice sessions and error analysis	------	5(8%)	29 (46.7%)	20 (32.2%)	8(12.9%)
(b) Technical vocabulary exercises	1(1.6%)	2(3.2%)	20(32.2%)	25(40.3%)	13(20.9%)
(c) Listening skills with relevant learning software	7(12.9%)	7(12.9%)	27(43.5%)	19(30.6%)	2 (3.2%)
(d) Mock speaking sessions for oral practice	1(1.6%)	_	6 (9.6%)	31(50%)	24(38.7%)
(e) Reading activities	1 (1.6%)	2 (3.2 %)	28(45.1%)	25(40.3%)	6(11.3 %)
(f) Writing skills practice	10(16.1%)	8(12.9%)	21 (33.8%)	19(30.6 %)	4(6.4%)
(g) Promoting paper presentations	3 (4.8 %)	10 (16.1)	22 (35.4 %)	15(24.1 %)	12 (19.3 %)
(h) Conducting internet related language learning activities.	24(38.7%)	14(22.5 %	16 (25.8%)	6 (9.6 %)	2(3.2 %)

Teachers' Views of the Second Research Question (Data Drawn from Section II of the Questionnaire)

What are the academic needs and professional needs of the engineering students in the language learning context?

Need of Changes in Teaching Methodologies, Professional Development Programs and Teaching Resources as Reported by Teachers

The second section was based on the needs in terms of teaching methodologies, professional development programs and teaching resources in language learning context. In this section the participating teachers have been asked to respond to ten ideas relating to the teaching of English in the Indian context, especially in Orissa.

The teachers were asked to respond to ten ideas relating to needs of students. The statements are based on necessary modifications needed to gain technical and interpersonal skills. The respondents were asked to choose 1 (strongly agree), 2 (agree), or 3 (disagree) to record their preferences. Analyses of the five significant responses related to the first research question are discussed below:

The table below represents the results.

Table: 7 - Areas that Need Changes Related to Teaching Methodologies, Professional Development Programmes and Teaching Resources as Reported by Teachers

Items	Strongly Agree	Agree	Disagree
1.Need of extension of language courses to further semesters in the B. Tech program	46 (74.1 %)	16 (25.8%)	___
2. Need of professional development workshops.	47 (75.8%)	15 (24.1%)	------

3.Need of online resources for classroom practices	36 (58%)	24(38.7 %)	2 (3.3 %)
4. Need to include activities based on intrapersonal and interpersonal skills.	23 (37%)	31 (50 %)	8 (13%)
5.Need of creating a positive learning environment	27 (43.5%)	30 (48.4%)	5 (8.1%)
6.Need of proper co-ordination with syllabus designers	21 (33.8%)	31 (50%)	10(16.2%)
7.Need of changing the centralized examination system	10 (16.2%)	26 (41.9%)	26 (41.9%)
8.Teachers are properly trained in pedagogical content	16 (25.8%)	20 (32.3%)	26 (41.9%)
9. Teachers are not empowered to bring innovations in syllabus design.	13 (20.9%)	26 (41.9%)	23 (37.2%)
10. Need of regular interaction with experts from the field of ELT.	47 (75.8%)	14 (22.5%)	1 (1.7%)

On being enquired whether the designed syllabus facilitates in improving critical thinking abilities, self-esteem and research awareness among teachers, 34% opted for scale-1, 50% for scale- 2 and 16% disagreed (scale-3). This indicates that there is nothing wrong with the syllabus design, but the problem probably lies with lack of proper implementation.

On the proposal for effective teacher training, 76% opted for scale-1, 22.5% opted for scale- 2 and only one respondent disagreed. This shows that the objectives and goals of the syllabus cannot be achieved without properly training the teachers in the new and innovative concepts.

Thus, it is seen that due to the various administrative and teaching related constraints the teachers are unable to bring much constructive changes to the learning process.

The academic needs as mentioned by teachers as indicated from the above responses are prioritized as follows:

1. Need for interaction with syllabus designers and experts from the field of ELT.
2. Need for effective teachers-training programmes and professional development workshops.
3. Need of extension of language courses to further semesters in the B. Tech program.
4. Need of creating a positive learning environment and including activities based on intrapersonal and interpersonal skills.

Teachers' Views of the Third Research Question (Data Drawn from Section III of the Questionnaire)

Does the English language syllabus in the engineering colleges meet students' academic needs and professional needs?

On the proposal for providing a practice oriented language course to meet global standards, all teachers (100 %) agreed to it. (At present English is taught formally only in the first year of the engineering course in Orissa). Similarly, a vast majority of students are in favour of this proposal as revealed in item 10 of the students' questionnaire.

Teachers needed training in conducting and assessing language tasks to develop certain skills in students, especially to match the workplace communication needs. The need of training for

teachers in latest teaching methodologies (academic needs) and technologies (professional needs) has been highlighted. On the suggestion on the need of training in latest teaching technologies and conducting cognitive learning techniques like problem-solving skills, fulfilling societal needs and students' self-realization should be included in the curriculum, 37% of the respondents strongly agreed, 50% agreed and only 13% disagreed. This means that most teachers felt the need to revise the curriculum for English to accommodate the above needs.

The above are the needs identified from the quantitative data collected in relation to the third research question from the teachers' questionnaire.

Discussion on the Results Related to Qualitative Data Analysis of the Research Questions from Teachers' Perspectives

The qualitative data collected from the teachers' questionnaire summarizes the comments of teachers on syllabus design, academic and professional needs from Section III where the teachers had to agree or disagree on extension of English curriculum to further semesters, training in latest language teaching technologies, motivation skills etc. and section IV of the teachers questionnaire asked to list three major needs of students in learning Communicative English and Business English courses.

