Analysis of the Intricacies Involved in Imparting Soft Skills Training to Undergraduate Engineering Students in India

Abstract: *The growth of Technical Education has been unprecedented since the privatization of higher Education in India. Engineering colleges have mushroomed in every part of India right from the metros to the rural and semi urban areas. These colleges attract students who meet the required eligibility criteria for enrolling in an engineering college, but unfortunately are drastically deficient in soft skills and English language proficiency, which in turn makes many of these engineering graduates unemployable. My paper analyzes the various aspects of soft skills; training methods adopted by engineering Colleges in India and its role in employability. It also offers a holistic Strategy and model of imparting soft skills training in Engineering Colleges based on feed back from students and faculty members, study of models adopted across the world, study of Industry expectations and students' requirement in India.*

Keywords *– soft skills, English language proficiency, employability, industry expectations, training methods and models, holistic strategy and training plan*

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I. Introduction

In response to the global demand for technical skill, Indian Higher Education sector underwent a welcome change through privatization of higher education. India has a huge educated talent pool as shown in Fig. 1.

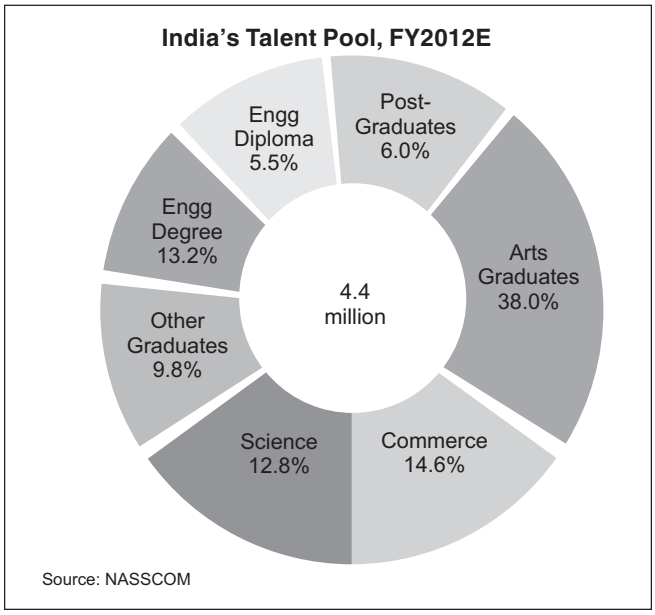

Fig. 1. India's Talent Pool

Privatization of higher education has played a major role in enhancing this talent pool as thousands of engineering and management colleges were sanctioned by AICTE. However, by 2012, it became clear the there is a wide gap between the supply and demand of engineering seats, the supply being more than the demand. "States such as Andhra Pradesh, Karnataka, Tamil Nadu, Haryana , Chhattisgarh and Maharashtra told the AICTE not to clear proposals for new institutes after waking up to the fact that the number of vacant seats in engineering and management colleges has risen dramatically over the last three years. India is now home to 3,393 engineering colleges that have 14.86 lakh seats; today there are 3900 management schools with a total student intake of 3.5 lakh. Maharashtra, Andhra Pradesh, Tamil Nadu, Karnataka and Uttar Pradesh have about 70% technical institutes. When admissions closed last year, AICTE estimated that nearly three lakh seats were unfilled."[1]

In this scenario, the engineering colleges attract students from semi urban and rural areas who have received their school education in vernacular languages or Hindi. The global job market finds that these engineering graduates are not employable, even if they

are good in their technical skills. Their language proficiency, personality development and soft skills are not at par with their requirement.

A recent fall out of privatization and expansion of engineering education is the requirement of soft skills training and English language proficiency classes for undergraduate engineering students. In response to this demand, today there is an abundance of agencies offering Soft Skills Training and Personality Development Courses to thousands of private engineering colleges. However, soft skills training and English language proficiency involves many intricacies. Simply off loading the task to external agencies is not a solution to this complex and copious problem. A holistic approach to the training is required for optimum results.

