

# Investigating the Essential Soft Skills (SS) that Engineering Graduates Need to Enhance their Employability in Bangladesh

Dr. Syed Nazim Obayed

Principal, Technical Education Venture of Unique Group of Companies Limited  
Dhaka, Bangladesh.

**Abstract:-** Soft skills (SS) significantly influence engineering graduate's employability. In addition to their academic knowledge and technical capabilities, graduates need soft skills. Employers give a greater value on soft skills than on technical abilities. For career-long employment sustainability, these skills are essential success factors. Employability is significantly correlated with soft skills. To succeed in the job, engineers require soft skills. Technical skills are valued by employers throughout the hiring process, but as engineering careers progress, employers give more emphasis on soft skills. However, not every level of a person's career requires the same set of soft skills. At a certain point in a career, employers look for different soft skills. Starting with early career, moving through mid-career, and ending with advanced career, this research attempts to uncover those soft skills accountable for workplace success meeting employer's expectations. Both graduates with a diploma and a bachelor's degree in engineering have been covered by this study. The majority of engineers share the same Intelligent Quotient (IQ) on an average. Technical skill gaps are easily bridged with quick trainings. The only things that set engineers apart from the masses are soft skills, which are primarily characterized by personality traits and Emotional Intelligence (EQ). Employability is influenced by numerous factors. Only the employability's absolute dimension is the subject of the inquiry. Absolute dimension is contingent upon the candidate's skill sets. It is true that having technical abilities is a requirement for employment. But in addition to technical skills, modern employers now prioritize soft skills. Of course, an engineer continues to be measured by his/her soft skills in mapping their Annual Compensation Review (ACR). The study identifies 46 distinct soft skills that engineers need. Since not all skills are equally valuable at every level of a career, they are grouped according to career stage.

**Keywords:-** Soft Skills, Non-Technical Skills, Employability.

## I. INTRODUCTION

### ➤ Research Background

Soft skills play a significant role in determining employment prospects for engineering graduates. Beyond their academic background and technical proficiency, graduates require soft skills. Above and beyond technical talents, employers place a higher value on soft skills. For long-term

work sustainability over a career, these abilities are essential. Significant relationships exist between employability and soft skills. To succeed in their careers, engineers require soft skills. When hiring new employees, employers place a high priority on technical talents; but, as engineering careers progress, employers place an even greater emphasis on soft skills. Every level of a person's career has different requirements for soft skills. At particular stages of the career, employers look for specific soft skills. This study aims to identify those soft skills that could be essential at any career stage, i.e. early, intermediate, and advanced they are to achieving success in the workplace and meeting an employer's expectation. Eighty percent of employers of recent engineering graduates stated that one important area in which educational institutions need to improve student training is non-technical skills. Graduates employability is mainly due to their soft skills while engineers are more likely to be lacking in these competencies. Colleges, Universities, and Polytechnics are the tertiary education sector. This research encompasses graduates holding both a Diploma in Engineering and a Bachelor of Science in Engineering degrees. The majority of diploma engineers pursue B.Sc engineering degrees concurrently with their careers. Soft skills are essential for engineers to succeed in their careers, regardless of their degree or diploma.

### ➤ Statement of the Problem/Problem to be Solved

Technical skills are traditionally strong points for engineers. What makes them proud are their hard skills. Students tend to give higher emphasis on learning technical abilities while in institution, but they also overlook the fact that engineers must be able to interact with people in addition to machines, which calls for a broad spectrum of soft skills. Even while recruiters value soft skills just as highly as technical skills. Bangladeshi engineering curricula do not adequately address these areas, despite the fact that having these talents greatly increases employability. Nontechnical abilities are necessary for both obtaining and keeping jobs. The majority of engineers share the same Intelligent Quotient (IQ) on an average. Technical skill gaps are easily linked with quick trainings. The only things that set engineers apart from the masses are soft skills, which are primarily personality traits and Emotional Intelligence (EQ). While polytechnics are providing diploma engineers for the nation, universities and colleges are producing graduates and postgraduates. I wish to investigate what soft skills engineering graduates must possess. The majority of engineers are technically proficient, and they need these abilities for their professions. It is also true that, all soft

skills are not always important for all stages of career. Certain abilities are more vital than others. As such, identifying such skills and classifying them according to career level is crucial.

#### ➤ *Research Aims*

The research aims at

- This research was conducted to identify all-possible soft skills related to employability of engineering graduates in Bangladesh.
- In what ways do these soft skills enhance the employability of engineering graduates?
- Develop a model based on grounded theory.

#### ➤ *Research Objectives & Research Questions*

Generally, research has two objectives which are as follows:

- Filling knowledge gap; and
- Solving problem.

Filling knowledge gap is a traditional way of research that is literature-driven and very close to positivism. Deductive reasoning and testing hypotheses statistically are the main attractions of this kind of research which is quantitative. Whereas, solving problem is very close to interpretivism. It is a kind of qualitative research. Interviews and qualitative analysis from the collected data are the main attractions of this kind of research. This research aims to solve how engineering graduates can improve their employability, in different stages of their career. To solve these problems, a survey of certain extent of literature would be needed and this has been described in the literature review section. The objective of the research is to develop a handbook that produces a readymade guideline for the engineering graduates, educational institutes and industries on how to increase employability at various stages of engineering career. This is the novelty and newness of this study. This research falls mostly to the solving problem side and partly to the filling knowledge gap side.

#### ➤ *The Central Question*

- What are the possible soft skills that enhance the employability of engineering graduates?

#### ➤ *Sub Questions*

- What are the most important soft skills in the early career of engineering graduates?
- What are the most important soft skills in the mid-career of engineering graduates?
- What are the most important soft skills in the advanced career of engineering graduates?

#### ➤ *Expected Outcomes of the Research*

- Those who are working on curricula development can get complete insights on how to include courses on soft skills development.

- Practitioners can also organize the required training programs and get the insight on how to improve soft skills of the engineers.

#### ➤ *Contribution to Existing Knowledge and Practice*

- The academic community can learn important employability skills for engineering graduates in the context of developing nations like Bangladesh, which could add value to the existing literature.
- According to the studies, academic institutions can equip their students with the minimum soft skills that are required when the graduate is in the production stage.
- Additionally, industry can obtain readymade guidelines for training of the engineers and improving skills through ongoing training initiatives.

#### ➤ *Scope and Limitations*

The research comprises the following scope:

- Exploring the possible soft skills required for the engineering graduates from the private organizations in the Dhaka City of Bangladesh.

#### ➤ *Following are the Constraints of this Study:*

- Engineers representing electrical, civil, mechanical and computer engineering departments;
- Internal factors of employability;
- Absolute dimension of employability;
- Data collected from the Dhaka city;
- Qualitative data from private organizations; and
- Theoretical sampling.

## II. LITERATURE REVIEW

#### ➤ *What is Skill?*

Skill is the ability to do an action well (Google, 2024). According to Wikipedia (2024), skill refers to an acquired capacity to perform an action with a predictable result within a given amount of time or energy or both. Because economics, sociologists, and physiologists all define skills differently, the concept of skill can be a little hazy. In 2011, Professor Green summed up the idea of skill using three schools of thought: in economics, skill is the key component of human capital, which is the potential for future and present income. Income and skill are related. The variable that determines how income is distributed in society is skill. In society, people with higher skill levels make more money. The core idea of skill in sociology is that skills are the main factor that determine social classes. Because those with lower skill levels occasionally earn more money than those with higher skill levels, market valuation is not always based on skill. In psychology, competence and skill are related, and skill is everything that contributes to the development of competency. According to Green (2011), skill is divided into three categories: social (determined by social factors), expandable (improved through training and practice), and productive (value addition). Skills also include mental and physical aptitudes (Barrow, 1987).

### ➤ *Hard Skills*

Technical know-how is commonly referred to as hard skills as it is the ability to carry out certain tasks in a technical field. Hard skills are cognitive abilities that are influenced by an individual's IQ (Ahmad & Idris, 2019). Hard skills cannot be converted; they are created and represented physically (Holbrook, 2009). According to Attia and Salama (2018), hard skills are knowledge that is simple to record and cultivate. From an educational background, hard skills are easily taught, quantified, and measurable. Technical skills are specific knowledge and abilities which are needed to perform jobs at work (Klaus, 2007). Hard skills are characteristics that are directly learned and contribute to the development of engineering expertise. Hard skills are observable, quantitative, and measurable (Rao, 2018).

### ➤ *Soft Skills*

Soft skills are more than interpersonal skills; they also enable more efficient use of technical abilities in the workplace (Klaus, 2007). Klaus defines soft skills as self-management, interpersonal, social, and communication abilities. All these are included: being self-aware, trustworthy, conscientious, adaptable, critical thinking, initiative, empathy, confidence, integrity, self-control, organizational awareness, likeability, risk taking, problem solving, leadership, time management and many more qualities. Soft skills, also known as common skills or core skills, are defined by the online encyclopedia as follows: professional attitude, work ethic, intercultural fluency in all professions, problem solving, public speaking, professional writing, teamwork, digital literacy, and critical thinking (Wikipedia, 2024). In contrast to soft skills, where connection with people is crucial to the learning process, hard skills are learned through practice alone (Hening, 2016). Hard skills and soft skills are complementary, but neither one is useful on its own in the workplace (Klaus, 2007 and Rao, 2018). It is a judicial blend of hard skills and soft skills that are needed for success since soft skills are intangible and difficult to quantify in terms of work, with how hard skills get presented (Rao, 2018). As a result, it is almost impossible to measure soft skills with tests as Mar pointed out in 2013. The terms “soft skills” also have other names and are called “life skills” (WHO, 1993), “transversal skills” (ISFOL, 1998), “generic competences” (Tuning Project, 2000), “key competencies for a successful life to and a well-functioning society” (OECD). As one can say, it is a very thin line between the hard and the soft skills, because a skill may be classified as hard in one aspect and as soft in other (Lanka, 2012). An example is that a human resources manager must be culturally sensitive, but it's an excellent skill for an engineer.

### ➤ *Definition of Soft Skills*

The fact is that there is no single definition of soft skills in the literature. In this section, scholars defined soft skills in their own way chronologically.

Social skills, empathy, the ability to monitor ourselves, manage ourselves, motivate ourselves, and exhibit self-awareness make up Emotional Intelligence (often referred to as 'soft skills'), (Goleman, 1995). Soft skills according to Bellier (1998) are cross curricular competencies, that can be used in various situations once they have been taught in one.

Soft skills (Heckman, 2000) predict success in life. In her study of the role of the soft skills in the workplace, Hayes (2002) and Perreault (2004) argued that soft skills are personal qualities that define how well a person can perform the functions of their employment role while handling the possibilities and demands of employment related activities. Soft skills therefore are aptitude and personality traits and abilities and as such are not technical knowledge as stipulated by Tobin (2006). soft skills make a person a good worker, as pointed out by Lorenz (2006) and consequently results in compatibility with co-workers. Soft skills are used with hard skills for effective career performance and for daily living competence (Arkansas Department of Education, 2007). Soft skills (Knight, 2007) are wicked competencies. Hewitt (2008) defines soft skills as non-technical, intangible, personal skills that assess a person's capacity for leadership, listening, negotiating, and conflict resolution. John (2009) insists that soft skills are more like balancing abilities and less like a replacement for the hard skills. According to Meenu and Kumar (2009), soft skills are transportable. Maniscalco (2010) defines soft skills are a set of characteristics, routines, character characteristics, dispositions, and social graces that are unique in each person and needed every day. Soft skills according to Heckman and Kautz (2012) are the characteristics, aims, driving forces, and inclinations that are most valued in the workplace, the educational system, and in most other areas of human endeavor. For a skill to be classified as a soft skill, it needs to have three characteristics: it's got to be something that's transferable and valuable to all types of work, something that takes time to learn. (Han, 2013). Soft skills, as defined by Lippman (2015), are abilities, dispositions and personal traits facilitating people in the interaction with other people, with surroundings, good performance and achieving goals. According to Wheeler (2016) graduates with soft skills are better able to use their technical acumen in the workplace. Soft skills are key to succeeding professionally and growing in career (Rao, 2018).

