

English and Communication Skills for the 21st Century Engineers

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Abstract- The English language has become a major medium for communication across borders globally. A deficiency in this area may result in barriers for graduates. Teaching English to engineers is a delicate and demanding matter in terms of content, methods and techniques, and deciding which are appropriate for this particular area of engineering and English. That is, the aim in such an interdisciplinary course is to develop and master relevant communication and professional skills, using English as a means and a kind of mediator in shaping future engineers. It is often said that students are the best judges of the curriculum, course, and structure and teacher performance. In the globalized context, students of Engineering and Technology need a specific set of language skills for their success in education and career. English for Science and Technology (EST) poses a challenge to them. Industries are also voicing their concerns about the need for better communication skills among students of Engineering. Therefore, English for Science and Technology programs in colleges should be revamped to suit the requirements of the evolving curriculum and the world of work outside college. Students require soft skills in addition to hard skills which enable them to effectively communicate and interact easily with others upon entering the real world of work.

1. INTRODUCTION

An engineer is only as good as his ability to communicate his ideas. There are many good technical minds in the workplace, but very few of them communicate effectively. Along with technical competency, theoretical knowledge of engineering, what is sought and taught in the Faculty of Engineering, should be coupled with communication. For those engineering students whose mother tongue is not English, mastering English is even more important, for their academic life as well as for their prospective career. The English language is the current lingua franca of international business, technology and aviation. It is spoken by 1.8 billion people in the world and the number is still rising. Undoubtedly English language competence is imperative in both student studies and career building. English language has commonly been used as international language, that is, it is widely used for communication in different countries. We cannot deny high importance degree of English Language in our life. One reason is that English language is a part of the important tools in academic life. The other reason is that we are able to communicate in society.

2. ENGINEERING COMMUNICATION

Modern engineer has to communicate with more number of his counter parts across the globe. A Large number of Indian engineer work away from their homes and have to travel to many continents and countries to prove their work competencies. English has become the predominant language for communication also among the scientists, technologists and business experts from culturally as well as linguistically different communities, English is

considered as an important tool that significantly affects engineering students in academic life. While

most of the theories in engineering are taught in English language, student is required to have a level of proficiency in English language. In future English language is the most important function of student being performs in his/her social life. English language helps to build strong relationship and better understanding which are so vital in their personal and professional life. To be successful in any field one need to know and understand how to communicate effectively with the people having different cultural background to make them understand. In the era of LPG (Liberalization, Privatization and Globalization), good communication skills are the keys to unlock the doors of success. Professional having stronghold on communication skills is considered assets for any business organization. Such professionals with good communication skills set higher level of standards and add value to the organizational set- up with their language competencies. At present times besides technical knowledge which is considered as hard skill, employers look for sound communication skills which are considered as soft skill. in an engineering graduate. Thus, the professional profile of a modern qualified engineer should include command on communication skills. Earlier researches have revealed that graduate engineers do not have a very good command on communication skills and fail miserably to fulfil the basic requirements of Engineers use their knowledge to design and implement structures, devices and systems that realized a desired objective. The process of design is crucial to any engineering work, besides that he requires communication skill which is

imperative to communicate with people from different fields in modern day organizations.

3. ENGLISH LANGUAGE INSTRUCTION

The history of major engineering feats, along with the cultural history of prime English speaking nations, can be used in the instruction of engineering students to maintain relevance. There are quite a few institutions in non-English speaking nations that offer engineering courses in English, or at least some subjects in English. These include the Technical University of Denmark, the Technical university of Lodz in Poland, the Technical University of Budapest in Hungary, several German universities, plus other academic institutions in Europe, Asia, and other regions. These institutions are meeting the demands of industry internationally by contributing to the educational needs of the global engineer. This includes online education links being recently sought by Malaysia and Singapore.

4. ENGLISH FOR SPECIFIC PURPOSES

There is a great need for effective English communication skills for engineers in the current global business curricula, which will serve to reinforce such skills like communication, particularly if students recognise this as an important component as the overall grade is attributed to it. A course in English for Specific Purposes (ESP) should be offered which will enhance English language training.

5. GLOBAL LANGUAGE

English is a Global language. English will be the linguistic bridge in international engineering projects. The importance of multilingualism for the global engineer is not confined to learning English. Multilingualism in an engineering course is increasingly focusing on regional communication skills, where the main languages from within that country's region are becoming just as important as learning English. The process of globalisation, powered through technology, initially enabled English to become the global language. In this new millennium, people who speak English alongside other languages will outnumber those who speak it as a first language [4].

