Engineering Students' Need for Soft Skills Education

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Abstract:

Because of the fierce rivalry for employment in global corporations and in a wide range of technical fields, soft skills are now required. Aspiring professionals in engineering and management need more than just academic and technical abilities to succeed in the workplace. They also need to be able to communicate effectively with colleagues and clients. The focus of this presentation is on the need

of providing engineering students with training in soft skills. Focused focus is given to a certain subject in most engineering institutes. Despite the fact that students must be given technical training, multinational corporations all over the world are asking for more. To master soft skills, today's engineering students must develop a broader set of hard abilities than those in their respective fields typically demand.

INTRODUCTION

There are a wide range of job possibilities available in India thanks to the arrival of multinational corporations. It wasn't only the hiring procedure that underwent radical alteration. For a long time, in our country, the sole requirements for well-paying work in multinational corporations (MNCs) were academic-technical training and certification. Since a result, this is no longer true, as there has been a paradigm shift in the demands of multi-national corporations. Consequently, this is no longer the case. To obtain a competitive edge, organisations throughout the world know this. Employees must be able to interact with customers and coworkers in a professional manner, which necessitates training in soft skills. Soft skills are in high demand in multinational corporations. The world's largest supplier of information technology (IT) is India. The problem is that in India, most engineering and management graduates lack the soft skills needed to succeed in the workplace, especially in the area of communication. In addition to academic and technical expertise, employers look for soft skills such as the ability to think critically, communicate clearly, negotiate effectively, and manage one's time well. In India, the Job Market The financial, tourism, and production industries, as well as ITES (Information Technology Enabled Services), have all witnessed significant expansion in the global economy. However, this development issluggish owing to India's soft-skill problem, which has limited the efficacy and expansion of the country's soft-skill workforce. The number of new workers needed to keep pace with the company's rapid expansion has risen as a result of this circumstance. According to staffing firms, India continues to have a dearth of "employable engineering, technology, scientific, and management graduates," which is a paradox in and of itself. The number of well-paying jobs is increasing rapidly, and a substantial number of engineering graduates are graduating each year without the soft skills necessary to succeed in the workplace. There are a lot of things that need a Hard skills, which include academic knowledge, competence, and hands-on experience, are required for job applicants. The importance of both hard and soft talents cannot be overstated.

Soft-Skills The sociological phrase "soft skill" refers to a person's EQ, or emotional intelligence quotient. In addition to interpersonal skills, they might be referred to as life skills, employable skills, personal habits, friendliness and optimism, social graces and behavioural competencies. To be a successful professional, one must possess a wide range of soft skills, particularly in the corporate world. Emotional control is a life skill that must be mastered before humans can effectively govern their lives. All employees need a certain set of soft abilities. English language instruction, psychology, human resources management, and sociology all play a role in soft skills. Having strong soft and hard talents is essential for those who wish to have a happy and successful

life. It is simpler to earn academic and technical credentials than it is to develop soft skills. In terms of soft talents, there are three main categories to consider. Proficiency in spoken and written English (including both verbal and Non-verbal) The ability to manage one's emotions (including both Personal and Inter personal) Ability to reason (including both Critical and creative) A few subcategories of soft talents include the following: Ability to communicate (English language communication skills) Public speaking abilities (English language communication skills) The ability to sell oneself (English language communication skills) Self-starting abilities (Thinking skills) The ability to plan ahead (Thinking skills) The ability to get insight into one's own thoughts and feelings (Thinking skills) Effective time management (Thinking skills) Critical thinking abilities (Thinking skills) The ability to cope with stress (Thinking skills) Competencies in self-efficacy (Emotional skills)

The scientific community's primary working language is English. International communication and commerce are heavily dominated by the English language. Therefore, engineers across the globe are required to have a working knowledge of English, and this is especially true in nations where English is a foreign language. Another issue is that certain programmes in engineering education do not provide enough hands-on experience to help students prepare for careers in the industry. They may lack the collaboration and communication skills they need to succeed in the workplace if they aren't exposed to real-world tasks throughout their training (Mills & Treagust, 2003). Study after study has shown the significance of students' soft skills and how they may be used to supplement their technical/hard abilities (Schulz, 2008). In light of this evidence, programmes that help people develop their soft skills should be an essential part of any comprehensive set of public policy initiatives (Heckman & Kautz, 2012). "(t)hese soft skills are also known as people skills, life skills, interpersonal skills, employability skills, and emotional intelligence" (Rao, 2014: 43). An engineering education literature that agrees on the necessity of soft skills for every workplace supports the requirement for explicit and embedded instruction of soft skills to engineering students (Pulko & Parikh, 2003). The relevance of soft skills in future employment and professional growth must be recognised by all those engaged in engineering education, especially students. For curriculum creation, Direito, Pereira, and de Oliveira Duarte (2012) advocate employing pedagogical strategies that help students learn and develop soft skills. They come to the conclusion that "specialised training might be devised and delivered to response to substantial skills shortages, employing learning styles-based techniques. employing active and visual learning methodologies, and sequential learning strategies" to improve collaboration and organisational abilities (Direito et al., 2012: 849).