What are soft Skills?

Defining soft skills is not easy, as it is a very broad term. Soft skills are defined as "a sociological term relating to a person's "EQ" (Emotional Intelligence Quotient), the cluster of personality traits, social graces, communication, language, personal habits, friendliness, and optimism that characterize relationships with other people. Soft skills complement hard skills (part of a person's IQ), which are the occupational requirements of a job and many other activities… Soft Skills are behavioral competencies. Also known as Interpersonal Skills, or people skills, they include proficiencies such as communication skills, conflict resolution and negotiation, personal effectiveness, creative problem solving, strategic thinking, team building, influencing skills and selling skills, to name a few." (Wikipedia, 2012)

We all know about teaching technical skills, whether it's computer skills, welding techniques, or how to use a piece of equipment. These are "easy" to teach because we can design a rubric to assess knowledge learned, competencies acquired, and skills demonstrated. However, anyone that has ever hired or managed employees knows that it takes far more to be successful in the workplace. What does it take, in addition to those easily quantifiable, task-oriented skills to be successful? The answer is soft skills!

Need of the Hour

Soft Skills training programs are not entirely to add up glitz to the syllabus. They do serve an important purpose, especially in the semi urban and rural areas where students get their school education in Hindi medium schools. Soft skill training is not as simple as it sounds. To pick up a student from rural area who has done his schooling in Hindi medium and groom him to fit the multi national corporate world is a complex task.

The lack of soft skills is not a problem for the rural and semi- urban areas alone. Even students from Metros like Delhi, Mumbai, Bangalore, and Kolkata need soft skills training as they lack many skills important for employability. This problem is in no way restricted to developing nations like India; it is also well known to developed countries around the world. "The British Association of Graduate Recruiters (AGR) reported that Employers say many graduates lack 'soft skills', such as team working and they go on to explain that candidates are normally academically proficient but lacking in soft skills such as communication as well as verbal and numerical reasoning. Already more than 40 years ago the German Engineering Association recommended that 20% of courses of the engineering curricula should be soft skills. Engineering graduates should bring along knowledge of foreign languages, cultural awareness, should be team workers, and should perhaps have attended a Rhetoric course." [2] It was also regretted by the German Engineering Association that Engineering Graduates are more deficient in Soft Skills than a Graduate in Humanities.

Considering the worldwide scenario, imparting Soft Skills training to engineering students is imperative in India.

Hard skills vs. Soft Skills:

In the corporate world, "hard skills" are technical or administrative procedures related to an organization's core business. Examples include machine operation, computer protocols, safety standards, financial procedures and sales administration. These skills are typically easy to observe, quantify and measure. They're also easy to train, because most of the time the skill sets are brand new to the learner and no unlearning is involved.

By contrast, "soft skills" (also called "people skills") are typically hard to observe, quantify and measure. People skills are needed for everyday life as much as they're needed for work. Leaders at all levels rely heavily on people skills which include setting an example, teambuilding, facilitating meetings, encouraging innovation, solving problems, making decisions, planning, delegating, observing, instructing, coaching,

encouraging and motivating. Fig. 2 shows the basic soft skills required for engineering students.