Teachers' response to the open-ended question of Section 4 (*What are the needs of students in the perception of teachers?*) that supports the research question is summarized as follows:

Teachers' Views of the First Research Question (Data Drawn from Section IV)

> *Which aspects of the present English language course (goals, content, materials used, technology involved etc.) in engineering colleges of Indian state of Orissa need to be modified to meet the engineering students communicative needs to apply it in real life situations?*

The various needs related to communicative needs related to syllabus design are mentioned below:

- Teachers should be provided with internet facilities and learning resources with appropriate training to conduct such activities.

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- English language training should be extended throughout the engineering course.

- The activities should be designed to develop both intrapersonal and interpersonal skills.

- Students need right level of motivation and scope for personality development.

- To select and conduct activities to develop technical English skills.

- Training for teachers and proper orientation in implementing the different modules of the syllabus is highly essential.

Teachers' Views of the Second Research Question (Data Drawn from Sections III and IV)
What are the academic needs and professional needs of the engineering students in the language learning context?

- The collated qualitative data indicates that almost 80% of the teachers stressed the need for providing well-equipped Language laboratories with relevant software and modern communication systems as the top priority to impart effective training to students in basic language skills.

- Lack of motivation among students to attend English language classes has been mentioned as the most difficult problem faced by the teachers as reported by about 40% of the participating teachers. Many students of private engineering colleges are not interested to attend English classes as they feel that they can manage without attending it and yet score good marks.

- Some of the reasons mentioned for the above are core subjects' pressure, absence of well-equipped Language labs and class rooms, lack of training to teachers in imparting activity-based teaching using latest technology, odd timings of English classes in the college timetable and constraints in completing the syllabus in time etc.

- Regarding the responsibility of teachers to motivate the students to develop their personality and make them better achievers, 43.5% supported it strongly, 48.5% agreed and only 8% disagreed. This shows that the teachers are willing to take the extra effort to motivate the students in developing their personality by creating the right learning environment.

- The evaluation process of both theory and practical classes also de-motivate the students. Often repeated questions at semester-end examinations and liberal evaluation process,

both in theory and practical assignments, discourage the students from acquiring adequate English language skills.

- The next important need in their perception is the need for activity-based teaching and provision for relevant study materials. The need for activity-based teaching (78%) and provision for relevant study materials (65%). The lessons should not be limited to exercises or task conducted from examination point of view but rather it should develop certain skills so that learners can use it in social contexts.

Teachers' Views of the Third Research Question (Data Drawn from Sections III and IV)

Does the English language syllabus in the engineering colleges meet students' academic needs and professional needs?

The collated data of teachers' responses that support the third research question is mentioned below, as per their order of preference:

- The awareness about the importance of communicating in English dawns on the students only when they reach the final year, when they have to face job interviews. By then it is too late to compensate the loss of vital time early in the course

- The collated data indicates that majority of the teachers stressed the need for providing well-equipped language laboratories with relevant software and modern communication systems as the top priority to impart effective training to students in basic language skills.

- The next in priority is the provision for imparting training to students in basic skills such as listening, speaking, reading and writing, especially technical writing for which the allotted time as per timetable in most colleges is quite inadequate.

- The need for soft skills training, personality development, phonetics practice, exposure to the corporate world, business communication, training in public relations, well-equipped classrooms for theory classes, motivating the students etc. have also been mentioned as crucial needs.

To conclude, we can say that teachers' classroom instruction directly affects students' motivation level and teachers' own motivation levels are affected by the students' responses in the

classroom, be it verbal or non-verbal. According to Hutchinson and Waters (1987), the best methodology for identifying the needs of particular group of learners is to use such methods as questionnaires, follow-up-interviews, and collection of authentic texts. Researchers also propose that teachers should outline correct learner expectations and attitudes about how languages are learnt and also explain the reasoning behind classroom methods. The gap among teachers and learners can be thus minimized. (Horwitz, 1985; Kern, 1995; Peacock, 1999; Carter, 1999; Barkhusein, 1998; Mohamed, 2006).

The difference in terms of students and those of the teachers views related to the research questions has been evident in certain areas which can be minimized only if teachers conduct needs analysis to understand learner expectations and attitudes. They also need to research upon the suitable classroom methods to produce effective results. The diversity of the needs of English language learners has long been acknowledged (Tarone and Yule, 1989). Teachers have to make endless efforts to choose and apply the best teaching methods to meet various needs of learners. Learning -centered approach to lessons, materials and syllabus design advocates the involvement of learners in contributing to this design. Learners should be invited to express their views on their needs for learning the language and their preferred learning styles (Nunan, 1988a).

Based on the findings of the study, the researcher conducted certain classroom experiments by designing activities based on a learner centered curriculum, at the Digital Language Lab of NIT, Rourkela.

The aim of the first assignment was fiction integrated language learning, based on a piece of fiction entitled 'The Nightingale and the Rose.' The content integration emerged in two ways. First, the fiction was supplemented for oral and written tasks to be done individually and, then, an oral presentation was assigned as a group task. The tasks were creative and therefore challenging by nature.

The aim of the second assignment (Culture integrated language learning) was to test the students' awareness of other cultures from personal and professional perspectives. Options to choose the job areas in which they needed to introspect gave an insight into their own strengths and areas of interest, which they gained by reflection. Using technology appropriately was one of the tasks to

be completed within the given timeframe. Students surfed the net, especially wikis, to get firsthand information of the places of virtual visit. The teacher indicated that the students who accessed more information within the shortest duration would get better grades and, so, students had to revise their findings on the country with supporting details that truly improved their research aptitude.