### ➤ *Evolution of Modern Soft Skills*

Soft skills have existed since the beginning of civilization, albeit in various forms (Dean, 2017). The idea of soft skills was first developed following World War II as a result of women joining the US workforce. Men worked outdoors in the early 1990s, while women took care of the family at home (Magnusson, 2014). Women began to work after World War II. Even though it frequently meant working in less ideal conditions, they persisted in fighting for their right to work (Zelnick, 2012). During this time, firms prioritize changed from production to a marketing-driven consumer culture (Dowell, 2014). Women are generally more empathetic and have better interpersonal skills than men (Matsa & Miller, 2014). Manually based jobs were still perceived as not being capable enough for women and with a poorer balance of soft skills (Matsa & Miller, 2014). The entry of women to workforce has made it more important to focus on soft skills (Dean, 2017). Analysis of maps and making decisions based on map interpretation required hard (what we know) and soft (as in people) skills in the 1970s for the US Army (Fry & Whitmore, 1972). Being a responsible worker in the office is one of the biggest aspects of soft skills (Fry, Whitmore, 1972).

Table 1 Evolution of Soft Skills

Author/Institute	Year	Soft Skills
<b>ITFT</b>	2020	Transdisciplinarity, cognition Load Management, media literacy, design mindset, virtual intelligence, Social intelligence, problem identification, computational thinking, Novel and adaptive thinking.
<b>Robles</b>	2012	Professionalism, communication, teamwork, interpersonal, courtesy, Positive attitude, work ethic, simplicity, flexibility, responsibility, integrity
<b>Casner-Lotto</b>	2010	Professionalism, leadership, self-direction, social responsibilities and work ethic, ICT skills, critical thinking and problem solving, creativity and diversity, diversity.
<b>Shakir</b>	2009	Including in that list; Communication Skills, Problem solving Skills, Team work, Leadership, Critical thinking, Lifelong learning, Ethics.
<b>Kantrowitz</b>	2005	Communication / Persuasion Skills, Performance management Skills, Interpersonal skills, Leadership Organisation Skills, Self-management skills, Political cultural skills, Counterproductive skills.
<b>Conrad</b>	1999	Interpersonal and teamwork, oral communication, personal qualities and work ethic, thinking and cognitive skills.
<b>Stasz</b>	1997	Problem solving skills, communication skills, team work, personal qualities.
<b>Maes, Weldy &amp; Icenogle</b>	1997	Problem solving skills, Self-motivation, Oral communication.
<b>Fry &amp; Whitmore</b>	1972	Managing and adapting to new and shifting work situations, working with others, working as a member of a team, Working effectively with co-workers, Inspiring confidence in supervisors and management and co-workers, Learning or acquiring the technical skills necessary to perform the task.

➤ *Significance of Soft Skills at Workplace*

When hiring a new employee especially those recent graduates, enterprises usually give soft skills relatively more weight than hard skills. For example, a collaborative work atmosphere and smooth running teams are equally important for technical occupations such as engineering which make the organization agile and hold an edge over others. The Stanford Research Institute and the Carnegie Mellon Foundation found that of Fortune 500 CEOs who had researched their careers and partnered up, 75 percent had their long term success coming from soft skills and 25 percent from technical skills (Sinha 2008). A Harvard University study says that hard skills, which are only 20 percent, are responsible for only 20 percent of job success; while soft skills, i.e 80 percent, also affect only 80 percent of the job success. Watts and Watts (2008), claim for hard and soft skills, 85% of success accounts for soft skills, with hard skills representing just 15%. Research conducted by Boston University and the University of Michigan's Ross School of Business (Dean, 2017) found that employees are 12 percent more productive if they received soft skill training. These types of skills are well tied to professional and also personal success (Cinque, 2015). The fact that getting a job involves competition for skilled workers in the labor market makes it essential to have really good soft skills (John, 2009). Because it might not be the most technical skill, but it is able to make a candidate stand out from a sea of mediocrity (Dean, 2017), recruiters often seek candidates with strong soft skills during the selection process. The job market today is overly competitive because there are too many job searchers and too few positions (due to a lack of job searchers). Soft skills are what separates potential candidates (Lanka, 2012) among applicants with similar academic background. As engineering students enter the workforce with little to no soft skills, the German Engineering Association (VDI) has advocated since nearly 50 years ago that at least 20 percent of engineering courses be devoted to soft skills (Lanka, 2012). Recruiters have become more interested these days in soft skills along

with technical or work related talents (Mansour and Dean, 2016). At the moment we need soft abilities (Bancino & Zevalkink 2007). Some companies are right-sizing, laying off; technical skills alone no longer maintain people employed (James & James, 2004). Both present and future leaders have a value in soft skills development (Nealy, 2005). Soft skills are as important as cognitive skills according to Robles (2012) and Flaherty (2014). A lack of soft skills (Klaus, 2010) could end some promising careers for those with technical aptitude and professional experience. In today's world it is easier to blame soft skill because practical work takes place in a more collaborative and multidisciplinary way and engineers unprofessional are worthless in the job market (Lohana, 2015). While engineers are technically proficient, they usually lack the understanding of the importance of human engineering in the workplace, whose role is dominated by people (Lohana, 2015). Rao (2014) believes the current recruitment tagline is 'train for skills, recruit for attitude.' It is graduate unemployment caused by a lack of soft skill not because the intelligence (Omar, Manaf, Rusyda, Kassim and Aziz 2012). Rao (2014) enhances the employability of engineering and business students with soft skills. Employment dissatisfaction with recent engineering graduates can be resolved by increasing the soft skills that graduates possess (Afroze, 2019). We must communicate inside our organization and so soft skills become a necessity because they will differentiate us from the competition (Brown, 2016). Employer profile in the engineering sector, connected to leadership, communication, critical thinking, teamwork, directly shows how soft skills development is important in labor market (Reh, 2020). Economists (Deming, 2017) are paying attention to the significance of soft skills in success in the labor market. In 2005 Kantrowitz created a soft skills performance measurement tool. Based on seven major soft skills clusters such as interpersonal, political-cultural, self-management, communication and persuasion, performance management and self-management skills, it included. Engineering colleges

(Vijayalakshmi, 2016) seek to develop both hard and soft skills, that are on demand in the job market. Problem solving abilities (98%), communication skills (92%), interpersonal skills (88%), time management skills (65%) and team building skills (43%) were all listed as top 5 skills in the IT business. (Raman, 2015). In a 2014 Malaysian study by N. Seetha, communication skills with a weightage of 28%, positive attitude, 24%; teamwork and interpersonal & social skills, 17%; analytical & problem solving skills, 9% and leadership, 6% weighted lowest. They are dynamic blend of academic and practical skills, social and metacognitive skills and moral principles. People with soft skills are far more equipped to adjust to change and respond in a positive way, leading them to handle work and daily aspects of life with far less difficulty (Rao, 2018). Domain skills are possessed by many engineering students, but lack soft skills. They are unable to communicate well or with interpersonal skills and they are unable to effectively make their points. Thus, they end up not being able to convince recruiters to find them apt candidates as company's value people who have both tangible expertise and soft skills which back all importance in the workplace (Nair & Mukherjee, 2015). Engineering hard skills is nothing without improvement in soft skills and a raise in their self-awareness level and by doing so we will be a better version of ourselves as engineers. Today's engineers know no boundaries. After, the globe has become a global village. Their own qualities allow one to engage with others in a productive and safe way. Engineers have to know the cultural surrounding in which they work. Great idea, but regardless, an engineer has to be able to talk (clearly and convincingly) about it. It would mean that he or she has to master the art of how to use language as a means of effective deals in business, which signifies telephone etiquette, authorship etiquette and conversational skills. An engineer has to be serene, equanimous, calm under pressure. A real professional is who can create a calm and joyful workplace (Nair & Mukherjee, 2015). Engineers both value their technical expertise but they also need soft skills to perform (Capretz & Ahmed, 2018). Forbes (2004) suggested an engineering graduate with a solid technical understanding, pleasant attitude and good communication skills was the ideal candidate for the company. According to the Accreditation Board of Engineering and Technology (ABET) in 2024, engineering and technology curricula around the world should include the following soft skills:

- An ability to explain matters in a clear language and where necessary in one's languages of one's own origin.
- An ability to identify ethical and professional concerns in engineering contexts and synthesize decisions based on this responsibility, which has to take into account global, economic, environmental, societal ramifications of engineering designs.
- An ability to collaborate with a team composed of leaders who contribute towards development of the team culture, definition of objectives, coordination of tasks and accomplishment of objectives.
- Ability to learn, and perform efficient learning, learning being the process of acquiring new knowledge in a given subject area and applying the knowledge appropriately in relation to the required learning skills.

### ➤ *Employability*

In fact, the concept of employability is not well defined. Scholars were asked to give their own understanding of the term employability. As stated by Hills and Pollard (1998), employability encompasses the ability to act in the labor market in individual and sustainable manner with a view to achieving potential through work. According to Hills and Pollard, employability is made up of four primary components: It used structural models of presentation (skills for getting employed), deployment (career management skills), asset (knowledge, skill, and attitude), and person and external influences (family, labor market, and macroeconomic factors). According to Askov & Gordon (1999) employability may be defined as the capacity to assist graduates get jobs and progress in their areas of practice. Employability, as described by University of Exeter, is about developing tangible mechanisms that assist students to progress in their ability to locate and utilize opportunities and experience to enhance own study and to help them become more attractive to employers (Lee, 2000). The change from one form of gainful occupation to another or the process of securing different kinds of job experiences is referred to as employability (Brown, 2003). Habitudes, facts, values which enhance a person's chances of gaining and thriving in one's chosen profession or professions, for the good of the workforce, economy or community and for one's self (Yorke, 2006). Employability is the ability to seek work, find a job and transition within the company to other jobs (Chithra, 2013). It was defined by the United Kingdom Institute of Employment as the ability to obtain, retain and acquire new jobs as when required. Therefore, employability is not so much an end product as it is an end result of having learnt to learn putting into practice everything that a CV says (Jeswani, 2016).