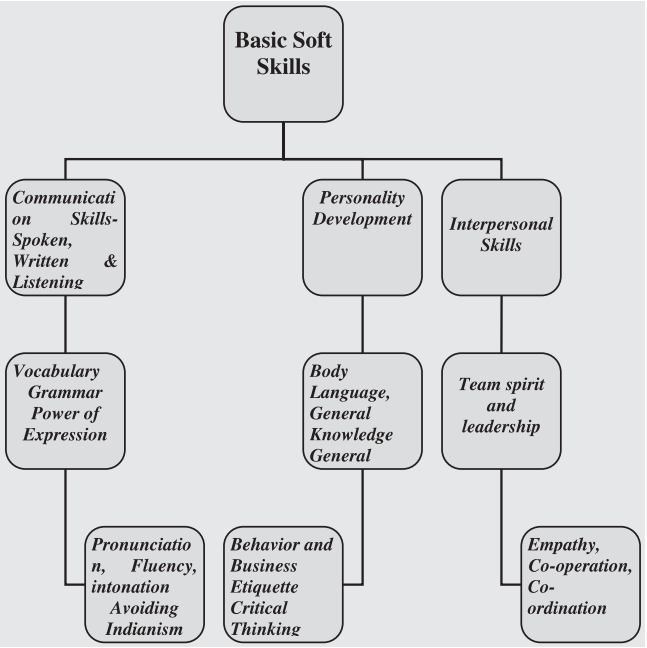

Fig. 2. Basic Soft Skills for Engineering Students

Unlearning Behavior Patterns

Interpersonal Skills are deeply ingrained in the engineering students when they enter college, since they are around 18 years old, and they have been brought up in a certain environment that is at odds with the expectations of the corporate world. At this age, introducing new interpersonal skills is extremely difficult, because it means replacing the old skills. The brain is no doubt an information processor, but it does not work like a digital computer. There is no delete button! Behavior patterns are physically establishes in the brain cells. The only way to replace this old pattern is to establish a new one that gets better results, more satisfaction and adequate period of reinforcement. Over time and with a lot of effort from the individual involved in this process, eventually the new pattern of behavior becomes accepted. Ultimately this new pattern is ingrained in the brain cells and become part of the person's personality.

Frequent Reinforcement

When we consider the methods adopted by engineering colleges for soft skills training, it is a common practice to allot just two lectures per week for the training, mostly just before the placements start. The expectation of the Institute is that the students can be groomed in a quick fix method. This pattern falls short for the obvious reason that the students do not get enough time for reinforcement of the behavior patterns imparted to them. As a result nothing is achieved by these training session.

Without reinforcement, most students periodically fall back on the old, comfortable patterns they grew up with. An Institute invests heavily on the students' training program, but no plan of reinforcement is in place, and therefore expected results are not achieved. This is why a training program of lectures, group exercises and hand outs – even by a world famous Soft Skills trainer cannot by itself provide enough reinforcement to establish the new pathways needed to change ingrained behavior patterns.

Understanding the Brain function makes it very clear that behavior patterns can not be changed without frequent reinforcement. Especially so, when there is a wide gap between the learned behavior and the expected behavior, as is in the case of Engineering students from semi urban areas and rural areas. Therefore the frequencies of the training sessions need to be increased, and spread out throughout the four year period. This method will give adequate time for reinforcement of the learned soft skills and language skills.

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Holistic Approach to Soft Skills Training for Employability

"There are two different models that facilitate learning related to soft skills. They are: I) Stand Alone Subject Model and ii) Embedded Model. The first model offers specific courses and elective courses to develop soft skills. In this model, students are encouraged to take additional courses, which are in no way related to the main courses. For example a student who is pursuing engineering course is encouraged to take additional courses like 'Management' and 'Mass Communication'.

However, such an approach will require an increase in the number of credits and time spent for the particular program. But the Embedded Model incorporates the soft skills in the teaching and learning activities across the curriculum. This model does not require students to choose additional courses because soft skills become the part of the learning outcomes of the respective courses. It includes activities like questioning, class discussion, brain storming, team work, presentation, role play, project, field work and site visits.

However, this model is a challenging one as the teachers have to master specific teaching and learning skills and then apply these skills in the respective courses for the specific programme."[3]

Soft Skills Trading for engineering students is a complex task involving intricacies that can be addressed by adopting a holistic approach as shown in Fig. 3. Since the effort is to improve the behavior pattern and language skills of the students, a three pronged approach is required which includes

1. *English Language Proficiency*
2. *Soft Skills Training*
3. *Campus Activities for Personality Development*

These three elements are required to integrate in a holistic manner and become an important tool for employability of the students. An impressive personality does not solely depend on personality development exercises conducted in the training programs carried out by the soft skills training agencies. Such exercises definitely create enthusiasm and interest among the students, but fail to improve their personality to fit the corporate world, since they lack English language proficiency. A holistic approach targets three vital requisites for employability, namely English language proficiency, soft skills and personality development through campus activities. These three elements must get equal focus in every student's academic life, as shown in Fig. 3.

