Analysing Target Needs of the Students and the English Courses for Bachelor's of Engineering at Engineering Institutions of Rawalpindi/Islamabad

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Analysing Target Needs of the Students and the English Courses for Bachelor's of Engineering at Engineering Institutions of Rawalpindi/Islamabad

BY

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THESIS SUBMISSION/APPROVAL FORM

(SUPERVISOR)

The thesis entitled "Analysing Target Needs of the Students and the English Courses for Bachelor's of Engineering at Engineering Institutions of Rawalpindi/Islamabad" written by Ameer Sultan, a candidate for Mphil degree in English, has been read by me and has been found to be satisfactory regarding contents, English usage, format, citation, bibliographic style and consistency, and is ready for submission to the Department of English, Faculty of Languages and Literature (FLL), International Islamic University, Islamabad for internal and external evaluation.

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candidate of Master of philosophy at the International Islamic University, Islamabad do hereby declare that the thesis "Analysing Target Needs of the Students and the English Courses for Bachelor's of Engineering at Engineering Institutions of Rawalpindi/Islamabad" submitted by me in partial fulfillment of M phil. degree in the department of English (FLL), is my original work and has not been submitted or published earlier. I also solemnly declare that it shall not, in future, be submitted by me for obtaining any other degree from this or any other university or institution.

I also understand that if evidence of plagiarism is found in my thesis/dissertation at any stage, even after the award of a degree, the work may be cancelled and the degree revoked.

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Ameer Sultan

(Acceptance by the Visa Voce Committee)

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DEDICATION

I dedicate this work to my beloved mother whose prayers have been protecting me from the turmoil of life. I also dedicate this work to my elder brother Malik Amir Anwar Awan who took the responsibility of my education after the untimely death of my father.

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ABSTRACT

English for Specific Purposes (ESP) is relatively a new approach in the area of English Language Teaching (ELT) in Pakistan. Engineering English is different from General English that involves a particular genres having lexico-grammatical usage of terms and phrases exclusively related to science and technology. The language of communication among the community of this field is typically different from normal literary or colloquial discourse. This area has not attracted the attention of researchers. This present research has investigated the communicative needs of the students at workplace. The study also focuses on the effectiveness of English courses taught at the engineering universities of Pakistan. The input to this research comprised empirical data collected through questionnaires, open-ended interviews and structured classroom observation in the five engineering universities of Rawalpindi/Islamabad. The findings show that there is need to evolve a syllabus in accordance with the immediate and future needs of the engineering students. Learner centered teaching methodologies and trained teachers are the immediate "wants" of the engineering students. It is recommended that the syllabus may be revised by involving English language teachers and prospective employers.

CHAPTER 1

INTRODUCTION

English has gained the status of international language around the globe. Pakistan inherited this language as a result of British colonial rule over subcontinent. It is the official language of the country and key to success. Since most of the published literature in science and technology is in English; its knowledge is pivotal to sustain in the scientific world.

Though the importance of Communication Skills could not be undermined any field but its role in the field of Engineering and information technology is crucial. It is very difficult for young engineering students to shape thoughts in foreign language. The task becomes more difficult when the students have to write in a foreign language for specific purposes. The students need linguistic competence and communication skills at work place and to pursue higher education in the field of Engineering. Even the professional engineers are required to refresh their communication skills to keep themselves updated with the latest development in their field. Since most of the published literature of science and technology is available in English language, it is mandatory for engineers, irrespective of their geographical boundaries, to have good communication skills to excel in their respective field of specialization. A modern highly qualified engineers is expected to have well-developed communication and high English language proficiency to get efficient opportunities for competitiveness and success in the global work arena.

English is not the native language of Pakistani students and they face difficulty in expressing themselves. Oakley, Barbara; Connery, Brian and Allen, Kristine (1999) observes the poor writing skills of graduating engineers in USA "one of the most common complaints from industry about graduating engineers is their poor writing skills. Reports, for example, are poorly written, rife with misspellings, redundancies, and grammatical errors" (p.1). If this is the condition of native speakers, then the condition of foreign language learners can be even worse. The low standard of English language teaching at secondary and higher secondary level is another factor why the students of engineering are not so good in English as they come from government schools and colleges which are considered to be lower in language proficiency as compare to the private sector schools.

1.1 Aim

The aim of the study is to review the effectiveness of existing ESP courses taught to Bachelors of Engineering students in Pakistan.

1.1.1 Objectives

The researcher will endeavour to achieve the following objectives.

a. To evaluate the effectiveness of the courses.
b. To assess the appropriateness of the syllabi with reference to future needs of the students.

1.2 Engineering Profession in Pakistan

In this section the importance of engineering profession in Pakistan is discussed and then role of English in engineering profession/education followed by the status of engineering education followed by.

1.2.1 Importance of Engineering Profession in Pakistan

Engineers play an important role in the development of a country. The role of an engineer is to apply the theories of science for the betterment of human beings. Engineering is a specific kind of science and it is applied in its nature. In this regard Bunge draws a line between science and engineering.

> But the line must be drawn if we want to account for the differences in outlook and motivation between the investigator who searches for a new law of nature and the investigator who applies known laws to the design of a useful gadget: whereas the former wants to understand things better, the latter wishes to improve our mastery over them investigator who applies known laws to the design of a useful gadget.
> (1996, p.330)

This shows that an Engineer is the person who practically implements the theories of science. Thus, in this era of science and technology and after worldwide spread of telecommunications, it is imperative for a developing country like Pakistan to have highly skilled engineers to keep pace with the technological developments in the world. Therefore, there is need of Civil Engineers for housing industry, construction of bridges and roads. Electrical Engineers are the most important workforce of Water and Power Development Authority (WAPDA). Mechanical Engineers work in automobile industry, oil and gas sector, material science and nuclear technology. Electronics and Mechatronics Engineers develop automated gadgets, Unmanned Ground Vehicles (UGVs), Unmanned Air Vehicles (UGVs), robots of all kinds for industry and defence. They have important share of workforce in telecommunication industry of Pakistan. Computer Engineers are responsible for programming for the gadgets made by Electrical/Electronics/Mechatronics Engineers. Aeronautical Engineers study the air mobility and deal with aircraft and space technology. Chemical Engineers look after the chemical plants and processes. Environmental engineers

develop water treatment plants, air pollution control systems and solid waste management system.

All the above mentioned disciplines of engineering have a very productive role in the development of Pakistan. Therefore, the practitioners of these disciplines are required to have good communication skills and specifically technical report writing. As a result, there is a need to teach ESP to the engineering students at B.E. level for their professional needs.

1.2.2 The Role of English in Engineering Profession

Communication is a two way process of sending and receiving verbal and non-verbal messages. It is considered effective when a sender receives desired response from the receiver. Effective communication skills are expected from an engineer in global setting. There are four important skills as far as communication is concerned and these are; listening, speaking, reading and writing.

Houp, Kenneth .W.; Thomas.E.Pearsall and Tebeaux, Elizabeth (1998) are of the view that an engineer is not simply a person whose only product is a new design or a gadget that works. Writing about what he thought and done is a recurring necessity. Technical writing, strange and difficult as it may seems at first is something that can be learned by anyone or reasonable intelligence and perseverance.

Scientists and engineers may be technically brilliant and creative, but unless they can convince co-workers, clients, and supervisors of their worth, their technical skills will be unnoticed, unappreciated, and unused. From this perspective communication skills are not just handy; they are critical tools for success even survival, in the competitive environment.

Huckin and Oslen (1991) observers that every technical person stands to gain from improving his or her communication skills. Most scientists and engineers work in organizational settings where network is essential. Good teamwork is impossible without good communication. And those scientists and engineers who work independently have to communicate with their clients and sponsors. For many technical professionals, the ultimate product of their work is a written document. If that document is badly written, it reflects badly on their individual involvement and will harm the reputation of the organization. Organizations know this and base their hiring and promotion on the ability of the candidates who have good writing skills.

1.3 Engineering Education in Pakistan

Since the creation of Pakistan there was dire need of professionals in the field of Engineering to boost the technological advancement of the country. NED University, UETs are the pioneer universities in the field of Engineering. In 1970's and 1980's, most of the engineers had Bachelor of Engineering (B.E) degree. For higher education they had to go abroad for getting engineering education. In 1990's and in the start of new millennium, engineering universities in private and government sector have been established in all the provinces of Pakistan.

Moreover, the conversion of University Grants Commission (UGC) into Higher Education Commission (HEC) gave a massive boost to the engineering education. HEC awarded local and overseas scholarships to hundreds of engineering students. Millions of rupees were granted to Engineering universities for Research and Development (R&D). Telecommunication industry offered jobs to engineering students with handsome salaries. Consequently, most of the Pakistani students prefer to go for engineering education after

FSc. While on one hand the HEC is spending these funds on technical education in the area, it is observed that their language skills have been ignored by the academia. Thus there is a need to focus on writing skills particularly the report writing skills of the engineering students.

1.3.1 Degrees Offered

To fulfill the requirements for the degree of Bachelor of Engineering (B.E), a candidate has to complete 134 credit hours in three and a half years. In some universities the duration of B.E degree is four years. Most of the universities offer MS and PhD in Engineering as well. Major disciplines offered at Bachelor of Engineering level are Aerospace, Avionics, Chemical, Civil, Computer, Electrical, Electronics, Environmental, Materials, Mechatronics, Mechanical, and Telecommunication engineering.

1.3.2 Eligibility Criteria for Admission

According to the criteria of Pakistan Engineering Council (PEC), after twelve years of education, a student is eligible for getting admission in B.E. (Bachelor of Engineering). The requirement for admission is FSc (First Examination of Science) with 60% marks. The student should have passed Physics, Mathematics, Chemistry or Computer Science as the major subjects in FSc to get admission in the engineering universities. (http://www.pec.org.pk/regulation_enggedu.aspx)

A candidate for engineering programme has to pass the entry test of university to get enrolled for engineering education. Engineering programme consists of eight semesters (four years). The students have to study Core Engineering subjects and non engineering subjects. According to HEC curriculum Booklet engineering students have to study 67.9% core

engineering courses and 32.1% non-engineering courses in engineering programme at undergraduate level. The PEC recommends in its AC –I (Accreditation-I) Proforma 65% engineering courses and 35% non-engineering courses in the engineering programme. English courses fall under the area of non engineering courses.

1.3.3 Examination System

Engineering Colleges are affiliated with Engineering universities and conduct exams according to the examination system of the respective university. In most of the private and government sector universities, semester system is followed. The exceptions are UETs and NED which follow annual system.

1.3.4 Medium of Instruction

English is the medium of instruction in the engineering universities of Pakistan. The students are required to be proficient in English language to continue and excel in engineering education.

1.3.5 Teaching of English at University Level

It is worth mentioning that most of the engineering universities offer a subject of English/Communication Skills in the First Semester of Engineering Program. Apparently, it is a positive sign and reflects a positive approach of the management of engineering universities towards English language teaching/learning.

At present most of the engineering universities in Pakistan are offering three subjects of English, that is, Functional English, Communication Skills and Technical Report Writing. The credit hours dedicated to these courses are less as compare to other subjects. In most

cases the university dedicates two credit hours to Communication Skills and only one credit hour to Technical Report Writing.

The course guidelines (Appendix-I), for English courses, given by HEC in the Engineering Programme Booklet are not fully adopted by the engineering universities. For instance HEC has recommended English-I (Functional English), English-II (Communication Skills) and English-III (Technical Writing and Presentation Skills) for engineering students. However, most of the universities follow just two courses which are Technical Report and Communication Skills.

The objectives of English-I (Functional English) are "to enhance language skills and develop critical thinking." The course contents consist of basics of grammar, listening comprehension, and translation from Urdu to English. Listening skill is vital in improving speaking skills. However, there is neither guideline for the contents of listening skill nor explained how the skills should be taught. A translation from Urdu to English also seems unrealistic and does not directly relevant with the teaching objectives.

The objectives of English-II (Communication Skills) are "to enable the students to meet their real life communication needs" (see Appendix-1). Course Contents are comprised of essay writing, paragraph writing, curriculum vitae writing, study skills, translation skills (Urdu to English), letter writing, writing minutes of meeting and presentation skills. The subject of communication skills is general in nature. Curriculum vitae writing can help to apply for the job. Letter writing is mentioned under the heading of academic skills. So the purpose of letter writing is not to train the students in writing business letter. In the guidelines on syllabus, the speaking skills are not included in the subject of communication skills.

The objectives of English-III (Technical Writing and Presentation Skills) are "To enhance language skills and develop critical thinking." Course Contents are essay writing, how to write research paper/Proposal, extensive reading for vocabulary building.

1.4 Reasons for Undertaking the Research project

The engineering universities in Pakistan used to have only one subject of English viz Communication Skills in their engineering programmes before 2006. It appears that the HEC realized the importance of English language for the engineering students of Pakistani universities. The HEC has responsibility of curriculum revision from class XII to PhD as it is mentioned in the HEC Booklet Curriculum Revision (2008) in the following words:

> Sub Section (1) of section 3 of the Federal Supervision of Curricula Textbook and Maintenance of Standards of Education Act 1976 and Federal Government notification No.D773/76-JEA (cur) dated December 4th 1976, appointed the University Grants Commission as the competent authority to look after the curriculum revision work beyond class XII at the bachelor level and onwards to all degrees awarded by degree colleges, universities and other institutions of higher education. (p.4)

In exercise of the powers conferred by the act, in 2008, HEC revised the curriculum of Bachelor of Engineering (BE) in Pakistan. The most significant part of the revision is related to English courses for engineering students. The HEC directed the engineering universities to include three English courses of three credit hours each at undergraduate level.

Technical English is different from General English as Swales (1971) states that the English of Electrical Engineering has specific registers different from other disciplines/subjects. I have also observed during the present study that the teachers and the management of engineering universities consider English courses as a compulsory subject

and do not have understanding of ESP and its importance of communication Skills for Engineers.

The researcher's own experience of working at National University of Sciences and Technology, Rawalpindi, for more than ten years and closely observing the teaching practices shows dissatisfaction of the students about the teaching of English courses. To my knowledge no research has been done in Pakistan regarding English courses of engineering programme at Bachelor level.

1.5 Significance of the Study

Today, increasing emphasis is being put on enhancing the communication component of engineering education. It is widely accepted that engineers in all positions have to be able to communicate the purpose and relevance of their work, both orally and in writing. An attempt has been made to highlight the needs and problems of the students and suggest solutions to these problems and would be beneficial for the students and teachers of English for Specific Purposes.

It is very important for an engineer to communicate effectively in global environment. If an engineer is technically very sound but not proficient in English language he can not get a better job in a competitive market. Even after getting a job, English plays an important role in keeping the job. Good communication skills and specifically technical report writing are indispensable to achieve highest academic standards in higher education.

1.6 Research Question:

Do the present syllabi and teaching methodology of English courses at Engineering Universities of Pakistan at undergraduate level meet the future needs of engineering students?

1.7 Research Design

To achieve the aims and objectives of the research, three questionnaires were designed separately for the current students, those who have recently graduated and the English language teachers at the Engineering institutions. The students of engineering who need English to cope with English at the work place (future needs), practicing engineers (to know what English language skills they need to carry out their responsibilities). To understand the policy of the university management towards teaching English courses, interviews were conducted with the Heads of Engineering Departments. Prospective employers of the engineering students were also interviewed to know the frequency of English usage in the industry and their evaluation of the communication Skills of the new entrants (Engineers). I did four privileged observations of the classroom of the four universities of my population. This helped me to understand the teaching methodology for English courses. If the researcher would have collected data from the students through questionnaire it would have been a one sided view. It is also very important to get feedback from the students through informal discussion. This is one of the efficient ways to understand the complete teaching learning situation. On the basis of results and findings, recommendations are made for the improvement of syllabi and methodology of teaching English courses to engineering students in Pakistan.

1.8 Delimitation

The data for the present study was collected from the five universities. The scope of the study may be extended by including more institutions.

1.9 Conceptual Framework of the Study

The study is focused on Needs Analysis Model introduced by John Munby and refined by Hutchinson and Walters. The input includes variables such as: educational background, age, gender and proficiency in English. The distribution of questionnaire, interview and class observation provide necessary information for this study. The process includes the data collection from the respondents and interpretation, evaluation and analysis based on the students views about current practices in English courses offered at the Engineering programme. The output of the study addressed the research question (for detail, see Figure 1.1).

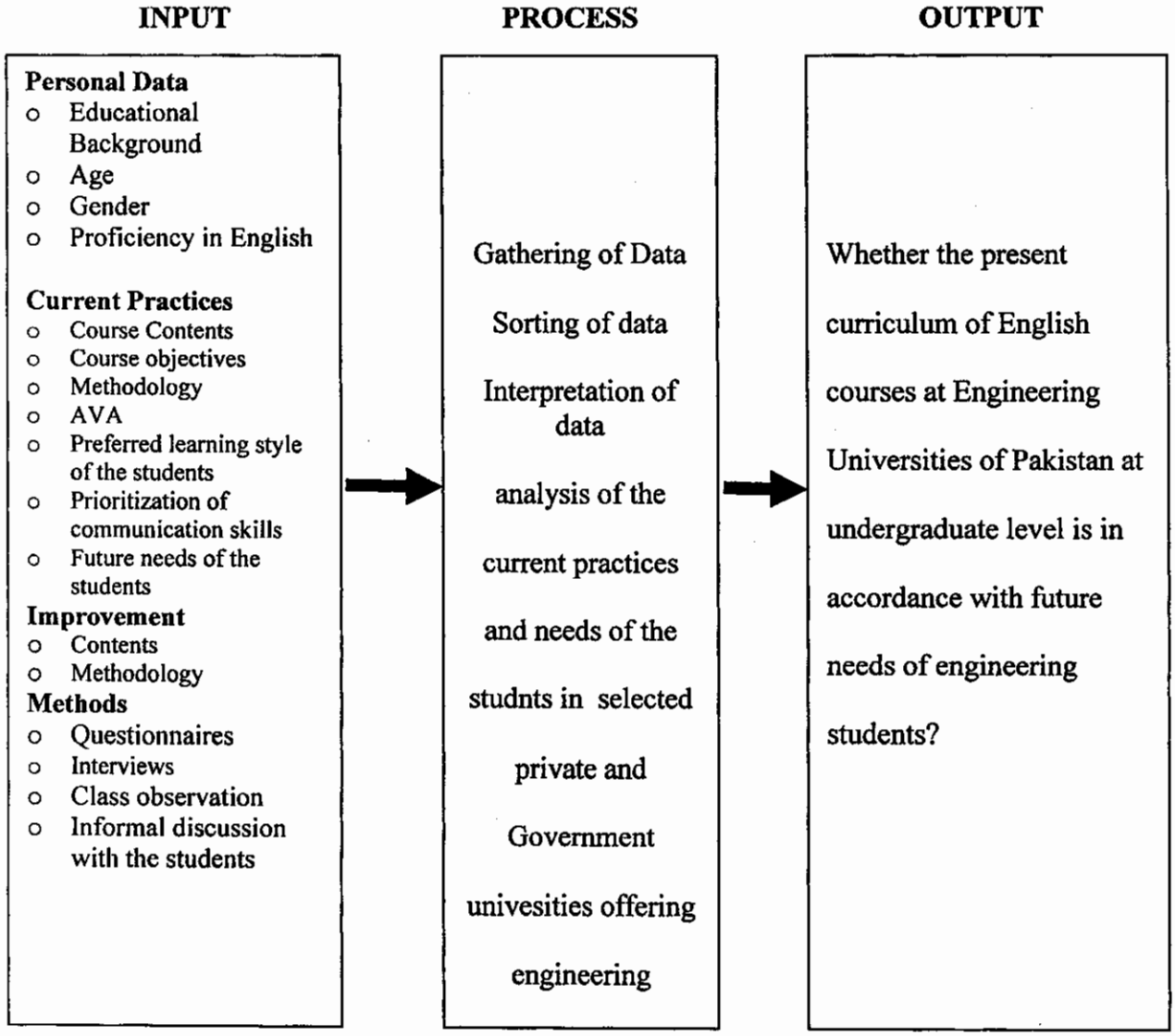

Figure 1.1 Paradigm of the Study

CHAPTER 2

LITERATURE REVIEW

This chapter is divided into four parts. The first part introduces the ESP and its different branches. The second part describes Needs Analysis and Technical Report Writing. The third part covers teaching methodology and the research work carried out in the ESP.

2.1 What is English for Specific Purposes (ESP)?

After World War-II, English gained the status of international language. Hutchinson and Walters (1987) are of the view "English suddenly became big business and commercial pressure began to exert an influence" (p.7). The language teachers and researcher realized that general English can not cater the needs of different professions. In 1960s and 70s researchers endeavoured to differentiate among the different varieties of English.