Schultz (1963) formalized the human capital hypothesis as the theory of employability skills development, yet employability is considered more related to the ability to do the job rather than talent and experience. these skills are generalizable; they can be used vertically within fields and occupations across industries and horizontally within levels ranging from junior to senior stages of any given occupation or business (Sherer & Eadie 1987). These abilities are called comparability skills. Employability skills are defined as the basic skills and competencies needed in order to obtain, maintain and thrive in a particular vocation (Robinson, 2000). Employability skills are those skills that require an individual to progress more in the company, develop to the optimum, and contribute in achieving new corporate goals championed by the organization, as defined by the Department of Education, Science, and Training (DEST) (2002). These abilities are also required in order to get a job. Employability skills are portable meaning they may be used in a vertical fashion within a given occupational area and in a horizontal fashion across different areas of work at different organizational levels from junior to senior positions (Cassidy, 2006). Generic skills or the transferable skills of engineering prostitutes has a close relation to the non-technical hard genres. Lorraine and Sewell (2007), Yorke (2006) have also noted about transferable and inculcate employability skills Common, quantifiable and inculcate employability skills. The employability skills are described as 'the skills that turn specific knowledge and

technical skills into productive ones', and as the abilities required for practically anyone to undertake any vocation or profession (Watts, 2006). Employability skills became apparent since 1980 and are often described as graduate's readiness to secure a job and progress in the career (Fugate, 2004). Employability skills are these co-ordinate abilities that are portable and stand for the elementary, confidence and enabling know-what, know-how and know-why mapped to the workplace essentials of twenty first century. Overtoom, (2000) pointed out that they are basic to career advancement across all organizational, work and academic experiences. Throughout all occupational families, the American Society for Training and Development (ASTD) in 1990 highlighted 16 skill groups: The six categories of competencies include; academic skills, language skills, flexibility, personal, group and influencing. Employability skills defined according to the Secretary's report called achieving necessary skills (SCANS) in 1991 encompass core workplace competencies and basic knowledge and skills. Workplace competencies include the following five abilities: technology, systems, information, resources and skills with people. These skills can all be applied with a high efficiency by the employees to ramp up productivity. On the other hand, basic skills, intellectual skills and person characteristics are the basic skills that are needed to improve the performance of the worker. The Conference Board of Canada (CBC) conducted its survey on employability skills in Canada in 1996 on employers' requirements. CBC document: Employability abilities can now be used and incorporated into all the other normal activities apart from working. Three primary skill groups make up the employability skills framework that was developed: collaboration skills, organizational and individual skills and core skills. Every group consists of several assets, which are forward, sideward or backward oriented skills. For instance, the mathematics, thinking, problem solving and communication skills and other similar faculties are some of the crucial skills. The following eight skill categories are also discussed by the Australian Department of Education, Science, and Training (DEST) in 2001; Communication skills; Teamwork skills; Problem solving skills; Initiative and enterprise skills; Planning and organizing skills; Self-management skills; Learning skills; Information and communication technology skills. Employers regarded a number of pro-Employability behaviors and attitudes as important as formal Employability skills and other generic or task-related competencies. These specifications of behaviors and attitudes are called personal characteristics. They included: reliable, trustworthy, truthful and loyal, enthusiastic, dependable, enjoyable to be with, practical, confident, has good attitude to self, can think humorously, works hard and has a healthy work/life balance, can take pressure, driven, and flexible. Employability is defined as the following in 2012 by UNESCO Regional Bangkok: The particular competencies revealed include: (1) communication; (2) rational, analytical capability and inventive problem solving; (3) character, self-assurance, and honesty; (4) flexibility and adaptability; (5) initiative and innovation; and (6) teamwork. With these attributes and competencies, the job seekers get employment. They identified three elements of skills; basic skills, personal management skills and teamwork skills; these are; Basic skills include amongst others problem solving skill, communication

skill, information management and mathematical skills Self-management skills include amongst others positive attitude and behavior, responsibility, adaptability, skill for learning at work and safety Skills for group work: The skill will allow an individual to work with others in group projects or undertaking tasks.

The employers seem to agree that those who possess the 'essential employability skills' are employable but owning the skills is not a passport to a job. Oh, but it is also dependent on other factors too. It is thus hardly possible to even conceive employability beyond this duality. There are two aspects to employability: The first one is in contextual aspect, which means the innate characteristics of the actor, also known as the absolute factors such as knowledge, skills, and abilities, and the second one is situational aspect, which include relative factors or external conditions of the context (Chithra, 2013). There is hence the reason as to why employability is also defined as something relative and one that is open to the laws of supply and demand in the labor market (Chithra, 2013).

#### ➤ *Theories of Employability*

Employment prospects are therefore not guaranteed due to possession of the employability skills. It also depends on some extra components. Employability doesn't exist in a vacuum, and cannot be appreciated outside of this dualism. Employability has two components: exogenous (contingency) and endogenous (capabilities) – the relative and the absolute (Chithra, 2013). From the above definitions therefore, employability can also therefore be defined as being contextual, or rather a relative concept that is determined by demand and supply laws operating in the labor market, a concept as argued by Chithra (2013). Nonetheless, the graduates seem insignificant in the labor market despite their ability to perform various tasks and occupations. Thus, a person's employability status depends on market position and perception of satisfying employers' requirement. Social closure theorists consider the primary labor market dichotomy to be educational achievement and type, and the major component of competition, the ability to acquire formal qualification (Hirsch, 1977). However, positional conflict theory agrees that a credential has its value in the concept of scarcity and that other resources can act as capital, if credits become ordinary (Brown, 2000). The two ideas agree that employability has a two faceted nature. Positional conflict theory states that in addition to the qualifications the employers are interested in the candidate's experience, hobbies, interpersonal skills, social skills, and culture and other factors. Although these factors may not have come into play in a period characterized by many good jobs graduates of mass higher education are forced to rely only on their other skills, experiences and resources in order to 'squeeze into' the job market. Watts further in 2006 classified employability into three forms.

- Category1: Most of the graduates, therefore, are immersed in mechanical working and corollary preparations for further study or a permanent employment.
- Category2: It is a type of direct employment. Graduates are ready to work and do not require any training on the job.

- Category3: It is sustainable employment. They are not only concerned with the first employment, but also with lifelong employment.

➤ *Models of Employability*

DOTS model as Law and Watt (1977) have described it to be made up of:

- Decision learning – decision making knowledge.
- Opportunity recognition – understanding there are certain work opportunities out there and the nature of these opportunities.
- Transition learning – resume writing, CV presentation, search jobs and many others; and
- Self-Awareness – what one likes or dislike, abilities – talents, strengths, weaknesses, beliefs – what one thinks is important or not, and so on.

➤ *Bennett, Dunne & Carré (1999) proposed a model of course provision in higher education which included five elements:*

- Disciplinary content knowledge – ability to explain concepts of the discipline;
- Disciplinary skills;
- Workplace awareness;
- Workplace experience; and
- Generic skills.

➤ *Knight & Yorke in 2004 proposed USEM model as below:*

- Understanding: Comprehension (which was considered here as being wider and more profound than ‘knowing’);
- Skills: Skills (or, more desirably, skillful practice – the use of skills);
- Efficacy beliefs: Pedagogical relevance of personal efficacy beliefs where students are in a position to judge themselves on personal qualities; and
- Metacognition: Metacognition (self- awareness of the students concerning and their ability to, reflect on their learning).

➤ *Dacre Pool & Sewell in 2007 proposed CareerEDGE model which is as follows:*

- Career development learning;
- Experience both work and life;
- Degree subject knowledge, understanding and skills;
- Generic skills; and
- Emotional Intelligence.

The model developed is based on such an assumption that each factor is crucial and if removed, the employability of a graduate is significantly impaired.

➤ *Prominent Soft Skills(SS)*

From the literature, the prominent soft skills that affect employability (EMP) are as follows:

• *Soft Skills (SS-Soft Skills):*

- ✓ LIS - Life Skills
- ✓ EQS - Emotional Intelligence Skills
- ✓ WES - Work Ethics Skills
- ✓ TES - Teamwork Skills
- ✓ PVS - Personal Vocational Skills
- ✓ IPS - Intrepreneurial Skills
- ✓ SCS - Social Capital Skills

➤ *Theoretical Framework or Conceptual Framework*

The conceptual development is perhaps the most contentious part of the qualitative research process that new entrants describe as a ‘theoretical development.’ Being the starting point of all other activities in the qualitative research project, it truly should have been the first piece of research design done. The conceptual framework, to express myself metaphorically and using some of the concepts developed earlier, is theoretical putty that defend all of the initial design decisions.

➤ *Conceptual Framework*

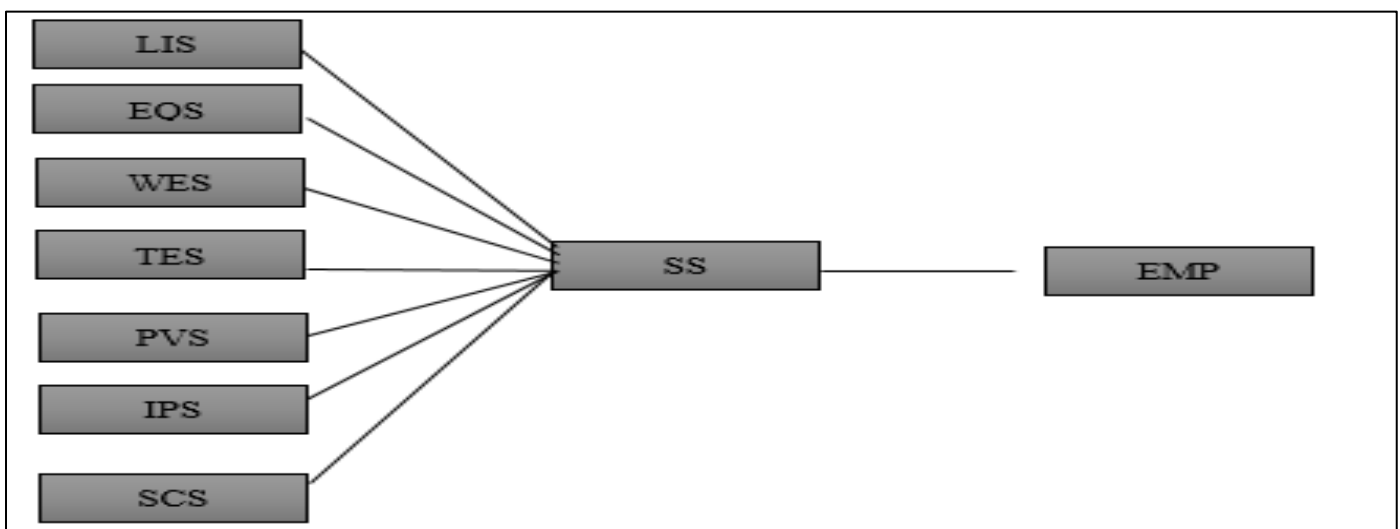


Fig 1 Conceptual Framework or Theoretical Model

➤ *Research Philosophy & Research Approach*

• *Research Philosophy and Research Paradigms*

My ontological assumption is that there is no single reality. Reality is different from participant to participant. There are many soft skills responsible for the employability of engineering graduates. Certain soft skills are important at certain career stage of graduates. Epistemology: the way of acquiring knowledge is the interview that makes my research qualitative. From the collected data, a new theory is developed using grounded theory which is inductive reasoning. Axiology is all about values and ethics. Researcher is an active tool in research however, I tried to keep myself free from bias as much as possible. I did not try to influence my beliefs among the participants but rather collect honest feedback from the interviewees. My research paradigm falls into constructivism which is similar to interpretivism where theory is being developed by inductive reasoning. Establishing the relationship between soft skills and employability using grounded theory.

➤ *Grounded Theory Research*

'Grounded theory' is a systematic approach of analyzing qualitative data in order to understand human processes and theoretically reason – that is, using bottom-up or data-driven theory. Anselm L. Strauss and Barney G. Glaser introduced it when researching disease and death in the 1960s. Other later authors such as Juliet Corbin, Adele E. Clarke, Kathy Charmaz and others have further advanced interpretation of their early work (Saldana, 2011). Grounded theory is continuous comparative method of analyzing small data units, which are identified mostly but not exclusively from interviews and which involves cumulative processes of coding to achieve abstraction and a range of dimensions to the attributes of emergent categories. The reason for such grounding in traditional grounded theory is to arrive at the core, or the most encompassing category, for the research. This core, or central category forms the basis for the creation of a theory about the processes seen. Basic Principles of Grounded Theory:

- Focus - The conceptualization of a theory based on field data.
- Type of the problem that suits best - The method of grounding a theory on the views of the participants is justified.
- Discipline Background -Drawing from Sociology.
- Unit of Analysis - An analysis of process undertaken, action or interaction that involves many people.
- Data collection form - Covariate cross sectional normally mostly composed of at least 20 interviews to up to 60 interviews.
- Data Analysis Strategy - Averagely four processes are involved: open coding, axial coding and selective coding.
- Written Report - The derivation of a theory exemplified in figure.

### III. RESEARCH METHOD

➤ *Research Methodology*

My research methodology is as follows:

- The approach of the study: Qualitative Approach
- Design of the study : Grounded Theory
- Area of the study: Dhaka City
- Population: Engineering firms and industries in Dhaka City
- Sample: 31 interviewees
- Sampling technique: Purposive (Theoretical Sample)
- Data collection techniques: In-depth interview and FGD.
- Data collection tools: Interview checklist
- Data analysis: Manual

The interviews conducted with 31 participants and their results are crosschecked and documented in Focus Group Discussion (FGD) format.