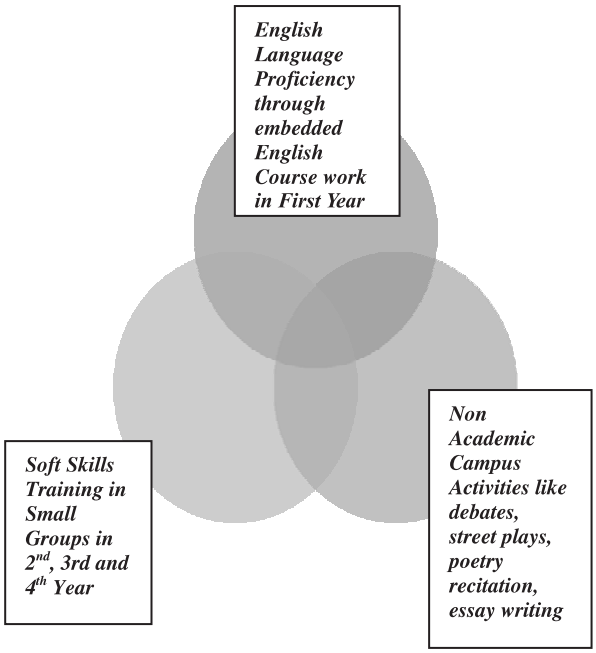

Fig. 3. Holistic Approach to Soft Skills Training

English Language Proficiency and avoiding Indianism in English

English Language is globally being used as the language of Professionals; therefore a good command over the English language is required by all engineering students. Language is the building blocks of all soft skills. India is a vast country where according to Census of India of 2001, 30 languages are spoken by more than a million native speakers. In British India, English was the sole language used for administrative purposes as well as for higher education purposes. "Indian English" is an umbrella term used to describe dialects of the English language spoken primarily in the Republic of India.

As a result of British colonial rule until Indian independence in 1947, English is the official language of India and is widely used in both spoken and literary contexts. The rapid growth of India's economy towards the end of the 20th century led to large-scale population migration between regions of the Indian subcontinent and the establishment of English as a common lingua franca between those speaking diverse mother tongues.

When students who had their primary education in Hindi medium or vernacular languages, switch over to English as a medium of learning in Engineering colleges, they face many hardships. Whatever English they know is heavily "Indianised." Indian English is "Idiomatic forms derived from Indian literary and vernacular language have become assimilated into Indian English in differing ways according to the native language of speakers." (Wikipedia, 2012) However this Indian English is not always understood and accepted by the English speaking world.

In the global corporate world, where the prospective engineers may be called to interact with various English speaking business partners, learning to speak, write and understand a globally accepted Standard English has become very important. There fore, the engineering students have to imbibe an English language which has minimum "Indianism." In the English speaking world Language proficiency is the ability to speak, read, and write Standard English in a businesslike way. One may have the 'hard' skill of knowing what usage is correct and what is incorrect, but lack the 'soft' skills of knowing when to use only standard forms and in what tone to use them.

Soft Skills Training

Soft skills training provides best results for students' employability, when the student is aware of its importance and he is willing to take active part in the training. To increase the participation of students, allotting marks for the sessions and a method of continuous evaluation is imperative. Moreover, small groups can make the training more personalized. While dividing the groups, care should be taken to group students according to their ability level. Vast level difference, especially in language proficiency becomes a hurdle in training.

The faculty recruited for the purpose should continually work on enhancing their own training skills by participating in training work shops and FDPs. It is best to recruit competent faculty for training the students, as free lancing agencies and ad hoc faculty may not connect with the students in the long term, as they keep hopping from one college to the other.