The activities experimented were based on Multiple Intelligence Theory (Gardener, 1983) as a learning strategy. The written feedbacks received from the students elicited some interesting observations and were perceived to be highly encouraging. Students claimed that skills that they never thought they possessed came to the fore during the course of the experiment. Some students discovered musical, artistic, literary, mathematical and other new-found skills and abilities. Some students took initiatives in getting the task completed on time, which reflected their inherent leadership skills. In addition, students developed self-confidence and motivation to finish the task increased significantly. They also showed responsible behavior and independent thinking as they took active roles in shaping their own learning experiences. The details of the tasks designed are appended for better understanding (see Appendix- IV).

CHAPTER - V

Discussions, Conclusions and Recommendations

In this chapter the results are compared with the findings of other studies in the literature and are analyzed according to the research objectives. Based on the results and discussions, the conclusions have been drawn and recommendations given at the end. The study was initially conceived with three basic objectives in mind:

- To examine the existing English syllabus currently taught in the engineering colleges of Orissa and ascertain how far they meet the students' communicative needs.

- To identify the academic and professional needs of engineering students at different engineering colleges in the Indian state of Orissa.

- To propose modifications and revisions in the existing curricula so that the communication needs of different learner groups are fulfilled.

Findings of certain other studies relating to the objectives of the present study are discussed underneath to provide a clear picture of the need for undertaking such a study.

Syllabus Design and Students' Communicative Needs

Different studies on the importance on needs analysis in ESP curriculum have already been conducted. The findings of these studies have focused on needs analysis based on either learner analysis or task analysis (e.g. Hutchinson & Waters,1987; Nunan,1988a; Nunan,1988b;Nunan, 1995; Strevens,1997; Dudley Evans and St. John,1998; Richterich,1983;Ongsakul, 1984; Wittayapirak and Preechapanit, 1992; Michael Long,2005). The learner and the task become the two most critical factors while designing questionnaires and interviews for needs analysis survey, as per these researchers. The present study additionally focuses on the goals, contents and resources and materials provided in the existing syllabus and puts emphasis on the communicative needs in a learner-centered curriculum to enable students for real life challenges in language contexts.

Lack of communication skills and lack of English language proficiency has been a major concern in many studies conducted (Canale, & Swain, 1980; Duit, 1995; Hymes, 1972; Inyoung Shin, 2008;Rayan 2007, Rahim, 2005; Pawanchik, 2006).The need of writing and reading skills has

been emphasized in studies conducted by (e.g. Jackson et.al. 2006; Pritchard, & Nasr,2004; Stapa, S.H., & Mohd Jais, 2005; Tong, 2003, Tan, H. 1999) The need to develop oral and written communication skills and other work-specific communication skills such as informal discussions, public speeches and interviews etc. have been the major focus on studies conducted by (Tong, 2003; Splitt,1993; Curry, Sherry and Tunney, 2003; and Kwok, 2004). Kaur, S., &Thiyagarajah, (1999) have emphasized the inseparable relationship of reading and writing skills. A study by Dlaska (1999) focuses on the currently practiced course of engineering students to examine how far the teaching methods of the four skills (LSRW) cater to the communicative needs of the engineering students. Kaur, S., &Thiyagarajah, (1999) have emphasized the inseparable relationship of reading and writing skills.

Other studies conducted by (e.g. Reimer, 2002; Mohanty, 2009; Prema and Venkataraman, 2007; Rayan,2008; Sibat, 2005; Sageev, and Romanowski, 2001) have proposed the need of developing effective communication skills in students as that has been desired by organizations conducting campus interviews. They suggest that engineering courses should incorporate oral and written communication skills practices throughout the curriculum. The studies by Gaur (2008) and Rayan (2008) propose to teach communication skills by an interdisciplinary approach to engineering students by borrowing from management topics and including commutainment activities. The present study also seeks innovative measures to develop certain life skills that students can apply in real life situations.

Students' Academic Needs and Professional Needs in the Engineering Studies Context

Findings of different studies based on students' academic needs in a language learning context, revealed that the students' frequency or ability of using the English language was low, irrespective of the types of workplace or levels of study. Many students face or feel fear or anxiety due to lack of proficiency in target language (e.g. Aviv, Gardener R, Rayan 2008, McCroskey & Baldwin, 1984). Learner autonomy and affective learning strategies to optimize language learning had been conducted especially in task based learning to cater to different academic needs. This has been stressed in many other studies conducted (Hurd, S. 2008; Duit, 1995;Ellis, (2003);El-Okda,1991;Carter, 1999;Berger McCroskey and Baldwin, 1984).The need

of guidance and motivation ,especially for first year engineering students has been stressed by Pendergrass et.al,200; Dornyei 2001; Kormos et.al 2002).

Nunan (1988a) states that for a needs analysis, information will need to be collected, not only on why learners want to learn the target language, but also about such things as societal expectations and constraints and resources available for implementing the syllabus. The present study models on this and likewise considers the previous level of English language competence and socio-cultural backgrounds of students. Fulfillment of various academic needs in language learning context, such as guidance and motivation, learner autonomy, mode of instruction, previous language learning background etc. are also examined from students views.

Different studies related to the study of professional needs of language learners limit their findings to the need of students' exposure to various genres that leads to expanding their vocabulary for professional courses (Bhatia, 1983; 1997; 1999; Ambigaphaty & Aniswal, 2005; Reimer, 2002; Swales 1990). Other studies have suggested the need of ESP practitioners to collaborate with subject matter experts from specific professional areas such as business or engineering related subjects to better execute the communication tasks expected from students (Kaur, S., & Hua, L. 2006; Jiajing, 2007; Mehisto, 2007).