➤ *Instrumentation*

The industry experts are interviewed using both structured and unstructured methods to obtain qualitative data. Grounded Theory is then utilized to create a model.

➤ *Demographic/Work Background Information*

The following information on participants was collected in the survey:

- Age: 35Y to 60Y
- Gender: Male and Female
- Class standing: Senior Level
- Characterization of work: Independent

➤ *Ethical Consideration*

In order to gain the audience's confidence and trust, I took all essential precautions.

- Taking consent from the interviewees;
- Voluntary involvement of the participant;
- Participant's confidentiality and anonymity;
- Standards, regulations, and institutional rules; and
- No false promise.

➤ *Validation*

The study report has gained credibility by correctly referencing and maintaining references throughout. Using the test-retest approach, validity has been established. After gathering qualitative data from professionals in the field, Focus Group Discussions (FGD) were conducted to reevaluate the gathered information. In both situations, we obtain comparable results, which supports the validity of the study.

### IV. DATA ANALYSIS & DISCUSSION

Skills which are characterized by the personality traits and emotional intelligent are called soft skills. Skills are very important for the employability; however, the research focuses on the necessitated skills for the engineers by the employers of Bangladesh. Off course, I am not against the technical skills



which are always considered as the foundation skills for the engineers but these technical skills become valueless without the proper combination with soft skills. Employers value soft skills as same as technical skills and sometimes more than the technical skills.

From the qualitative data, I tried to find out the most important soft skills for the engineering graduates of Bangladesh. All soft skills are not equally important for all career stages ranging from early career to mid-career to advance career. Soft skills are more or less equally important for all stages of the career. Grounded theory technique is applied to construct a model which is grounded on data. The theory is developed by using the three popular coding

techniques namely: Opening Coding, Axial Coding and Selective Coding.

➤ *Opening Coding*

All skills have been identified from the interviews. Each skill is considered as concept. While interviewing the experts, the significance of those skills and their insights were noted. All concepts are important for the engineering graduates. About 46 soft skills are noted which have incredible significance in the workplace for the engineering graduates. Listed skills are portrayed in the following section. We have found 46 skills and listed them serially. These skills are found important during the interview session.

Table 2 List of Skills During the Interview

1. Self-Awareness	25. Willingness
2. Self-Management	26. Feelings
3. Self-Motivation	27. Grit
4. Social Skills	28. Resilience
5. Empathy	29. Passion energy x courage x dedication
6. Openness	30. Inspiration (Need for the achievement)
7. Conscientiousness	31. Commitment
8. Extraversion	32. Trustworthiness
9. Agreeableness	33. Presentation skills
10. Ethics	34. Multitasking
11. Honesty	35. Proactiveness
12. Integrity	36. Negotiation skill
13. Discipline	37. Humbleness
14. Teamwork	38. Patience
15. Intrapreneurial	39. Consistency
16. Life Skills	40. Stress management
17. Professionalism	41. Tenacious
18. Adaptability	42. Networking
19. Knowledge Sharing within Team	43. Work Delegation
20. Confidentiality	44. Reliability
21. Time management	45. Don't be Greedy
22. Team management	46. Credibility
23. Propensity to learn	
24. Sincerity	

➤ *Axial Coding*

The main objective of this step is to categorize these skills with a view to building a suitable construct. From the surveyed literature and opinion from the experts, the main construct has been introduced namely; Soft Skills (SS). The

skills which are characterized by the personality traits are constructed as Soft Skills (SS).

➤ *Category A: Soft Skills (SS)*

1. Self-Awareness	25. Willingness
2. Self-Management	26. Feelings
3. Self-Motivation	27. Grit
4. Social Skills	28. Resilience
5. Empathy	29. Passion energy x courage x dedication
6. Openness	30. Inspiration (Need for the achievement)
7. Conscientiousness	31. Commitment
8. Extraversion	32. Trustworthiness
9. Agreeableness	33. Presentation skills
10. Ethics	34. Multitasking
11. Honesty	35. Proactiveness
12. Integrity	36. Negotiation skill
13. Discipline	37. Humbleness
14. Teamwork	38. Patience

15. Intrapreneurial	39. Consistency
16. Life Skills	40. Stress management
17. Professionalism	41. Tenacious
18. Adaptability	42. Networking
19. Knowledge Sharing within Team	43. Work Delegation
20. Confidentiality	44. Reliability
21. Time management	45. Don't be Greedy
22. Team management	46. Credibility
23. Propensity to learn	
24. Sincerity	

➤ *Selective Coding*

The objective of the Selective Coding is to bring all skills under a single umbrella. All these skills are employability skills. Therefore, employability comprises of Soft Skills (SS).

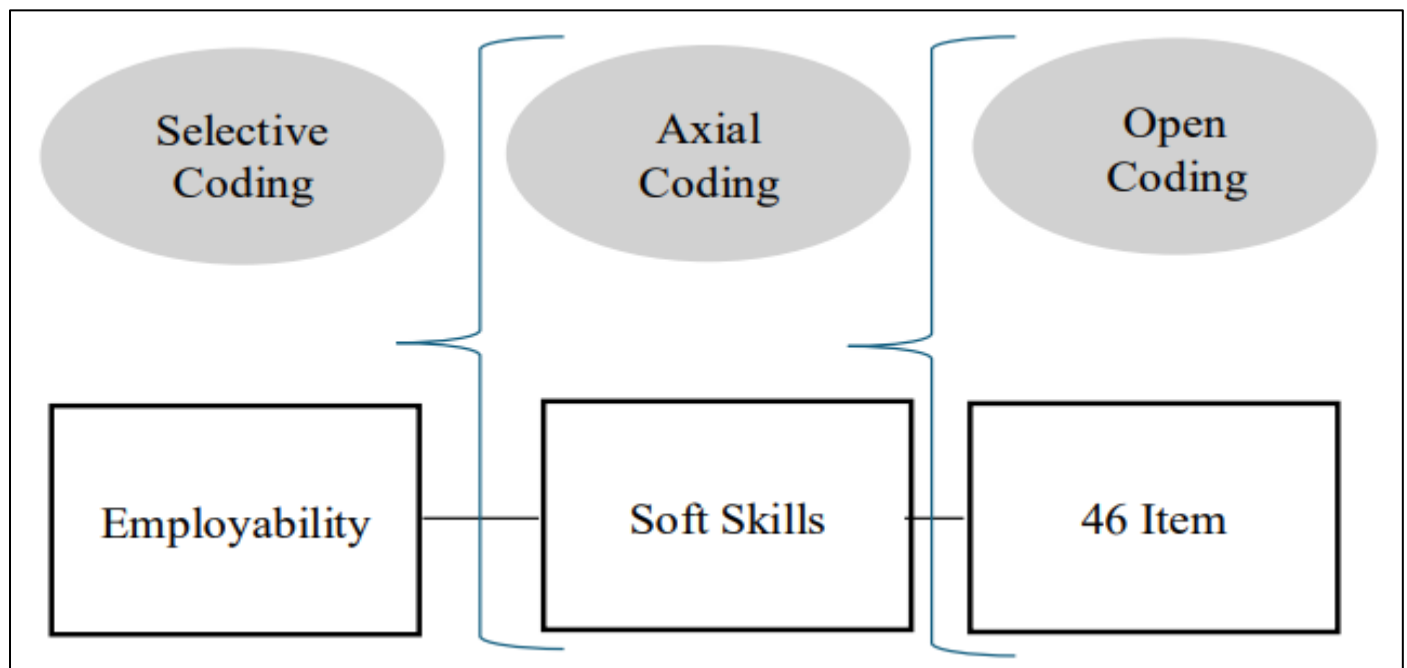


Fig 2 Selective Coding of Employability

➤ *Fact1: Employability is Soft Skills Driven*

Technical skills that are taught at the time of graduation become less important with the passage of a career. It is tough for employers to differentiate candidates based on soft skills during the selection process. Most of the interviews are based on technical skills. There are multiple levels of the screening process. The first level of the hiring process is technical skills driven. However, the final level is soft skills focused. Multiple candidates are sent to the final level for a single vacant position. Most of the engineers have similar IQ levels. At the final level, the employer uses soft skills checkers to differentiate candidates and hire the desired candidate with the required technical skills and superior soft skills. Here, we can see that soft skills single out engineers from the crowd at the time of selection. Soft skills help to get the initial employment quickly. Most of the employers of engineering firms value soft skills not only in the selection process but also in the sustainability of the employment throughout the career. Gaps in technical skills can be taught with a short training but it is very challenging to equip an engineer with the required soft skills. Employers suggest that they do not fire engineers not having the technical skills but rather soft skills.

Soft skills have a significant impact on employability. Employers added that yearly appraisal mostly depends on behavioral skills. In Annual Compensation Review (ACR), 30% to 40% of the questions are related to technical skills whereas, 70% to 60% of questions are related to soft skills. Therefore, employability depends on the soft skills at large. Many engineers are very good at technical abilities but very poor at demonstrating soft skills in the workplace are considered worthless by the employers. Those engineers cannot continue their jobs. Employers value soft skills on top of technical abilities therefore, job retention mostly depends on these nontechnical skills.

The wonderful finding of this research is that engineering careers are soft skills oriented. Let's say an engineer graduates at the age of 22 and his/her retirement year is 60. His/her length of service is 38 years. Out of his/her 38 years, hardly 5 to 8 years are technical skills centric and the rest 30 to 33 years are soft skills centric. Therefore, soft skills explain 85%  $\{(33/(33+5))*100\% \sim 85\%$  } employability whereas, technical skills explain 15%  $\{(5/ (33+5) *100\% \sim 15\%$  }.

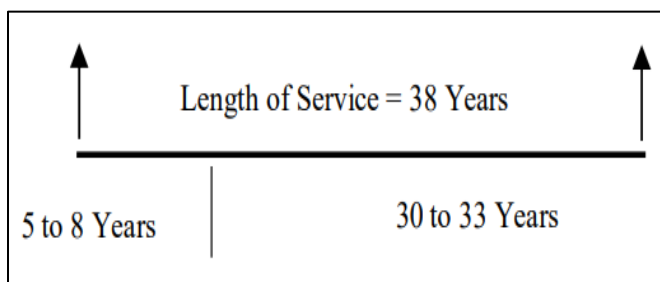


Fig 3 Contribution of Soft Skills in Career

There is another truth for computer engineers that creativity goes down with time. Initially, 5 to 10 years is the most creative period for the computer Engineers. However, after 10 years, engineers enter into management, and using soft skills, they earn a handsome salary. Creativity is high for the engineers in the junior and mid-level. The advanced level is soft skills driven.

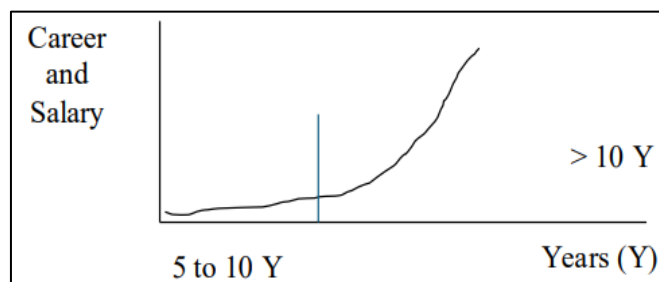


Fig 4 Significance of Soft Skills in career for the Computer Engineers

Undoubtedly, Employability is soft skills driven. Employability is all about acquiring, maintaining and performing a job. Employer’s satisfaction largely depends on soft skills.