Munby (1979) emphasizes the central role of learner in language learning. His approach was contrary to traditional teacher centered approach. Previously, the teacher was the centre of interest but with the paradigm shift in approach, the learner became the centre of interest and an important stakeholder in the process of syllabus design and teaching methodology. Hutchinson and Walters (1987) also opined that the new developments in educational psychology paved the way for the rise of English for Specific Purposes (ESP) and learner centered approach. The syllabus should cater to the needs and wants of the

students. These developments contributed to the rise of ESP in language teaching. As Johns and Machado observed:

> ESP is a movement based on the proposition that all language teaching should be tailored to the specific learning and language use needs of identified groups of students --- and also sensitive to the socio-cultural contexts in which theses students will be using English.(2001,p.43)

Hutchinson and Walters (1987) are of the view that ESP has undergone three main phases of development. In the first stage, the emphasis was on register analysis, then comes the phase in which the emphasis was on rehetorical or discourse Analysis. The third phase has seen the emphasis on target situation analysis. In the next phase the focus was language itself, its internal structure and underlying processes. The fifth stage of ESP development- the learning centered approach is the latest one. The ESP has been a burning and controversial issue among academicians. The academicians have different approaches and definitions about ESP according to their understanding. First of all we should know what ESP is not. According to Hutchinson & Walters (1987):

ESP is not a matter of teaching 'specialized varieties' of English.

ESP is not just a matter of Science words and grammar for scientists.

ESP is not different in kind from any other form of language teaching.

(p.18)

Johns and Evan (1998) gave a comprehensive definition of ESP . They also tried to differentiate ESP from General English.English language teaching which is

I. Absolute Characteristics

- ESP is defined to meet specific needs of the learner;

- ESP makes use of the underlying methodology and activities of the discipline it serves;
- ESP is centered on the language (grammar, lexis, register), skills, discourse and genres appropriate to these activities.

II. Variable Characteristics

- ESP may be related to or designed for specific disciplines;
- ESP may use, in specific teaching situations, a different methodology from that of general English;
- ESP is likely to be designed for adult learners, either at a tertiary level institution or in a professional work situation. It could, however, be for learners at secondary school level;
- ESP is generally designed for intermediate or advanced students;
- Most ESP courses assume some basic knowledge of the language system, but it can be used with beginners (1998, pp4.5).

Keeping in view the above characteristics of ESP it is evident that ESP is an approach of langauge teaching in which the teachers/educationists keep in mind needs of the students while designing syllabus for them. Hutchinson and Walters (1987) are of the view that "ESP must be seen as an approach not as a product" (p.19). Simply speaking, it is an approach which is based on learner needs. Keeping in view the scope of ESP, if we analyse the English for Engineering students it is necessary to teach the studnets in accordance with their communication needs. To be more precise English courses should help the students to use language effectively in their professional life. This appraoch should be adopted to designn syllabus for engineeing studnets.

The history of ESP has been overocuppied with needs analysis and material development. Johns and Evans (1991) argued about ESP as "It has tend to be a needs- and materials-led movement, However, with the learner- centered bias of Hutchinson and Waters (1987), interest in methodologies has increased" (P.305). Therefore, teaching methodology has become an integral part in learner centered needs analysis

2.2 Classification of ESP

ESP is a growing field and expanding day by day tailoring the needs at universities and at work places (See Figure 2.1). It has been traditionally divided into two major types based on the question: whether the learner requires the course for educational purposes or Ocupational purposes. The detail of these two types is given in the next section.

2.2.1 English for Academic Purpose (EAP)

Enlgish for Academic Purposes (EAP) is of great improtance in the modern world. The variety of English required by the students to comprehend academic texts and ability to express themselves in academic English. Without good command over Academic English a student can not succeed in university exams. He/She can not write thesis in accordance with the university requirements. The student can not share his research/ findings with rest of the world.

2.2.2 English for Occupational Purposes(EOP)

The second important area is English for Ocupational Purposes (EOP). The student of a professional degree is required to comprehend and express himself in specific language. In other words it is the variety of English which is required to be learnt by a student of professional degree/diploma to work effectively at work place. The example of EOP is English for Businees, English for Doctors, English for Technicians, English for Hotel Managers, English for Banking, English for Air Traffic, English for Engineers and English for scientists/computer professionals.

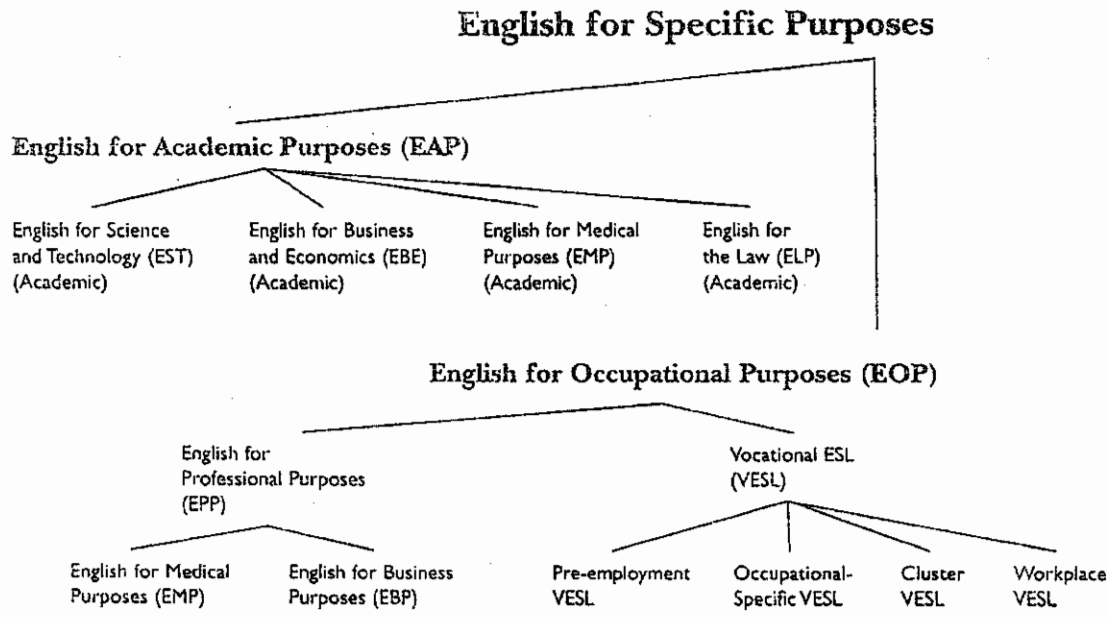

Figure 2.1 Classification of ESP Categories John & Machado (2001, p.44)

Since ESP courses are learner centered, the first step to evaluate or design the course is Needs Analysis. What are the needs and wants of the learners?

2.3 Needs Analysis and Effectivenss of a Course

Needs Analysis is an important step before running an ESP course. Songhori (2008) emphasized the importance of Needs Analysis in the following way: " Needs analysis (also known as needs assessment) has a vital role in the process of designing and carrying out any language course, whether it be English for Specific Purposes (ESP) or general English course"(P.2). Needs Analysis is an important step in designing a language course. Its importance in course desgin can not be undermined. Michael (2005) hs emphasized it in the following way:

> There are growing demands for accountability in public life, including education. In foregin and second language teaching, one

> of several consequences is the increasing importance attached to careful studies of learner needs as a prerequisite for effective course design. (p.1)

ESP is a learner centred approach to syllabus design . Needs Analysis is first step and back bone in designing/evaluating syllabus and understanding the needs of the learners. In the theoratical frame work of Munby (1978) communication needs have the dominance over other factors. According to Hutchinson and Walters (1987) ESP is different from General English in many ways. The most important thing is "not the existence of a need but rather an awareness of the need" (p.53). Nunan (1988) is of the view that Needs analysis covers" techniques and procedures for obtaining information from and about learners to be used in curriculum development" (p.158). Needs analysis research helps in developing a curriculum in EAP/ESP.

> Needs analysis research in English for academic purposes (EAP)/ English for special purposes (ESP) is mainly descriptive. Researchers identify and describe existing elements of the target situation to provide the basis for curriculum development. (Benesch,1996, p.723)

Needs Analysis is a first step towards developing curriculum. It could be used to bring improvements in existing syllabus/methodology. Since it is about the wants of the learner. It covers different aspects.

> As ESP delves deeper into students' needs and extends beyond its traditional EAP base, there will be an increasing need for research into the nature of discourse, written or spoken, that must be produced or understood by those enrolled in ESP courses. (Evans & John, 1998, p.307)

Communicative needs of the students is the hallmark of needs analysis. In most cases needs analysis is conducted to know the future needs of the students. Kaewpet (2009)

observe that "The most important aspect to keep in mind when running ESP courses is that the course content should consist of material that the learner can authentically use outside class" (P.1). Few needs of the students may be similar but there are certain variables which determine the needs of the studnets. MacGrath (2002) is of the view that age range, proficieny level in the target language, first langauge,academic and educational level,socio-culutral background, occupation (if relevant), reasons for studying the target langauge, attitude to learning (including attitudes to the language, the teacher, the instiution), language learning aptitude, general expectations (of course/textbook/teacher/ own role), specific wants, preferred learning style, sex distribution and interests of the students must be considered in conducting effective needs anlysis(p.19).

Hutchinson and Walters (1987) differentiate between learning needs and target needs. What learner need in the target situation (at work place) is called target needs and what they need to learn to accomplish this task are learning needs. They further divide the target needs in necessities (work place requirement), Lacks (the gap between the target proficiency and existing proficiency) and wants (what they want/expect from the course).

One can not conduct effective needs analysis without the knowledge of target situation. Munby (1979) has presented a model for conducting needs analysis. His model is comprehensive and specifies the uses of language learners encountered in a particular situation. The checklist for conducting needs analysis is a convenient way. The framework given by Hutchinson and Walters (1987) for analyzing needs is appropriate for most of the researchers of ESP courses.

> The questions for conducting needs analysis are: why are the learners taking the course, is it compulsory or optional. Are statuses, money, promotion involved? What do learners think they will achieve? What is their attitude towards the ESP course? How do the learners learn? What is their

> learning background? What methodology will appeal to them? What sorts of techniques are likely to bore/alienate them? number and professional competence of teachers, attitude of teachers to ESP, teachers' knowledge of and attitude to the subject content, materials, aids, opportunities for out of class activities, age/sex/nationality of the learners, what do they know already about English? What teaching styles are they used to? (ibid, p.62-63)

After getting the data from the learners regarding these questions a researcher can determine the effectiveness of the course. Since the aim of the research is to review the effectiveness of existing ESP courses in professional development of engineering students of Pakistani universities, the researcher has formulated the questionnaire keeping in mind the current practices of English teaching and target needs of the students.

Good communication skills and proficiency in technical report writing are expected from graduate engineers. Proficiency in four skills (Listening, Reading, Writing, Speaking) is a criterion for good communication skills and also a criteria to measure the effectiveness of a language course. But an engineer has to be proficient in communicating technical information. The next section is about the nature of technical report writing and its importance for engineering students.

2.4 What is Technical Report Writing

Technical writing is essentially a problem solving process that involves the following elements at one or more stages of the process.

a. A technical subject matter that is peculiar to or characteristic of a particular art, science, trade, technology or profession.

b. Discovery of the accurate, precise information needed for the solution of the problem through thinking, study, investigation, observation, analysis, experimentation and measurement.

c. The arrangement and presentation of the information thus gained so that it achieves the writer's purpose and clear, useful and persuasive

Houp, et al (1998: pp.1-2)

Organizations produce technical writing for internal and external use. Internally, documents such as feasibility reports, technical notes and memorandums go from superior to subordinate and vice versa and to colleagues as well. Externally, organizations send instructional manual, university department preparing a proposal to government offering to provide research services. They record and transmit much of this research via reports.

Much technical report writing goes on at colleges and universities. Teachers have professional and personal curiosity that entices them into research. If they believe that their findings are important; they publicize the information in various ways--- books, journal articles, paper for professional societies. The students are assigned research problem which they present what they have done and learned in laboratory reports and theses.

2.5 Teaching Methodology

Teaching methodology is the important issue in learner cantered approach. Teaching of Listening, Speaking, Reading, Writing and Grammar require an appropriate methodology. Nunan (1998) is of the view that " Traditional approaches to language teaching are tended to separate considerations of syllabus design from methodology. Broadly speaking, syllabuses specify the 'what' of teaching whereas methodology specifies 'how"(p.76). Teachers with

M.A. English degrees are teaching English courses at most of the engineering universities of Pakistan. The aim and objectives set by HEC for these courses require to be achieved through these teachers. Teachers play an important role in an ESP course. Teachers should have clarity about the future needs of the students Teachers play an important role in the implementation of an ESP course. Learner cantered approach required a proactive role of the teacher in language classroom.

> A central issue to be considered in the nature of the teachers who will be involved in an ESP Program. What content, skills and literacies will they be expected to teach? How much teacher training have they completed? Are they linguistically sophisticated, i.e., can they discuss how English works and analyze specialized discourses. (Johns & Machado, 2001, p.46)

The students have different learning styles and the teaching should address the diverse learning style of the students. A teaching method can not be successful if it does not address the preferred learning style of the students. Some students work efficiently in a group but others feel comfortable while learning individually. It is also important for a teacher to assess his own style and strategies. Oxford (2001) emphasise the importance of learning style in language teaching. "L2 teachers could benefit by assessing the learning styles and the strategy use by their students, because such assessment leads to greater understanding of styles and strategies" (p.365).

2.6 Review of ESP Needs Analysis Projects

Researchers around the globe have conducted ESP needs Analysis to determine the immediate and future communicative needs of the targeted population. Holliday (195), Olive (1999), Edwards (2000), Li so Mui and Mead (2002),Crosling and Ward (2002), Jackson (2005), Rayan and Ramakrishna (2008), Kayatoon and Fakharzadeh (2009) carried out

research in ESP. The projects were undertaken in different parts of the world but most of the projects were completed in middle East, HongKong, China, Taiwan,Thailand, Iran and India. For instance Wanda Poon (1985) carried out research to modify the ESP porgramme designed for business students at diploma level. The researcher adminstered a survey consist of 300 questionnaires for the studnets. The questions were related to language used for job interview and communicative needs at work place. The ranking of four basic skills were also given in the questionnaires. The students did not seem to see much use of most of the communication skills taught except those that they needed to get the job.

Yogman and Kalyani (1996) conducted a research to design ESP programme for mixed level studnets. They developed a four week businees English programme. They suggested that there must be mini project and AVA should be used to enhance the motivation of the studnets. Use a portfolio approach for assessment where it is possible.

Aiguo (2007) carried out a research to investigate an appropriate approach for teaching aviation English in the Chinese context. Kaewpet (2009) focuses his research on the communication needs of Thai civil engineering students. The researcher interviewed 25 stakeholders (employers, civil engineers, civil enginering lecturers, ESP teachers) to find out the communication needs of the students. The researcher identified 33 communicative events occuring in Thai context.

Amirian and Tavakoli (2009) worked on components of ESP textbooks offered to students at the universities in Iran. They also investigated that to what extent ESP courses have been successful in fulfilling the job requirements of the prospective engineers. They distributed needs analysis questionnaire to 30 practicing engineers who were working in a steel mill. The questions were related to their usage of English at work place. The questions

were about speaking subskills, making mobile calls, discussion with foriegners, attending conferences and meetings. The questions also covered the writing subskills. Their findings suggest that the engineers used English frequently during their interaction with the visitors of foreign countries. They also used English for making mobile calls and writing Email . The study suggests that there should be inservice ESP courses for practicing engineers.

2.6.1 Review of ESP Needs Analysis Projects in Pakistan

In Pakistan the researchers have focused on English for Business, Commerce, Medical, Law, tourism. Most of the researchers have worked on the pedological aspect of ESP. Mahmood (1985) has looked into ESP in Pakistani medical colleges. She designed a questionnaire for medical studnets containing questions about four skills. She suggested in service ESP courses for doctors. She also suggested that ESP should be part of MBBS curriculum. There should be emphasis on speaking. Qadir (1988) proposed a course of English for business studnets on the basis of their communicative needs. Imtiaz (2003) has evaluated Business communication and Technical Report Writing courses for Master of Commerece in Banking with special reference to BZU, Multan. She collected the data through questionnaires, interviews and class observations. She suggested Communicative Language Teaching approach, use of AVA and teachers training in her thesis. Shakir (2003) analyzed the communicative needs of hotel industry staff in Pakistan. Naz (2004) analysed ESP Syllabus for Science Students at secondary level.

Hassan (2005) has foucses his research on ESP Syllabus for the Engineers of Lahore Technical Colleges. He collected data by distirbuting questionnaires to 100 students of Diploma of Associate Engineering (DAE) and 20 of their teachers. He interviewed the studetns and teachers and validated his research through class observations. Hassan (2005)

has not suggested any syllabus for the studnets but suggested guidelines for the teachers. He suggested that teachers should be well prepared for the class. There should be emphasis on all four skills. He ranked writing skills as the most important for diploma studnets.

Ahmed (2005) carried out an extensive study on legal English. He collected data from law studnets, ESP teachers and lawyer through questionnaires. Hassan (2005) focused on reading and writing skills for advanced studnets of Business English.

A lot of Research has already been done on ESP courses in different parts of the world. No comprehensive research has been done regarding English courses offered by engineering universities in their engineering programmes. Communicative Needs of engineering students at workplace differ from country to country. Triangulation in needs analysis was not applied in ESP research in Pakistani context. Triangulation in research is important to get valid data from different stakeholders. I have collected the data from all the stakeholders through questionnaire, interviews and class observation. Hassan (2005) collected the data from teachers and students of Diploma of Associate Engineering. There seems to be no significant research conducted on the communicative needs of Bachelor of Engineering students in Pakistan. Keeping in view the growing need for good communication skills of Engineers, the present study will fill the gap and investigate the effectiveness of English courses in engineering universities.

CHAPTER 3

RESEARCH METHODOLOGY

The aim of the study is to review the effectiveness of existing ESP courses in professional development of engineering students of in Pakistani universities. Following objectives were set for the study.

a. To evaluate the effectiveness of English courses.

b. To assess the appropriateness of the syllabi with reference to future needs of the students.

The researcher decided to apply quantitative and qualitative approaches of research. Walliman (2005) suggests "when appropriate, a mixture of quanitative and qualitative research is possible"(p.271). Triangulation techniques refer to the blend of qualitative and quantitative methodologies. Cohen, Manion, and Morrison (2007) define the importance of triangulation technique in Social Sciences in the following way:

> Triangulation techniques in social sciences attempt to map out, or explain more fully, the richness and complexity of human behaviour by studying it from more than one standpoint and, in so doing by making use of both quantitative and qualitative data. Triangulation is a powerful way of demonstrating concurrent. (p.141)

Qualitative methods of data collection are different from quantitative methods. Patton (1990) argued "Qualitative methods consist of three kinds of data collection: (1) In depth,

open-ended interviews; (2) Direct observation; and (3) written documents" (p.12). Keeping in mind the aim and objectives and research methods, a field survey was conducted to collect the data to validate the research.

3.1 Population

The population comprised of undergraduate students of final semester at engineering institutions in Rawalpindi/Islamabad. Presently, the following engineering instituions are offering Pakistan Engineering Council recognized Bachelor of Engineering Programmes. Air University: Bachelor of Electrical (Electronics & Telecommunication), and Mechatronics Engineering.Bahria University: Bachelor of Engineering in Computer, and Software. COMSATS: B.Sc. Computer Engineering, and Electrical (Telecommunication) Engineering. Institute of Space Technology: Bachelor of Science in Communication Systems Engineering, and Aerospace Engineering. International Islamic University: B.Sc. Electronic Engineering. Riphah International University: B.Sc. Electrical Engineering (Communication). Muhammad Ali Jinnah University: B.Sc. Electronic Engineering. NUCES (FAST): B.Sc. Telecommunication Engineering. NUST (NIIT): Bachelor of Information & Communication Systems Engineering, and Bachelor of Engineering (Electronic Engineering). CASE: B.Sc. Electrical (with two specializations in Computer and Telecommunication) Engineering. College of EME(NUST): B.E. Electrical, Mechanical, Computer, and Mechatronics. Foundation University, Rawalpindi: B.Sc. Software Engineering Military College of Signals (NUST) Rawalpindi: B.E. Electrical Communication), and Computer Software. The population is comprised of 770 students of engineering institutions at Rawalpindi/Islamabad

English language teachers in Engineering institutions, alumni of engineering universities, Head of Departments of engineering universities and prospective employers of engineering students.

3.2 Sampling

Different types of sampling could be used to collect data from the population of a study. The researcher used random sampling to collect the data from the enginering institutions of Rawalpindi and Islamabad. However, the researcher used Purposive sampling technique to collect the data from respondents. Cohen, *et al* (2007) define purposive sampling as "researchers handpick the cases to be included in the sample on the basis of their judgment of their typicality or possession of the particular characteristics being sought. In this way, they build up a sample that is satisfactory to their specific needs" (pp.114-115). The sampling of the study consisted of 200 students, 10 teachers, 15 engineers (ex-students) and four Heads of the department of five universities in Rawalpindi/Islamabad. By using random smapling, the data for the study was collected from from Rawalpindi: College of Electrical and Mechanical Engineering, NUST, and from Islamabad: National University- FAST; Air University; International Islamic University and Centre for Advanced Studies in Engineering.