The language related needs of technical students of India conducted in 1990, by the Language Cell Unit, Indian Institute of Technology (IIT), Kharagpur, has put their main focus on technical communication and technical writing. The need of technical communication skills, especially technical writing skills is stressed. Lack of appropriate vocabulary for workplace needs create problems as the text books do not satisfy the students' needs (Hui, Z. 2007; Chen, Y.2006; Cheung, D. & Lai P. C, 1997).Need of technology in language learning context has been focused by (Asmari, 2010; Atai, 2009; Bottino, 2004; Shin 2007; Siemens, 2004; Topolovac et al, 2008; Vallance, 1997). This study, in addition to the above factors stresses the need of integrating technology in doing tasks, projects and assignments so that students get exposure to communication skills as in professional context which would prepare them for workplace needs. This study thus focuses on the technological needs of digital age learners in language learning

context. The need of technology integrated language learning is stressed for digital age language learners.

Different aspects of teachers' needs in language teaching context (Bax, S. 2003; Block, D.1994; Bright, J. A. & McGregor, G.P, 1978; Brookes, B.C. 1964; Crandall, J.1998) for engineering students and innovations in the teaching-learning process as in studies conducted by Brookfield, 1988; Cope & Kalantzis, 1993; Crandall, 1998; Curry, Sherry, and Tunney, 2003; Ellis, R. 2005; El-Okda, 1991, Halliday, 2005; Mohamed, 2006, Mehisto, 2007) are explored. The studies conducted on how teachers conduct examinations and assessment has also been considered (Wellington, 2002; West, 2002). The present study, along with focusing on the teachers' needs from all these angles, it further researches on methodologies and procedures to effectively meet the challenges teachers face in mixed-ability classes and large classes (Tomlinson, 2001; Tsui, 2003). Above all it considers the teachers' needs to keep them updated with teaching methodologies, especially in needs analysis techniques, curriculum design and assessment patterns. They should thereby gain proficiency in designing tasks to enrich students with different life skills. This would essentially help them to meet the demands of language learners in the digital era. In addition to above factors, the learners' needs, from teachers' view points and also teachers' needs to make the language teaching a positive experience has also been explored.

This study thus yielded certain results for a proper assessment of the English syllabi currently in force in the undergraduate engineering programs of the state. It also attempts to find out how language skills along with life-skills can be learnt effectively by engineering students for proper utilization by them in real life situations.

On the basis of the first-hand teaching experience gained by working closely with engineering students from several disciplines in different engineering colleges of Orissa for five years, and by conducting field study for a year, this researcher could contextualize the following results from this study. The discussions are based on the findings related to the information collected from both quantitative and qualitative data. It has been collected from the questionnaire survey conducted among engineering college students and teachers of different engineering colleges of Orissa. The findings from the data are discussed under the three research questions. The notable findings from the students' and teachers' questionnaires that support each research question are

discussed below. Accordingly recommendations on the basis of the shortcomings to improve the teaching of EST in Orissa are discussed. The variables for discussion are (1) Syllabus design and related issues and (2) Students' needs - academic and professional.

Discussion on the Students' Questionnaire:

Students' Views on the First Research Question

Which aspects of the present English language course (goals, content, materials used, technology involved etc) in engineering colleges of Indian state of Orissa need to be modified to meet the engineering students communicative needs to apply it in real life situations?

Syllabus Design and Students' Communicative Needs

The needs related to modification of the existing syllabus are skills related to life skills development, Interactive sessions, Personality development sessions and Learner autonomy. The supportive statements related to the syllabus design and related issues are discussed below:

Needs Related to Life-skills Development (Goals)

- Team activities are to be promoted to inculcate team spirit and leadership qualities.
- Different task-based activities for skills development should be conducted. This will help tackle any adverse situation in future.
- Training in decision-making skills, problem-solving abilities, linguistic proficiency, fluency in thinking and expressing etc. are essential to engineers for success.

Interactive Sessions (Content)

- The requirement of interactive sessions like role-plays, group discussions etc. has been stressed by a few respondents. The need for proper interaction between teachers and students has been mentioned.
- Activities in English classes should be as interesting and as challenging as playing games.
- Theory classes should be replaced with interactive lab classes.
- English should be taught by taking learners needs into consideration.
- Students' opinions regarding syllabus design are also to be taken into account in English classes.

These opinions of students indicate their preference for interactive classes full of activities rather than passive listening as mute spectators to text-based lecturing.

ICT Resources and Materials (resources and materials used, technology involved etc.)

- In many cases equipment available are not properly used for lack of trained personnel or lack of interest.

- Audio-visual aids leave a more lasting impression on learners than written documents

- Use of modern technology for teaching can motivate students.

- Digital language labs with internet facilities are essential for increasing language skills.

Students' Views on the Second Research Question

What are the academic needs and professional needs of the engineering students at different engineering colleges in the Indian state of Orissa?

Academic Needs

- Students needed proper guidance to enhance English grammar and vocabulary.
- Teachers need to consider the requirements of learners coming from different language backgrounds.

- Students must be assigned self-study articles and reading materials should be available in plenty.

- Teaching should be student-oriented and lectures should be interactive and intelligible.
- Individual attention in communicating in classroom situations to discuss answers/solutions properly has been stressed.
- Personality Development Sessions
- English courses should aim at developing self-esteem and self confidence level.

- Good reading materials are to be provided to the students.

- There is a requirement of qualified and experienced teachers who can motivate the students.

- Feedback is necessary to improve the acquisition of language skills.

Professional Needs

- Activities to improve English fluency should be imparted to develop confidence in communicating effectively in real life situations.