➤ *Fact2: Contribution of Soft Skills on Employability in Percentage*

The research suggests that the engineering career is divided into three stages namely; early career, mid-career and advanced career therefore, soft skills explain employability differently in three stages which are as follows:

Table 3 Contribution of Soft Skills on Employability in Percentage

Skills/Career Stage	Early Career	Mid-Career	Advanced Career
Soft Skills	Up to 50%	50% to 80%	80% to 90%

➤ *Fact3: Required Soft Skills at the Different Stages of the Career*

Required soft skills at the different stages of career which are follows in the following section:

**Early-Career** (Self-Awareness, Self-Management, Self-Motivation, Social Skills, Extraversion, Ethics, Integrity, Discipline, Teamwork, Life Skills, Professionalism, Adaptability, Confidentiality, Passion and dedicated mindset, Feelings, Time management, Propensity to learn, Sincerity, Willingness, Inspiration (Need for the achievement), Commitment, Trustworthiness, Presentation Skills, Multitasker, Proactiveness, Humbleness, Patience, Tenacious, Networking, Reliability, Don’t be Greedy and Credibility).

**Mid-Career** (Self-Awareness, Self-Management, Self-Motivation, Social Skills, Empathy, Openness, Conscientiousness, Extraversion, Agreeableness, Ethics, Integrity, Discipline, Teamwork, Intrapreneurial, Life Skills, Professionalism, Adaptability, Knowledge Sharing within Team, Confidentiality, Passion and dedicated mindset, Feelings, Time management, Team management, Propensity to learn, Sincerity, Willingness, Grit, Resilience, Passion (energy x courage x dedication), Inspiration (Need for the achievement), Commitment, Trustworthiness, Presentation skills, Multitasker, Proactiveness, Negotiation skill, Humbleness, Patience, Consistency, Stress management, Tenacious, Networking, Work Delegation, Reliability, Don’t be Greedy and Credibility).

**Advanced-Career** (Self-Awareness, Self-Management, Self-Motivation, Social Skills, Empathy, Openness, Agreeableness, Ethics, Integrity, Discipline, Teamwork, Intrapreneurial, Life Skills, Professionalism, Adaptability, Knowledge Sharing within Team, Confidentiality, Feelings, Team Management, Resilience, Commitment, Trustworthiness, Negotiation skill, Stress management, Tenacious, Networking, Work Delegation, Don’t be Greedy and Credibility)

➤ *Fact4: Does the engineering curriculum have sufficient courses to learn soft skills perfectly?*

It is the fact that the national engineering curriculum does not have provision for the soft skills courses explicitly rather a few humanities and management courses. I have surveyed the engineering syllabi of both B.Sc and Diploma in Engineering and interviewed a few teaching professionals and got the similar results. National engineering curriculum should incorporate a minimum course to train students on soft skills at the time of their graduation.

➤ *Fact5: How can we Improve the Soft Skills of Engineers at the Institute Level?*

My research findings would be a readymade guideline for the institutes on which they can inject skills to the students at the time of graduation. Curriculum must be innovative to accommodate all changes in the contemporary world.

- Expand the implementation of international skills qualification framework as a mandatory requirement for all educational institutions and skills training institutes.
- Pilot new soft skills courses at institutions.
- Assess foundational skills for students.
- Train teachers for enhanced pedagogical skills.
- Development of skills based new curriculum.
- Renovate curriculum with industry feedbacks.

➤ *Fact6: How can we Improve the Soft Skills of Engineers at the Organizational Level?*

My research findings would be a readymade guideline for the industry on which they can impart training to their newly hired engineers throughout the career. Learning soft skills are lifelong process. None can be a master of soft skills at a time.

- Organization should arrange training for their engineers on continuous development of soft skills.
- Conduct market analysis for new skills.
- Delivery of workplace-based skills training programs for their employees.

**V. UNDERSTANDING OF DISCOVERED SKILLS**

*A. Soft Skills (SS)*

➤ *Emotional Intelligence (EQ)*

The qualities that define EQ include social skills, empathy, self-awareness, self-management, self-motivation and self-management and EQ is essential for work as an engineer. As Northwood explained, the term “emotional

intelligence” is an umbrella term referring to a range of cognitive and affective characteristics and skills that are not included within the framework of professional knowledge, intelligence and training. These are commonly known as soft skills or more specifically intra and intra personal skills. Most would acknowledge that the presence of not only IQ, but also EQ is imperative for a balanced effective human, and functional member of society, family, employer or employee. As a matter of fact, research indicates that EQ is more important for anyone’s life and career than ‘raw intelligence.’ Because every person’s life and professional skills are influenced by EQ, and engineers too are part of such multitudes, there is increasing focus on how to enhance EQ skills in relation to engineering educational development.

The two methods that have been employed include work-based learning and PBL (Problem (or Project) Based Learning). In reviewing these different approaches, an argument is put forward as to how the collaborative learning and emotional intelligence (EI) of engineering students can be enhanced through project based learning (PBL). Goleman (1996) divided the model of EI into five domains and the following are the domains in the model:

- Self-Awareness;
- Self-Management;
- Self-Motivation;
- Empathy; and
- Social Skills.

➤ *There are 4 Domains and 18 Competencies of EQ which are as follows:*

Table 4 Components of EQ

Domain	Competencies
<b>Being Self-Aware</b>	1. Self-awareness of emotions 2. Precise Self-Evaluation 3. Self-Belief
<b>Self-Control</b>	1. Self-control over emotions 2. Openness 3. Flexibility 4. Success 5. Proactive 6. Hope
<b>Social Intelligence</b>	1. Compassion 2. Service for Organizational Awareness
<b>Management of Relationships</b>	1. Motivation 2. Influence 3. Fostering Other’s Transformation 4. Conflicts 5. Establishing Connections 6. Collaboration 7. Teamwork

The engineering programs must embrace the humanities and social science courses since the execution of the first two domain focuses on self-competency, as a way of governing the self. We manage relationships based on our social

competency, which is related to the second two domains: social awareness, personal and social relations management.

Studies carried out all over the world especially in engineering education reveal that graduates have to possess enhanced capabilities to perform optimally in their careers; and students require enhanced aptitudes as far as learning is concerned. There are many skills in EQ line including self-motivation, self-discipline, self-awareness, sensitivity, social skills among them. With respect to self and others, EQ also influences their learning abilities and interpersonal communication specialty focusing on cross cultural communication. Instead of making intelligence as a tool replaced by EQ, one can build up the job portfolio and vocational skills through EQ. Due to these factors, engineering educators need to consider the appropriateness of EQ skill facilitation in engineering courses. Students with low EQ decline, are said to perform poorly and dropout chances are higher, thus reducing the value of engineering graduates in the job (Rierner, 2003).

Emotional intelligence, better known as EQ, has its roots in the work of Salovey and Meyer who first introduced the term in 1990. Since then knowledge base of Goleman's study has been expanded a lot. In 1995, Goleman explained how a number of soft skills that one acquires in his or her lifetime and is separate from intelligence is vital in the lab and office than intelligence.

Goleman distinguished five categories of emotional intelligence: motivation, self-organization, self-management, social understanding and social competencies. These subjects can be part of a student education programs for students preparing to join the work force. A follow up study identified the seven core skills as follows:

- The capacity to regulate one's own emotions and awareness of these;
- The capacity to function reliably under duress;
- The drive and enthusiasm to achieve the results;
- The ability to take into account the requirements of others at work is the secondary asset;
- Everyone aspires to be a leader with some degree of power and persuasion;
- Make well-defined decisions and then carry them out; and
- Express concern for an action plan and speak and act in a way that is appropriate for the activity.

Before going further, it should be pointed out that EQ is not the opposite of IQ, but should actually complement it. As somebody has opined, at the workplace, it is the EQ that results in a promotion while the IQ results in employment. For example, a manager at AT&T Bell Laboratories was once required to sort his top engineers. If there was desire needed to attain the cooperative endowment optimal for goals, then the person's performance regarding his emails, ability to work and network with colleagues and not being a maverick, and likability by other people contrary to being an introvert had more value than the IQ. This illustration also shows how one is privileged to have a high EQ with regards to teamwork, leadership, communication, time, and business bent. Such important skills, originating from emotional intelligence skills are the skills of accurately and expertly recognizing other

people's emotional reaction in order to be perceived as sincere and kind, which will change people and make them side instead of feeling angry and stupid because of their ignorance and rudeness. Also, even for those who understand and appreciate the necessity of the so called hard skills, Goleman unhesitatingly pointed out that the level of the competencies that comprise the broad domain of emotional intelligence is almost four times as important for career success and rank. In fact, it seemed that EQ abilities were sacrificed in favor of high IQ: taught inability. Besides, it may be quite challenging to enroll and engage students because of the stereotype of engineers being the backward asthmatic genius. This would be altered by the fact graduates may adopt EQ strategies in the workplace, thus enhancing the perceptions of engineers a possibility through interjection. However, as Rierner in 2003, eventually placed it, these abilities are skills that, before anything else, engineering students must learn. One of the most important of these is hiring processes in industry where EQ is also put into use. As a result graduates with the same degrees applying for the same employment will be successful due to the 'emotional intelligence' that these extracurricular and intracurricular activities-such as problem-based learning (PBL)-teach. Other assessments ranging from EQ tests could also be used; new questionnaires are always being created and administered as the field expands. It has also been said that because their coworkers hate working with them, those with low EQ do not get promoted. Further, Rierner (2003) observed that the poor professional existence could affect the private life, and the poor private life could in equal measure affect the professional life.

This leads to an understanding that it is about time that EQ skills should be incorporated into the students' learning curriculum. Employers consider personal attributes such as willingness to learn, adaptableness, ability to communicate and other ways of working with people as very important thus making this very important. Universities need to understand these qualities as they are needed by employers and these are EQ as stated by Rierner, (2003).

One can notice that emotions no longer seem to rule the world as reason and logic have taken over people. It has recently emerged that happy people are more likely to be successful as these two are said to be closely correlated, therefore success is more dependent on emotional intelligence. University need to come out with it, that in the knowledge age a graduate engineer has an additional component, an additional dimension of skills which is the emotional intelligence and that is a dynamic element and is in the process of evolving more than the technical content of engineering knowledge. Several suggestions have been made from which the successive generation of engineers will benefit in terms of engineering education. This list can in no way be claimed complete, but it is a step towards widening the recognition of students' abilities.

EQ offers vita/ career skills for postgraduate engineering students as well as teaching/ learning resources for engineering students. Instead of an impulse that one can overcome, emotional intelligence is one of the fundamental factors that can most significantly affect a student's academic

performance and career choice. IQ is a major determining factor regarding the sizes and the effects of non-cognitive factors at the workplace or in education facilitated by EQ. Besides, private enterprise and other organizations will remain increasingly globalized than ever before. Consequently, the professionals practicing international business will need to develop new and further intercultural abilities and skills. Due to the globalization and the continual advancements of engineering education strength in technical proficiency is insufficient. Another element, intercultural competence, and another aspect that stands behind the acronym, the emotional quotient or, short, EQ that will help engineering graduates to prepare for the future.

It also implies that universities may have the challenge of delivering the correct curricula that would outlook the future generation of engineers. It also would aid in advancing comprehension and knowledge for the world and will be needed in defining the modern engineer of the new millennium. In his perspective, Goleman stated that engineering education for many years has dismissed cooperation, leadership, communication and collaboration skills, marketing a concept, and receive criticism and feedback. He further elaborates that the engineers sometimes fail to have the right managerial or leadership skills whenever they are promoted to leadership positions. It is high time Engineering courses implemented such EQ-related skills to make engineering a subject relevant in society, disciplines and in training again. This means that education in this emerging subject is desirable for managers, instructors and students in postsecondary institutions.