Campus Activities

Personality development is not achieved in a classroom alone. A major thrust to personality development should come from various campus activities like debates, lectures by eminent people of various fields, book reviews, publishing college magazine, street plays, declamations, essay competitions etc. It is observed that such activities play a major role in personality development of students, but only a handful of students take active part in such activities.

Motivating students to come forward for such activities can be achieved by giving the option of earning some grade points by participating and winning such events. In most Universities in USA, such a system is adopted successfully.

Challenges Faced by Engineering Colleges in providing Soft Skills Training

During an extended period of training soft skills to Engineering students various aspects of this challenging task was observed.

- At least 40% students in private engineering Colleges are deficient in the basic skill of speaking reading and writing acceptable Standard English. Here it should be noted that even students from metros have an extremely limited vocabulary and expression. The problem can be traced back to their schooling, since most schools adopting CBSE syllabus opt for Communicative English (which is easier) instead of Literary English. As a result, students do not get a chance to read good literature in their formative years. Therefore their level of English is extremely low. Recently CBSE has taken corrective measures and "introduced at least one Classic in higher grades."[4] Hopefully this will enhance the level of English Proficiency among students.
- There is lack of awareness about the importance of Soft skills among engineering students. Most students do not take the training sessions seriously. Attendance in these lectures is less than 30 %
- In most engineering colleges soft skills training does not carry any grades. Since it does not affect their results, the students make a mockery of these classes.
- In most colleges the soft skills training is outsourced to a private agency. These agencies cater to many colleges simultaneously. The trainers are often rotated to suit the schedule of various colleges. As a result trainers are changed repeatedly in the middle of an academic session. This results in poor quality of training.
- Since the agency is on contract, mostly the aim is to make money rather than benefit the students by providing quality education. Often unqualified trainers are hired to save money.
- Before winning the contract, these agencies give impressive demonstrations, presentations and put forward extraordinary study schemes. In the actual classes, the standard is not maintained and the modules are rarely followed.
- Every soft skills trainer faces the challenge of diverse levels in each class. Some students are way behind the rest of the class. Catering to their needs becomes a challenge.
- The students are not self motivated, especially because these classes are free of cost, do not earn them any credits and attendance is also not counted in the overall calculation for detaining the students. Most students are casual about these classes.
- Soft Skills classes require infrastructure like projectors, seminar rooms, video recording facility, language labs, which is not available in most

colleges. If the infrastructure is available, it is not sufficient for the large number of engineering students admitted in the college.

- Teachers are either not well trained themselves, or even if they are capable, they lose motivation because of the casual attitude of the students.
- Evaluation of soft skills poses a great challenge, since unlike hard skills they are difficult to measure.

Corrective Measures and Training Plan

A training plan for engineering Colleges in India to impart a holistic personality development is needed. Diagram 4 gives a training plan that includes Students' plan, Faculty plan and campus activates.

- To enhance English proficiency in engineering students the first year students should be offered one paper of English language and literature carrying 100 marks. Most engineering colleges frown upon the 'literature part', terming it redundant for students who are being trained for technical jobs. However, during extensive research and experience, it was noticed that the engineering students do not have a reading habit. Introducing literature of 50 marks will create an interest in the students to read quality literature. This in turn will enhance their language proficiency.
- The colleges should adopt a holistic approach towards soft skills and personality development. In second, third and fourth year, students should be offered soft skills, personality development, aptitude training classes. These classes should be part of the curriculum, carrying 100 marks in each semester.
- These sessions should be treated at par with all the hard skills, making 75% attendance mandatory.
- Investing in developing and enhancing the skills of regular faculty will be beneficial in the long term basis. All the problems faced due to involving external agencies can be eliminated by recruiting regular faculty for this purpose. It will also be economically cheaper in the long run.
- Strategies and Method of soft skills Training should includes activities like questioning, class discussion, brain storming, work, presentation, role play, project, field work and site visits. Some of the appropriate strategies and methods that are practical include i) learning by questioning, ii) cooperative learning, iii) problem-based learning (PBL), iv) e-learning.
- Non academic activities in campus life can also enhance soft skills and contribute in personality development. Activities like Book reviews session, Debate, Public Speaking, Quiz, Role play, Group Discussion, street play etc should be part of the campus life.
- For the soft skills training, students should be divided into small groups of 30 each. The groups should be based on the level of English proficiency of the student. For this purpose, a simple pre assessment written and oral test of English can be conducted in each class to evaluate the level of each student.
- Soft skills assessment criteria should be clearly stipulated and explained to all assessors and learners.
- "Self-directed and lifelong learning should be encouraged through Personal Development Planning (PDP). PDP's primary objective is to improve the capacity of individuals to understand what and how they are learning, and to review, plan and take responsibility for their own learning.