- English classes must include the technical aspects of language learning (vocabulary, documentation, technical vocabulary) along with guidance in developing one's personality, for better job prospects.

- English course should concentrate on imparting business English training to handle any future situation.

- Group discussions on current affairs enhance leadership qualities.

- More oral tests are to be conducted.

- Practical application of language skills is needed.

- Individual competitions like debate; elocution etc. should be conducted in the classes.

- Soft-skills training are to be imparted till 8th semester.

Students' Views on the Third Research Question

Does the English language syllabus in the engineering colleges meet students' academic and professional *needs?*

The opinions from students' views in areas where their academic and professional needs are not met are discussed below:

Fulfillment of Academic Needs

- Group/individual presentations are to be arranged in the class as every student does not get opportunity to take part in the presentations.

- Students should get choices to do projects and assignments.

- Co-operation between teachers and students has been stressed.

- A task-based approach with variety of options in doing assignments should be given as students have different language learning backgrounds.

- Reading materials of students' choice should be made available.

- Remedial teaching for below-average students has been suggested.

Fulfillment of Professional Needs

- Ability to deal with future professional situations is to be built up.

- Need of ample practice in designing documents on computers including format-designing principles, standardization, etc.

- Technical English knowledge is required for interpreting data, draft memos etc.

- Communication with business professionals needed for practical exposure.

- In lab sessions more Group discussions, record writing, summarizing, and graphical data analysis are to be practiced.

- Technical English vocabulary needs to be practiced in oral communication too.

Discussion on the Teachers' Questionnaire:

Teachers' Views on the First Research Question

Which aspects of the present English language course (goals, content, materials used, technology involved etc.) in engineering colleges of Indian state of Orissa need to be modified to meet the engineering students communicative needs to apply it in real life situations?

- Interactive sessions for developing communication skills

- Exposure to job related skills

- Practice in grammar and basic LSRW skills

- Usage of relevant software for developing language skills

- Internet integrated language activities

Teachers' Views on the Second Research Question

What are the academic needs and professional needs of the engineering students at different engineering colleges in the Indian state of Orissa?

Needs of Changes in--

a) Teaching methodologies (individual attention, challenges of mixed ability classes)
b) Teaching resources (identifying learning styles, using relevant software etc
c) Professional development programs to train engineering students (training in latest visual aids, designing activities for the language labs, integrating technology etc.

Teachers' Views on the Third Research Question

Does the English language syllabus in the engineering colleges meet students' academic and professional needs?

The collated data thus identifies the academic and professional needs that are not being met in the language learning context as

a) Provision for latest ICT integrated learning resources
b) Training in interview skills
c) Exposure in job related skills
d) Practice in developing soft skills
e) Practice in group discussions etc
f) Technical English skills especially writing skills using latest technology

Conclusion

The findings of the study indicate that engineering students need not only linguistic competence in English, but also certain life skills and technical skills related to language learning that need to be included into the syllabus to handle real-life situations on completion of their engineering course. This study thus probed the fulfillment of ELT related goals with reference to the context of engineering studies in Orissa. The existing syllabus of Communicative English course fulfils the goals and objectives only partially and the following needs are to be addressed immediately to improve the quality of ELT in the engineering programs.

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The researcher drew the following conclusions from the findings of the study and theoretical propositions of the related literature:

1. One of the important goals of the Communicative English course is to equip the students with proper communication skills for effective usage in everyday situations and also to manage future workplace situations. The analysis of the data collected from students reveal that this goal has been achieved only partially and the teaching and learning practices are to be reoriented to improve the outcome.

2. The course on Business English prescribed for the Second semester students is quite ambitious in that it aims at exposing the students to actual work-place environment. It consists of formal and informal communication training, exposure to various English speaking accents, creative activities, project reports etc. Since the activities have not been specified in the syllabus, many teachers prepare their own teaching materials to attain these goals.

3. The students who have undergone the corporate readiness lab in the Third semester under Biju Patnaik University of Technology (BPUT) also gave various responses. The students are expected to be exposed to workplace situations, at least through simulations if not in real terms and get initiated into the corporate culture. Though the objectives are praiseworthy, the implementation suffers from various roadblocks due to lack of teacher training and proper infrastructure.

4. Needs assessment of the students with regard to their schooling background, previous language competency, language learning capability etc. should be taken up before the beginning of the course. Needs analysis through written questionnaires or formal discussions may be conducted and the syllabus modified to make it flexible to suit the needs of the learners. Ultimately, the teachers have to be curriculum designers. (Berwick, 1989).

5. The absence of linguistic competency assessment before the beginning of a language training program disadvantages students who have no exposure to basic language skills. The basic language skills such as listening, speaking, reading and writing should be practiced in classrooms and teachers have to provide personal attention in developing these skills in a systematic way (Krashen, 1992) This can be attempted in the lab classes where time constraints do not stand in the way. Therefore, appropriate measures from this stand point should be taken into consideration.

6. Choice in doing assignments should be provided to make the learners autonomous (Nunan, 1995). Students need guidance and constructive feedback so that they could evaluate the activities they involve in, by themselves. This can be done through self-evaluation or peer evaluation. Teachers can adopt measures as per available classroom conditions to evaluate the activities and finalize the results. Teachers should adopt an ongoing assessment strategy. This step could increase the motivational levels of the students to achieve the targeted goals of learning.

7. The findings reveal that students are in urgent need of soft-skills training for personality development, training in interview-skills, intra and interpersonal communication etc. This would help them to develop their self-esteem and attend job interviews and communication tasks related to project training. English teachers can take the lead to manage these centers. "The teachers should learn to be facilitators, not instructors and help learners take responsibility for their own learning." (Larsen and Freeman, 2000, p.53). This shall suit different learning needs of students if the teachers follow interactive, supportive and co-operative teaching techniques.