#### ➤ *Big 5 Characteristics*

In the present generation, the fog of population relies strongly on engineers. Our computers are set up; our bridges constructed; and, our planes designed to take off. The sewage systems through which we transport our waste products, the chairs on which we sit, events and even the networks for communication are all systems created by them. It is engineers who have developed the internet, laptops, digital cameras, as well as the television. They paved way for today's contemporary civilization for which reason they should be given all the credit. However, their work is not only in design, constructing, and developing, though. This is something that is not only necessary to invent the technology, but also to gain the technologies' approval by the society. Tech gurus have to sell it to us, train us on how to use it, advice society on improvement, and, in the process, coach other engineers. In other words, it is just as important to actively interact with technology and to pass on information regarding it as it is to simply supply the information.

In general, people think that engineers are more incline to preoccupy their selves in innovations and technology rather than individuals as engineers seem to be more involved with things than beings. In Jackson's (1988) study, engineers are among the many occupational groups that the respondents reported to often have a lot of information and many relevant words to say at their workplace. However, it seems they do not possess even elementary skills in interpersonal communications. Is this stereotype true, if though this

stereotype is adhered to most of the time? Self-appreciating students without engineering background demonstrated higher openness, empathy and sensitivity towards feelings of others as compared to students with engineering background. Harris (1994) explored the personality profile of engineering, nursing and psychology students. In investigating the personality characteristics of male and female engineering students Brown, Joslin (1995) did not find any differences. Yet on other criteria based on responsibility, productivity, hardworking, goal directedness, and decisiveness engineering students achieved significantly higher marks and at the same time significantly lower on a criterion labeled the 'need for independence' in comparison to other college students. Actual and self-estimated measures of the "Big Five" trait personality were employed in two studies. These are of relevance here because as was mentioned earlier the Big Five personality dimensions were applied in the present study. Numerous Big Five personality tests have items for (1) extraversion, (2) agreeableness, (3) conscience, (4) emotional stability, and (5) self-directedness.

#### ➤ *Extraversion:*

- Enjoys talking to people (+)
- Maintains distance from others (-)

#### ➤ *Agreeableness:*

- Respects the feelings of others (+)
- Enacts his/her will on others (-)

#### ➤ *Conscientiousness:*

- Prefers to stick to a schedule (+)
- Takes action without foreseeing (-)

#### ➤ *Emotional Stability:*

- Able to distract himself or herself from his or her troubles (+)
- Creates glitches for themselves (-)

#### ➤ *Autonomy/Openness:*

- Able to connect facts with ease (+)
- Attends the event (-)

#### ➤ *Discipline*

All schools should aim to promote, since self-discipline is the most effective form of discipline. For students who are set on doing well in academic contexts, the ones that are committed and self-motivated fare the best. Also, a sense of empathy needs self-control, and structure. Self-discipline is something very hard to teach, especially in a society where the other peoples' voice is more often giving the orders. Yet, it is possible to have there are intervention strategies that can support classroom efficiency in the self-discipline. Wayson, DeVoss, Kaeser, Lasley and Pinnell (1982) refer to self-discipline as the capacity or proclivity to do things for the specified period of time to accomplish tasks and learn from

experiences. Etzioni (1983) defines the notion in terms of self-organization, mobilization and commitment. It had its own characteristics, and among them were self-motivation, impulse control, attention and doing away with oneself, confronting and controlling stress. In both conceptions, an individual is the center of behavior control.

#### ➤ *Empathy*

Leaving aside social competency and empathy, engineers who are organizational leaders or oversee project teams find it challenging. Engineers aren't very good at social skills. Engineering students must receive theoretical and applied knowledge and abilities in empathy. Engineering students have significantly less empathy than students in other programs (Rasoal et al., 2012). With the global mood on empathy, the engineering community's attempt to embrace it is also expanding. Academics within the engineering domain have portrayed this social phenomenon as the essential competency of competent communication, a fundamental feature of moral deliberation and a key method of user centered design. While there is a paucity of information regarding evolution of the concept in engineering, any existing information is disjointed. To teach engineers to be empathic, engineers should know the available resources and instructional strategies available today.

Empathy is a complex emotion. This has been called by many things, such as a construct, aptitude, skill, attitude, and intellectual virtue. 'Academics have been classifying empathy into eight categories, some of which deserve to be differentiated,' explains Batson. The first of these concepts, according to Batson, was knowing another person's internal state, meaning his or her thoughts or feelings. It's very much the same as what some academics call 'theory of mind' or 'empathic accuracy,' thinking about what another person might be thinking about. The second, which is known as "motor mimicry" by other academics, was defined by Batson as "adopting the posture or matching the neural response of the observed other." The third was constructed by Batson as 'beginning to feel as if we are another person' or 'contagion' or 'emotional 'catching'.' The fourth, which is commonly called projection, was defined by Batson as 'intuiting or projecting oneself into another's situation.' Batson defined the fifth as "imaging how another is thinking or feeling": this perspective taking technique has been labeled "imagine other" (rather than envisioning oneself as other). A corollary of the fifth, the sixth was defined by Batson as simply 'imagining how one would think and feel in the other's place.' This might be termed imagining self-perspective taking because the individual is foregrounded. Batson labeled the seventh as 'feeling distress about witnessing another person's suffering,' and Hoffman later called this type 'empathic distress' because, though self-oriented, it stemmed from another. Instead, the eighth was described by Batson as 'feeling for another person who is suffering,' not as empathy or compassion. Thus, Batson's eight empathy distinctions may end up with the following list as the only thing left:

- A conception of mind or accurate empathy;
- Motor imitation 3. Infection of the emotions;
- Project: the experience of being someone else;

- Taking a perspective: considering other;
- Taking a perspective: transforming oneself "into" another as though one were the other;
- Compassionate pain; and
- Compassionate fear or pity.

#### ➤ *Socially Skilled*

The continued emphasis on the technical skills is more likely to maintain the concentration of attention in engineering curricula in the skills needed in industrial processes. However, as the requirements in industrial operating environments rise, more individualized configuration of competences is needed to support both intrapersonal and interpersonal activities at work. This calls for a revision of pedagogy for the engineering education reform of technical education that includes social competence. This is because these traditional tools to disseminating technical and substantive knowledge do not sufficiently facilitate students in utilizing their social skills.

The current engineering education model of specialization has been assumed as the engine driving the economic progress and technical advancement. Yet, ironically, specialization has been asserted to have become, in fact, a barrier to further industrial advancement of society. However, recent study on work success reveals that the determinants of work success are not solely technical, but also social and emotional intelligence and the corresponding interpersonal communication competencies. Human competencies that is often called emotional intelligence are related to organizational efficiency and individual productivity as well as to overall life success (Lappalainen, 2011).

#### ➤ *Ethics*

The majority of the engineering codes of ethics around the world enjoin engineers to give priority to public interest. It is, in a sense, inconsistent with market ideology, which maintains that people will act to realize the general interest for the sake of pursuing their own interests. This latter idea is the heart of sustainable development, centered on the use of economic tools, mainly value, to encourage environmental protection. The policies for sustainable development normally signify an economic determinism through technological advancement. These laws avoid ethical dilemmas and seem to assume economic and environmental needs can work together. But, working is becoming the daily tensions between the demands of the environmental and economic, and the present ethical challenges for engineers today. As humans always have been able to perform engineering feats, until recently the engineering achievements were almost coincident with the advancement of humans, and engineers rarely experienced conflicts between their own interest and public utility. However, due to environmental concerns, the interests of public, employers, professionals and self-interest have now started to move out of alignment. Is it really reasonable to expect engineers to act with more ethics than the public at large? May personal ethics play a large role in the shaping of technologies based on professional ideologies and paradigms as a whole (Beder, 1997)?

The Institution of Civil Engineers in England was the first technical group to introduce a code of ethics in 1910. British Code served as the basis for the American Institute of Consulting Engineers' own which was formally approved the following year. Other engineering societies followed suit shortly thereafter. Rather than an ethics code designed to protect the public interest, these codes were a code of gentlemanly conduct, consisting of moral principles and commercial etiquette standards that determined how engineers should conduct themselves in business relationships with their peers (Beder, 1997).

The first technical group that introduced a code of ethics was the Institution of Civil Engineers in England in 1910. Later that year the American Institute of Consulting Engineers adopted a Code based on British Code that had been formally approved. Shortly thereafter, other engineering societies too adopted the same. These codes were a code of gentlemanly conduct, a code of moral principles and commercial etiquette standards, a code of what engineers should do when doing business with other engineers to advance their cause - in other words, not an ethics code protecting the public interest (Beder, 1997).

If not demonstrated, engineers could also declare independence from business by claiming professionalism and social responsibility. Businesspeople and their money had made it easy for engineers, whose mighty creations depended on business and capitalism ideals, to embrace them. Layton asserted that 'engineers accepted without question structure, power and the basic ideological principles of business.' David Noble believes that the capitalist created the modern engineer to meet its demands.

So the engineer from the start is at the orders of capital, and it should not surprise us that its laws should be as natural as those of science. In the engineer and the engineering that he did (Beder, 1997) if there had been any difference that particular political economists made between technology and capitalism, it was lost.

#### ➤ *Honesty*

Now, engineering students go through an ethics course. Courses do not address the fact that we work in a gray region between honest and practical but focus on professional codes like those of the IEEE (Institute of Electrical and Electronics Engineers). By presenting the norms as ideals, rather than rigid rules, students are taught to attempt to move towards them. Conducting a SWOT (strengths, weaknesses, opportunities, and threats) analysis is taught, and it is emphasized that we are obliged to work with morality even if we are not fully competent (Hoole, 2014).

#### ➤ *Integrity or Technical Integrity*

Technical integrity of a process plant design thus becomes important that no harm to human health and environment may arise. No matter what the design is for, either new building or a small renovation of an already existing one, this is a truth. In particular little is understood regarding how plant modification processes apply and the potential with a competency issue. For not guaranteeing technological

integrity, that means there is never a guarantee. Quality assurance protocols do not absolve businesses of their responsibility or liability around the operation of their facilities. On this count, some of these procedures may possibly be overdone with the responsibility of staff people not up to par. However, the record of averting human life endangering accidents as well as transforming the environment in the process industry is extremely poor. Most of this dismal record involving accidents on company facilities reflects the lack of technical integrity of the facilities that the companies construct and operate, whether in the design, operation or maintenance. Technical integrity (TI) is defined as "The development of design intent of plant and equipment to operate safely." As an application to the design of facilities this definition is based on a BP paper. It consists of the procedural and skill sets needed to ensure that the specified and intended use are matched in the specification, procurement, detail design, fabrication, erection and testing phases of the design intent development process. One way to preserve the integrity of the technical design is to impose operational integrity assurance systems and to operate the built facilities in accord with the design envelope and design purpose. It makes the above interpretation clearer when one considers the meaning of 'integrity,' here meaning 'the quality of being unimpaired,' according to a dictionary. Then, TI could be defended as follows: The development of the design so that it is carried out by well trained personnel who have been assessed as being competent and in accordance with recognized sound practices and procedures, such that the design intent, is not impaired in any way which would contribute to an undue risk or harm to people or the environment (Bale & Edwards, 2000).

#### ➤ *Intrapreneurial Skills*

Due to globalization, dramatically changing technology, and dramatic increase in living standards, modern society's innovation orientation is becoming more complex. Intrapreneurship they call an efficient method to deal with this: projects on creative inside an enterprise. Intrapreneurs, shrewd innovators within an organization who are deeply involved in the design and development of new things, new process, new business process, and new business models are who practicalize the vision and without these smart innovators without these, ideas no matter how brilliant are not going to get transformed into reality. Universities have started to accommodate to the increased appetite for these kinds of intrapreneurs globally through different entrepreneurship teaching and training initiatives. New multidisciplinary programs designed to help nonbusiness students, such as those studying in science, engineering and the arts are rapidly growing in higher education pedagogy with emphasis on shaping their organizational management skills. Second of all, this study will investigate the efficacy of a few university programs, as well as the ways in which the tendency has been expanding (Ward & Baruah, 2014).

#### ➤ *Life Skills*

WHO defined Life Skills as "the abilities for adaptive and positive that enable individuals to deal with effectively with the demands and challenges of everyday life," These Life Skills recommended by WHO.