3.3 Description of Research Tools

The sampling was done mainly within twin cities of Rawalpindi and Islamabad. Keeping in view the research, the researcher used different methods of data collection to develop understanding of the teaching learning situation of English courses at engineering universities. The purpose was to get the authentic data by using different data collection methods such as Questionnaires, Interview, and Class Observation.

3.3.1 Questionnaires

Questionnaire is the most suitable research tool when the sampling is large and it is not humanly possible to talk to each respondent. John and James (2005) argue that using a questionnaire makes it possible for the researcher to collect responses for his questions without having talk to each and every individual. It is a very flexible tool and it should be used carefully to validate the research. Bell (1993) suggests that Questionnaire is the best way to collect data quickly and economically. Three types of questionnaires were designed.

3.3.1.1 Question Types

Different types of questions were formulated in the questionnaires. Most of the questions (95%) were close ended and 5% were open ended questions to give a chance to respondents to express their views. Multiple choice questions with a box were used and respondents had to tick the appropriate box. A list of items was given and the respondents had to select, through tick marks in the box, one or more than one item from the list. In some questions the respondents have to rank the options from 1 to 6. Likert Scale was used to know the satisfaction of the respondent about contents and methodology of the courses. The questions with the option of Yes/No and other options only provide the restricted response. The logic behind using prioritization, ranking and Likert Scale was to collect data that shows the in-depth understanding and opinions of the respondents.

3.3.1.2 Questionnaire for Students

The questionnaire (Appendix-II) was to be filled by the undergraduate students of engineering universities. The questionnaire was divided into two parts. Part-I was related to personal information, educational background and self evaluation about the language ability

of the respondents. Part-II of the questionnaire consisted of 27 questions in total: 25 close-ended and 2 open-ended. The researcher tried to be brief in writing questions. Conciseness and clarity were the top priority of the researcher in this process. The questionnaire was divided into personal information, self perception of the students about language competency, contents of English courses, teaching methodology and preferred learning styles of the students. Questions were formulated to collect the data regarding teaching learning situation; needs of the students, self assessment, learning style, importance of skills among the student and the teachers in Pakistan.

The researcher distributed the questionnaires in the selected universities. At FAST-NU, the students of B.E. Telecommunication Engineering 8th semester filled the questionnaires. At College of Electrical and Mechanical Engineering (NUST), Rawalpindi, the researcher distributed the questionnaires to the students of B.E (Mechatronics) semester. At Air University, Islamabad the questionnaires were filled by the students of B.E. (Electrical) eighth (Final) semester. From International Islamic University the students of B.E. (Electronics) eighth (Final) semester filled the questionnaires. At CASE the students of B.E (Electrical) 8th semester filled the questionnaires. The researcher distributed 250 questionnaires in the universities and received back 200.

3.3.1.3 Questionnaire for Teachers

A separate questionnaire (Appendix-III) was filled in by the teachers who teach English courses. The questionnaire was a mixture of close-ended and open-ended questions. The questionnaire was distributed in two parts: part-I of the questionnaire was about their personal information, education background and area of specialization. The part-II was about course contents and teaching methodologies.

3.3.1.4 Questionnaire for those who have already Graduated

The questionnaire (appendix-IV) was filled in by the students who have completed their degrees. The questionnaire was similar to the current Students' questionnaire. The difference lie in the questions related to usage of Technical English at workplace. To get data from engineers, the researcher distributed 25 questionnaires and received 15 back.

3.3.2 Class Observation

Classroom observation is one of the most reliable method of data collection in language research. In this regard David Nunan (1992) suggests:

> As language classrooms are specifically constituted to bring about learning, it is not unreasonable to collect data about what goes on there as a means of adding to our knowledge of language learning and use. (p.91)

The aim of class room observation was

a. How well are the students learning?
b. How effectively do the teachers teach?

To observe the methodology and techniques of teaching and classroom environment, the researcher observed the classes of English courses in the four engineering universities of Rawalpindi/Islamabad. A comprehensive observation sheet (Appendix-V) was used to record the teaching learning practices in the classrooms.

3.3.3 Interviews

Interview is more comprehensive and authentic method of data collection as compared to questionnaire. The researcher can observe the facial expression and respondents can take the activity seriously. Cohen, et al (2007) are of the view that "it allows for greater depth than is

the case with other methods of data collection. Structured interview was conducted to get the data from the respondents. Sequence and wording of the questions were approved by the supervisor in advance. To know the demand of English in industry, five managers of engineering units were also interviewed. HR Managers/Executives of NUST, Tesla Indusdtries, LMKR, Ufone, Kohinoor Textile Mills were interviewed. The interview (Appendix VI) consisted of eight questions.

Four Head of Departments of the engineering universities were also interviewed to know the policy of university management towards teaching English courses for engineering universities. The interview (Appendix-VII) was consisted of eight questions.

HEC and PEC are two major governing bodies in engineering education. The researcher interviewed, the Chief Executive of HEC and the Assistant Registrar of PEC. Only the role of HEC in Engineering education was exceptional. The researcher has arranged an informal meeting with Assistant Registrar (PEC).

3.4 Administration of the Questionnaires

The researcher visited all the universities and distributed all the questionnaires at the universities. The researchers also sent questionnaires through email to the ex-students of the universities. The interviews with Prospective employers, HsOD, Chief Executive (HEC) and Assistant Register (PEC) were conducted at their workplaces. The researcher got appointments with all the above mentioned individuals through telephone. All the respondents showed their positive attitude towards the research and its importance. The researcher recorded the interviews on MP3 recorder/player. The researcher designed a coding Sheet (Appendix-VIII) for quantitative data and entered the data by using SPSS.

CHAPTER 4

DATA ANALYSIS

The chapter comprises a comprehensive analysis of the data collected through questionnaires, interviews and class observation. The researcher analyzed the collected data by using SPSS (Statistical Package for Social Sciences). To avoid unnecessary length, the data is shown in tabular form only. The Bar Charts are used where it was felt that graphical representation will be more suitable than numerical representation. The data consists of three questionnaires separately designed for the engineering students, recent graduates engineering university and teachers who teach English courses to engineering students. The interviews with different stake holders (Heads of Department, Prospective Employers, Deputy Registrar PEC and Executive Director HEC) were conducted and classroom observed. Considering the size of the data and the research question of the study, the data was analyzed into nine categories.

a. Personal Information

b. Self Perception of the Engineering Students Regarding their Linguistic Ability

c. Importance of English Courses for Engineering Students

d. Course Contents of the English Courses

e. Preferred Learning Styles of the Engineering Students

e. Methods/ Techniques Used in the Teaching of English Courses

f. Effectiveness of the English Courses

g. Suggestions of the Respondents for the Improvement of Syllabus and Teaching Methodology

h. Classroom Observations

The analysis of data under the categories is given in the following section.

4.1 Personal Information

In the beginning of each questionnaire five to six questions were asked about the personal information of the respondents. This information helped the research in linking the data/responses with the personal information of the respondents. The students and teachers have different education backgrounds and their responses represent the views of their respective background. The details about the gender, age and educational background are as under:

4.1.1 Questionnaire for Students

The first part of students' questionnaire was about the personal information of the students. The questions were related to gender and educational background. For details regarding importance of personal information of the students see 2.3 in literature review of the study.

4.1.1.1 Gender Distribution

The students of both the genders are enrolled in the engineering universities of Rawalpindi/Islamabad. Gender difference affects the preferred learning styles of the students. **Tables given in this section frequency refers to total number of the responses given by the respondents whereas the percent refers to the percentage of the responses and valid**

percentage is based on the total percentage of the responses including missing responses (where the respondents were not selected any of the options).

Table 4.1 Gender Distribution

		Frequency	Percent	Valid Percent
Valid	Male	160	80.0	84.7
	Female	29	14.5	15.3
	Total	189	94.5	100.0
Missing	System	11	5.5	
Total		200	100.0	

Table 4.1 shows that 85% of the respondents are male whereas 15% are female. It shows that females are about $1/6^{th}$ of the total students enrolled in the engineering universities. It is also evident that in a class of 50 students there might be 7 to 8 female student. The teachers have to take into account the gender differences and learning styles of both genders.

4.1.1.2 Educational Background

To impart effective teaching it is indispensible to know the educational background of the students. Dual system of Education is followed in Pakistan. At secondary level a student has choice to opt for Matriculation or Ordinary Level (O level). Mostly, O level is offered in private schools whereas the government schools offer Matriculation. There is difference of syllabi, teaching methodologies, competence of English teachers and evaluation in both the systems. The researcher intended to know how many students come from each of these two systems.

Table 4.2 Choice of Educational Institutions at School Level

		Frequency	Percent	Valid Percent
Valid	Government Sector	145	72.5	74.0
	Private Sector	51	25.5	26.0
	Total	196	98.0	100.0
Missing	System	4	2.0	
Total		200	100.0	

The students have different educational backgrounds. It can be seen in table 4.2 that 74% of the respondents got their secondary education from government schools. However a fair number of respondents (26 %) have chosen educational institutions of private sector for their secondary education.

Table 4.3 Choice of Educational System in Schools

		Frequency	Percent	Valid Percent
Valid	Matric	183	91.5	92.0
	O Level	16	8.0	8.0
	Total	199	99.5	100.0
Missing	System	1	.5	
Total		200	100.0	

It can be seen in Table 4.3 that 92% of the respondents got matriculation and 8% of the respondents opted for O level at secondary level. The teachers and syllabus designers should adopt the syllabus and methodology that address the problems of the students who get education from the government schools. The teachers of English courses should emphasize on the areas which are being ignored in the syllabus and methodology of the subject of English in government sector schools.

Table 4.4 Cross tabulation: Choice of Educational System/Institution in 10th Grade

		Institution		
		Government Sector	Private Sector	Total
10 years Education	Matric	144	36	180
	O Level	1	15	16
Total		145	51	196

Table 4.4 shows 73% of the respondents completed their matriculation in government sector schools while 18 % did their matriculation from private schools. And a few respondents (9%) completed their O level from private sector schools. Approximately 99% of the respondents from government sector did matriculation at the secondary level.

Therefore, it is evident from the results that it is a misconception that all the schools of private sectors offer O level. It is evident from the data that private schools are also offering matriculation at secondary level. In this section it is evident that the students of both genders are getting engineering education in the universities. The students have different educational backgrounds. It can bee seen in Table 4.3 & 4.4 that most of the students (92%) completed their matriculation. The teachers of English courses at engineering institutions should teach the courses in a way that the students who get education from government sector should be capable of compete with the students who get education from private sector schools. The next section is related to personal information portion of recent graduates' questionnaire.

4.1.2 Questionnaire for Recent Graduates

After completion of degree, the engineering students join different organizations where they have to perform certain communicative tasks in English at their workplace. Practicing engineers are in a better position to give comments about the effectiveness of English courses taught at the university level. First part of the questionnaire comprised of personal information; age, educational background and present job.

Table 4.5 Personal Information of Recent Graduates

Age		Frequency	Percent	Valid Percent
Valid	20-25	11	73.3	73.3
	26-30	4	26.7	26.7
	Total	15	100.0	100.0
Completion of B.E.				
Valid	Within last five years	14	93.3	93.3
	Before five years	1	6.7	6.7
	Total	15	100.0	100.0
Current Position		Frequency	Percent	Valid Percent
Valid	Academic	4	26.7	26.7
	Industrial	7	46.7	46.7
	Student	2	13.3	13.3
	Corporate sector	2	13.3	13.3
	Total	15	100.0	100.0

Most of the respondents (75%) are between 20-25 years. Approximately 93% of the respondents completed their B.E within the last five years. Approximately 13% of the respondents are working as academician, 13% are performing their jobs in corporate sector whereas 47% are working in industries. The results show that majority of the students is working in different industries. Since the salaries are competitive in industry, the recent graduates prefer to seek jobs in the industries or may be there is a lot of scope for young engineers in the industry. Since majority of the engineering students join industry for job, the syllabi of English courses for engineering students should be industry oriented. The next section is about the personal information portion of the questionnaire for teachers.

4.1.3 Questionnaire for Teachers

ESP practitioners play an important role in the implementation of a syllabus. The first part of teachers' questionnaire was related to personal information of the respondents. It has question related to gender distribution, age, majors at Bachelor level and Masters level.

Table 4.6 Personal Information of Teachers

Gender		Frequency	Percent	Valid Percent
Valid	Male	8	80.0	80.0
	Female	2	20.0	20.0
	Total	10	100.0	100.0
Age		Frequency	Percent	Valid Percent
Valid	29-32	2	20.0	20.0
	33-36	4	40.0	40.0
	37-40	2	20.0	20.0
	40-45	1	10.0	10.0
	46+	1	10.0	10.0
	Total	10	100.0	100.0
Majors in Bachelors Degree		Frequency	Percent	Valid Percent
Valid	English Literature	5	50.0	50.0
	Education	1	10.0	10.0
	Others	4	40.0	40.0
	Total	10	100.0	100.0

Most of the teachers are in their 30's. Table 4.6 shows 20% of the respondents are female and 80% of the respondents are male. A fair number of respondents (50%) studied English literature as a major subject at bachelor's level. The result shows that 60% of the respondents were interested in English language teaching and opted relevant subjects at their Bachelor level while 40% of the teachers studied other subjects during their Bachelor degree and then opted English for M.A. degree.

The next section is about the majors of ESP teachers at Masters Level and it also describes the courses attended by the teachers.

4.1.3.1 Importance of Trained Teachers for ESP Courses

Different universities offer M.A. English with mostly three specializations: Literature, Linguistics and ELT. Few universities are offering M.A in Linguistics and Literature. Specialization of teachers for teaching ESP courses is a controversial issue in Pakistani settings.

Table 4.7 Teachers Majors at Masters Level

Majors in M.A. English		Frequency	Percent	Valid Percent
Valid	Linguistics	1	10.0	10.00
	Literature	5	50.0	50.0
	Literature & Linguistics	3	30.0	30.0
	ELT	1	10.0	10.0
	Total	10	100.0	100.0

It can be seen in Table 4.7 that 50% of the teachers did literature oriented coursework in their M.A. English. Whereas, 30% of the respondents did literature and linguistics oriented course work at Masters' level. A few (10%) of the respondents did ELT

oriented coursework and 10% of the respondents opted Linguistics as major in their M.A. English

Table 4.8 Courses Attended by the Teachers

		Frequency	Percent	Valid Percent
Valid	No	7	70.0	70.0
	Yes	3	30.0	30.0
	Total	10	100.0	100.0
Title of the course		Frequency	Percent	Valid Percent
Valid	Technical Report Writing	1	10.0	10.00
	ESP	1	10.0	10.00
	Research Methodology	1	10.0	10.00
	Total	3	30.0	
Missing	System	7	70.0	70.00
Total		10	100.0	100.0
Presentations by the teachers		Frequency	Percent	Valid Percent
Valid	A paper presentation in a Conference	1	10.0	10.0
	A presentation in a workshop	3	30.0	30.0
	None of the above	6	60.0	60.0
	Total	10	100.0	100.0

Table 4.8 shows 30% of the teachers have attended course related to ESP as shown in the above table. The respondents attended courses related to Technical Report Writing, ESP and Research Methodology respectively. It can be seen in the table that 70% of the teachers are teaching English courses without teacher training for the courses. A few (10%) of the teachers presented papers in a conference and 30% of the teachers have conducted workshops.

4.1.3.2 Managements' View about Trained Teachers for ESP Courses

The sixth question asked to of Heads of the Department (HsOD) interviews was related to the issue of hiring professionally trained teachers at the engineering universities for the teaching of English courses. One of the interviewees emphasized the importance of the

specialized area and training of the teachers. "***I mean you know we have specialization in every sphere. Right! we can not expect a person who has done English literature he or she would be able to teach technical report writing or communication Skills***." It is the need of the education sector that trained teachers in the area of ESP should teach the courses to the students of engineering universities.

One of them was of the view that anybody can teach communication Skills to the students. "***I do not think so because anybody can be good in communication skills. Any teacher a teacher of mathematics can teach communication skills to the students because he knows. A good teacher is one who has that good communication skill. The Experts only know the technical details a person who has done a degree in management can be a very poor manager. So, the technical skills and degrees do not basically qualify you to be an expert in real sense."*** If we analyse the discourse the underlying message is that the teachers who possess Masters degree in English are not expert in their areas and we do not need professionally trained teachers. Anybody can teach communication Skills. In the same university engineers are teaching Technical Report Writing. In another university a teacher with M.A. Psychology has been teaching communication Skills for the last three years.

The next section is about the students' perception of their linguistic abilities. It is worth mentioning that questionnaires were distributed among the final year students of the engineering institutions. The self perception of the students also reflects the efficiency of the English courses at the institutions. The section also includes reading skills of the recently graduated engineers.

4.2 Self Perception of the Engineering Students Regarding their Linguistic Abilities

Students' proficiency level in target language is the important element of conducting a Need Analysis survey (See 2.3). Q No.5 in the students' questionnaire was related to self perception of their linguistic ability in English language. Q. No.6 of the engineers' questionnaire was about the proficiency of practicing engineers in reading skills.

Table 4.9 Self Perception of the Students about Reading Skills

		Frequency	Percent	Valid Percent
Valid	Elementary	13	6.5	6.5
	Intermediate	81	40.5	40.7
	Advanced	105	52.5	52.8
	Total	199	99.5	100.0
Missing	System	1	.5	
Total		200	100.0	

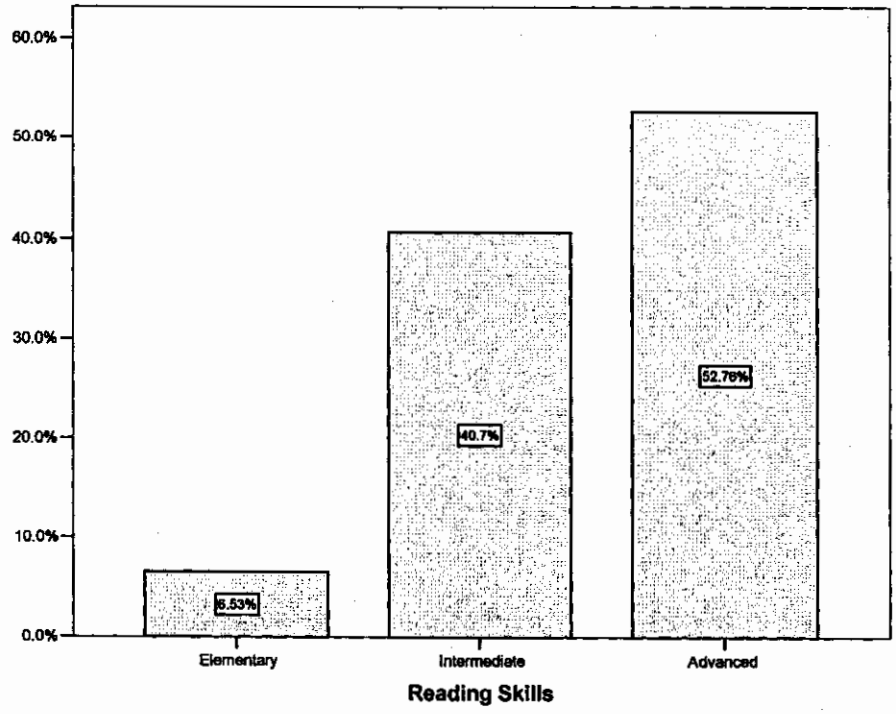

Figure 4.1 Self Perception of the students about Reading Skills

Since the students who join engineering programme come from different educational background there is possibility of difference in their language ability. Figure 4.1 shows 52% of the engineering students are confident about their reading skills and consider themselves at advanced level. A fair number (40%) of the students believe that they are at the intermediate level while 6% of the students feel that they are at the elementary level in reading skills.

Table 4.10 Impact of Educational background on Self Perception of the Students about Reading Skills

		Institution		
		Government Sector	Private Sector	Total
Reading Skills	Elementary	11 (7.5%)	2 (4%)	13
	Intermediate	61 (42%)	17 (34%)	78
	Advanced	73 (50.5)	31 (62%)	104
Total		145	50	195

It can be seen in Table 4.10 that the students who got education from private sector are more confident than the students having background of government educational institution. Majority of the students (62%) consider themselves at the advanced level and only 4% of the students think that they are elementary level in reading skills. In comparison, the students having background of government educational institution are less confident about their ability in reading skills. A fair number (50%) of the students think that they are at advanced level and approximately 8% of the students consider themselves at elementary level.