8. The teachers' proficiency in handling such sessions would highly rely on the orientation they receive from experts. This would improve the employability and humanistic faculties of future engineers. Teachers need to practice differentiated instruction to suit varying learning styles of students (Tomlinson, 2001). The teachers may be trained in pre-service/in-service situations to design suitable lessons/tasks/activities/learning

resources and materials to suit this purpose (Hubbard & Levy, 2006 cited in Asmari, p.4). This shall suit different learning needs of students if the teachers follow interactive, supportive and co-operative teaching techniques.

9. The engineering colleges of Orissa follow the traditional mode of assessment that conducts written examinations during each semester at the college level and at the end of each semester by the University. The assessment of tasks and activities, supposed to be taking place in the lab classes, which carry half of the credits in English subject, suffers from several frailties due to the inbuilt failures of the prevailing assessment mechanism. As no feedback is taken systematically, corrective methods of teaching are not employed often and thereby individual attention is hampered.

10. The need for individual attention and learner autonomy has been rightly stressed by students, especially, final year students during the survey. Learner autonomy, which is the key to cater to a mixed-ability class (Tarone & Yule, 1989), is not being addressed now. Most students do not get proper guidance to complete the assignments given to them in the lab classes nor get adequate feedback as a result of which they are unable to rectify the errors.

11. The teacher can create positive learning experiences once the teacher is trained to select suitable materials and design lessons and worksheets as per the needs of the learners. Teachers should promote students to reflect on their strengths and weaknesses. The teacher can design group tasks and conduct peer assessment and hence use appropriate learning resources on these lines. Group activities can be conducted with a variety of practice exercises in selected areas of grammar, vocabulary, reading and writing (Tickoo, 2003).

12. English classes should include tasks that involve technology related activities like e-mails, chats, online discussions, power point presentations, video conferencing, and use of internet. The need of acquisition of good communication skills is international in nature. Therefore, the present English course in engineering syllabus needs to develop a

set of generic skills along with technical skills forming the part of graduating engineers' academic and professional development (Bottino, 2004; Topolovac, Marinovic & Pavlic, 2008).

Recommendations

On the basis of the recent research findings, the author recommends to researchers, ESP teachers, curriculum designers, college administrators and policy makers:

1. The researcher recommends that the English syllabus include tasks that reinforce the achievement of generic skills/life skills like leadership skills, teamwork, critical thinking and problem-solving abilities along with effective communication skills. To develop professional competence the awareness of social and cultural aspects related to the engineers' workplace can be exercised in the classroom by selecting authentic materials. The teachers of English can take the lead in organizing such interactive sessions and work on it successfully in follow-up sessions. Such exercises are useful to strengthen the communicative competence of students. When they face real life situations in future, they would be able to handle it with ease.

2. If the students are provided facilities and guidance in developing technical English skills with proper orientation and practice they can develop a broad perspective to face future workplace needs. Exposure to corporate culture, interaction with experts from business and industry, management experts, academicians specializing in various fields, scientists and technologists can empower engineering students to be better communicators in their workplaces. The teachers of English can take the lead in organizing such interactive sessions and work on it successfully and conduct follow-up sessions if necessary.

3. The researcher recommends the ESP teachers to give ample practice to students in lab classes to give power point presentations, report writing, project report preparation etc. individually and in groups. Software relating to corporate etiquettes, communication, documentation, presentations, interview sessions, or selected movies with related themes

etc. should be made available in the language laboratories/LLCs and students should be able to access it in their own time.

4. Group discussions on different facets of corporate culture, current affairs, technical topics, debates, elocutions, extempore talks relating to corporate/business topics, slogan/poster writing competitions, write ups for commercial advertisements, simulated Board Meetings etc. can be organized by students so that they will be in touch with corporate environment. These activities would be of help in promoting oral communication and workplace communication skills.

5. The researcher recommends a continuous evaluation system that gives scope for improvement. In engineering context, portfolios or e-portfolios of assignments conducted need to be maintained. The fairness of the assessment can be maintained by reducing the number of questions on the assessment, making the feedback process simpler.

6. Professional development of the teachers of English is one of the most neglected aspects in engineering colleges of Orissa. There is the need to establish a Resource Centre at the university level for imparting training in language teaching by integrating technology. It is better for teachers new to language teaching to appear a pretest based on communication skills before they get absorbed for teaching Communicative English. Teachers need to be trained in syllabus design, material production and formative assessment systems in Communicative and Business English aspects so that they can apply these in classrooms.

7. It is recommended that other researchers conduct additional needs analysis studies to find out the English language needs of students in different schooling stages. In addition, the researcher recommends other researchers to conduct needs analysis studies of other subjects also, so that the teaching learning system in India gets strengthened in the process.

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STUDENTS' QUESTIONNAIRE

No………..
Dear students,

This questionnaire is designed to collect information regarding a needs-based approach to English language teaching for engineering purposes. This survey tries to find the specific needs engineering students have in learning English.

Thank you for your kind co-operation. **Priya S**, Research Scholar, Dept of Humanities and Social Sciences, National Institute of Technology (NIT), Rourkela, Orissa.

