An Importance of Soft Skill Training in the overall Development of Engineering Students for Higher Studies in India

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Abstract: *It has been noticed that soft skills play a vital role in the overall development of engineering students by enhancing their knowledge in diverse fields. Under this paper, the author has focused on the various factors responsible for soft skill development across multiple engineering students across India. The study was conducted by taking the responses from the graduate students of engineering and research-based students, and the total responses collected are 110. The frequency analysis has completed the research to see the demographic profile of the engineering student's answers and the association between the engineering students' demographic profile and the factors responsible for the overall development through soft skill development. The societal importance of this study is that the parents will understand the importance of the soft skill and its contribution towards the overall development of the students. It has been found that there is a significant impact on the Demographic profile of the engineering students and the factor responsible for the overall development of the engineering students in India. Engineering students in various areas, such as information technology, electrical engineering, mechanical engineering etc., must widen their hard skills to gain soft skills.*

Keywords: Soft Skill, Overall development, Higher Education, Engineering Students

I. INTRODUCTION

With the influx of multinational corporations into India, there are numerous job openings at all levels of entry. Even the recruitment procedure experienced a radical transformation. It was formerly assumed in our country that academic technical expertise and documentation were the lone requirements for well-paid work in multinational corporations. However, this is no longer the case, since the demands of multinational corporations have undergone an unmistakable paradigm shift. Companies all around the world understand this in order to acquire a Competitive advantage. Soft-skills are required to obtain this resourceful ability, as well as to distinguish how to behave oneself at work and interact with its consumer dishonorable.

1.1. Demand for Soft Skill in Diverse Areas in Job

Despite the fact that India is a major source of information technology for the rest of the world, Most Engineering and Management graduates in India, on the other hand, are known for having a serious absence of soft skills, chiefly in message. Establishments prioritize soft skills such as critical thinking, presentation, negotiation, and time management in adding to hard skills such as academic and technical competence.

The global economy has experienced strong development, particularly in the ITES (Information Technology Enabled Services) sector, as well as the financial, tourism, and manufacturing sectors. This progress is modest, however, because India's soft-skills efficacy and growth have been hampered by the soft-skills disaster. As the employment base grows year after year, the number of new recruits required to maintain this growth rate has climbed in tandem.

According to manpower recruiting firms, the amount of employable engineering, skill, technical, and management alumnae in India lasts to be extremely little, which is a truthfully perplexing scenario. Although here is a surge in well-

paying employment chances, and a large amount of Engineering alumni are shaped each day, the mainstream of them lack lenient skills.

Solid skills are practical talents that job seekers must possess. Hard assistance include theoretical information, competence, and applied experience. Hard services are just as vital as soft services, and they should not be overlooked. The term "soft skill" is a sociological concept that refers to a person's EQ, or emotional intelligence quotient. Interactive skills, Life services, Personal skills, Employable skills, Personal ways, Openness, Hopefulness, Social elegance, Personality growth skills, and Behavioral capabilities are all examples of soft skills. Soft talents are the abilities and skills that aid in the development of a complete professional, particularly in corporate environments across the world. Humans will not be able to govern their lives unless they can regulate their emotions. All employees need to have soft skills.

English linguistic instruction, mind, human resource management and sociology are all infused into the subject of soft skills. Human beings must have strong soft-skills in addition to hard talents if they wish to live a happy and successful life. Academic and technical capabilities are more easily obtained, while lenient skills are more problematic to develop. Lenient talents remain categorized into three categories.

1. Improving Communication skills in English language by considering together Verbal and Non Verbal signals.
2. Emotional Skills counting together Personal and Interpersonal Skills.
3. Creative then Critical Rational Skills.

1.2. Training of Students as per the International Standards

The first stage in soft-skills exercise is to increase consciousness of the value of soft skills then the repercussions of lacking them. Scholars should be encouraged to remain taught cutting-edge soft skills utilizing the most up-to-date training techniques, such as reading specialized books, taking courses, and joining clubs to extend their horizons, such as debating societies that give performances and deliberations. The most effective method is toward combine soft skills exercise with additional academic courses. On a lower level, a programme that asks students to do a survey or study and then present their findings is a wonderful and successful approach. However, the syllabus is frequently already overburdened by technical content, creation of difficult to add on. Also, additional abilities might be unaware of the value of soft skills and, as a result might refuse to collaborate in teaching soft skills to students.