Table 4.11 Capabilities of Recent Graduates in Reading Skills

		Frequency	Percent	Valid Percent
Valid	No	8	53.3	53.3
	Yes	7	46.7	46.7
	Total	15	100.0	100.0

Table 4.11 shows 53% of the respondents were not able to understand the technical language of contracts. A fair number (47%) of recent graduates are not able to comprehend

technical language of contracts. It shows the deficiency and ineffectiveness of course contents of the English taught at engineering universities.

Table 4.12 Self Perception of the Students about Writing Skills

Valid	Elementary	8	4.0	4.0	4.0
	Intermediate	107	53.5	53.8	57.8
	Advanced	84	42.0	42.2	100.0
	Total	199	99.5	100.0	
Missing	System	1	.5		
Total		200	100.0		

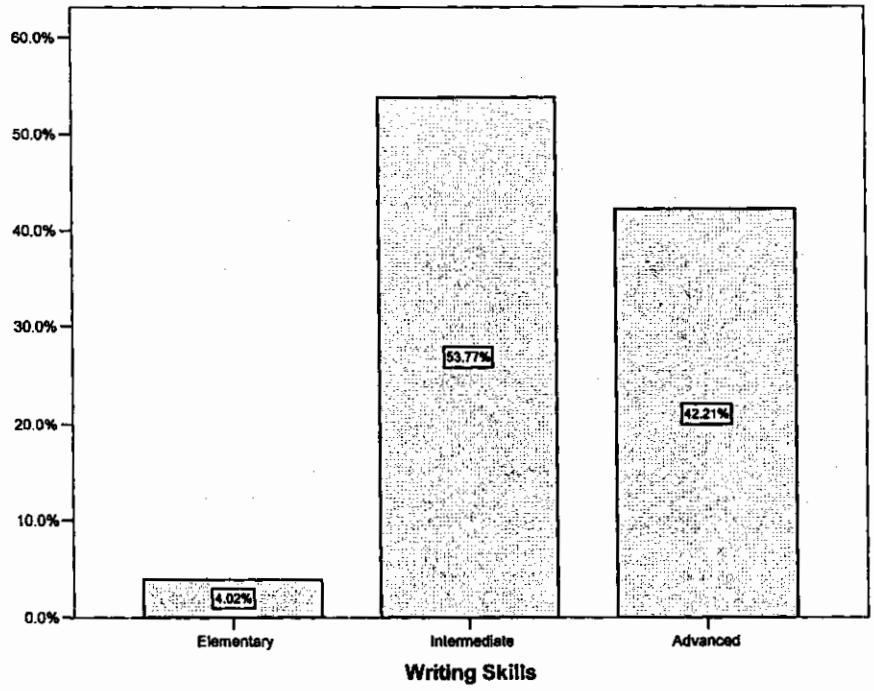

Figure 4.2 Self Perception of the Students about Writing Skills

Ability to write effectively plays an important role in academics and corporate settings. Figure 4.2 shows 42% of students consider themselves at the advanced level. Most of the students (54%) of the students consider themselves at the intermediate level. Some of them are confused because may be they are at advance level but they are doubtful about their ability as compare to the rest of the students. It can be seen in Graph 4.2 that 4% of the

students think that they are at the elementary level in writing skills. It is evident from the graph that there is a dire need to train engineering students in writing skills.

Table 4.13 Impact of Educational Background on Self Perception of the Students about Writing Skills

		Institution		
		Government Sector	Private Sector	Total
Writing Skills	Elementary	6 (4%)	2 (4%)	8
	Intermediate	83 (57%)	22 (44%)	105
	Advanced	56 (39%)	26 (52%)	82
Total		145	50	195

The respondents having education background of private institutions think very high of their writing skills. Most of the students (52%) of the students think that they have reached at advanced level. Table 4.13 shows 4% of the respondents consider themselves at elementary level.

The respondents who got education from government sector are clustered at intermediate level. A fair number (39%) of the students consider themselves at advanced level. Most of the students (57%) think that they are at intermediate level in writing skills. Surprisingly, 4% of the students considered themselves at elementary level. This result is similar to the students of private sector. It shows in writing skills the students who got education from private sector also think that they lack something in writing skills.

Table 4.14 Self Perception of the Students about Speaking Skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Elementary	18	9.0	9.1	9.1
	Intermediate	117	58.5	59.1	68.2
	Advanced	63	31.5	31.8	100.0
	Total	198	99.0	100.0	
Missing	System	2	1.0		
Total		200	100.0		

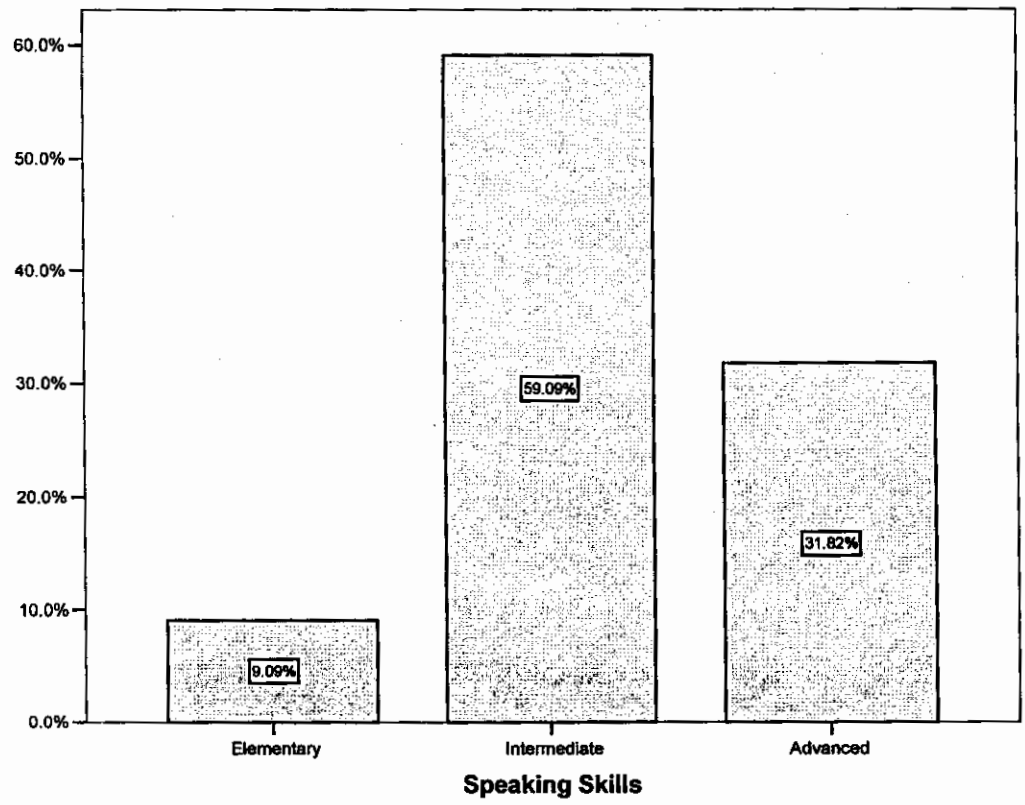

Figure 4.3 Self Perception of the Students about Speaking Skills

Speaking skills is the most important requirement in academics and corporate sector. 31% of the respondents consider themselves at advanced level. Most of the respondents (59%) think that they are at intermediate level and 9% of the engineering students consider themselves at elementary level. The reason behind the result could be that the students compare their speaking skills with the native speaker of English. Probably, they think that their vocabulary, pronunciation and accent are not like them.

Table 4.15 Impact of Educational Background on Self Perception of the Students about Speaking Skills

		Institution		
		Government Sector	Private Sector	Total
Speaking Skills	Elementary	13	4	17
	Intermediate	88	28	116
	Advanced	43	18	61
Total		144	50	194

Table 4.15 shows that the students from different educational backgrounds do not think themselves proficient in Speaking Skills. The self-perception of the students who got education from private sector is comparatively better but there is not a very huge difference about their self perception in speaking skills. There could be many causes behind this similarity. There is difference of exposure to language, education of parents, environment of home, personal interest in making speeches and the personality of the student.

The next section is about the attitude of learners towards English language.

4.3 Importance of English Courses/Language for Engineering Students

For an effective Needs Analysis, it is imperative to know the attitude of the learners towards the language and it importance for them (See 2.3). Statement No.1 of the questionnaires was about the difference between Technical English and General English. Q.No 10,19 of the students' questionnaires and the Statement No. 2 & 3 of engineers' questionnaire were about the importance of English for the career of engineering students. QNo.1 & 2 of HsOD interview, prospective employers' interview and Dr. Naqvi's Interview were also related to the importance of English for engineers. The details of the responses from the students, teachers, employers and university management is given on the next page.

Table 4.16 Students, Recent Graduates and Teachers Opinion about the Nature of Technical language

Students		Frequency	Percent	Valid Percent
Valid	Strongly Agree	49	24.5	24.6
	Agree	123	61.5	61.8
	Uncertain	9	4.5	4.5
	Disagree	16	8.0	8.0
	Strongly Disagree	2	1.0	1.0
	Total	199	99.5	100.0
Missing	System	1	.5	
Total		200	100.0	
Recent Graduates		Frequency	Percent	Valid Percent
Valid	Strongly Agree	1	6.7	6.7
	Agree	10	66.7	66.7
	Uncertain	1	6.7	6.7
	Disagree	3	20.0	20.0
	Total	15	100.0	100.0
Teachers		Frequency	Percent	Valid Percent
Valid	Strongly Agree	5	50.0	50.0
	Agree	5	50.0	50.0
	Total	10	100.0	100.0

The students and engineers responses regarding the statement are positive. Table 4.16 shows 86% of the students and 73% of the engineers agree with the statement that technical English is different from general English. There is a misconception among some teachers and engineers of Pakistan that there is nothing different between General English and ESP. They think that if someone is good in general English he can write technical English with ease without any training/education. But the students and recent graduates think that technical English is a different in its nature from general English. It can be seen in table 4.16 that 50% of the teachers of English courses believe that Technical English is different from General English. Teachers approach towards language is an important factor in teaching ESP courses. Half of the teachers think that Technical English and General English are similar.

Table 4.17 Students' Perception Regarding English Courses

		Frequency	Percent	Valid Percent
Valid	Very Important	76	38.0	39.4
	Useful	83	41.5	43.0
	Quite Important	21	10.5	10.9
	Not Quite Important	10	5.0	5.2
	Not at all Important	3	1.5	1.6
	Total	193	96.5	100.0
Missing	System	7	3.5	
Total		200	100.0	

Majority of the students (93%) of the respondents consider English courses for their career important and useful. Table 4.17 shows 7% of the respondents do not consider the courses important for their career. The table shows that the students are aware of the importance of the English courses.

Table 4.18 Recent Graduates' Outlook about English Language for Job Placement

Good Communication Skills are essential for securing a good job.		Frequency	Percent	Valid Percent
Valid	Strongly Agree	9	60.0	60.0
	Agree	6	40.0	40.0
	Total	15	100.0	100.0

Table 4.19 Recent Graduates Perception Regarding Importance of English at Workplace

At workplace communication skills are essential		Frequency	Percent	Valid Percent
Valid	Strongly Agree	13	86.7	86.7
	Agree	1	6.7	6.7
	Uncertain	1	6.7	6.7
	Total	15	100.0	100.0

Table 4.18 shows 100% of the respondents think that good communication skills are essential for securing job. It shows that communication skills are very important for an

engineer. Most of the respondents (93%) of the respondents agreed that communication skills are essential at workplace.

Management at university has a positive or negative affect on the courses being taught in the institution. The next section is about approach of university management towards importance of English for engineering students.

4.3.1 Management Approach towards Importance of English for Engineering Students

There HsOD had different views about the importance of English. English is language of business and engineering and the students need to learn it. One of the HOD justified the importance of English language. "***Our own language "Urdu" has not reached at the level where it can play it role. So we need one of the international languages in which the books and published literature of engineering is available. English is a suitable option for us because Pakistan has been a British Colony for long period. For us, English is the basis to get into International community. The point was that we cannot survive in international community. Since published literature is available in English language, it is important for engineering students to communicate effectively in the language.*** One of the HOD Said ***Yes! It is important. English is the language of business. Ultimately students have to present their work in English language. They can represent themselves in a better way."*** The other HOD emphasise the importance of English ***the students must develop English listening comprehension. The students have to study books, so they should have reading comprehension. Technical writing is very important.*** The HoD emphasized on reading comprehension and technical writing. First of all the students should be capable of understanding technical text and then they should be able to write whatever they have done/understood.

The first question of the interview with the prospective employers of the Engineering student was also related to the importance of English for engineers. All of the prospective employer felt that English plays an important role in the professional development of an engineer. ***English is important for everyone. It is very important for working in corporate sector.*** The other respondent was of the view "All the engineering knowledge is available in English. "***Due to globalization we need engineers who can communicate effectively with foreigners in industry like I have. Like, we have to talk with the importers and exporters.***"

The fourth question of HsOD was about importance of English for securing job. All the respondents were agreed that good communication Skills are important for Job placement. One of the respondent said "***Its extremely important. Yes! Well! I can talk about Engineers. Engineers are technically good but they have poor communication Skills. So I feel many of my students who have done very well in their practical work but they are unable to present their work. So I mean that is a disadvantage.*** " Another respondent said "***the entrants need good communication Skills. They have to work on projects but at the completion of the project they have to report the project***" There is feeling among the management of the universities that Communication Skills play an important role in the future pursuit and job placement. But somehow their emphasis is on core engineering subjects. We can derive from this that the management of engineering universities do not give due importance to English course in Engineering Programme.

The second question was about the weightage the employers give to communication Skills of the candidate for the recruitment of an engineer. The respondents have different point of view. The average of the responses is 35%. This shows that good communication skills plays very important role in securing job.

The third question was about the communication skills of new entrants. All of the respondents agreed on a single point that the communication skills of new entrants are poor and there is dire need of improvement in syllabus and methodology of English courses in engineering university.

The third question of HsOD was about the number of credit hours dedicated for English courses in engineering programme. One of the HsOD stated ***that nine credit hours for English are sufficient. If we can teach these subjects in a proper manner. The credit hours are sufficed.*** The rest of the HODs were of the view that increasing the credit hours of the English courses will not bring any change. They did not think that English language teaching can not be effective at this level and their students already have enough knowledge of the language. One of the respondent said ***"Increase in the number of credit hours will not bring any change. The universities should arrange seminar, workshops on communication Skills during summer semester. During semester the students have a lot of burden regarding their engineering subjects."*** One of the HOD thought very high of engineering students and was not willing to accept the importance of English language. He said ***"the format in which the students have to present things that can be given at this stage. The knowledge which is already their in their minds that can be given a direction. But to give a completely new knowledge is difficult."***

4.3.2 HEC Vision about Importance of English for Engineering Students

The HEC is the governing body for engineering education and introduced three English courses for engineering students. Dr Sohail Naqvi, Executive Director HEC, emphasized the importance of good communication Skills for engineers. *You can not concentrate on anything if you do not know how to communicate. The point is not just technical knowledge*

the point is to be a useful practicing engineer. If you do not how to communicate in the language then you can't obviously perform your engineering duties. You can not write a report. You can not understand. All of the published literature is in English as far as engineering discipline is concerned. And all reports have been written in English. The modus of communication is English. Without English you can not become a useful practicing engineer.

4.3.3 Prospective Employers' outlook about English Language

In this competitive world candidate for jobs are required to meet the standards of the employers. Industry has its own perception towards English courses in engineering programme. The fourth question to the prospective employers was about the importance of communication Skills at workplace. The respondents were of the view that engineer should be able to communicate with uplink and with lower staff as well. ***"We do not expect from every engineer to speak and write very good English. If an engineer is working on shop floor he has to communicate with lower staff in Urdu. But they need very good communication Skills to communicate with uplink I mean higher management."*** But most of the respondents were of the view that good communication skills help a lot at workplace. ***"English is the language of corporate sector and you need to write emails and you have to be able to communicate effectively with other team members."***

4.3.4 Students' View about Expected Usage of English Language in Future

The awareness about expected use of English in future compels students to learn the language. Although the students do not have much exposure about the expected usage of language but they can imagine the usage of English in the competitive global arena.

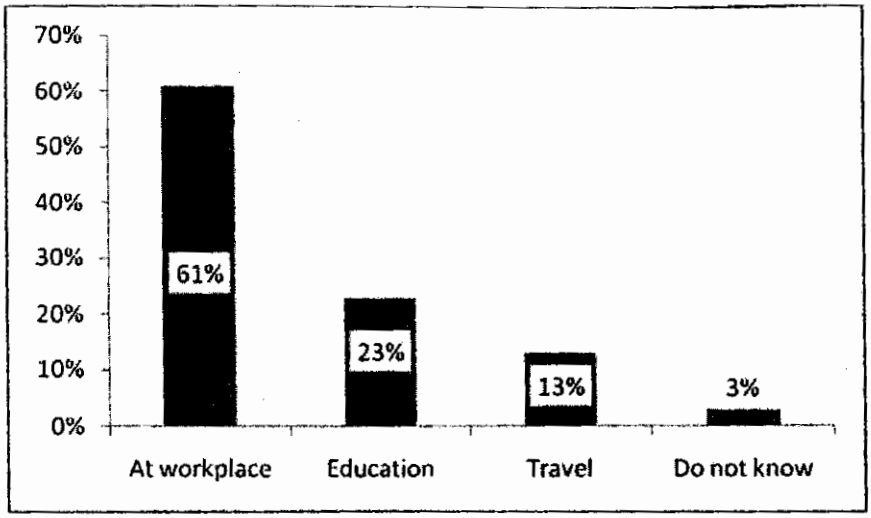

Figure 4.4 Expected Usage of English Language in Future

Most of the students (61%) foresee that in future they will use English language at workplace. Figure 4.4 shows 23% of the respondents think that in future the language is helpful for them in pursuance of education and they expect that in future they will use the language in education. It can be seen in the graph that13% of the respondents think that they need English language during travelling. whereas, the figure reflects that 3% of the respondents are not sure about the expected use of English language in future.

4.4 Course Contents of English Courses

Engineering universities are following semester system and have different course contents for English courses. In some cases the teachers are not following any specific books but collect material from different sources to teach in accordance with scheme of study. Other universities are following a core book for each course. Q. No. 3,5,6,7 & 8 of Students' questionnaire, Q. No. 5 &6 of Engineers' Questionnaires and Q. No. 3 to 5 of teachers'

questionnaire were about the course contents of the English courses in engineering programme.

Table 4.20 Teachers and Students Views about the Nature of Course Contents

Students		Frequency	Percent	Valid Percent
Valid	Strongly Agree	16	8.0	8.1
	Agree	95	47.5	48.2
	Uncertain	52	26.0	26.4
	Disagree	27	13.5	13.7
	Strongly Disagree	7	3.5	3.6
	Total	197	98.5	100.0
Total		200	100.0	
Teachers		Frequency	Percent	Valid Percent
Valid	Strongly Agree	2	20.0	20.0
	Agree	1	10.0	10.0
	Uncertain	3	30.0	30.0
	Disagree	4	40.0	40.0
	Total	10	100.0	100.0

Table 4.20 show 56% of the students are agree with the statement and 18% of the students do not find the contents of course book realistic. A fair number (26%) of the respondents are uncertain about the statement. Here realistic means related to real life issues. It's a cover question about the future professional needs of the students. May be students do not reach in the core of the question. But still 18% of the students are disagreeing with the statement. While $1/4^{th}$ of the respondents are uncertain or in other words confused about the nature of their syllabus.

It can be seen in table 4.20 that 30% of the teachers agree with the statement. The result shows that most of the teachers do not think that contents are realistic. There is a gap between the perception of the students and the teachers. But most of them do not think that the course contents are generally realistic.

Table 4.21Teachers' Beliefs about Difficulty Level of the Course Contents

Students		Frequency	Percent	Valid Percent
Valid	Strongly Agree	15	7.5	7.6
	Agree	54	27.0	27.3
	Uncertain	58	29.0	29.3
	Disagree	53	26.5	26.8
	Strongly Disagree	18	9.0	9.1
	Total	198	99.0	100.0
Missing	System	2	1.0	
Total		200	100.0	
Teachers		Frequency	Percent	Valid Percent
Valid	Strongly Agree	22	11.0	11.1
	Agree	74	37.0	37.2
	Uncertain	45	22.5	22.6
	Disagree	43	21.5	21.6
	Strongly Disagree	15	7.5	7.5
	Total	199	99.5	100.0
Missing	System	1	.5	
Total		200	100.0	

The respondents of the students' questionnaire do not consider that the contents of the textbooks are challenging. Table 4.21 shows 36% of the respondents disagree with the statement and 35% of the respondents agree with the statement. Whereas a fair number (29%) of the students are uncertain about the statement. The trend shows that the 35% of the students do not find the courses challenging. The reason could be their strong background of English language or commonsensical/simple topics of the books. It can be seen in the table that 48% of the teachers think that the contents are challenging. The data shows that the teachers underestimate their students. The students think that these subjects are comparatively easy and they never take them seriously.

