

# English Language Communication Skills for Engineering Students

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**Abstract** - Engineering students require a number of skills to maintain relevance with the global environment of the new millennium. Communication skills are a vital component of this, recognized by academia and industry alike. English language skills are also important given its widespread status across the globe as a lingua franca. Indeed, multilingual skills are considered an important element in becoming a global engineer.

English for specific purposes focuses the learner's attention on the particular terminology and communication skills required in the professional field. Communication skills development is discussed in the paper. A lack of sufficient communication skills serves only to undermine the image of the engineer, but this can be tackled by proper training and guidance to the prospective engineers.

**Key words:** *English, Communication Skills, Engineering Students*

## I. INTRODUCTION

Communication skills are essential for an engineer who aspires to carry out his/her professional practice in the global arena. Engineering communication skills primarily constitute various core elements such as the fluency in the English language and the fundamentals of visual communication. Evidence indicates that communication skills are what helped Homo sapiens evolve beyond our related ancestors, and that these skills have helped humankind develop into the advanced societies on Earth today. However, these skills have become stifled in the very discipline that has brought so many advancements, and that is engineering. There is ample evidence that graduate engineers lack the required standard of communication skills, particularly when compared to the needs of industry internationally.

## II. THE GLOBAL ENGINEER

Globalization directly influences industry's needs; a global engineer must be able to easily cross national and cultural boundaries. This in turn directly affects engineering education. A common code for communication is required. Those education institutions, which meet the language requirements for the new global engineer, will be ready to face the new millennium. H.P. Jensen states that employers want:

... a number of new competencies, with an emphasis on an increased ability to communicate ... and good foreign language skills.

This is reinforced in N. Grunwald's study of competencies required by the engineer of tomorrow, which includes hard skills like good foreign language skills. He goes to a greater extent to claim that cross-disciplinary language skills are not adequately taught. This indicates a lack of a direct fit

between graduate skills and those required by industry. Engineers can relate the same theories of mathematics, of mechanics and technology, but the modern engineer must also be able to communicate effectively in a shared tongue. This is especially important given that engineering projects are now planned and implemented across national and cultural borders.

### English and Engineering

English has become the ascendant language internationally, being the most widespread. This will influence the language of communication between professionals internationally. In this age of globalization, the number of international projects is increasing, and cross-cultural communication and collaboration is on the rise; this is particularly so for the now international practice of engineering.

### The Globalization of English Language

The process of globalization, powered through technology, initially enabled English to become the global language. Prime growth in Internet usage is coming from China and India, and while there is good English language proficiency in the latter, the preference is generally more for navigating in the user's native tongue. The Internet seems to be the new millennium's *Tower of Babel*, with increasingly more languages concentrated in the one type of technology.

English has been widely accepted as *the most wide spread language in the world*. It is the first language for many countries around the planet: from the United Kingdom and Ireland to the USA, from Canada to Australia and New Zealand, from Guyana to Jamaica, plus others. As a second language, it is also very widespread. For instance, now after the fall of communism, it has become the second language in countries in Central and Eastern Europe, and English is



taught as part of multilingual education in India, South Africa, Singapore and others. English is particularly important for the engineering student, as this indicates that English will be of more use internationally than virtually any other language due to its spread.

Multi National Companies can be seen to indirectly influence the educational policies in foreign lands by their value creation of particular languages through global economic power. This also delivers a strategic advantage to those institutions in non-English countries with effective English language instruction.

### English for Specific Purposes

There is a clear necessity for effective English communication skills for engineers in the current globalised environment. A course in English for Specific Purposes (ESP) will enhance English language training and an engineering student's communication skills. It will also aid in the globalization of education and the internationalization of practicing engineers. English for Specific Purposes (ESP) in Engineering Education focuses the learner's attention on the language and communication requirements in a particular professional field. The concept of ESP achieve more in the education of engineering students by focusing the learner's attention on the particular terminology and communication skills required in the professional field.

### The Internet and Multilingualism

The Internet has become increasingly a crucible for world languages. This has direct implications on engineering education, as the Internet is central to various elements of engineering education. It also increases the global access to engineering education information, as under-served languages come online.

### Communication Skills Development

According to a report, it is stated that employers now seek graduates with skills beyond the standard paper degree; this includes an excellent level of skills in:

- Communication
- Decision-making
- Teamwork

Other areas identified in the report included competencies in business acumen, marketing and public relations. Having the most knowledge was not as important as getting the work done in the most effective manner. Employers gave considerable value on graduates acquiring a diverse set of skills in differing work environments.

However, the report also found that most graduates felt that they had gained analytical and problem solving skills, subject-specific knowledge, research and improved decision-making abilities through their degrees. Yet despite this, much fewer felt that their graduate degree provided;

- 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.

Through all these activities an Engineering graduate can develop communication skills.

### Presentations

The student's knowledge base is augmented by allocating class projects for presentations. However, students will not place any great emphasis on presentation, and with it oral communication skills, if presentation and communication is not allocated a significant share for the exercise's marks. Furthermore, as much as many students dislike giving presentations, it is better that they experience a dry run in their education than to be suddenly confronted in the workplace. It should be noted that an Irish study found that 78% of a sample of practicing engineering graduates stated that were required to give oral presentations as part of their work, and quite often this was on a regular basis.

### 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. By engaging the students directly in active learning, they learn by doing.

### Technology

Current technology should be utilized, or at least demonstrated to the students, so that they are aware of what is in use beyond the university walls. The Irish study cited earlier found that instructors in communication need to review and update methods due to the rapid advances in communications technology. Furthermore, this Irish study found that practicing engineering graduates suggested that greater content for communication courses in undergraduate engineering cover basic MS Office applications as well as other technical elements including e-mail, Web page design and graphic design. This is a clear indication of technological elements that need to be incorporated into fundamental communication training for engineering students in preparation for industry.

### Active Involvement of the Learner

Littlewood put forward several elements that, importantly, involve the learner in order to reinforce learning. These four parts are:

- The classroom must be conducive to communication and learning.
- Learning has to be relevant to learners' interests and needs.
- Both processes and products are important in the classroom.
- Learners must engage in active roles in the classroom.

Engaging learners will help facilitate and stimulate effective and purposeful learning by the students. Involving the learners directly, in particular, will engender a stronger sense of responsibility in the future graduates that they can take beyond the university and into the work arena. This is especially important in engaging learners of English as a Second Language (ESL) and English for Specific Purposes (ESP) as it involves new vocabulary.

### Life-long Learning

Tasks involving oral communication skills within the subject framework can contribute to life-long learning by aiding in the development of those skills necessary for life-long learning. Similarly, it was felt that self-assessment of communication tasks would also encourage future learning.

So, ineffective communication skills only reinforce negative stereotypes of the engineer. Furthermore, this lack of serviceable communication skills contributes to the low profile of engineering in the general public. However, the lack of standardized and accessible engineering language tools encountered by engineering students in their university courses may well be responsible, at least to some degree, for the level of bad communication skills. A more proactive and accessible style of communication can be more engaging for the people whom the engineer must deal with.

### III. CONCLUSION

Language and communication skills are recognized as important elements in the education of the modern engineer, including English for specific purposes. Yet, there seems to be limited implementation of English courses globally, despite its current *lingua franca* status. Those institutions that have already executed communication elements and multilingual will be at the forefront of providing the demands of society and industry.

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. This should in turn facilitate advancements in engineering and, indeed, engineering education through streamlining fundamental communication skills.

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