Furthermore, Goldberg developed the following simple equation. Technical Skills + Life Skills = Engineer which emphasizes the necessity of soft skills in adding to solid skills and practical proficiency. According to Goldberg, scholars devote 80% of their period learning practical courses, yet only 20% of an individual's working day is spent using those technical abilities.

II. LITERATURE REVIEW

Colman, B., & Willmot, P. (2016) mentioned in this paper presents the findings of a study that examined the apparent growing importance of so-called "soft skills" among engineering specialists, a period that is frequently cast-off to label the growth of a person's expert relations with additional people as well as the development of emotional intelligence. Individuals' emotional intelligence is their aptitude to recognize their individual and additional people's feelings, to distinguish amid them, to name them properly, then to utilize emotional info to influence their rational and behaviour. It was established after the start that, soft skills are known by a variety of titles, including movable skills, important skills, and lifetime skills, whereas hard skills are additional usually associated with technical or scientific abilities. While technical skills remain dominating, there appears to have been a shift, with graduate engineer recruiting now focusing more on soft skill qualities.

Garcia, I., et.al. (2020) highlighted that in countries that recognize the need of training future software engineers in order to sustain a healthy software industry, the software industry is becoming an increasingly important segment of the economy. Traditional teaching, on the other hand, continues to impede the acquisition of soft skills in software engineering education. GBL is a sort of active learning that combines learning with other current resources, such as games, in order to enhance and improve the teaching/learning process and/or student evaluation. This study provides a complete literature review on the use of GBL for teaching software engineering at the undergraduate level from 2001 to 2020 by addressing four research objectives. What kinds of games have been developed to help students learn about

software engineering? Which topics of software engineering have been covered in these games? Which soft skills have improved as a result of these games' use? What criteria did you use to evaluate these skills? The study discovered 96 publications that addressed these four concerns. The findings suggested that digital games may be developed to teach software engineering principles as defined by the software engineering body of knowledge. Furthermore, it has been demonstrated that these games promote the development of a variety of soft skills, which is beneficial to undergraduate students.

de Campos, et.al. (2020) The purpose of this article is to organize and discuss the key soft skills that impact employability in the Engineering field, with the objective of narrowing the gap between education and the STEM employment market. According to a systematic literature review (SLR) of 2638 articles on Humanities and Engineering Education, the most important soft skills for engineers' employability can be divided into six categories: problem solving and critical thinking, communication, teamwork, ethical perspective, emotional intelligence, and creative thinking. This article discusses these skills and how they relate to Engineering employment, and it finishes with a viewpoint on recent engineering graduates and their job market readiness.

III. RESEARCH METHODOLOGY

3.1. Identification of Problem

Many research in the past had been done on the requirement of engineering students in terms of the core parameters which is important for them to run the engineering program and the expectation of the students and parents out of this course. Not much focus had been provided on the requirement of the curriculum with the extra co-curricular activities in the academic program of engineering students. This study had tried to bridge this gap by conducting the combine study of the importance of the curricular and extra co-curricular activities in the all-around development of the students.

3.2. Purpose of the Study

1. To study the demographic profile of engineering students across India.
2. To study the different parameters of Social Skills enhancement for the engineering students across India,

3.3. Variables of the Study

Mainly there are two types of variables that have been taken into the study i.e. the demographic variables of the engineering students and the factors responsible for the importance of the soft skill development on the significant development on the development of them.

3.4. Societal Importance

In India the education is basically concern with the sentiment of the parent as they are highly concern for their child education and making them compatible for the future in terms of overall development. This study will basically help them to understand the different factors that are taking care of the all-around development of the students and this has also focused on the different parameters for the factors responsible for the all around development.