6. COMMUNICATION ISSUES

Four sources of weakness that can significantly impact on an engineer's communication skills were identified as:

- Students' attitudes to communication;
- Insufficient course content;
- Deficient or inappropriate teaching methods;
- Lack of opportunity for engineering students to Practise communication skills [7].

7. ORAL COMMUNICATION SKILLS

Oral communication and presentation skills are considered as the best career enhancers and to be the single biggest factor in determining an attention on the particular terminology and communication skills required in the professional field.

- Oral communication skills;
- Awareness of the social implications of their discipline's developments;
- Management skills;
- Understanding of other points of view and other cultures;
- Confidence and competence to work in international environments [8].

8. LISTENING SKILLS

Communication involves receiving as well as sending signals. As such, listening skills are just as important and verbal and written communication skills competences. Listening is crucial in certain professions. [10]. As such, it is vital across the professions, including engineering. Listening entails the reception and correct understanding of verbal communication and without effective listening skills; the verbal message can be distorted or ignored, thereby causing the communication process to fail. Listening also helps the cultivation of smooth interpersonal relationships with fellow workers. For proper decision making too one has to be a good listener to the ideas and views of other. It has been asserted that we spend 70% of our time awake in some mode of communication, which is comprised of the following proportions:

- 10% writing;
- 15% reading;
- 30% talking;
- 45% listening [10].

9. VISUAL COMMUNICATION SKILLS

"*A picture is worth a thousand words*", visual forms, such as drawings, diagrams, real and symbolic pictures, etc, are used to show something rather than telling something. They may also have important implications for the quality of visual communication within a specific profession. It is clear that every engineering profession relies heavily on the use of visual forms as a means of non-verbal communication [9].

10. EMOTIONAL INTELLIGENCE AND COMMUNICATION SKILLS

The term emotional intelligence (later dubbed EQ) was first defined in 1990 by Salovey and Meyer [3]. Their work has since been considerably expanded by Goleman, who identified that IQ is actually less important for success in life and work than EQ – a set of skills that are not directly related to academic ability [4][5]. EQ skills contribute to the learning

potential of foreign language acquisition, particularly as it relates to acknowledging the legitimacy of other cultures as being equally valid. EQ skills improve team working skills, especially with regard to communication between team Members. Various authors have cited empathy as a key skill for effective leadership and management [6. Managers and leaders who displayed empathy skills were able to communicate honestly and proactively and had verged listening skills; this permitted them to successfully steer their organisations in times of difficulty. Goleman also highlights the connection between fluency in non-verbal skills and empathy [2].

11. COMMUNICATION SKILLS DEVELOPMENT

A review of literature indicates that oral communication has been identified as a learnable skill and that experiential methods have generally yielded better results than purely didactic means [11].

11.1. Presentations

Presentation is one of the best way to enhance the knowledge The student's knowledge base is augmented by allocating class projects for presentations. However, students will not place any great emphasis on presentation. Furthermore, as much as many students dislike giving presentations. An Irish study found that 78% of sampled practicing engineering graduates were required to give oral presentations as part of their work, often on a regular basis [1]. Group projects and presentations encourage and enhance the interpersonal skills of the student members and should be emphasised early in the education curricula. This should be considered as teamwork recognised as a core skill in industry, and communication with team members needs to be effective.

11.2. Peer Review

Advantages of peer assessment include getting students to think about the exercise more deeply, recognise others viewpoints and how to give constructive criticism to peers. Disadvantages include potential bias, reluctance to give low marks for poor work from their peers and the need for clearer guidelines, although these can be countered by utilising group-based marking, rather than individual, increasing marking guideline specificity, and limiting the impact of the peer review exercise on the overall unit grade.

11.3. Role-Play

As knowledge of communication theory does not necessarily parallel skills in practice, it is important to immerse students in similar work environments. Context-specific enactments, or role-play, can focus the student's attention on the differing types of communication required with various groups in potential future work situations.

11.4. Video

Video is a best mean of feedback to make improvements in individual personality. Video/audio grading dramatically improve presentation skills in students, with one prime example given where student presentations were filmed and then graded with dubbing from the teacher and a feedback sheet [2]. Importantly, this provides relevant educational feedback to the student that is not transitory as the student's performance can be revisited.

CONCLUSIONS

Language and communication skills are recognised as important elements in the education of the modern engineer. Those institutions that have already implemented multilingual and communication elements will be at the forefront of providing the demands of industry and society. Various industries need English as First Language (EFL). Countries would be best served by fostering additional language skills so that engineering graduates can operate across borders in an increasingly globalised and multinational industry and society. As such, this is an important issue that must be addressed in engineering curricula. The incorporation of language and communication Improvement courses is an important element of continuous learning, and will ultimately contribute to the process of life-long learning.

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