However, is it feasible to improve one's soft skills with only a few hours of instruction? The development of engineering students' soft skills may be greatly influenced by the pedagogic strategies used by their professors. (e)mbedded training of soft skills into hard skills courses is a highly efficient and appealing strategy for both an attractive manner of teaching a specific material and an improvement of soft skills," Schulz (2008: 146) asserts. The ability to communicate effectively is one of the characteristics of soft skills. Being able to communicate effectively in English is no longer optional for engineers looking to work in the modern industrial sector. Changing circumstances, such as globalisation, necessitate that universities adapt to new realities, such as online education and English-medium teaching. Most colleges now offer a broad range of programmes designed to instruct students in English as a second language. English-medium education in higher education is not a simple issue, according to the DIGILEC Revista Internacional de Lenguas y Culturas (DIGILEC 8 Digilec 8 (2021)), which demonstrates many options for English-medium education in higher education (Schmidt-Unterberguer, 2018). CLIL (Content and Language Integrated Learning) seems to be a way to combine content and language learning in the curriculum as a result of this fact (Coyle, 2007). It is common to use the term CLIL to describe this kind of bilingual instruction, particularly at the elementary and secondary school levels, but also at the university level. EMEMUS (Integrating Content and Language in Higher Education) is a relatively contemporary name for this integrative method in higher education (English-Medium Education in Multilingual University Settings). In this respect, ROAD-MAPPING (Dafouz & Smit, 2020) is a novel and comprehensive framework for doing contextualised research and participating in EMEMUS m.

What Organizations around the globe are looking in for?

From the beginning, multi-national firms want to hire employees who are productive and are promoted to higher positions since they are seen as wealth makers. Practice, knowledge, and conduct all come together to become a skill. In order to be a well-rounded professional in the business world, we need soft skills to help us know what to do, how to do it, and what not to do. Candidates vying for high-profile positions in the labour market need a

competitive edge that sets them apart from similarly qualified rivals. Only those with soft skills can achieve this advantage. Good firms would certainly consider it an advantage if engineering students grasp soft-skills. Learning Soft-Skills for the World's Business Sector Training in soft skills begins by highlighting the relevance of these talents and the implications of a lack of these abilities. Deliberate efforts should be made to encourage students to learn soft skills through the use of the most up-to-date training methods, including the use of modern information technology, as well as suggestions to read relevant books, take courses, and join organisations that help students broaden their horizons, such as debating societies. The optimal approach is to combine academics with training in soft skills. The notion of requiring students to do research and report their findings is a great one that works well at the lower levels. It's not uncommon for the curriculum to already be overburdened with technical material, making it difficult to add more. As a result, some faculty members may not support the effort to teach soft skills to students because they don't understand how important they are.

To emphasise the need of teaching engineering students the soft-skills of data analysis. 70% of students who received soft-skills training while pursuing an engineering degree in Andhra Pradesh found better employment opportunities, according to a survey conducted for this research; 96% of the survey participants agreed that communication and interpersonal skills are the key to career success, while hard-skills only contributed to 30% of students' success in landing jobs in multi-national corporations.

THE ENGLISH-MEDIUM PARADIGM AND ICLHE

Programs and courses in English-medium environments use a framework called the English-medium paradigm. For language learning, Schmidt-Unterberger (2018) has categorised it into five separate categories and highlighted its possible prospects and consequences. English for Specific Purposes/English for Academic Purposes (ESP)/EAP (English for Academic Purposes) are pre-sessional language courses that are implemented prior to a specific content course in order to "equip students with the essential discipline-specific language (ESP) and/or academic communication and study skills (EAP)" (Schmidt-Unterberger, 2018: 531). It is their fundamental flaw because they don't fit in with the rest of the show. "Develop discipline-specific and general academic language skills students require in English-medium programmes" is the goal of these courses, which are integrated into the normal curriculum (Schmidt-Unterberger, 2018: 533). 3. Adjunct ESP: This is also done in conjunction with the teaching of a topic area. Its goal is to aid students in gaining a better grasp of the terminology and literary forms that are most often encountered in the subject matter being studied. This kind is very difficult since content and language instructors must collaborate to design two curriculums for two separate disciplines that complement one other (Brinton, Snow, & Wesche, 1989).