- Solving problems;
- Making decisions;
- Being creative;
- Critical;
- Self-aware;
- Empathic;
- Fostering interpersonal relationships;
- Communicating effectively;
- Managing stress; and
- Managing emotions.

#### ➤ *Professionalism*

In today's team-based workplaces, an engineer must have a good balance of hard and soft abilities to be able to flourish. In order to prepare students for the engineering field, Engineering education must emphasize both. Yet soft skills are often overlooked in traditional engineering programs, and in so doing neglect to bolster students' academic success and their professional practice. In Berglund (2018). Professionalism in a workplace, is a set of norms to be followed in a system to appear as serious, professional, or courteous. A contentious topic, there is no one definition of professionalism, differing between both work place and between cultures. In a narrow sense, professionalism is a combination of professional ethics and dress code (Wikipedia, 2024). Common traits of a "professional" person include:

- Honesty;
- Timeliness;
- Dependability;
- Capabilities for organization;
- Emotional intelligence; and
- Proper clothing.

#### ➤ *Team Works*

Many engineering graduates are introduced to the industry but need to come to terms with intricate systems and procedures in a fierce environment of businesses. The goal for engaging firms is increase productivity to cut costs while meeting the current demands of the clients on lower timelines. Also, many businesses hope to be lean and do more with less resources. To meet these issues, industry employed engineers need to be more adept at collaborating and working as a team. Whether or not a graduate in an engineering program is social, communicative and a team player is a must. Some of the students who have done group work activities in the past are not used to working in groups. Working as a team on an engineering project is different than working as a team in sports or hobbies. Students must be taught to dissect the project work into smaller tasks, construct a flow chart process plan and a project timetable under the guidance of project milestones and Gantt chart plan and identification of project milestones.

Leadership and followership is part of teamwork. As a leader team leader will be made then from the leader will be a follower, and then from the follower will be a leader because the most important thing of a team.

#### ➤ *Grit and Resilience*

Resilience is a positive, non-cognitive psychological quality that emphasizes failure, and a more stable ability to recover from such failure. The work ethic that people work for is to assist them when it is difficult to succeed or beat the setbacks. Grit was defined by psychologist Angela Duckworth and associates who have studied grit in more depth as the combining of 'perseverance and passion for long term goals.' What they saw – the kind of grit that led to the ability to withstand years of failure and adversity without losing their will or their enthusiasm – was also effective. On the basis of the adult's measure of educational accomplishment, the GPA, they determined that grit, not intelligence (IQ) was a better predictor of success. Psychological resilience is the ability to quickly regain or to manage a crisis on a mental and emotional level. The phrase first became popular in the 1970s and 1980s when psychologist Emmy Werner studied a group of Hawaiian youngsters with low socioeconomic circumstances for forty years. Many things influence resilience. Now let us talk about internal influences – these are personal qualities such as self-worth, self-control or a good view on life. These include externals such as having access to opportunities and resources, social support networks and tie to family, friends and the community. Psychotherapy and other strategies can make people better able to cope with hardship. The methods that have been included are mindfulness exercises, cognitive behavioral conceptualizations, psychosocial components, positive emotions, and self-compassion.

#### ➤ *Adaptability*

Adaptability is a soft skill, so being adaptable just means we can adapt with ease. A flexible individual in an office can meet clients, projects, goals, and changes in technology. It has become apparent that they do well adjusting to changes in the work place and reactions to procedures and workplace setup. Adaptability skills are a sub set of soft skills, and refer to the way in which an individual works and interacts with others. They usually don't seek out formal education, but rather are picked up from experiences listening to and reacting to shifting surroundings (Kaplan, 2023). Adaptability skills include:

- Critical analysis;
- Sturdiness;
- A growth mentality;
- Cooperation; and
- Adaptability to criticism.

#### ➤ *Knowledge Sharing within Team*

In reality, innovation can only be achieved with collaboration between team members. However, there are some obstacles of communication and motivation with knowledge sharing in teams. Using teams as focal units of analysis, both of the mediation effects between tacit knowledge sharing and team creativity and the mediation effects between cognitive social capital and team innovation were out of explicit knowledge sharing. Hu and Randel (2014) found that both types of knowledge sharing mediated the relationship between extrinsic incentives for knowledge sharing and team creativity and explicit knowledge sharing mediated the relationship between relational social capital and

team innovation. Information sharing among employees of the firm is an essential part of knowledge management. Modern information and telecommunication technologies support these kinds of interactions over time and space barriers. However, companies that invest in these kinds of technologies generally fail to motivate their staffs to contribute using the platform for ideation. These interventions fall into three categories: Such as, those with the goal to change employees' perceptions of employee efficacy, those that change employees' sense of reward for contributing, and those that stress employees' sense of personal accountability and collective identity (Cabrera & Cabrera, 2002).

Knowledge sharing is a concept where ideas and experiences are being shared by people or groups. It is about transmitting the knowledge of the organization to its members as well as its external stakeholders. Knowledge can be shared in various methods and depths. A few types of knowledge include (Brown, 2024):

- Expressions of and the ability to describe implicit knowledge is very difficult with words. The notion of this is that these are individual experiences, perceptions, and abilities. It's often communicated in person. On the job training and mentorship are a couple of examples. Storytelling is another powerful method for dissemination of tacit information (as any other way of teaching derives from people's direct experience and observation).
- Explicit knowledge is easy to record and spread out. It is about protocols, processes and facts. It is disseminated most often through formal training programs, publications in written form, and presentations.
- All do can contain implicit knowledge in the procedures, culture, and practices of an organization. But it's quite often, it's hard to find, and it's hard to find, and it's hard to find, and it's hard to get, it's hard to get.' But shared customs and cultural practices and experiences will spread it.

Its purpose is to facilitate it from becoming possible to increase a group or organization's collective knowledge and awareness, allowing that knowledge and awareness to be used for the sake of creativity, problem solving and better decisions.

- Improves Fit with the Organization;
- Boosts Productivity;
- Improves Retention of Knowledge;
- Strengthened Interconnectedness; and
- Assists the Business in Saving Money.
- Redefining organizational culture to improve employee retention and job satisfaction;
- Encourages Competitive Advantage through Innovation;
- For instance, my capacity for improved teamwork and increased efficiency;
- Enhancing Creativity and Conflict Resolution; and
- Above all, it will strengthen their capacity for adaptation and resilience.

#### ➤ *Methods of Information Exchange that Occur in the Workplace*

- Official Training Courses;
- Guidance;
- Cooperation;
- This is to ensure a high level of Knowledge Management Software compliance; and
- Informal Exchange of Knowledge.

#### ➤ *Confidentiality*

As explained by Burke and Wessely (2008), medical confidentiality is 'the practice of maintaining private and personal from third parties, information provided by an individual, or information about an individual, during the professional association. Confidentiality seems to imply three values: confidentiality, privacy and security. Each of these values is introduced and considered in this paper. Last, it is raised whether or not the old principles of confidentiality, privacy, and confidence that form the core of physician-patient relationship should be put into question at the time of death of the patient (Thompson, 1979). In many different kinds of work, discretion the idea of not passing certain information is important to uphold. Confidentiality is particularly important for legal and reputational purposes; confidentiality may also be needed for our future occupation. Some countries have legislative acts that define special categories of information, for example, "trade secrets," and personal data. Therefore, there is need to understand what confidentiality entails and most importantly how to ensure that do not violate any laws or ethics on the subject.

#### ➤ *Kinds of Confidential Information:*

- Employee Data;
- Data on Managers;
- Business Data;
- Contact or customer information;
- Professional data;
- The company must create safeguards for the training data because it contains the clients' personal information;
- Verifying that the secrecy of documents kept in offices at night is maintained since those same documents should not be left out in the open during the day;
- Using computer passwords to safeguard private information kept on computers;
- Sensitive documents should be marked or stapled to make them easily identifiable, especially if they have been printed on paper. They should also be shredded before being disposed of in a bin where others may see them; and
- Ensuring that only pertinent information is made available to the public by refraining from disseminating such information.

#### ➤ *Time Management*

Research hypotheses predict that management of time has inverse relation with stress and direct relation with job satisfaction, perceived control of time, and health. How is labor associated with academic achievement? As mentioned in the Claessens (2007), confirming training it enhances time

management abilities while the performance improves, it does not necessarily mean that an enhanced training of time management abilities will warrant enhanced performance. Time management is based on the proposition that performing time management activities leads to improved work outcomes and lower strain between employee and employer (Britton & Tesser, 1991).

The question arises with the view that learning is very stressful to many college students (Swick, 1987). The first type of coping mechanism is usually time management, which is a useful strategy that most university counseling service providers suggest. This study concludes that PCOT was the most decisive of period four rather self-organized components that are-parceled out in TMS. Macan, Shahani, Dipboye Shim and Phillips (1990) discovered that for students who felt time control subjects they had higher organizational performance appraisal, more work and family life satisfaction, less role indistinctness, less role pressure, and lowest somatic and job-related tension. Time management therefore can be understood as allocation of time which is at our limit control on time that is available to us. In other words, do more with more efficiency. Other upsides include (Slack, n.d.):

- Improved quality of job;
- Reduced stress;
- Greater ability to complete those significant strategic and creative tasks;
- Reduced procrastination; and
- Greater assurance in oneself.

➤ *Suggestions for Time Management in the Workplace Recognize how we are Spending our Time.*

- Observe a daily routine;
- Establish priorities;
- Automate monotonous chores;
- It is anticipated that the hardest assignment will be completed first;
- Perform comparable operations in batches;
- Establish sensible time constraints;
- Know when to refuse;
- Refrain from multitasking; and
- Maintain organization.

➤ *Team Management*

This is the process of organizing and structuring a group of people who plan, implement and execute a given task at hand and is called team management. A team involves two or more people, while team management may be a set of policies or rules that are followed in the team. This aspect may be obtained from the efficiency of members in an organization in relation to a certain project or an organization firm. It can reposition the failure rate into components that work, which may revolutionize the situation. There is evidence that every individual on the teams has a connection with the others. In any organization, it is essential to put into consideration the management of teams. It encompasses the processes that assist to maintain business afloat in times of difficulties and can enhance an organization's positive outcome percentage. In

light of the above goal, the team management has a clear process map in measuring the achievement of the laid objectives. Better expectations, driving forces, financial integration, worth of activities, continuous learning, encouragement as well as feedback are the needed elements in the management of a team. The organization team coordinator and the executive members form the core of managing the team and they work to (Soni, 2020).

The nature and distribution of the company, the degree of trust and power, consensus of the Board and the administrator, the decision-making model and the testing approach are key determinants of how management teams respond. Due to this, it requires strong commitment to trust and an embrace a functional decision approach within these teams. There are two of them: One with reference to the full matrix, and one with reference to cars; both in order to espouse the causalities mentioned above as to Team design, especially in what concerns communication routes. There is literature evidence of effective team management initiatives in Yakima, Washington, Rio Linda California, and Attleboro, Massachusetts. In all three of these cases, the reader finds a competent superintendent with high levels of organizational skill development (Lindelov & Bentley, 1989). Effective project management research provides little guidance about how project team factors influence three crucial capital project outcomes: of cost, schedule, and operability. However, timely and productive project delivery is an important organizational goal in most fields and especially within the process industries capital projects. Based on interdisciplinary cross-sectional analysis of the general teams and project management literatures, we created and tested a theoretically based, 5-factor model of the organizational environment, project team configuration, the leadership of the project teams, project team process, and project outcome antecedents. Samson & Scott-Young, (2008).