Table 4.22 Recent Graduates' Perception Regarding the Practical Nature of the Courses

Students		Frequency	Percent	Valid Percent
Valid	Strongly Agree	22	11.0	11.1
	Agree	74	37.0	37.2
	Uncertain	45	22.5	22.6
	Disagree	43	21.5	21.6
	Strongly Disagree	15	7.5	7.5
	Total	199	99.5	100.0
Missing	System	1	.5	
Total		200	100.0	

Recent Graduates		Frequency	Percent	Valid Percent
Valid	Strongly Agree	2	13.3	13.3
	Agree	4	26.7	26.7
	Uncertain	4	26.7	26.7
	Disagree	4	26.7	26.7
	Strongly Disagree	1	6.7	6.7
	Total	15	100.0	100.0

Table 4.22 shows that 48% of the students are convinced that the contents of their text books are practical and 30% of the respondents think that the contents are not practical. It is evident from the table that 22% of the respondents are uncertain about the statement. There could be difference of understanding the statement. The word practical means the usage of the contents or application of the contents. It also refers to practical work included in the

Table reflects that 40% of the engineers agree that the contents of English courses at university are practical, 33% not agree with the statement and 27% are uncertain about the statement. The result shows that 60% of the respondents are either disagree or uncertain about the practical application/portion of the courses. We may infer from the responses that course contents should be related to real life and applicable in corporate sector and industry.

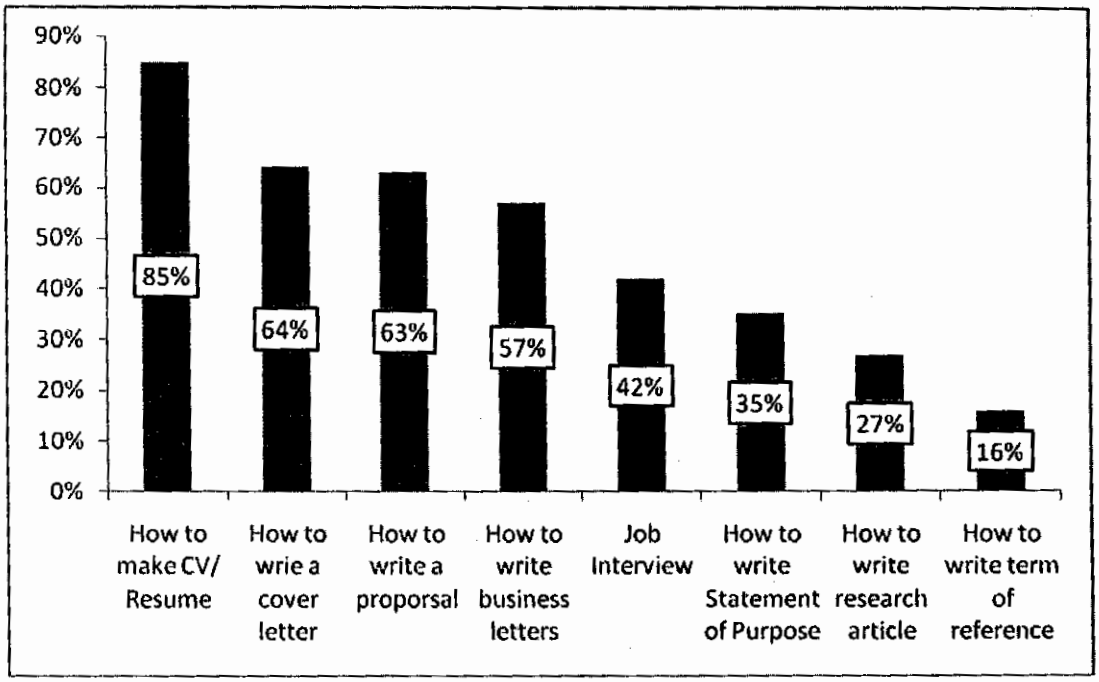

Figure 4.5 Students' Data: Major Topics Covered in the Courses

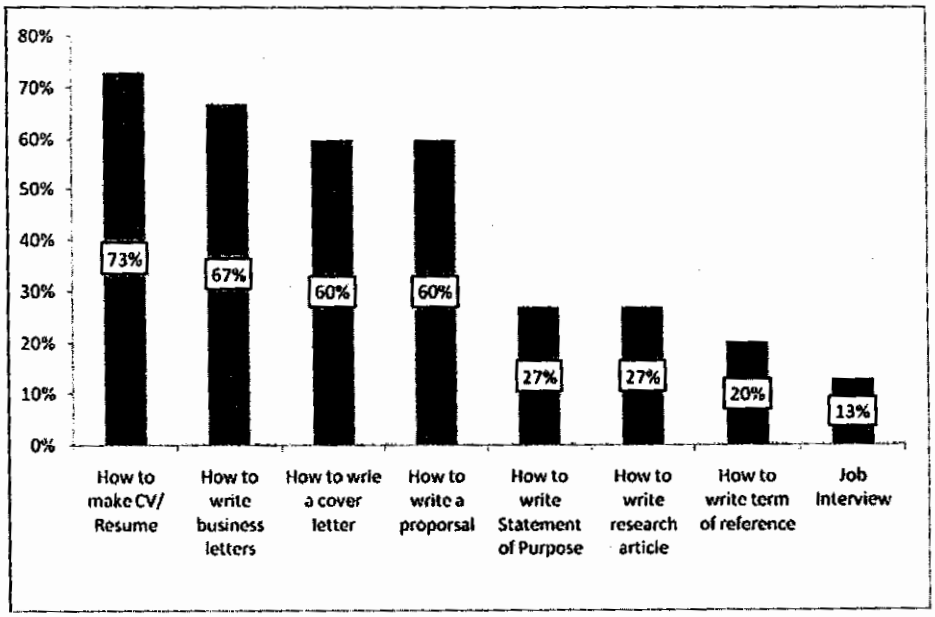

Figure 4.6 Recent Graduates' Data: Major Topics Covered in the Courses

The data was collected through students' questionnaire shows that CV making, writing of cover letters, how to write a proposal are the topics included in the syllabi of English courses

in all the universities. While How to write Business letter, research article, term of reference and preparation for job interview are not included in 50% of the universities.

The data collected from engineers also validate the data collected through students' questionnaire. Exactly, the same data was given by the studnets regarding contents covered in the English courses of engineering programme. The emphasis is on cv writing, how to write proposal and business writing. It shows the emphasis is general business writing and CV making. But technical report writing is the neglected area in the syllabus. No emphasis is given to practical part of technical report writing: research article and statement of purpose. There is dire need to improve the syllabi of technical report writing.

The results also shows that there is not specific change appears int the contents within last three to fiver years. The contents needed to be reviesed.

4.23 Students' Satisfaction about Syllabi

Satisfaction of students about syllabi		Frequency	Percent	Valid Percent
Valid	Strongly Agree	14	7.0	7.0
	Agree	93	46.5	46.7
	Uncertain	36	18.0	18.1
	Disagree	38	19.0	19.1
	Strongly Disagree	18	9.0	9.0
	Total	199	99.5	100.0
Missing	System	1	.5	
Total		200	100.0	

Satisfaction of the students regarding syllabus is a major cause of their motivation and interest in the subject. If the students think that the syllabus is not up to mark or not useful for them they do not take interest in the subject. Most of the respondents (54%) of the students are satisfied with the syllabus of English courses in engineering programme. Table 4.23 shows 28% of the respondents are not satisfied with the syllabus and 19% of the respondents

do not show satisfaction or dissatisfaction about the syllabus. The result shows that there is a concern among the students about syllabus and they want improvement in their syllabus.

Table 4.24 Emphasis on Communication Skills in Course Contents

Students	Mean
Emphasis on Speaking Skills	2.5
Emphasis on Writing Skills	2.6
Emphasis on Reading Skills	2.7
Emphasis on Listening Skills	2.7
Emphasis on Vocabulary	2.9
Emphasis on Grammar	3

The respondents were required to rank the skills with reference to emphasis on the each skill in their English courses. The table 4.24 shows that in courses contents, the weightage given to all the skills is balanced. However, emphasis on writing Skills is more as compare to other skills. The next skill is reading then speaking, listening, vocabulary and grammar.

Table 4.25 Students, Teachers and Recent Graduates' Perception about Importance of Skills

Students	Mean
Importance of Speaking Skills	1.9
Importance of Writing Skills	2.8
Importance of Reading Skills	3
Importance of Listening Skills	3.2
Importance of Vocabulary	3.5
Importance of Grammar	3.6
Teachers	**Mean**
Importance of Speaking Skills	1.8
Importance of Writing Skills	2.5
Importance of Reading Skills	2.6
Importance of Listening Skills	2.8
Importance of Grammar	4.7
Importance of Vocabulary	5.3

Recent Graduates	Mean
Importance of Speaking Skills	1.8
Importance of Writing Skills	2.4
Importance of Reading Skills	2.4
Importance of Listening Skills	3.4
Importance of Grammar	4.6
Importance of Vocabulary	4.9

Table 4.25 shows that students teachers and engineers ranking of the skills is identical. Teachers and engineers think that grammar is important than vocabulary whereas students think opposite to this. Engineers think that reading Skills are as important writing skills whereas students and teachers rank writing skills higher than reading skills.

The respondents believe that writing and speaking skills are the most important skills for engineers. Then, they rated reading skills, the next priority should be listening, grammar and at the end vocabulary. They believe that competency in speaking, reading and writing skills is desired by the industry from an engineering graduate in practical life.

Table 4.26 Students and Teachers' View about Teaching of Grammar

Students		Frequency	Percent	Valid Percent
Valid	Yes	130	65.0	66.0
	No	53	26.5	26.9
	Do not Know	14	7.0	7.1
	Total	197	98.5	100.0
Missing	System	3	1.5	
Total		200	100.0	
Teachers		Frequency	Percent	Valid Percent
Valid	No	3	30.0	30.0
	Yes	7	70.0	70.0
	Total	10	100.0	100.0

Table 4.26 shows 65% of the students think that grammar should be taught in English courses, 27% of the students believe that grammar should not be taught at this level and 7%

of the respondents are indecisive and do not know the answer of the question. It can be seen in the table 4.26 that 70% of the teachers believe that grammar should be taught at B.E. level. Teachers think that grammar is the area which should be addressed. While students think higher of their knowledge of grammar.

4.27 Students, Recent Graduates and Teachers' Prioritization of the Skills

Recent Graduates		Frequency	Percent	Valid Percent
Valid	Presentation Skills	10	66.7	66.7
	Technical Report Writing	2	13.3	13.3
	Both	3	20.0	20.0
Total		15	100.0	100.0

Teachers		Frequency	Percent	Valid Percent
Valid	Presentation Skills	2	20.0	20.0
	Technical Report Writing	6	60.0	60.0
	Both	2	20.0	20.0
Total		10	100.0	100.00

Students		Frequency	percent	Valid Percent
Valid	Presentation Skills	130	65.0	66.0
	Both	45	22.5	22.8
	Do not Know	1	.5	.5
	None of the above	4	2.0	2.0
	Total	197	98.5	100.0
Missing	System	3	1.5	
Total		200	100.0	

Most of the students (66%) of the students think that presentation skills are important than technical report Writing, 22.5% of them think that both the Skills are important and 9% of respondents think that Technical Report Writing is important than Presentation Skills. Engineers' also preferred presentation Skills but 13% of the engineers preferred technical report writing over Presentation Skills.

Table 4.27 shows 60% of the teachers think that Technical Report Writing is the most important skills for the engineering students. A fair number (20%) of the students think that

presentation skills and Technical report writing are both and 20% believe that Technical Report Writing is important.

There is a gap between the perception of the students and the teachers. Teachers should make the students realize the importance of both the skills.

4.4.1 Management's view about Technical Report Writing

The fifth question of HOD interview was about the importance of Presentation Skills and Technical Report Writing. Most of the respondents were of the view that both of the skills are equally important for engineering students.

4.5 Preferred Learning Strategies of Engineering Students

Needs analysis is all about wants and needs of the students. Needs Analysis is based on learner cantered approach (See 2.3). It is imperative to know the preferred learning strategies of the students to conduct a valid needs analysis. QNo.11, 15 & 20 were related to learning style of the students. The questions were about the choices of the students about group/Pair and teaching methods.

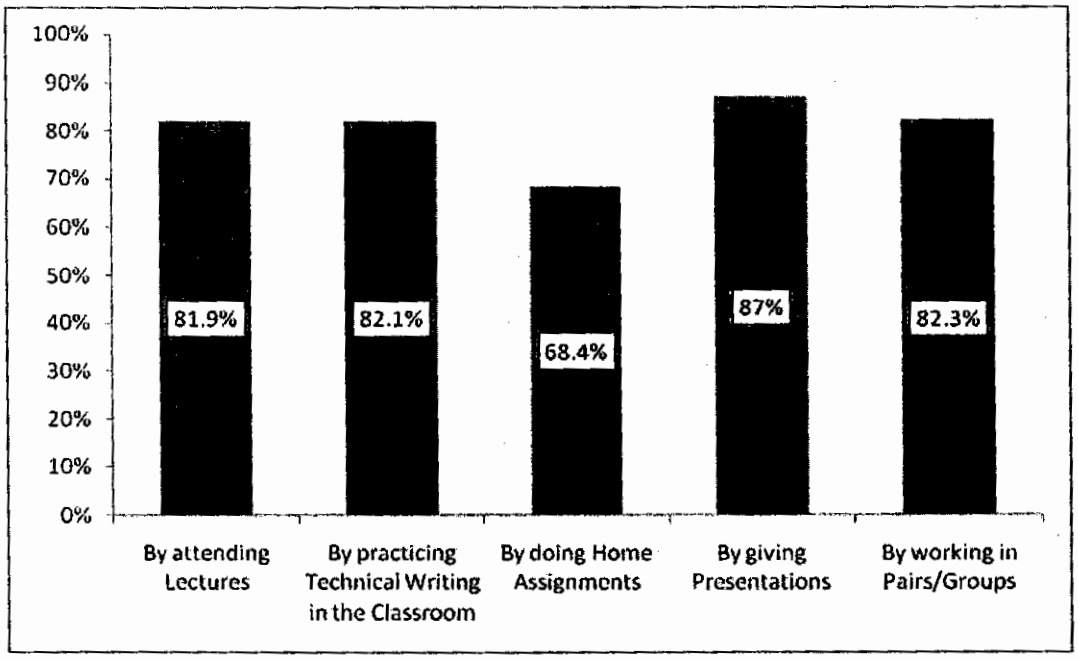

Figure 4.7 Preferred Learning Strategies of the Students

Figure 4.7 shows 87% of the students learn effectively by giving presentation in the classroom and 82% of the respondents learn effectively by working in pairs and groups. When the students are asked about their learning style, they give response keeping in mind the ideal situation. The question was who you learn effectively. Although practice of technical writing in classroom is not common in engineering university but still the students selected the option. Pair work is not common in the universities but students prefer to work in pairs and groups. It is apparent from the result that there is gap between the learning styles of the students and teaching methodologies.

4.28 Students Choice about Working in Pairs/Group

		Frequency	Percent	Valid Percent
Valid	Individually	53	26.5	27.2
	In pairs	42	21.0	21.5
	In a group	100	50.0	51.3
	Total	195	97.5	100.0
Missing	System	5	2.5	
Total		200	100.0	

This is the straight question about the learning style of the students. Most of the students (51%) of the respondents learn effectively in a group, 23% of the respondents work efficiently in pairs and 27% of the respondents prefer to work individually. The result shows that the students work efficiently and with interest in a group. They also prefer to work with a partner. In this way the weak students get help from their partners and in some cases the brilliant students work and the weaker students do not share the work load. It is the responsibility of the teacher to evaluate the students in a way that weaker students compel to work efficiently in a group.

Table 4.29 Students' choice about working in Pairs/Group on the Basis of Gender

		Gender		
		Male	Female	Total
Effective Learning	Individually	45	6	51
	In pairs	28	13	41
	In a group	83	10	93
Total		156	29	185

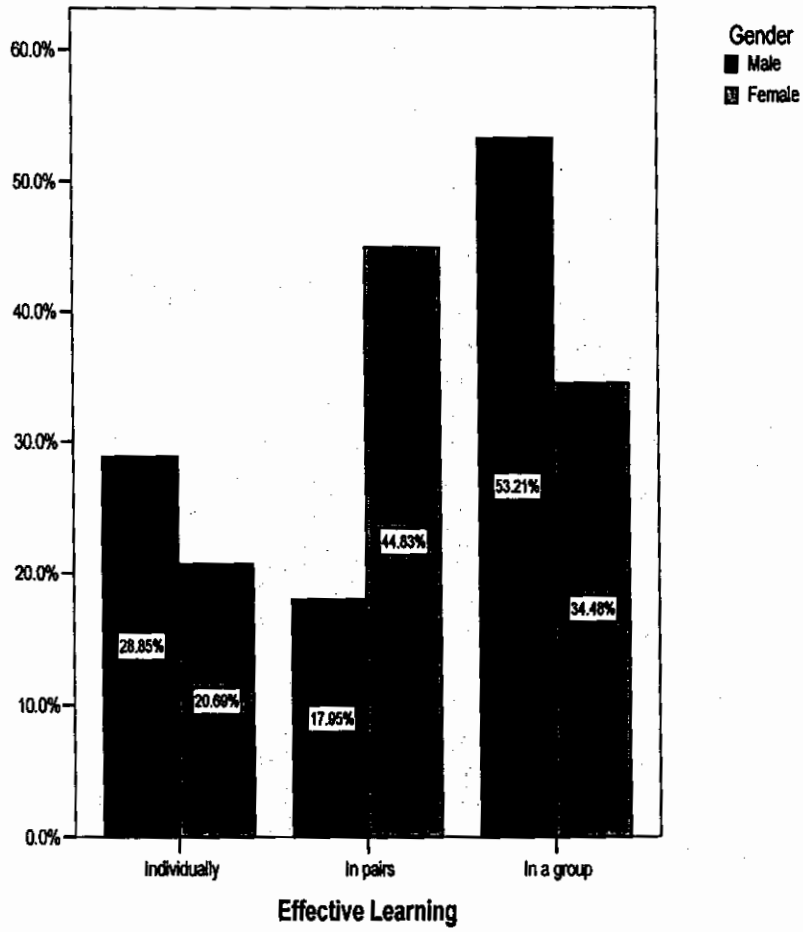

Figure 4.8 Students' choice about working in Pairs/Group on the Basis of Gender

Figure 4.8 shows 53% of the male respondents prefer to work in a group and approximately 18% learn efficiently in pairs. A fair number (45%) of the female respondents learn effectively in pairs. It can be seen in the graph that 34% of them learn effectively in a group. The result shows that girls learn effectively in pairs. In pair work girls have

opportunity to work with a girl. In this way she feels comfortable and her working partner is easily accessible during the university timings and after the classes. If she choose a male partner than it makes the work competitive and challenging.

Table 4.30 Students' views about Teaching Methodology for Grammar

Students		Frequency	Percent	Valid Percent
Valid	Explicit	60	30.0	37.3
	Implicit	101	50.5	62.7
	Total	161	80.5	100.0
Missing	System	39	19.5	
Total		200	100.0	

Most of the students (63%) of the respondents feel that grammar should be taught to engineering students in their English courses and 37 % of the respondents think that approach should be implicit.

There could be many reasons behind their approach to learning grammar. Some students want a model explain clearly by the teacher and then follow the model. This approach is common in teaching of mathematics and in teaching of English through GTM at school level. The rest of the students work themselves to extract and infer the grammatical rules.

Table 4.31 Teachers' Beliefs about Teaching of Grammar

		Frequency	Percent	Valid Percent
Valid	Explicit	1	10.0	20.0
	Implicit	4	40.0	80.0
	Total	5	50.0	100.0
Missing	System	5	50.0	
Total		10	100.0	

Table 4.31 shows 20% of teachers believe that the approach should be explicit. It can be seen in the table that 80% of the teachers think that eclectic approach should be adopted for the teaching of grammar to engineering students.

Table 4.32 Students "wants" about Correction of Mistakes

		Frequency	Percent	Valid Percent
Valid	Strongly Agree	76	38.0	38.6
	Agree	87	43.5	44.2
	Uncertain	9	4.5	4.6
	Disagree	14	7.0	7.1
	Strongly Disagree	11	5.5	5.6
	Total	197	98.5	100.0
Missing	System	3	1.5	
Total		200	100.0	

Most of the students (83%) think that the teachers of English courses tell them all their mistakes. It shows that they are dependent and expect that teacher is the one who can tell them their mistakes in language. The want of the students demand a lot of effort from the students. The teachers have to return the assignments to the students after evaluation. It gives a chance to the students to correct their mistakes.