English-Medium Instruction (EMI) is the most common method of instruction in higher education, particularly for courses and programmes. No consideration is given to the objectives of language acquisition (Järvinen, 2008). By adopting this view of English, the EMI may lead to challenges in understanding ideas, insufficient learning about the topic, and limited engagement owing to English competence issues (Kocaman, 2000). v) ICLHE: This is the higher education equivalent of CLIL, a word that has grown more prominent in school programmes in Europe (Coyle, 2007). "A educational strategy in which diverse language-supportive approaches are employed to deal with a dual-focused kind of teaching that pays attention to both language and subject," is how Coyle, Hood, and Marsh (2010: 3) describe CLIL. According to a 2010 study by Räsänen (2009), five key methods CLIL was incorporated into higher education curriculum were identified: CLIL (Culturally Informed Language Learning) LSP (Language for Specific Purposes) (discipline-based language teaching, explicit L2 learning aims). iii) A portion of CLIL language (Language for Academic Purposes focus tailored for future content learning, explicit L2 learning aims). iii) Some CLIL-content that is not complete (content mastery, incidental L2 learning, implicit L2 learning aims). iv) CLIL as an adjunct (content mastery and L2 learning, tailored adjunct L2 instruction to support content learning). Additionally, CLIL (full dual integration of language through subject teaching, content mastery and L2 learning, specified aims for both). Räsänen's categorization and Schmidt-are Unterberger's similar enough that one may discern a correlation.

CLIL CURRICULUM DEVELOPMENT AT UNIVERSITY LEVEL

"CLIL requires contextualization and personalisation to respond to the institution's demands," Alimi (2018: 2) said. Coyle (2008) established the well-known 4Cs framework, which attempts to prepare a successful integration of material and language in a given environment, including at the university level, to assist the

transition between theory and classroom practise. Content, communication, cognition, and culture make up the 4Cs of the 4C model. Since the content is not just for students to acquire new information and abilities, but rather to develop their own, it is comprehended from a wide viewpoint. In CLIL, the students are at the centre of the learning process, and they assume responsibility for their own education. An engineering student's ability to think critically and creatively is the first step in developing soft skills. iii) The reconceptualization of communication, especially language, is characterised by six major features: Using language to learn is both a goal and a means. Students in university classrooms will be able to study more meaningfully and contextually because of this. CAPP (Cognitive Academic Language Proficiency) is a step up from BICS (Basic Interpersonal Conversational Skills), which may provide engineering students the linguistic capabilities they'll need to deal with the endless and unexpected communication scenarios they'll encounter at work. Fluency is prioritised above accuracy in this course. This may help some professors feel more at ease about their linguistic responsibilities. While this is true, the necessity for intelligible information necessitates the use of scaffolding mechanisms (Krashen, 1998). CLIL classes at universities should take into account the language triptych (Coyle et al., 2010) while developing CLIL lessons. When it comes to academic discourse, the term used is "language learners."

When dealing with ideas, fresh knowledge and understanding will be required" (Coyle et al., 2010: 61), i.e., important terminology and phrases relevant to the subject matter There are a variety of languages that may be used in the classroom for a variety of purposes, such as presenting a project, having discussions, writing reports, and so on, and each of these languages has its own set of requirements for its use in the classroom. It refers to the unprepared language that emerges as a result of learning. Bloom's new taxonomy of cognitive processes (Anderson & Krathwohl, 2001) is used to develop educational goals. Consequently, activities must develop from lower-order thinking skills (LOTS) to higher-order thinking skills (HOTS) in order to succeed (HOTS). The approach's core goal is to foster students' ability to think critically and creatively. Hanesová (2014: 33) said that students are "intellectually pushed to convert knowledge, to solve issues, to uncover meaning via creative thinking"; that is, soft skills. iv) Culture is linked to the knowledge of one's own and others' selves, as well as to the development of cross-cultural understanding. This phrase has become more ambiguous as a result of technological advancements and their impact on the globalised globe. Community and Connection are added to this dimension in order to find learning and collaborative networks that everyone may participate in. Because of this, there is a clear link between CLIL's conceptual and methodological aspects and the improvement of soft skills. In terms of culture, students in engineering gain from their personal and professional growth when they feel like they belong to a certain group. In tertiary education, CLIL is referred to as ICLHE, although much of the material we've seen refers to its development at the university level as CLIL. Implementing this strategy offers both advantages and disadvantages, which are shown in Table 1.