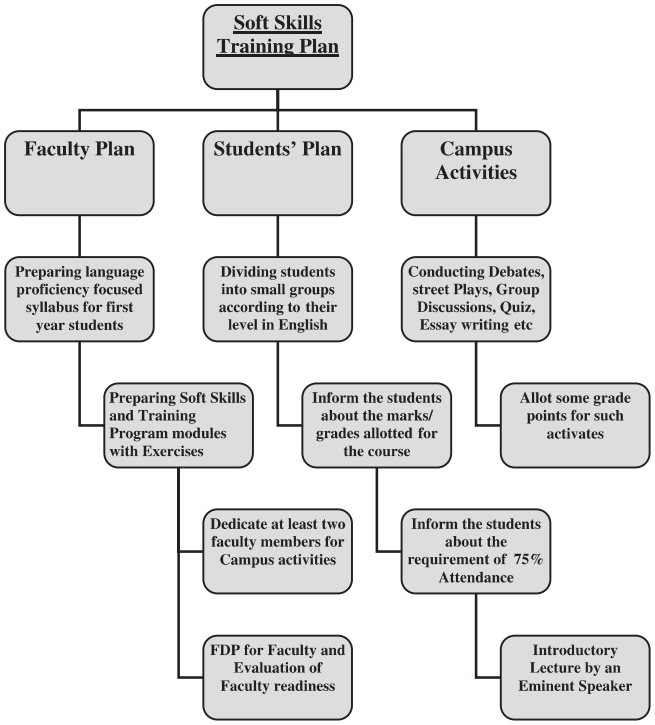

Fig. 4. Training Plan for Engineering Colleges

- Work place-based approaches can be particularly useful for fresh graduates because of authentic context in which employability skills can be demonstrated and applied. Classroom based approaches do not have access to some opportunities as work place-based approaches. Arranging of practical case studies, simulations and activities with Industry representatives can all help to address the lack of awareness at real work station. Working closely with industry contacts to design activities can be useful ways of ensuring a high degree of relevance of activities."[5]

Conclusion :

Engineering Colleges across India, in the present economic scenario, are faced with the challenging task of providing employable young educated work force for the rapid development of the country. The year 2012 is a landmark year as according to NASSCON report "within the global sourcing industry, India was able to increase its market share from 51 per cent in 2009, to 58 per cent in 2011, highlighting India's continued competitiveness and the effectiveness of India-based providers delivering transformational benefits."[6] The NASSCOM report on knowledge Professional mentions that "India's talent base is expanding rapidly with an annual addition of nearly 4.4 million graduates and postgraduates in FY2012."[7]

India does produce enough engineering graduates, but most of them are not employable dues to various factors – a major factor being deficiency in soft skills and English language proficiency. The engineering colleges need to take corrective measures to meet this challenge. Holistic soft skill learning, evaluating and grading the soft skills of each student and making it part of the curriculum are some of the necessary steps. Investing in recruiting talented faculty and providing necessary infrastructure is another important requirement for the success of this program. Besides providing essential disciplinary knowledge and skills, undergraduate education should prepare learners for employability, good citizenship, and lifelong learning.

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