4.6 Methods/ Techniques used in the teaching of English Courses

Teaching methodology is as important as syllabus of ESP courses. The syllabus describes what and methodology deals with how (See 2.5). Effective Teaching methodologies help learners to learn effectively. Teaching methodology should address diverged educational background and learning styles of the learners. Q. No.4,12,13 & 17 of the students questionnaire were about teaching methodology.

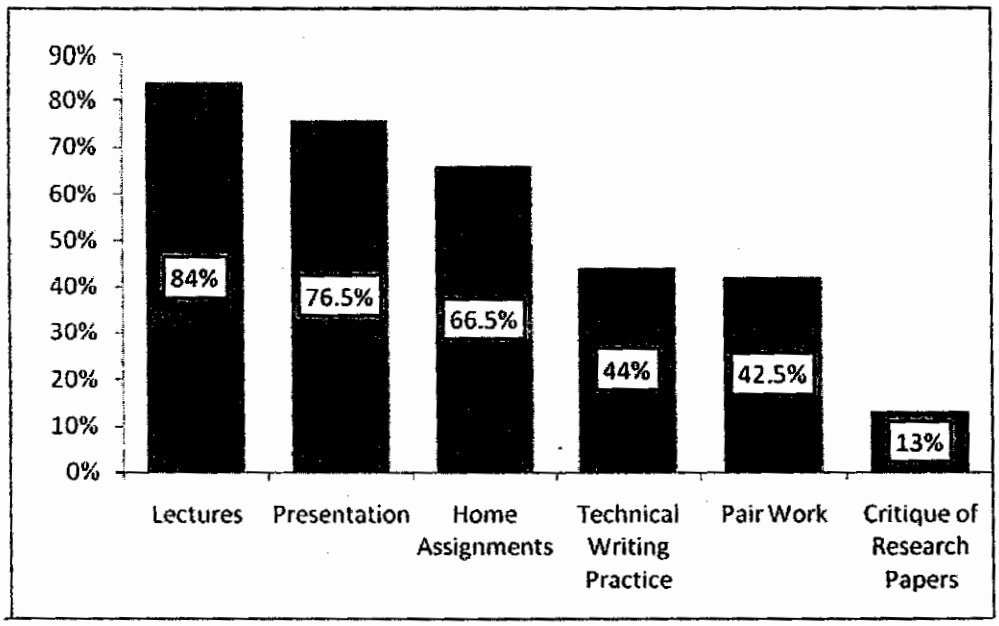

Figure 4.9 Methods Used in Teaching of English Courses

Lecture is the most common method in teaching of English courses to the respondents. Presentation by the students is also a common method used by the teachers. Home assignments are also part of English courses to strengthen the concepts of the students. Technical writing practice is not common in all the universities and there is also less emphasis on pair work. The critique of research paper in the classroom or as home assignment is not common in the universities. The teachers are relying on lectures, presentations by the students and home assignment. The teachers are only delivering lectures and the leave rest on the students. Pair work is not being encouraged by the teachers.

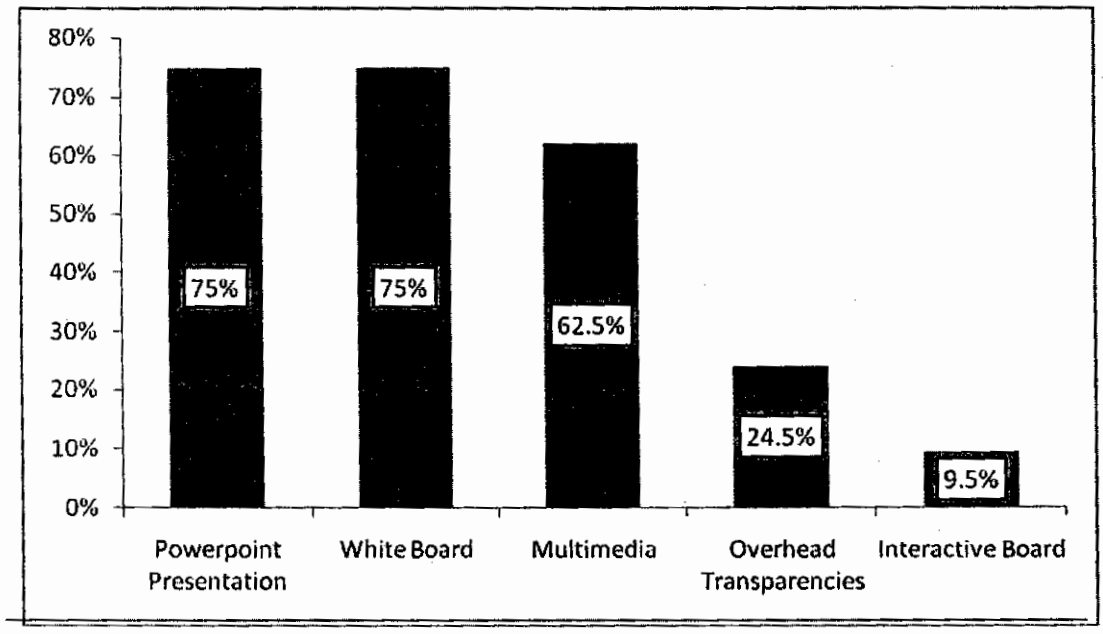

Figure 4.10 Audio Visual Aids Used in Teaching of English Courses

The usage of Microsoft PowerPoint presentation and whiteboard is equal. The next audiovisual aid is multimedia projector. The important point to note is that multimedia projector is required to run PowerPoint presentation. Most of the respondents (75%) of the respondents selected the option of PowerPoint presentation while only 62% of the respondents verify the use of multimedia projector in the class. It could be possible they think that multimedia means sound and pictures. The use of overhead transparencies is not common in the teaching of English courses to engineering students. Interactive board has not yet reached in the universities of Pakistan and interestingly 9% of the students selected interactive board as audio-visual aid being used in their class room. It shows that during the questionnaire filling process they wanted to show a very good image of their institution/university.

Table 4.33 Students Satisfaction Level about Teaching Methodology

		Frequency	Percent	Valid Percent
Valid	Strongly Agree	21	10.5	10.8
	Agree	82	41.0	42.1
	Uncertain	35	17.5	17.9
	Disagree	43	21.5	22.1
	Strongly Disagree	14	7.0	7.2
	Total	195	97.5	100.0
Missing	System	5	2.5	
Total		200	100.0	

Teaching methodology plays an important role to impart knowledge to the students. In learner-cantered approach the satisfaction of the learners is the objective of the syllabus and methodology. Table 4.33 shows 53% of the students are satisfied from the teaching methodology of the English courses in engineering programme. It can be seen in the table that 29% of the respondents think other way. They think that still there is a lot of scope in improving teaching methodology. Table 4.33 reflects that 18% of the students are uncertain about the issues.

4.7 Effectiveness of the English courses

The effectiveness of English courses could be measured by assessing the outcome of the courses. One of the available evaluation tools is to monitor the outcome of the courses is learners participation in seminar, conferences. Q. No. 22 of the students' questionnaire was related to the out put/ performance of the students in Communication Skills. The detail of the outcome of the English courses is presented in tabular form on the next page.

Table 4.34 Outcome of English Courses

An Article in a seminar		Frequency	Percent	Valid Percent
Valid	Unchecked	182	91.0	91.0
	Checked	18	9.0	9.0
	Total	200	100.0	100.0
A Paper Presentation in a Conference		Frequency	Percent	Valid Percent
Valid	Unchecked	180	90.0	90.0
	Checked	20	10.0	10.0
	Total	200	100.0	100.0
A Presentation in a workshop		Frequency	Percent	Valid Percent
Valid	Unchecked	139	69.5	69.5
	Checked	61	30.5	30.5
	Total	200	100.0	100.0
None of the above		Frequency	Percent	Valid Percent
Valid	Unchecked	182	91.0	91.0
	Checked	18	9.0	9.0
	Total	200	100.0	100.0

The question was asked to know the outcome of English courses. The outcome is not up to mark. The students checked the option at their own there is no certificates for seminar/conference or workshop. During informal discussion with the students the researcher observed that only 1 to 2% of the students give presentation in a workshop/seminar.

Table 4.35 Perception of Respondents with Reference to Future Needs

Students		Frequency	Percent	Valid Percent
Valid	Strongly Agree	35	17.5	17.6
	Agree	94	47.0	47.2
	Uncertain	38	19.0	19.1
	Disagree	24	12.0	12.1
	Strongly Disagree	8	4.0	4.0
	Total	199	99.5	100.0
Missing	System	1	.5	
Total		200	100.0	
Engineers		**Frequency**	**Percent**	**Valid Percent**
Valid	Agree	9	60.0	60.0
	Uncertain	1	6.7	6.7
	Disagree	5	33.3	33.3
	Total	15	100.0	100.0
Teachers		**Frequency**	**Percent**	**Valid Percent**
Valid	Strongly Agree	1	10.0	10.0
	Agree	3	30.0	30.0
	Uncertain	3	30.0	30.0
	Disagree	3	30.0	30.0
	Total	10	100.0	100.0

Most of the students (64%) of the respondents think that English courses in engineering programme fulfills the future needs of the students, 16% of the students are not satisfied with the present courses and 12% of the respondents do not know the link of future needs with English courses. The students during their Bachelors degree do not have much exposure to industry and challenges face by the entrant in industry and R&D organizations. They think that they can write and speak English and that is enough. Most of the engineers (60%) think that courses meet the future needs of the students.

A fair number (40%) of teachers think that English courses in engineering programme fulfill the professional needs of the students, 30% are disagree with the statement and 30% of the respondents are uncertain about the statement. Table 4.36 shows 40% of the teachers are

satisfied from the English courses as far as the professional development of the prospective engineers is concerned. It can be seen in the table that 30% of the teachers are optimistic that course contents are realistic, interesting and challenging.

The second question was about the teaching of English courses in engineering universities. The purpose of the question was to know the satisfaction level of the HsOD regarding the courses. The respondents gave mixed responses to the question. Majority of the respondents were not satisfied with the course. One of the heads of the department said " ***Well! Er All universities do teach different English courses Er but I think we need to have. Look at those courses. Are they helpful er I mean the purpose for which we are teaching those courses are we solving that purpose. So we need to have a review. Personally I believe English course need to be improved there is something missing."*** This shows that there is a space for improvement. We should look at the efficiency of those courses. The courses are lacking something. One of the respondent said "***English courses are just filling the gap."*** Another HOD does not think that English courses are important for Engineers students. "***I think as far as engineering as a subject concerned the people who join engineering as a curriculum they have sufficient background. The students who are good in English they remain good till the end. The student whose basis is not good they can not improve. Their educational background matters a lot."*** The respondent was of the view that English can be improved at this level but due to the large numbers of the students it is very difficult for the teachers to give time to individual students.

4.8 Suggestions for the Improvement in Syllabi and Teaching Methodology

At the end of each questionnaire, two open-ended questions were set to get the suggestions from the respondents about the improvement in the syllabi and teaching methodology.

Table 4.36 Suggestions for the Improvement in Syllabi

Students		Frequency	Percent	Valid Percent
Valid	Yes	126	63.0	63.0
	No	74	37.0	37.0
	Total	200	100.0	100.0
Engineers		Frequency	Percent	Valid Percent
Valid	Yes	2	13.3	13.3
	No	13	86.7	86.7
	Total	15	100.0	100.0
Teaahers		Frequency	Percent	Valid Percent
Valid	Yes	10	100.0	100.0

Table 4.37 Suggestions for the Improvement of Teaching Methodology

Students		Frequency	Percent	Valid Percent
Valid	Yes	118	59.0	59.3
	No	81	40.5	40.7
	Total	199	99.5	100.0
Missing	System	1	.5	
Total		200	100.0	
Engineers		Frequency	Percent	Valid Percent
Valid	Checked	15	100.0	100.0
Teachers		Frequency	Percent	Valid Percent
Valid	Yes	10	100.0	100.0

Most of the students (63%) gave their opinion for the improvement in syllabi and 59% suggested measures to teaching methodology of the English courses. Table 4.38 shows 13% of the engineers give suggestions for the improvement of syllabi and 100% of them give suggestions for the improvement of methodology for the teaching of English courses.

All the teachers give their views for the improvement of syllabi and teaching methodology. They think that there is room for improvement in syllabi and teaching methodology.

4.38 Suggestions for the Improvement of Syllabi and Teaching Methodology

Students	Frequency
Presentations by the students	57
Student centered Instructions	47
More time be given to Speaking Skills	33
Practical Real life projects	27
Group discussion	27
Good Instructor	25
Emphasis on Vocabulary	20
Writing Practice	19
More Assignments	18
Behaviour of the teacher	16
Use of Technology	14
English as medium of instruction	12
Research Paper Writing	11
Group Assignments	11
Grammar Teaching	10
Seminars	9
Listening Skills	9
Workshops	8
Reading Skills	8
Teacher should come well prepared	4

The next question was about suggestions for improvement in English courses. All of the Heads of Department gave their suggestions. ***"First of all we need to collect the data. We need to consult the end users. What do they expect from the course such as technical report writing? We need to have a better evaluation model. We have never tried to find out how beneficial these courses have been. We need to collect the data. We should talk to the industry and the people who are responsible for the employment of engineers."*** There is need of the data from industry and HR managers to evaluate the efficiency of the courses.

One of the respondent said ***"There should be more emphasis on reading skills and Speaking Skills.***

The last question was meant to know the suggestion of the Heads of Department regarding improvement in teaching methodologies of the English courses. Most of the respondents were of the view that the courses should be more practical in nature. The teaching method should address the diversified learning style of the students. ***"Certainly by delivering a lecture and expecting the students to pick up every thing from the teacher is not correct. There should be communication lab in engineering universities. We need to adopt modern teaching methods to motivate our students. That will definitely raise the standard."*** The courses should be more practical and teachers should engage the students in different types of assignments and there must be presentations by the students. The students should have confidence and should be able to speak in front of people. ***"So that students once he graduates he should at least come on the dais 10 to 15 times."*** Individual presentations by the students, participation in speech contests and seminar/workshop presentations could be useful to bring confidence. All of the respondents suggest that the course should be more practical and should improve their speaking Skills.

The last question to prospective employers was about improvement of English courses. All of the respondents were of the view that students should be able to write correctly. ***"The courses lack the element of practicality. The courses should be more practical."*** Most of the respondents (70%) were of the view that speaking and writing skills should be the top priority in the courses of communication skills.

4.9 Class Observation

Class observation is one of the techniques to validate the quantitative data. The researcher observed the teaching learning situation in the engineering universities of Rawalpindi/Islamabad.

4.9.1 University 1

The researcher observed the class of Communication Skills. It was the 14th week of the semester. The class started with the announcement of the topic for the class. For the first hour the topic was CV writing and in the second hour the teacher taught cover letter for a job application. The students were in their second semester of computer engineering. The class was consisted of 38 students. A fair number (20%) of the students were Gentleman Cadets (Pakistan Army Sponsored engineering students and they will have to join Pakistan Military Academy after the completion of their B.E.).

4.9.1.1 Material for the Lesson

Teacher was well prepared for the class. But he has not distributed any material related to topic among the students. In the first hour of the lecture teacher had not distributed any handout related to the lesson. In the second hour the teacher distributed one page hand-out about the parts of Job application.

4.9.1.2 Relevance of Topic

The topic was relevant to the needs of the students. One of the students who was Gentleman Cadet said "***Sir, I don't think that CV writing is important for me since I have already got a job and in future I want to continue this profession in the same organization.***" Unfortunately, the teacher had no answer to this question. The teacher had no idea about the

future needs and career planning in Army. He might have said that when you will undertake any government sponsored project you will have to submit your CV and even for selection as teacher in Army you need to write your CV.

The teacher was not aware of the future prospects of the students. The teacher replied "***If you are applying for the post of PRO (Public Relation Officer) then you.....***". The teacher should understand that an engineer will never apply for the post of PRO in any circumstances. The academic qualification for PRO is Master degrees in Journalism, Mass Communication and English. The teacher should have knowledge about the potential job-placement of engineering students.

4.9.1.3 Interest-level of the students

The topic was interesting but unfortunately the students were not involved in the class. May be the topic was not challenging for them. Some of the students responded to the questions asked by the teacher. Some of the students were busy with their mobiles and rest of them were chatting with one another. At one point the teachers could not control his anger and started shouting and two students were sent out of the class due to bad discipline. During informal discussion, the teacher showed his dissatisfaction on the performance and attitude of the Gentleman Cadets in the class. The teacher was of the view that they are expected to be more disciplined then civilian students but they are ill-disciplined students.

4.9.1.4 Teaching Method

The teacher used lecture method in the class. He has not designed a single activity for classroom practice. The teacher used white board as education aid. Multimedia projector was installed in the class but was not used by the teacher. The teacher did not manage the class by

dividing into groups/ pairs. There was little understanding of the diverse learning style of the students. The topic falls in the area of writing skills. The teacher encouraged the students to participate in the class but the students were reluctant to participate.

4.9.2 University 2

The lesson started with the announcement of the lesson. The students were in second semester of Electrical Engineering and studying the subject of technical writing. The class consisted of 25 students. The topic for the lesson was report writing.

4.9.2.1 Material for the Lesson

The teacher was slightly confused about the topic. The teacher provided a handout to the students. The handout was consisted of a sample report. The teacher distributed the handout and then students read some text from the handouts.

4.9.2.2 Relevance of the Topic

The topic was relevant to the student's academic needs and future needs. The model used by the teacher for the class was taken from the area of social sciences. This misunderstanding on the part of teacher, create a sense of uncertainty about the importance of the topic, among the students. When the teacher asked the students to make a research question for survey, 100% of the students selected the topics from the area of social sciences. The teacher should know that survey method is not being used by the engineers in their research and it is useless to teach this type of data collection methods for writing a report. A relevant topic was made irrelevant by the teacher.

4.9.2.3 Teaching Method

The teacher used lecture method in the class. He explained the topic in the beginning of the lecture. The topic was difficult and the teacher tried to make it simple. The teacher did not explain the importance of the topic. She had designed two activities for classroom practice. The first was to think about a research question which could be surveyed. The second activity was writing of a statement of purpose. The teacher used white board as education aid. Over Head Projector (OHP) was available in the class but was not used by the teacher. The teacher divided the class into groups. The diverse learning style of the students were not kept inot mind in planning the lesson. The emphasis was on writing skills but the teacher was interested in making groups and keeping students busy in activities which were not relevant to their area of knowledge. The teacher did not highlight the salient features of the technical writing. She was confused whether the report is being written in Present tense or Past tense. The teacher encouraged the students to participate in the classroom discussion.

4.9.2.4 Interest Level of the Students

The researcher observed that the students were not taking interest in the topic. The one reason, as mentioned by the students, was that the teacher was using the techniques/method which she never used in previous lectures. The students were not able to keep pace with the new teaching style of the teacher. The topic was difficult and the teacher had not taught them anything practical about technical writing. The students got bored with the lecture and one of the students was taking asleep in the class.

4.9.3 University 3

The lesson started with the announcement of the topic. The students were in third semester of Electrical Engineering and their subject was communication skills. The class consisted of 60 students were present in the class. The topic for the lesson was speaking skills.

4.9.3.1 Material for the lesson

The teacher was well prepared and about the topic and was energetic. The teacher did not provide a handout to the students.

4.9.3.2 Relevance of the Topic

The topic was relevant to the student's immediate and future needs. The teacher discussed speaking skills in general terms. He did not mention the importance of the skills in appearing for an interview or the use of skills in meeting, seminar and workshop.

4.9.3.3Teaching Method

The teacher used lecture method in the class. The teacher explained the topic in the beginning of the lecture. The topic was easy and teacher explained the topic and psychological barriers in speaking. The teacher also suggested strategies to overcome psychological barriers in speaking. It was teacher centred lecture and students were not given chance to speak. The teacher used white board for the lecture. The teacher was not addressing the diversed learning style of the students. The lecture was interesting and the students understood each and everything explained by the teacher.

4.9.3.4 Interest Level of the Students

Most of the students were taking keen interest in the topic and they have asked different questions during the lecture such as what is difference between writing and speaking skills what should be the pitch and tone for an oral presentation? What is semantic barrier in communication?

4.9.4 University 4

The teacher arrived late in the class. The lesson started with the announcement of the topic. The students were in seventh semester of Electronics Engineering and the subject was Technical Report Writing. The class consisted of 22 students. The topic for the lesson was letter writing.

4.9.4.1 Material for the lesson

The teacher was not prepared about the topic. The teacher did not provide any handout or material to the students.

4.9.4.2 Relevance of the Topic

The topic was relevant to the student's future needs. But the teacher taught the topic as if he was teaching to the students of Higher Secondary School. He made it very simple and taught them what they have already learned during their matriculation and intermediate. He taught letter writing in general.

4.9.4.3 Teaching Method

The teacher used lecture method in the class. The teacher explained the topic in the beginning of the lecture. The topic was not easy and teacher was taking it casually. It was teacher

centred lecture and students were not given chance to speak. The teacher used white board for the lecture.