Benefits	Drawbacks
Larger lexicon, with a higher use of it and vocabulary richness (Jexenflicker & Dalton-Puffer, 2010; Vázquez, 2007; Várkuti, 2010).	Lack of faculty collaboration to integrate content and language teaching (Airey, 2016; Arnó-Macià & Mancho-Barés, 2015; Weinberg & Symon, 2017; Woźniak, 2017).
Increase of motivation for language learning (Schmidt-Unterberger, 2018) and for the topic studied (García-Fernández, Moreno de Diezmas, & Ruiz-Gallardo, 2017).	It is "time-consuming in joint lesson planning, team teaching and collaborative assessment" (Schmidt-Unterberger, 2018, p. 535).
Increase of student's spontaneity in their oral communications (Lasagabaster, 2008)	Losses in students: decreasing participation because of low English proficiency, failure to show the best performance, decrease in

Development of multilingual interests and attitudes (Carrió & Gimeno, 2007)	student's overall learning results or increase in study load (Aguilar & Rodríguez, 2012).
Improvement of receptive skills (Aguilar & Rodríguez, 2012).	
Knowledge becomes stronger and more orderly (Godzhaeva, Logunov, Lokteva, & Tochilina, 2018).	Losses for teachers: some content knowledge is sacrificed (Airey, 2004), a slower delivery rate (Hincks, 2010; Thørgersen & Airey, 2011).
Facilitation of higher order thinking skill, better English competence and moral development (Alimi, 2018).	
Preparation for professional life, providing more job opportunities (Carrió & Gimeno, 2007).	

Multiple focus approach: a high degree of integration between content and language and across various courses is essential, according to Mehisto, Marsh & Frigols (2008). Second, real resources and learning spaces that are safe and engaging for students. iii) Authenticity: make learning relevant to students' real-life experiences, motives, and emotions. Media, technology, and other sources are used to bring real-world content into the classroom. The teaching-learning process revolves on students' active participation. Students should have more time to speak than teachers. To reach a shared aim, activities must promote collaboration.

Students' linguistic requirements must be supported by their instructors, who must be prepared to deal with a variety of learning styles. Students' activities and interactions with subject and language experts show evidence of cooperation. In general, we need to adapt the way we educate at the university in order to include these new characteristics. Engineering classrooms throughout the world still rely heavily on the traditional lecture method known as teacher-centered instruction (Rodrguez et al., 2019). There are some drawbacks to this method of teaching since it treats all students the same way, regardless of their individual learning styles and requirements. Students often arrive to class unprepared, and formative feedback is often postponed rather than provided immediately (Tormey & Henchy, 2008). "Poor student performance, professorial dissatisfaction, and a loss to society of many potentially outstanding engineers" were some of the outcomes of research on learning and teaching methods in engineering education (Felder & Silverman, 1988: 680). According to more recent studies, these mismatches have been validated, calling for more study "to understand how likely faculty members are to educate beyond their comfort level to meet the students' chosen learning methods" (Katsioloudis & Fantz, 2012:67). The flipped classroom, for example, may alleviate some of these drawbacks by transferring classroom activities from professors to students (Munir et al., 2018). When it comes to enhancing student engagement and motivation, teacher-centered strategies are essential. The development of certain soft skills, such as communication, leadership and collaboration as well as decision making, problem-solving and negotiation is also necessary in today competitive and globalised world (Barros & Bittencourt, 2019). Project-based learning and flipping the classroom are two methods that may help students develop these skills.

Conclusion

It is increasingly essential for engineering students to obtain enough Soft-skills in addition to their academic and technical knowledge because of the worldwide need for these talents. This isn't a tough task. A lack of a certain soft talent may be remedied in a number of ways once it is discovered inside oneself. This training has a positive impact on the placement, campus recruiting, and professional development of engineering students since it is the obligation of engineering school administration and faculty to provide it. The significance of soft skills cannot be overstated at engineering institutions, which is why it is imperative that both teaching and non-teaching staff participate in workshops designed to help them develop their soft skills. In order to achieve this effectively and

quickly, it is important to incorporate andimpart soft skills training along with hard skills right from the beginning of the academic course. As a positive side, effect the academic qualification will become very resourceful, which in turn can increase employability of the Engineering students.

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