I.   Items (1-10) Tick any one from the five options (1-2-3-4-5) given below (Disagree to Agree)
II. Items (11-20) and
III. Items (21-28) - Tick any one option from the given columns (1-2-3-4-5) (Never to Always)

1. Name of the college 2 Semester………………3.Branch   4.Higher Secondary Board……………5 Native Place……………… 6.Urban/Semi Urban………………

Items	Content	Disagree	Disagree to some extent	No idea	Agree to some extent	Agree
1	English syllabus is overloaded to be completed in the time-duration provided.	1	2	3	4	5
2	I need to be assisted individually to understand the new concepts included in the syllabus.	1	2	3	4	5

3	Goals and objectives of the course, as understood by me, are not achieved even after course completion.	1	2	3	4	5
4.	I was given enough practice in listening skills through the audio visual mode.	1	2	3	4	5
5.	I gained confidence in speaking English fluently after attending English classes.	1	2	3	4	5
6.	The institution/teacher provides us with a wide range of books, journals, magazines and fiction in English to be read by us.	1	2	3	4	5
7.	I was given enough practice in writing technical documents.	1	2	3	4	5
8.	Theory classes in English are not necessary for us.	1	2	3	4	5
9.	Language lab sessions should be continued throughout the engineering course.	1	2	3	4	5
10	English classes need to be learner -centered.	1	2	3	4	5

Item		How frequently I need it (1.never.2.seldom 3.no idea 4.occasionally 5.always)	How far college fulfills this need (1.never.2.seldom 3.no idea 4.occasionally 5.always)
11	Proper guidance to our assignments according to our capabilities.	1 2 3 4 5	1 2 3 4 5
12	Our previous background/knowledge of English to be considered while doing tasks and assignments.	1 2 3 4 5	1 2 3 4 5
13	I need to understand & enjoy doing activities/tasks in the language lab.	1 2 3 4 5	1 2 3 4 5
14	I need to be given learning materials, software and resources in language labs.	1 2 3 4 5	1 2 3 4 5
15	Oral tests need to be properly instructed and assessed.	1 2 3 4 5	1 2 3 4 5
16	Students need to be given freedom and variety of options in doing written assignments.	1 2 3 4 5	1 2 3 4 5
17	Students need to be oriented to take responsibility of their personality development.	1 2 3 4 5	1 2 3 4 5
18	Role-plays /skits are to be conducted in the language lab.	1 2 3 4 5	1 2 3 4 5
19	Opportunity to participate in different team activities like group discussions/job-interviews/mock meetings etc in the language lab.	1 2 3 4 5	1 2 3 4 5
20	The assessment of activities need to give constructive feedback (both positive and negative feedback) to students and help them identify what students have already learnt and what they need to learn.	1 2 3 4 5	1 2 3 4 5

21	Interactive sessions with industrial/ corporate experts at regular intervals.	1 2 3 4 5	1 2 3 4 5
22	Proper practice in drafting/writing project related documents.	1 2 3 4 5	1 2 3 4 5
23	To be given opportunity to understand the culture and customs of other states/countries.	1 2 3 4 5	1 2 3 4 5
24	Read and respond to technical documents & materials to gain enough technical English vocabulary.	1 2 3 4 5	1 2 3 4 5
25	Analyze and write notes/summarize numerical and graphical data.	1 2 3 4 5	1 2 3 4 5
26	Use internet for language learning in classrooms.	1 2 3 4 5	1 2 3 4 5
27	Critically evaluate data/information to take decisions. (Decision making skills).	1 2 3 4 5	1 2 3 4 5
28	Develop the ability/skill to take initiatives in group activities (Leadership skills).	1 2 3 4 5	1 2 3 4 5

IV.   29.   Please mention how you would like English to be taught in your college?

(Mention number of hours, skills, readings, exercises, or resources etc   you need)

TEACHERS' QUESTIONNAIRE

Dear Teachers,

This questionnaire seeks to examine the relevance and requirements of resource materials and training in technology based classroom teaching to impart quality teaching in English in engineering institutes of Orissa.

I request you to kindly contribute your views, ideas, and share your rich experiences in this area. Your valuable and informative suggestions may be noted below:

Thanks for the kind cooperation, Priya. S, Research Scholar,NIT, Rourkela**.**
Email-preyapillai@gmail.com

I.   How often do you do the following activities in your regular teaching?

1-never   2-seldom   3-sometimes 4-often   5-always

a. (   ) Practice grammar and conducting error analysis sessions.

b. (….) Teach vocabulary related to professional English.

c. (….) Make use of various software for enhancing listening skills.

d. (….) Carry out group discussions, mock interviews, mock meetings and oral presentations.

e. (….) make students read out passages, news-items, poems, stories etc. for them to acquire right stress, intonation &punctuation.

f. (….) Practice business writing skills with latest language learning software.

g. (….)Promote paper presentations and poster presentations.

h. (….) Conducting internet related activities

II. Please indicate how far you agree with these statements

		1.Strongly agree	2- agree	3-disagree
1.	The English curricula for technical students should be extended to further semesters and designed as English for Specific Purposes (ESP) and English for Occupational Purposes (EOP).	1	2	3
2.	Highly interactive professional development programs should be made mandatory for the teaching community.	1	2	3
3.	Online teaching resources that deal with classroom practices and applications in language teaching and learning should be made accessible for the teaching faculty.	1	2	3
4.	The present English curricula need to include activities based on intrapersonal and interpersonal skills.	1	2	3
5.	Teachers can create a positive learning environment for students.	1	2	3
6.	Teachers should interact with syllabus designers and resource persons at regular intervals.	1	2	3
7.	The centrally driven examination system does not develop necessary language skills in learners to face the real life situations.	1	2	3
8.	Teachers are well-trained in the syllabus contents that they deliver in the classroom context.	1	2	3
9.	Teachers are not empowered to implement or improve pedagogy and so are resisted to innovation.	1	2	3
10.	There is the need of a core committee of experts in ELT to discuss issues and solve problems faced by students and teachers.	1	2	3

III. Please give your valuable comments on the following statements

1.	Teaching of English skills should be continued as a practice oriented course throughout the engineering curricula to match global standards.	Yes/No Why?
2.	Training in latest teaching technologies is neglected for English teachers in Orissa.	Yes/No Why?
3.	The mode of conducting English lab sessions differs in quality from college to college and teacher to teacher.	Yes/No Why?
4.	The motivation to learn English skills highly rely on the mode of assessment and thus needs to be restructured	Yes/No Why?
5.	Lack of uniformity in salary structure for English teachers in engineering colleges discourages professional development.	Yes/No Why?