4.9.4.4 Interest Level of the Students

Most of the students took interest in the topic but the teacher was in a hurry and was interested in covering the topics for the final examination. The students informed the researcher that the teacher has only delivered four lectures during the whole semester.

4.11 Informal meeting with Deputy Registrar (PEC)

The interview with the deputy registrar was not the part of the research. The researcher visited PEC to collect the data for literature review. The research met the Deputy registrar and had a discussion about the increase in the credit hours of English courses. The researcher felt that people at PEC were not happy with the decision. They were expecting that HEC should consult PEC before taking the decision. PEC has allowed Engineering university to teach 35% non-engineering curriculum in engineering programme. PEC is responsible for the accreditation of engineering university. The accreditation team has never evaluated the curriculum of English courses. Their aim is to visit the laboratories and engineering courses in engineering universities.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

This chapter describes the outcome of the present study with reference to data analysis followed by recommendation for the improvement of syllabi and teaching methodologies for English course for B.E. students at engineering universities.

5.1 Conclusion

The aim of the research was to review the effectiveness of existing ESP courses taught to Bachelor of Engineering students in Pakistan. The objectives of the study were laid down in section 1.2.1. A field survey was carried out to validate the research. The respondents in this study included students of B.E., recent graduates, teachers who teach English courses to engineering students, heads of department and prospective employers for engineering students. The data were analysed and interpreted quantitatively and qualitatively. The data divided into nine categories for analysis and to find out the results of the study.

Data Analysis (see section 4.2) shows that after studying English courses most of the students consider themselves at intermediate level and some of them even at elementary level in reading and writing skills. A fair number (47%) of recent graduates are not able to comprehend technical language of contracts. Most of the respondents (59%) consider their

speaking skills at intermediate level and 9% of the engineering students consider themselves at an elementary level.

The results show a positive attitude of the learner towards English language. Most of the students (93%) consider English courses important and useful for their career (see Table 4.17). They also think that good communication skills are essential for securing job. Majority of the students (61%) think that in future they will use English language at their workplace. On the other hand a fair number of students (23%) foresee the expected usage of English language during higher education.

For a fair number (36%) of the students the contents of the courses are not challenging enough. It is also evident from the data that the important topics such as writng technical report, writing term of reference, writing research papers, conducting job interviews etc are not taught in some universities.

Most of recent engineering graduate (60%) are of the view that English courses do not fulfil the future needs of the students and 65% of the engineering students agree with the statement that English courses fulfil the future needs of the students (See Figure 4.4).

Students, teachers, and graduates rank communication skills in the following order: speaking skills, writing skills, reading skills and listening skills (see Table 4.26). It is important to mention that they rank the skills in the same order. It shows that there is a harmony among teachers, graduates and students regarding importance of communication skills.

Most of the teachers use lecture methods for teaching of the courses and do not use other teaching methods for teaching English courses (see Figure 4.9). Most of the students responded that teachers of English courses used PowerPoint presentation for teaching.

During classroom observation, the researcher found that contrary to the data provided by the students, none of the teachers used multimedia for teaching.

Majority of the students (87%) learn effectively by giving presentation in the classroom and 82% of the respondents learn effectively by working in pairs and groups (see Figure 4.7 & Table 4.30). Majority of the students and teachers think that grammar should be taught implicitly (see Table4.31 & 4.32). Most of the students (83%) think that the teachers of English courses tell them all their mistakes (see Table 4.33). It shows that they are dependent and expect that teacher is the one who can tell them their mistakes in their use of language.

Most of the students are of the opinion that grammar should be taught as a part of English courses. Majority of the students and teachers think that grammar should be taught implicitly (see Table4.31 & 4.32).

There is a serious concern in industry and academia related to communication skills of the recently graduated engineers (see 4.3.1). The industry gives weightage to good communication skills in their recruitment process of engineers. Due to globalization, industry needs engineers with good interpersonal skills. The managers at corporate sector are not satisfied with the present syllabi of English course at the engineering universities of Pakistan. They feel that the courses should be practical in nature and help the students to work effectively at their workplace.

The respondents gave many suggestions for the improvement of Syllabi and Teaching Methodology (see Table 4.39). Teaching should be student-cantered. More time should be given to speaking skills as the students speak Urdu or regional languages outside the class.

Group discussion is the favourite activity for most of the students. More weightage should be given to assignments and presentations while assessing the skills. Teacher should speak English language in the classroom. Listening Skills should be included in the subject of Communication Skills. The teachers should be friendly with the students.

The major discrepancies identified in the system are poorly designed syllabi, untrained teachers, indifference of the management and no link between academia and the industry. There was difference of opinions between teachers and students regarding importance of Technical Report Writing and Presentation Skills (see Table 4.28). For most of the teachers Technical Report Writing is important than Presentation Skills for the students. The students did not agree with that point of view of their teachers. Practicing engineers feel hard in writing technical documents and reports. Moreover, Teachers do not give study plan to the students. The respondents from the universities and Industry also emphasized the importance of Technical Report Writing and Presentation Skills in the syllabi of English courses.

Keeping in view the above mentioned findings, it is apparent that the present syllabi and teaching methodology of English courses needs to be improved to fulfil the future needs of the students.

5.2 Recommendations

The syllabi of English courses for engineering should be re-designed in accordance with the needs identified in the present study. There should be equal emphasis on fours skills in the subject of Communication Skills. Topics such as Job interview, Term of Reference, Statement of Purpose and Research Paper Writing, and writing Lab Report be included in the syllabi. It is suggested that these topics should be taught in the subject of Technical Report

Writing. Line of demarcation must be drawn between Communication Skills and Technical Report Writing. Communication Skills be taught in the subject of Communication Skills. Technical writing should not be taught in this subject.

Keeping in view the "wants" of the students' speech contests, seminars, workshops should be arranged to develop the confidence of the students. The teachers should use teaching methodology that should be student-centred. To improve the listening skills of the students, language labs should be established. Material relevant to engineering discipline should be given to the students for the improvement of reading skills. Teachers of English should consult the engineering departments to make English courses more effective and useful for the engineering students.

As directed by the HEC, engineering universities should dedicate 9.0 credit hours for English courses. Functional English must be taught at engineering universities. The HEC should involve English language teachers and representatives from industry in curriculum committee for English courses for engineering students.

This study has identified some respondents (see 4.1.3.2) in academia who are prejudice towards ESP and Teaching of English courses. Their mindset could be changed by educating them by organizing seminars on ESP. English is a subject that should be taught by ESP practitioners. It is different from general English and anybody who can speak and write good English can not teach English to engineering students. English courses are not the core courses for engineering students but they can enhance the value of core courses. There is a need to educate the management of engineering universities about the importance of English language in the professional development of the engineering students.

There are considerable segments in the whole sample of the study which are for the induction of highly trained personnel for the teaching of ESP. The universities should hire trained teachers for ESP courses (for detail see 4.1.3.2). He/she should teach the courses by linking it with their future communication needs. The teacher should have skills to use modern Audio Visual Aids and have potential to use innovative methods to increase the interest of the students in the subject. The teacher should be able to manage the class (by giving group and pair work to the students) for effective learning. The teachers should use English language while teaching English courses. The Teacher should take into consideration that the students from different educational backgrounds get engineering education and he/she should use different techniques to teach mixed ability class effectively.

The subject of Technical Report Writing should be made more practical. The Technical Report Writing should be practised by the students in the class. The students should be able to write technical reports and research papers at the end of the semester. Grammar should be implicitly taught and teacher should correct the grammatically mistake of each and every student in the classroom.

Most of the students get education from government schools. It is suggested that English should be treated as language not as a subject. The contents and teaching methodologies of English should be improved at the middle, Secondary School Certificate and Higher Secondary Certificate level.

References

Aiguo, W. (2007). Teaching aviation English in the Chinese context: developing ESP theory in a non-English speaking country. English for Specific Purposes , 26,1, 121-128.

Amirian, Z., & Tavakoli, M. (2009). Reassessing the ESP courses offered to engineering students in Iran: a case study. *ESP World , Issue 23 Volume 8.*

Benesch, S. (1996). Needs analysis and curriculum development in EAP: an Example of a critical approach. *TESOL Quarterly, Vol. 30, No. 4)* , 723-738.

Bunge, M. (1966). Technology as applied science. *Technology and Culture, Vol. 7, No. 3*, 329-347.

Cohen, L.; Manion, L., & Morrison, K. (2007). Research methods in education. London: Routledge.

Edwards, N. (2000). Language for business: effective needs assessment, syllabus design and material preparation in practical esp case study . *English for Specific Purposes , 19. (3)*,291-296.

Evans, D & John, M. (1998). Developments in ESP: a multi-disciplinary approach. Cambridge: Cambridge University Press.

Hassan, F. (2005). *Designing an ESP syllabus for engineers of Lahore technical* colleges (MA dissertation, Allama Iqbal Open University, Islamabad).

Holliday, A. (1995). Assessing language needs within an instutitional context: an ethnographic approach. *English for Specific Purposes , Volume 14, Number 2,* 115-126.

Houp, K.; Thomas.E.Pearsall & Tebeaux, E. (1998). *Report technical information.* New York: Oxford University Press.

http://www.pec.org.pk/regulation_enggedu.aspx. Retrieved December 25, 2009, from Pakistan Engineering Council's Wbesite.

Huckin, T. N. & Oslen, L. A. (1991). *Technical writing and professional communication for nonnative speakers of English.* New York: Macgraw-Hill Inc

Hutchinson, T. & Walters, A. (1987). *English for specific purposes: A learning-centered approach.* Cambridge: Cambridge Univrsity Press.

Imtiaz, A. (2003). *Evaluation fo the existing Business Communication and Report Writing Courses for M.Com Baning studnets with special reference to BZU, Multan.* (MA dissertation, Allama Iqbal Open University, Islamabad).

Jackson, J. (2005). An inter-university cross-disciplinary analysis of business education: perception of business faculty in Hong Kong. *English for Specific Purposes, Volume 24, No.3,* 293-306.

John, B. W. & James, K. V. (2005) *Research in Education.* : Prentice Hall.

Johns, A. M. & Machado, P. D. (2001). English for specific purposes: tailoring courses to students neess and to the outside world. In M. C. Murcia, *Teaching English as a Second or Foreign Language (* 43-53). Boston: Heinle & Heinle..

Kaewpet, C. (2009). Communication needs of Thai civil engineering students . *English for Specific Purposes , 28,4,* 266-278.

Kaytoon, A., & Fakharzadeh. (2009). A needs analysis survey: the case of tourism letter writing in Iran. . *ESP World , Issue 1 (22), Volume 8.*

Kumari, S. & Sarivastava, D. S. (2005). *Education assesment, evaluation and remedial.* New Delhi: Isha Books.

Mahmood, S. (1985). *ESP in Pakistani Medical Colleges.* (MA dissertation, Allama Iqbal Open University, Islamabad).

Michael, L. H. (2005). *Second language needs analysis.* Cambrideg: Cambridge University Press.

Naz, F. (2004). *ESP syllabus for science students at secondary level: a case study.* (MA dissertation, Allama Iqbal Open University, Islamabad).

Nunan, D. (1992*). Research methods in language learning.* Cambridge: Cambridge University Press.

Nunan, D. (1988*). Syllabus design.* Oxford: Oxford University Press.

Nunan, D. (1998). *The learner-centred curriculum: A study in scecond language teaching.* Cambridge: Cambridge University Press.

Oakley, B., Connery, B., & Allen, K. (1999). Incorporating Writing Skills into the Engineering Curriculum. 29th ASEE/IEEE Frontiers in Education Conference (pp. 1-4). Puerto Rico: IEEE.

Olive, F. (1999). English for college studnets in Taiwan: a study of perception of Engish needs in medical context. *English for Specific Purposes , Volume 18, Issue 2,* (107-119).

Oxford, L. R. (2001). Language learning styles and strategies. In M. Celce-Murcia, *Teaching English as second or Foreign Language* (359-366). Boston: Heinle & Heinle.

Patton, Q. M. (1990). *Qualitative evaluationa and research methods.* Second Edition. Thousand Oaks: Sage Publications.

Pauley, S. E. & Riordan, D. G. (2000). *Technical reporting writing today.* Boston: Houghton Mifflin Company.

Rayan, P. A. & Shetty, R. T. (2008). Developing engineering students' communicaiton skills by reducing their communication apprehension. *ESP World , Issue 4 (20) Volume 7 .*

Roberts, H. & Worth, B. (2000). *Writing for science and engineering: Papers, presentations and reports.* Oxford: Heinemann.

Savignon, S. J. (2001). Communicative language teaching for twenty-first century. In C. M. Murcia, *Teaching English as a Second or Foreign Language* (13-28). Boston: Heinle & Heinle.

Shakir, A. (2003). *An introduction into communicative needs of the hotel industry staff in Pakistan.* (M.Phil dissertation, Bahauddin Zakria University, Multan).

Walliman, N. (2005). *Your research project* 2nd edition. New Delhi: Vistaar Publications.

Yogman, J. & Kaylani, C. T. (1996). ESP program design for mixed level students. *English for Specific Purposes , 15, 4,* pp.311-324.

Appendix-1

HEC Revised Syllabi of English Course for Engineering Students

COMPULSORY COURSES IN ENGLISH FOR BE/BSc IN ENGINEERING DISCIPLINE

Semester I

Functional English

Objectives: Enhance language skills and develop critical thinking.

Course Contents

Basics of Grammar
Parts of speech and use of articles
Sentence structure, active and passive voice
Practice in unified sentence
Analysis of phrase, clause and sentence structure
Transitive and intransitive verbs
Punctuation and spelling

Comprehension

Answers to questions on a given text

Discussion

General topics and every-day conversation (topics for discussion to be at the discretion of the teacher keeping in view the level of students)

Listening

To be improved by showing documentaries/films carefully selected by subject teachers

Translation skills

Urdu to English

Paragraph writing

Topics to be chosen at the discretion of the teacher

Presentation skills

Introduction

Note: Extensive reading is required for vocabulary building

Recommended books:

1. Functional English

a) Grammar

1. Practical English Grammar by A.J. Thomson and A.V. Martinet. Exercises 1. Third edition. Oxford University Press. 1997. ISBN 0194313492
2. Practical English Grammar by A.J. Thomson and A.V. Martinet. Exercises 2. Third edition. Oxford University Press. 1997. ISBN 0194313506

b) Writing

1. Writing. Intermediate by Marie-Christine Boutin, Suzanne Brinand and Francoise Grellet. Oxford Supplementary Skills. Fourth Impression 1993. ISBN 0 19 435405 7 Pages 20-27 and 35-41.

c) Reading/Comprehension

1. Reading. Upper Intermediate. Brain Tomlinson and Rod Ellis. Oxford Supplementary Skills. Third Impression 1992. ISBN 0 19 453402 2.

d) Speaking

Semester II

Communication Skills

Objectives: Enable the students to meet their real life communication needs.

Course Contents

Paragraph writing

Practice in writing a good, unified and coherent paragraph

Essay writing

Introduction

CV and job application

Translation skills

Urdu to English

Study skills

Skimming and scanning, intensive and extensive, and speed reading, summary and précis writing and comprehension

Academic skills
Letter/memo writing, minutes of meetings, use of library and internet
Presentation skills
Personality development (emphasis on content, style and pronunciation)
Note: documentaries to be shown for discussion and review
Recommended books:
Communication Skills
a) Grammar
1. Practical English Grammar by A.J. Thomson and A.V. Martinet. Exercises 2. Third edition. Oxford University Press 1986. ISBN 019 431350 6.

b) Writing
1. Writing. Intermediate by Marie-Chrisitine Boutin, Suzanne Brinand and Francoise Grellet. Oxford Supplementary Skills. Fourth Impression 1993. ISBN 019 435405 7 Pages 45-53 (note taking).
2. Writing. Upper-Intermediate by Rob Nolasco. Oxford Supplementary Skills. Fourth Impression 1992. ISBN 0 19 435406 5 (particularly good for writing memos, introduction to presentations, descriptive and argumentative writing).

c) Reading
1. Reading. Advanced. Brian Tomlinson and Rod Ellis. Oxford Supplementary Skills. Third Impression 1991. ISBN 0 19 453403 0.
2. Reading and Study Skills by John Langan
3. Study Skills by Riachard Yorky.

Semester III
Technical Writing and Presentation Skills

Objectives: Enhance language skills and develop critical thinking

Course Contents
Presentation skills
Essay writing
Descriptive, narrative, discursive, argumentative
Academic writing
How to write a proposal for research paper/term paper
How to write a research paper/term paper (emphasis on style, content, language, form, clarity, consistency)
Technical Report writing
Progress report writing

Note: Extensive reading is required for vocabulary building

Recommended books:

Technical Writing and Presentation Skills

a) Essay Writing and Academic Writing

1. Writing. Advanced by Ron White. Oxford Supplementary Skills. Third Impression 1992. ISBN 0 19 435407 3 (particularly suitable for discursive, descriptive, argumentative and report writing).
2. College Writing Skills by John Langan. Mc=Graw-Hill Higher Education. 2004.

3. Patterns of College Writing (4th edition) by Laurie G. Kirszner and Stephen R. Mandell. St. Martin's Press.

b) Presentation Skills

c) Reading

The Mercury Reader. A Custom Publication. Compiled by norther Illinois University. General Editiors: Janice Neulib; Kathleen Shine Cain; Stephen Ruffus and Maurice Scharton. (A reader which will give students exposure to the best of twentieth century literature, without taxing the taste of engineering students).

Appendix-I1

Students' Questionnaire

This questionnaire is part of my M.Phil research work conducted at International Islamic University, Islamabad. The research may help to improve the syllabi and teaching methodology of English courses for Engineering students in Pakistan. By completing the questionnaire you will be participating in the research. Be honest in giving your opinion. All of the information you give me will be treated as confidential.

Ameer Sultan
M.Phil English (4th Semester)
International Islamic University,
Islamabad.

PERSONAL INFORMATION

Institution: College of Electrical and Mechanical Engineering, Rawalpindi

University: National University of Sciences and Technology (NUST), Rawalpindi

Department: Mechatronics Engineering

Current Semester: _____

1. **Gender: Male / Female**

2. **EDUCATIONAL BACKGROUND (Tick which applies to you)**

   Matric
   Name of Institution _____

   O Level
   Name of Institution _____

   FSc
   Name of Institution _____

   A Level
   Name of Institution _____

3. **Level**	Reading Skills	1	2	3
	Writing Skills	1	2	3
	Speaking Skills	1	2	3

1 = Elementary level , 2 = Intermediate level 3 = Advanced level

Note: PLEASE TICK THE APPROPRIATE BOX

S #	Statement	Strongly Agree	Agree	Uncertain	Disagree	Stron Disag
1.	Technical English is different from General English.					
2.	English Courses in the engineering program mostly meet the future needs of the students.					
3.	I am satisfied with the syllabi of English Courses in my engineering programme.					
4.	I am satisfied with the teaching methodology of English courses in my Engineering program?					
5.	The contents of the Textbooks are generally realistic.					
6.	The contents of the English courses are interesting.					
7.	The contents of the English courses are challenging.					
8.	The contents of the English courses are practical.					
9.	I like the teachers of English courses to tell me all my mistakes.					

Q.10 I consider English courses in engineering programme for my career:

Very important	Useful	Quite important	Not quite Important	Not at all important

Q. 11 The materials in English courses cover the following skills. (answer on the scale from 1 to 5 where **1 is the most emphasis and 5 is the least emphasis)**

a. Writing Skills	1	2	3	4	5
b. Reading Skills	1	2	3	4	5
c. Speaking Skills	1	2	3	4	5
d. Listening Skills	1	2	3	4	5
e. Vocabulary	1	2	3	4	5
f. Grammar	1	2	3	4	5

Q. 12 In teaching English courses (Technical Report Writing and communication Skills) the following methods are often used? (Please tick the appropriate box)

a. Lectures ☐

b. Group/pair work ☐

c. Home assignments ☐

d. Critique of research papers ☐

e. Technical writing practice in class ☐

f. Presentations (by the students) ☐

g. Other (please specify)_____

Q.13 In the English classes the following are used: (Please tick the appropriate box)

a. Multimedia ☐

b. PowerPoint Presentation ☐

c. Over Head Transprancies ☐

d. Interactive Board ☐

e. White Board ☐

f. Other (please specify)_____

Q.14 Which one of these skills is the most important for you?

a. Presentation Skills ☐ b. Technical Report Writing ☐

b. Don't know ☐ c. None of the above ☐

Q.15 In which way you learn the most?

a. individually ☐ b. in pairs ☐ c. in a group ☐

Q. 16 Do you think Grammar should be taught in English courses?

a. Yes ☐ b. No ☐ c. Do not know ☐

Q.17 If yes, approach of teaching should be

a. Explicit (by teaching the rules of grammar) ☐

b. Implicit (by providing material and making the students infer the rule) ☐

Q. 18 Rank the following language skills according to their importance for you from **1 (important) to 6 (least important)**:

Reading _____

Writing _____

Speaking ____

Listening ____

Grammar ____

Vocabulary____

Q. 19 Where do you expect to use English most of the time in future?

a. At workplace ☐ b. Education ☐ c. Travel ☐

d. Do not know ☐

Q.20 How do you learn more effectively?