IV. DATA ANALYSIS AND INTERPRETATION

Table 1: Demographic Profile of Engineering Students

Gender	Percentage	Father's Occupation	Percentage
Male	58.3	Salaried	38.4
Female	41.7	Businessman	23.3
		Professional	21.4
		Others	16.9
Year of Degree		Field of Engineering	
First Year Student	19.3	Information Engineering	10.8
Second Year Student	21.5	Chemical Engineering	16.4

Third Year Student	23.1	Manufacturing Engineering	21.6
Fourth Year Student	22.4	Computer Engineering	19.5
Graduate Student	13.7	Material Engineering	13.4
		Mechanical Engineering	9.2
		Electronic and Communication Engineering	9.1
Area of Residence		Age of Customers	
North Zone	28.4	Above 18 Years	61.7
South Zone	32.1		
East Zone	4.9		
West Zone	11.2		
Central Zone	23.4		

(Source: Research Output)

From the above table 1, it can be seen that the total of the Male Engineering students are 58.3% followed by the girl engineering students i.e. 41.7%. The majority of the father's occupation are having either job or personal business. Talking about the year of engineering degree, majority of them are falling in the Third year of their engineering degree followed by the Fourth year of students. Majority of the students in this survey are taken from the Manufacturing engineering followed by the Computer Engineering. Most of the responses are collected from the North and South zone of India and Maximum no of students are falling in the above 18 years of category.

Table 2: Factors considered for the overall development of Engineering Students

Factors	Parameters	Count (%)
Core Competency **(Mean Score = 3.515)**	Integrity	3.46
	Team Efforts	3.58
	Entrepreneurship	3.65
	Self-Discipline	3.15
	Learning Attitude	3.28
	Flexible Nature	3.64
	Reliability	3.47
	Empathetic	3.74
	Self-Motivated	3.51
	Proper Directions	3.67
Professional Aids **(Mean = 2.47)**	Creativity	2.84
	System Design to Need	2.69
	Problem Solving Nature	3.31
	Core Customer serving	3.04
	Application Modern Tools	3.28
	Apply Mathematics and Science Subjects	2.98
Good Communication **Ability and Skill** **(Mean Score = 3.27)**	Basic knowledge of Computer	3.12
	Writing Skills	3.51
	Speaking Skills	3.61
	Technical Knowledge	3.32
	Reading Ability	3.10
	Advanced Knowledge of Computer	2.98

(Source: Research Output)

From the above table 2 for the factors of Soft skill development among the engineering students, it can be seen that there are total three factors for the soft skill development i.e. Core Competency, Professional Aids and Good Communication ability and Skills. Out of these three factors the highest mean score that have been received out of this

survey is for the Core competency i.e. 3.515 followed by the Good Communication ability and skill among the engineering students in the Graduation program across the India.

V. FINDINGS AND CONCLUSION

From the above survey it can be seen that there are total three basic quality which are required for the Upliftment among the engineering students across the India i.e. Core Competency, Professional Aids and Good Communication skills and ability among them. By considering the demographic profile of them, majority of them are Male engineering students having the age above 18 years which proves that the majority of the respondents are from the third and fourth year of engineering field. Respondents from the Manufacturing and Computer Industry are the highest and most of them are from the North and South zone of the India as a part of their residential areas are concern.

VI. REFERENCES

[1]. Dubey, R. S., & Tiwari, V. (2020). Operationalisation of soft skill attributes and determining the existing gap in novice ICT professionals. International Journal of Information Management, 50, 375-386.

[2]. Sharma, G., & Sharma, P. (2010). Importance of Soft skills development in 21st century Curriculum. International Journal of Education & Allied Sciences, 2(2).

[3]. Goldberg, DE. Life Skills and Leadership for Engineers, p.144, 1st ed. New York: McGraw-Hill Inc US; 1994.

[4]. Kumar S, Hsiao K. Engineers Learn "Soft Skills the Hard Way": Planting a Seed of Leadership in Engineering Classes. p.18, Leadership and Management in Engineering 2007.

[5]. Colman, B., & Willmot, P. (2016). How soft are 'Soft Skills' in the engineering profession?.

[6]. Garcia, I., Pacheco, C., Méndez, F., & Calvo-Manzano, J. A. (2020). The effects of game-based learning in the acquisition of "soft skills" on undergraduate software engineering courses: A systematic literature review. Computer Applications in Engineering Education, 28(5), 1327-1354.

[7]. de Campos, D. B., de Resende, L. M. M., & Fagundes, A. B. (2020). The Importance of Soft Skills for the Engineering. Creative Education, 11(08), 1504.