IV. List three major needs of students of your college in learning Communicative English and Business English courses.

1………………………………………………………………………………………………………

2……………………………………………………………………………………………………….

3……..

Appendix – III

Validation Committee for the Students' and Teachers' Questionnaires

1. Dr. BhaswatiPatnaik, Associate Professor, Department of Humanities and Social Sciences, National Institute of Technology, Rourkela.

2. Dr. Jalandhar Pradhan, Assistant Professor, Department of Humanities and Social Sciences, National Institute of Technology, Rourkela.

3. Dr. Akshay Kumar Rath, Assistant Professor, Department of Humanities and Social Sciences, National Institute of Technology, Rourkela.

4. Dr. NiharRajan Mishra, Assistant Professor, Department of Humanities and Social Sciences, National Institute of Technology, Rourkela.

5. Dr. R.K Biswal, Assistant Professor, Department of Humanities and Social Sciences, National Institute of Technology, Rourkela.

6. Prof Arun Kumar Rath, Assistant Professor, (English), Department of Humanities and Social Sciences, MITS Engineering College, Rayagada, affiliated to BPUT.

7. Prof D.S.Pillai, Professor ,(English), Department of Humanities and Social Sciences, MITS Engineering College, Rayagadaaffiliated to BPUT.

8. Mr.SanyasiPradhan, Assistant Professor, (English), Department of Humanities and Social Sciences, MITS Engineering College, Rayagada,affiliated to BPUT.

Classroom Experiment Conducted During a Language Lab Session at NIT, Rourkela.

Task Conducted Based on Fiction- Integrated Language Learning (FILL) Approach

SECTION -1

(Individual task/ Group task)

1. Create an informal conversation between a friend who is passionate and the other who is obstinate?(Linguistic intelligence/word smart)

2. Make a list of the words or phrases used to express various emotions in the story and analyze each character's different emotions expressed to draw conclusions. (Mathematical Intelligence /number smart)

3. Based upon the central theme of the story write a poem/song as to be put in your wall magazine?(Music smart)

4. Role –play /Act any part of the story(Kinesthetic Intelligence/Body smart)

5.Create a poster (pencil sketch) based on the main theme of the story(Spatial Intelligence/Picture smart)

6. Discuss a similar theme as you visualized in a movie or tele-serial highlighting the role of the central characters. (people smart)

7. Write a similar incident that one of your friends (imaginary) had undergone and the consequences thereafter. (Intrapersonal Intelligence/self-smart)

8. Identify and note the sentences used to present "nature" in the story. Describe a similar or different setting? (Naturalistic Intelligence/Earth smart)

Assignment- 2

CULTURE INTEGRATED LANGUAGE LEARNING (CILL)

TOPIC-----INTERCULTURAL AWARENESS

Name …………….. Roll No……………………………………. Date……………..

Individual Task

I. Write a brief note on Russia

………………………………………………………………………………………………………
………………………………………………………………………………………………………
………………………………………………………………………………………………………
………………………………………………………………………………………………………

2. Make a comparative study of Russia and India.

Contrasts   Similiarities……………………………………………

………………………………………………………………   ……………

………………………………………………………   ……………………………   …………………………

…………   ……………………………………………………………………   ………

………………………………………………………………………   ……………………………………………………

…………………

Group Task

Imagine that you had been to Russia on a mission related to your hobby/dream job. Now you are back to India. You are asked to give an oral presentation on the details of your purposeful visit.

(You can assume the role of an artist/designer, athlete, journalist, scientist, music composer, entrepreneur, researcher, or an environmentalist or any other area of your interest.)

Students have choice to give the group presentations in different modes like ………

1. Verbal….narrations, commentaries, reports, skits, poems, songs etc

2. Visuals….pictures, posters, graphs, charts etc

3. Non-verbal---mimes, sound effects, music etc

BRIEF OUTLINE: The students after discussion need to give a brief outline of their individual role in the space mentioned below.

……………………………………………………………………………………

……………………………………………………………………………………

Assessment Pattern:

1. It is necessary that the theme of the presentation would focus on Russian culture.

Peer/Group Assessment

Each group member has to evaluate the other groups giving the presentation. Marks can be awarded on the scale of 1-10.

Group-1…………………… Group-2……………………

Group-3…………………… Group-4……………………

Group-5…………………… Group-6……………………

Feedback form

Give your feedback on the following points

Section-1

1. The choice of tasks encourages learning tasks ---Yes/No

2. This activity promotes individual attention----- Yes/No

3. Learner autonomy was encouraged to the maximum. Yes/No

4. Did you find the evaluation method flexible and positive? Yes/No

5. Tasks conducted in groups were better than individual learning. Yes/No

Section -2

1. Would you prefer these types of activities to be included in your English syllabus?
2. Did the teachers' guidelines help you to do tasks in a better way?

3. What are the problems you faced in deciding the tasks that you could work upon?

4. Please give some suggestions to improve this activity.

5. Please describe what went well and what did go wrong with this activity in your class?