(Prioritize on a scale from 1 to 5 **where 1 is the most useful and 5 is the least useful)**

a. By attending lectures	1	2	3	4	5
b. By practicing Technical writing in the classroom	1	2	3	4	5
c. By doing Home Assignments	1	2	3	4	5
d. By giving Presentations	1	2	3	4	5
e. By working in Pair/group	1	2	3	4	5

Q. 21 which one of the following topics are covered in your English Courses? (Please tick the appropriate box)

a. ☐ How to write a Proposal?

b. ☐ How to write a research article

c. ☐ How to write Statement of Purpose

d. ☐ How to write Terms of Reference

e. ☐ How to write a cover letter

f. ☐ Job Interview

g. ☐ How to make a CV/Resume

h. ☐ How to write business letters

Q.22 Which of the following you have presented? (Please tick the appropriate box)

☐ An Article in a seminar

☐ A Paper Presentation in a Conference

☐ A Presentation in a workshop

☐ None of the above

Q.23 Give at least two suggestions about improving the syllabi of English Courses for engineering students in Pakistan?

1. _____

_____

_____

2. _____

_____

_____

Q.24 Give at least two suggestions about improving the teaching methodology of English Courses for engineering students in Pakistan?

1. _____

_____

_____

2. _____

_____

_____

Thank You

Appendix-III

Teachers' Questionnaire

This questionnaire is part of my M.Phil research work conducted at International Islamic University, Islamabad. The research may help to improve the syllabi and teaching methodology of English courses for Engineering students in Pakistan. By completing the questionnaire you will be participating in the research. Be honest in giving your opinion. All of the information you give me will be treated as confidential.

Ameer Sultan
M.Phil English (4th Semester)
International Islamic University,
Islamabad.

PERSONAL INFORMATION

1. **AGE:** 21- 24 , 25 - 28, 29-32, 33-36, 37-40 40-45, 46 +

2. **Gender:** Male / Female

3. **Institution:**

4. **University:**

3. **EDUCATIONAL BACKGROUND:**

a. Major in Bachelor Degree _____

b. Completion of M.A. Year _____

University:_____

c. Specialization a. ELT ☐ b. Literature ☐ c. Linguistics ☐

d. Highest Qualification: _____

e. Topic of Research:_____

4. **Relevant Teaching Experience**:

a. Less than 1 year ☐ b. 1-3 year ☐

c. 4- 6 years ☐ d. 7-10 years ☐

e. 10-15 years ☐ f. More than 15 years ☐

PART-I PLEASE TICK THE APPROPRIATE BOX

S #	Statement	Strongly Agree	Agree	Uncertain	Disagree	Stron Disag
1.	Technical English is different from General English.					
2.	I think English courses in engineering program meet the professional needs of the students.					
3.	The contents of the textbooks are generally realistic.					
4.	The contents of the English courses are interesting.					
5.	The contents of the English courses are challenging.					

Part-II Please give your answer with tick mark √ in the box ☐ given against each option

Q.6 How do you train your students for technical writing?

a. Through assignments ☐

b. Practice for technical writing in the classroom ☐

c. Home work ☐

d. Other (please specify) _____

Q.7 Which one of these skills is the most important for the Engineering students?

c. Presentation Skills ☐ b. Technical Report Writing ☐

Q.8 Have you attended any course for teaching technical report writing?

a. Yes ☐ b. No ☐

Q.9. If 'yes', please mention the title and the organizer of the course/workshop.

Title:_____

Organizer:_____

Q.10 Have you studied Business Communication as part of your degree program/course?

a. Yes ☐ b. No ☐

Q. 11 Should Grammar be taught in the English courses for Engineering students?

a. Yes ☐ b. No ☐ c. Do not know ☐

Q. 12 If 'yes', approach of teaching should be

a. Explicit (by teaching the rules of grammar) ☐

b. Implicit (by providing material and making the students infer the rule) ☐

Q. 13 Rank the following language skills according to their importance for the engineering students.
1 (Most important) 6 (least important):

Reading _____

Writing _____

Speaking ____

Listening ____

Grammar ____

Vocabulary____

Q.14 Which one of the following you have presented in the last three years.

☐ An Article in a seminar

☐ A Paper Presentation in a Conference

☐ A Presentation in a workshop

☐ None of the above

Q.15 Give at least two suggestions about improving the syllabi of English Courses for engineering students in Pakistan?

1. _____

_____

_____

2. _____

_____

_____

Q.16 Give at least two suggestions about improving the teaching methodology of English Courses for engineering students in Pakistan?

1. _____

_____

_____

2. _____

_____

_____

Thank You

Appendix-IV

Engineers' Questionnaire

This questionnaire is part of my M.Phil research work conducted at International Islamic University, Islamabad. The research may help to improve the syllabi and teaching methodology of English courses for Engineering students in Pakistan. By completing the questionnaire you will be participating in the research. Be honest in giving your opinion. All of the information you give me will be treated as confidential.

Ameer Sultan
M.Phil English (4th Semester)
International Islamic University,
Islamabad

PERSONAL INFORMATION

1. **AGE: 20- 25 , 26 - 30, 30-35, 36 +**

2. **Gender: Male / Female**

3. **EDUCATIONAL BACKGROUND:**

a. Completion of B.E. Year _____ Discipline: Mechatronics Engineering

b. **Institution:** College of Electrical and Mechanical Engineering, Rawalpindi

c. **University:** National University of Sciences and Technology, Rawalpindi

d. Highest Qualification: _____

4. **Relevant Experience**

b. Less than 1 year ☐ b. 1-3 year ☐ c. 4- 6 years ☐ d. 7-8 years ☐

5. **Current Position:** _____

6. **Employer/Institution:** _____

_____

PART-I PLEASE TICK THE APPROPRIATE BOX

S #	Statement	Strongly Agree	Agree	Uncertain	Disagree	Stron Disag
1.	Technical English is different from General English.					
2.	Good communication skills are essential for securing a good job.					
3.	At workplace communication skills are essential.					
4.	English Courses in the engineering program mostly meet the future needs of the students.					
5.	The contents of the English courses at the university are interesting.					
	The contents of the English courses at the university are practical.					

Part-II- Please give your answer with tick mark √ in the box ☐ given against each option

Q. 6 After studying English courses at university, it is easier for an engineer to understand the technical language of contracts?

Yes ☐ No ☐

Q.7 You learnt effectively by doing the following:
(Prioritize on a scale from 1 to 5 **where 1 is the most useful and 5 is the least useful)**

g. By attending lectures 1 2 3 4 5

h. By practicing Technical writing in the classroom 1 2 3 4 5

i. By doing Home Assignments 1 2 3 4 5

j. By giving Presentations 1 2 3 4 5

k. By working in Pair/group 1 2 3 4 5

l. Other (please specify)_____

Q.8 Which one of these skills is the most important for an engineer?

d. Presentation Skills ☐ b. Technical Report Writing ☐

Q. 9 Order the following language skills according to their importance for engineers. **1 (Most important) 6 (least important)**:

Reading _____

Writing _____

Speaking ____

Listening ____

Grammar ____

Vocabulary____

Q.10 Which one of the following topics are covered in the English Courses? (Please tick the appropriate box)

i. ☐ How to write a Proposal?

j. ☐ How to write a research article

k. ☐ How to write Statement of Purpose

l. ☐ How to write Terms of Reference

m. ☐ How to write a cover letter

n. ☐ Job Interview

o. ☐ How to make a CV/Resume

p. ☐ How to write business letters

Q.11 Give at least two suggestions about improving the syllabi of English Courses for engineering students in Pakistan?

1._____

_____

2._____

_____

Q.12 Give at least two suggestions about improving the teaching methodology of English Courses for engineering students in Pakistan?

1._____

_____

2._____

_____

Thank You

Appendix-V

Classroom Observation Sheet

*University:*_____

*Time:*_____ *Semester:*_____ *Discipline:*_____

*Subject:*_____

Topic:_____

Contents	Observed	Comments
Materials prepared for lesson?		
The topic is relevant to the students' need.	☐	
The topic is interesting	☐	
The topic is Challenging	☐	
Emphasis on	☐ Writing ☐ Reading ☐ Speaking ☐ Listening ☐Vocabulary ☐ Grammar	
Methodology		
AVA used	☐ White board ☐ Multimedia ☐ OHT	

Teaching Method Used	☐ Lecture ☐ Discussion ☐ Drill and Practice	
Students are involved in the class. They Show interest in the class.	☐	
Variety in learning materials.	☐	
. Classroom practice (activities)	☐	
Instruction addresses diverse learning styles.	☐	
Teacher uses varied grouping strategies	☐	
Students are encouraged to participate in the class.	☐	

Concise and Clear Language	☐	
Subject Knowledge	☐	
Assessment is related to instruction.	☐	
Assessment involves critical thinking	☐	
Weaknesses	☐	
Priorities for future development	☐	

Appendix-VI

Questions for Interview with Prospective Employers

Q.1 Why do you think English is important for an Engineer?

Q.2 How much weightage do you give to Communication Skills for the employment of an engineer?

Q.3 Why good English Communication Skills are required for an engineer at workplace?

Q.4 Which skills are more important for an engineer? Presentation or Report writing?

Q.5 Are you satisfied with the communication skills of fresh engineers?

Q.6 Do new entrants feel comfortable in writing technical reports in English?

Q.7 How can the present courses of English be improved at Engineering universities?

Q.8 How can the teaching methods be improved at College/University level?

Appendix-VII

Questions for Interview with Head of Department

Q. 1 Why do you think English is important for Engineering students?

Q.2 Do you think English courses in engineering program meet the professional needs of the students.

Q.3 Do you think good communication skills are essential for securing a good job in the field of engineering.

Q.4 How many credit hours are dedicated to English courses in undergraduate Engineering program of your institution?

Q.5 Which one is more important for an engineer? Presentation Skills or Technical Report Writing.

Q.6 If a teacher has not written a research paper or thesis, Can he/she teach technical report writing effectively?

Q.7 What should be done to improve the syllabi of English Courses for engineering students in Pakistan?

Q.8 What should be done to improve the teaching methodology of English Courses for engineering students in Pakistan?

Appendix-VIII Coding for the Questionnaires

Codes for Students' Questionnaire

Variable labels

A01 Institution
A02 University
A03 Discipline
P01 Gender
P02a 10 Years Education
P02b Institution
P03a 12 Years Education
P03b Institution
P04 Level
P04a Reading Skills
P04b Writing Skills
P04c Speaking Skills

S01 Technical English is different from General English.
S02 English Courses in the engineering program mostly meet the future needs of the students.
S03 I am satisfied with the syllabi of English Courses in my engineering programme.
S04 I am satisfied with the teaching methodology of English courses in my Engineering program?
S05 The contents of the Textbooks are generally realistic.
S06 The contents of the English courses are interesting.

S07 The contents of the English courses are challenging.
S08 The contents of the English courses are practical
S09 I like the teachers of English courses to tell me all my mistakes.
S10 I consider English courses in engineering programme for my career:

C01 The materials in English courses cover the following skills
C01a Writing Skills
C01b Reading Skills
C01c Speaking Skills
C01d Listening
C01e Vocabulary
C01f Grammar

C02 In teaching English courses (Technical Report Writing and Communication Skills) the following methods are often used
C02a Lectures
C02 b Group/Pair work

C02c Home Assignments
C02d Critique of research papers
C02e Technical Writing Practice
C02f Presentations (by the students)
C02g Other (please specify)

C03 In the English classes the following are used: (Please tick the appropriate box)
C03a Multimedia
C03b PowerPoint Presentation
C03c Over Head Transprancies
C03d Interactive Board
C03e White Board
C03f Other (please specify)

C04 Which one of these skills is the most important for you?
C04a Presentation Skills
C04b Technical Report Writing
C04c Don't know
C04d None of the above

C05 In which way you learn the most?
C05a individually
C05b in pairs
C05c in a group

C06 Do you think Grammar should be taught in English courses?

C07 If yes, approach of teaching should be

C08 Rank the following language skills according to their importance for you
C08a Reading _____
C08b Writing _____
C08c Speaking ____
C08d Listening ____
C08e Grammar ____
C08f Vocabulary____

C09 Where do you expect to use English most of the time in future?

C10 How do you learn more effectively? (Prioritize on a scale from 1 to 5 where 1 is the most useful and 5 is the least useful)
C10a By attending lectures
C10b By practicing Technical writing in the classroom
C10c By doing Home Assignments

C10d By giving Presentations
C10e By working in Pair/group

C11 which one of the following topics are covered in your English Courses? (Please tick the appropriate box)
C11a How to write a Proposal?
C11b How to write a research article
C11c How to write Statement of Purpose
C11d How to write Terms of Reference
C11e How to write a cover letter
C11f Job Interview
C11g How to make a CV/Resume
C11h How to write business letters

C12 Which of the following you have presented?

C13 Give at least two suggestions about improving the syllabi of English Courses for engineering students in Pakistan?
C14 Give at least two suggestions about improving the teaching methodology of English Courses for engineering students in Pakistan?

Value label

A01

1 EME College
2 FAST
3 Air University
4 Intl Islamic
5 Centre for Advanced Research and Engineering

/A02

1 NUST
2 FAST
3 Air University
4 International Islamic
5 UET

/A03

1 Mechatronics Engineering
2 Computer Engineering
3 Electrical Engineering
4 Mechanical Engineering
5 Electronics Engineering

/P01

1 Male
2 Female

/P02a

1 Matric
2 O levle

/P02b

1 Government Sector
2 Private Sector

/P03a

1 Matric
2 O levle

/P03b

1 Government Sector
2 Private Sector

/P04a to P04c

1 Elementary
2 Intermediate
3 Advanced

/S01 to S09

1 Strongly Agree
2 Agree
3 Uncertain
4 Disagree
5 Strongly Disagree

/S10

1 Very Important
2 Useful
3 Quite Important
4 Not Quite Important
5 Not at all Important

/C01a to C01f

1 Checked
0 Unchecked

/C02a to C02g

1 Checked
0 Unchecked

/C03a to C03f

1 Checked
0 Unchecked

/C04a to C04d

1 Checked
0 Unchecked

/C05a to C05c

1 Checked
0 Unchecked

/C06

1 Yes
0 No
2 Do not know

/C07

1. Explicit (by teaching the rules of grammar) ☐

0 Implicit (by providing material and making the students infer the rule)

/C08a to C08f

1 (important) to 6 (least important)

/C09	1	At workplace
	2	Education
	3	Travel
	4	Do not know

/C10a to C10e

1	Checked
0	Unchecked

/C11a to C11h

1	Checked
0	Unchecked

/C12

1	An Article in a seminar
2	A Paper Presentation in a Conference
3	A Presentation in a workshop
4	None of the above

/C13	1	Yes
	0	No

/C14

1	Yes
0	No

Codes for Teachers' Questionnaire

Variable labels

P01 Age
P02 Gender
P03 Institution
P04 University
P05a Majors in Bachelor Degrees
P05b Completion of M.A
P05ba University
P05c Specialization
P05d Highest Qualification
P05e Topic of Research
P06 Relevant Teaching Experience

S01 Technical English is different from General English.
S02 I think English courses in engineering program meet the professional needs of the students.
S03 The contents of the Textbooks are generally realistic.
S04 The contents of the English courses are interesting.
S05 The contents of the English courses are challenging.

C01 How do you train your students for technical writing?
C01a Through assignments
C01b Practice for technical writing in classroom
C01c Home work
C02 Which one of these skills is the most important for the Engineering students?
C02a Presentation Skills
C02b Technical Report Writing
C02c both
C03 Have you attended any course for teaching technical report writing?

C03a Title of the course/workshop.
C03b Organizer of the course/workshop

C04 Have you studied Business Communication as part of your degree program/course?
C05 Should Grammar be taught in the English courses for Engineering students?
C05a If 'yes', approach of teaching should be

C06 Rank the following language skills according to their importance for you
C06a Reading _____
C06b Writing _____
C06c Speaking ____
C06d Listening ____
C06e Grammar ____
C06f Vocabulary____

C07 Which one of the following you have presented in the last three years.
C07a An Article in a seminar

C07b A Paper Presentation in a Conference
C07c A Presentation in a workshop
C07d None of the above

Value label

/P01

1 21-24
2 25-28
3 29-32
4 33-36
5 37-40
6 40-45
7 46 +

/P02

1 Male
2 Female

/P03

1 EME College
2 FAST
3 Air University
4 Intl Islamic
5 Centre for Advanced Research and Engineering

/P04

1 NUST
2 FAST
3 Air University
4 International Islamic
5 UET

/P05a

1 English literature
2. Education
3. Psychology
4. Science
5. Humanities

/P05b

1. before less than five years
2. before ten years
3. before 15 years
4. before 15 years +

/P05b

1. before less than five years
2. before ten years
3. before 15 years
4. before 15 years +

/P05ba

1. Literature Oriented Programme
2. Linguistics Oriented Programme
3. TEFL Oriented Programme
4. Literature & Linguistics

/P05c

1. ELT
2. Literature
3. Linguistics

/P05d

1. M.A
2. M.Phil
3. PhD

/P05e

1. ELT
2. Linguistics
3. Literature

/P06

1. Less than 1 year
2. 1-3 years
3. 4- 6 years
4. 7-10 years
5. 10-15 years
6. More than 15 years

/S01 to S05

1 Strongly Agree
2 Agree
3 Uncertain
4 Disagree
5 Strongly Disagree

/C01a to C01c

1 Checked
0 Unchecked

/C02a to C02c

1 Checked
0 Unchecked

/C03

1 Yes
0 No

/C03	1.	Technical Report Writing
	2.	Communication Skills
	3.	ESP
	4.	Research Methodology
/C04		
	1	Yes
	0	No
C/05	1	Yes
	0	No
	2	Do not know
/C05a	1.	Explicit
	2.	Implicit

C06a to C06f

1 (important) to 6 (least important)

C07a to C07d

1	Checked
0	Unchecked

Codes for Engineers' Questionnaire

Variable labels

P01 Age
P02 Gender
P03a completion of B.E
P03aa Discipline
P03b Institution
P03c University
P03d Highest Qualification
P04 Relevant Experience
P04 Level
P05 Current Position
P06 Employer/Institution

S01 Technical English is different from General English.
S02 Good Communication Skills are essential for securing a good job.
S03 At workplace communication skills are essential.
S04 English Courses in the engineering program mostly meet the future needs of the students.
S05 The contents of the English courses at the university are interesting.
S06 The contents of the English courses at the university are practical.

C01 After studying English courses at university, it is easier for an engineer to understand the technical language of contracts?
C02 You learnt effectively by doing the following: (Prioritize on a scale from 1 to 5 where 1 is the most useful and 5 is the least useful)
C02a By attending lectures
C02b By practicing Technical writing in the classroom
C02c By doing Home Assignments
C02d By giving Presentations
C02e By working in Pair/group

C03 Which one of these skills is the most important for an engineer.
C04 Rank the following language skills according to their importance for engineers
C04a Reading _____
C04b Writing _____
C04c Speaking ____
C04d Listening ____
C04e Grammar ____
C04f Vocabulary____

C05 which one of the following topics are covered in your English Courses? (Please tick the appropriate box)

C05a How to write a Proposal?

C05b How to write a research article

C05c How to write Statement of Purpose

C05d How to write Terms of Reference

C05e How to write a cover letter

C05f Job Interview

C05g How to make a CV/Resume

C05h How to write business letters

Value label

/P01

1 20-25
2 26-30
3 30-35
4 36 +

/P02

1 Male
2 Female

/P03a

1 less than five years
2 More than five years

/P03aa

1 Mechatronics Engineering
2 Computer Engineering
3 Electrical Engineering
4 Telecommunication Engineering
5 Electronics Engineering

/P03b

1 EME College
2 FAST
3 Air University
3 Intl Islamic
4 Centre for Advanced Research and Engineering

/P03c

1 NUST
2 FAST
3 Air University
4 International Islamic
5 UET

/P03d

1 B.E
2 MS
3 PhD

/P04

1 Less than 1 year
2 1-3 years
3 4-6 years
4 7-8 years

/P05

1 Academic
2 Industrial
3 Student

/P06

1 Government sector
2 Private Sector

/S01 to S06

1 Strongly Agree
2 Agree
3 Uncertain
4 Disagree
5 Strongly Disagree

/C01

1 Yes
0 No

/C02a to C02f

1 (most useful) to 6 (least useful)

/C03 to C03

1 Presentation Skills
2 Technical Report Writing

/C04a to C04f

1 (important) to 6 (least important)

/C05a to C05h

1 Checked
0 Unchecked