Team management in the mutual fund sector has become the order of the day in the recent past. One the other hand, for a long-term persistence, the performance of the fund managed by a team is comparatively consistent. The structure of fund management seems to be valued by fund investors. In our study we found out that far larger inflows occur where the fund is managed by a team rather than an individual (Bär, Kempf & Ruenzi, 2005). It's beneficial for every manager to be effective at managing the teams and strive to be even better at it. The working teams and the managers who are in charge of the teams have benefits from effective management aspects. These abilities can enable the team members comprehend what other team members expect of them at work besides ensuring every member is in tune with the other. That is why managers are capable of managing the team, if they have the set of skills of the team management (in fact, 2024). Team management is important for a number of reasons within the workplace:

- It fosters an all-inclusive management of leadership within an entity or within a group particularly when concept of teaming is employed.
- With negotiating and critical thinking, it becomes easier to solve problems through the implementation.

- It provides interdisciplinary manager-staff interactions and focuses on the aspects of speaking and listening effectively.
- It underlines that managers and team employees are focused on achieving one vision and that this vision is notably outlined.
- It assists the managers in defining the responsibilities and objectives of the people that work under him/her.
- Dimensions of management for an efficiently working team.
- Amidst the management of scenes, prioritize service.
- Do not always tend to believe that we are correct.
- Make transparency a priority.
- Set boundaries.
- Provide a positive workspace.
- Stress on the importance of continuous and efficient interaction in organizations.
- Most of the leader's time is spent to stimulate and facilitate the development of the team.
- Be open to change.

#### ➤ *Propensity to Learn*

Most organizations require improved prior experiences- for example the use of events incidents and accidents regarding safety in order to improve on safety. However, the reality is that it is only possible to know the learning capacity of an organization or an organizational unit, ex post. To the author's knowledge, there is currently no preventive way of assessing the readiness of an organization to learn, or if it will indeed be able to learn from experiences (Wybo and Drupsteen, 2015). Compulsory education participation is best predicted by early participation in school (Tuijnman, 1991). As the size of post school adult population increases owing to increased life spans, high technological literacy and competition in the international market and evidence indicating therapeutic effects of learning on adult health, there is heightened interest in what demographers and psychologists call the readiness and inclination among adults to learn. In all the types of learning, the adult learners are predominantly middle class, young and highly educated. They also are employed, live in areas that place importance in education and their parents have attained more years of education (Field and Tuckett, 2016).

#### ➤ *Sincerity*

Although sincerity is an essential trait for a leader, not all individuals in positions of authority possess it. Sincerity is defined by the dictionary as: Sincerity (noun): the condition or quality of being sincere; frankness, integrity, sincerity, etc. Because a sincere person constantly demonstrates qualities like honesty and openness that eventually help them build a reputation for being trustworthy, sincerity promotes trust in relationships.

#### ➤ *Willingness*

Tedious which signifies the willingness to learn is a quality that people require in their day to day activities. It also aids growth, person development as well as enhancing the ability to impact the world that individuals live in. Willpower comes from within and thus willingness arises from within too.

That ability however for one to be willing it has to be a process that originates within that individual. That is usually due to the nurture factor. We are also demonstrating our strength when okay with it. It is also important to note the thing about not being overly willing or too unwilling. Similar to the too-muchness of seemingly cooperative leaders, those constantly saying "yes" and "can" resemble workers. A willingness to learn or upskill from the current skillset is important for several reasons (Sekhar, 2023):

- **Adaptation to Change:** It would also be pertinent to mention that in today's world the industries as well as technologies are becoming quite fluid. The people who are open to learn can easily change and make sure that the kind of data that they possess is up to date.
- **Personal Growth:** Professional development is not the only form of learning; it matures us on many different levels. It lets people broaden their horizons, get new perspective, and become far more rounded people.
- **Problem Solving:** It allows people to learn the tools and know how to solve difficult problems. So, it stimulates critical thinking, and creative problem solving, which are skills that can be useful both in private and professional life.
- **Career Advancement:** If we are hungry to learn and to learn more, the employers will appreciate us. we have to be ready to learn because this will earn us a chance of career growth, appointment for appointments and becoming responsible.
- **Increased Confidence:** Individuals can learn new skills and knowledge in order to boost his confidence. Better performance in many areas of life can be an outcome of this newfound confidence.
- **Innovation:** Open people are usually more innovative. This will allow them to break new ground always looking to improve and innovate.
- **Better Communication:** Communication skills are also increased by learning. Personal and professional relationships become better when individuals know and informed and can deliver idea and thought well.
- **Resilience:** Resilience means individuals are willing to learn. It teaches them to take back failures and failures as an opportunity for mode and learning.
- **Increased Job Satisfaction:** Work can be made more interesting and fun by learning. That allows people to go for what they want without having to take up mundane activities instead.
- **Contributing to Society:** It also helps people be able to contribute to their community and larger society. They acquire knowledge and skills and can make real contributions in different grounds to solve social problems.

➤ *Inspiration*

Inspiration has been largely neglected by theoretical and empirical psychology. Inspiration is a broad term characterized in this article as transcendence, motivation, and evocation. Thrash and Elliot (2003). For example, motivation (i.e. inspiration) forces people to create ideas (Oleynick, Thrash, LeFev, Moldovan & Kieffaber, 2014).

Two ways of inspiring someone at work are allowing someone to achieve their objectives and to develop their potential. Motivation allows others into a more positive work environment to enhance productivity. In fact, 2024, it might be useful to study how several approaches to motivating others at work suit.

➤ *Here are 13 Strategies for Motivating Others:*

- Understand the audience;
- Be exemplary;
- Demonstrate empathy;
- Express gratitude;
- Employ storytelling tactics;
- Mention the principles and convictions;
- Engage in active listening;
- Incorporate a creative endeavor;
- Encourage others;
- Take responsibility;
- Be resilient;
- Show the passion; and
- Provide helpful criticism.

➤ *Commitment*

When they make a promise someone has committed to do or not do something. As a noun, Promise is the stating of what we will or will not do. It is a verb used of making a commitment to perform or furnish something. It also stands for potential for good in the same way that a value is soon to come to pass. Job commitment is the sense of obligation for people to an organization's mission and objectives. Work gets committed when we are committed to the work (Study.com, 2024). One can acquire a strong work ethic and have opportunities to develop professionally and to bring a passion to our work. If we aren't totally committed to our task, we lose interest and motivation. Studies have offered methods to improve our dedication to our work and promote our careers to increase our satisfaction (Bhat, 2023). In recent years, work has gotten a lot of attention in the HR literature. Employee commitment data is seen to be a determinant of employee loyalty and organizational success. Organizations are being constantly demanded to perform. One of the other things globalization has made is that competition is more intense than ever. Companies aren't taking their commitment to their employees for granted anymore, because of the growing pressure. Furthermore, the concept of lifetime employment is also out of date. These days, reorganization is done to poor performing organizational units. It usually leads to job loss. Those who do not perform poorly have a higher likelihood of being fired. As a result, people's fundamentally increasing individualism, along with employee dedication to the company and their work, has also significantly decreased. This

is really making we think of how important it is staff members feel a part of the company & behave in certain (positive) ways. Employees who are committed towards the company yield their value in many ways like their tenacity, proactive help, comparatively much output, quality consciousness, etc. Workers devoted to their jobs are also less likely to quit, or report sick. If employees lack commitment they can be against the company and thwart the growth of the company (Wainwright, 2023).

➤ *Trustworthiness*

Trustworthiness refers to the attribute that inspires dependability with something or someone. Some may be known for their dependability with commitments, some may have confidence in a newspaper to report and be accurate (Elo, Kyngäs & Kühräinen, 2020). Having integrity, dependability and dependability is being able to be trustworthy. It's the promise that things will get done in work environments. Without this has a productive and successful work atmosphere. Trust even between people is sorely lacking and lack of trust can make relationships strain and put people in situations that should not be there. Effective teamwork is there without trust, and growth without teamwork is impossible. Trust is never a less important thing when we speak about either personal or professional growth or, for example, company success. Here are some common features of trustworthiness (Kishore, 2021):

- Trust breeds more trust. It encourages people to rely on one another.
- We exhibit consistency so that people can trust and have faith in us.
- Trustworthiness fosters a strong workplace culture and has a favorable impact. We make changes to the workplace atmosphere.
- We provide opportunities for the development of new interpersonal relationships outside of the workplace. At work, we might make a friend that we cherish just as much as we do, if not more.
- We must demonstrate it in order to build relationships and sway people. In other words, we should focus on our actions rather than our arguments.

➤ *Presentation Skills*

Skills relating to the content, structuring, organization, preparation, and delivery of information and ideas that are involved in presenting are summarized as presentation skills. They include the actual words or spoken words and even the materials used in support of those words as in pictures, films or slideshows. Public speaking skills can be used in all spheres of life as staying presentation or speechmaker is critical today. To work on to our presentation skills in such spheres are in the processes of giving a speech, an attempt to persuade the beloved one to buy a dress and in the conversation with friends and family members about the urgent problem. These are the skills that let us properly express ourselves, to influence others, or to sell an idea, or anything else, and accomplish goals regardless of whether for business or for personal use. Enhancing our presenting abilities frequently has the following advantages (Staff, 2024):

- Create a better folder for written and oral communication.
- In this instance, consumer's perceptions of a business are improved, which raises confidence levels and improves the community's general self-image.
- Critical thinking and problem-solving abilities.
- Motivational techniques that work.
- Better leadership abilities.
- The capacity to increase creativity, time management, and negotiating abilities.

➤ *Proficiency in Presenting*

- Verbal communication;
- body language;
- voice projection;
- posture;
- storytelling;
- active listening;
- stage presence;
- self-awareness;
- writing abilities; and
- Recognizing the audience.

➤ *Presentation Techniques: The correct way to do it*

- Practice self-assurance;
- Develop strategies for overcoming the astonishment;
- Acquire anchoring skills;
- Therefore, it is instructive to know how to use presentation tools;
- Work on breathing exercises; and
- Acquire expertise.

➤ *Here are some tips that can help them Receive a High Score on the Presentation.*

- Get there early;
- Develop the habit of becoming familiar with the room's layout;
- The presenters in front of them can be heard; and
- Make use of note cards.

➤ *Multitasking*

The ability to handle many tasks at the same time, accomplished only by focusing on one thing but at the same time monitoring other things. Typically, we have to work with a number of things at the same time and complete them appropriately simultaneously, at work. Multitasking, for example, is having to manage two projects simultaneously, one at one stage of completion and the other at an earlier stage. As an example, taking notes during a meeting while giving the presentation of our life is also an example of multitasking. However, multitasking is still a bad practice because it can reduce one's attention span and cause as less work of lower quality produced. But if properly executed, there are several advantages (Kumar, 2024).

➤ *Nine Rules that Help us Multitask at Work*

- Create a list of all the things that need to be done and combine them.
- Arrange every work according to due dates or value addition.
- Develop delegation skills.
- Grouping related chores together.
- Taking breaks between work will help to stay focused.
- Adhere firmly to avoiding any outside distractions.
- Use time and task management tools and strategies to better manage the time and tasks.
- Make an effort to eliminate workplace distractions.
- Continue monitoring at regular intervals.

➤ *Proactiveness*

Team productivity is improved by employee initiative to foresee and resolve problems. Proactive means coming across possible hindrance at work and set out calculated targets to meet the need of the organization. Learning about proactivity and what it entails might allow us to gain knowledge about being more competent and helping increase the likelihood of success at work, career advancement and work fulfillment. Proactivity is completing projects or activities while seeing changes coming (and problem-solving), before they show up. Truly proactive workers are forward thinkers and will proactively do what is needed to get to a desired objective regardless of whether there's direct supervision. The reverse of proactive labor is reactive work, or reacting to events after they've occurred. Planning for obstacles and anticipating higher success rates is characteristic of initiative taking employees. For example, an employee who goes ahead setting up an opinion survey can know what to expect from clients in not wanting to give opinion. They might get ready for this challenge by offering survey respondents discount coupons. This affects the way people act and make it possible to start thinking how to improve the effectiveness of initiatives (indeed.com, 2024).

➤ *How to take Initiative in Work?*

- Examine business procedures;
- Plan activities and events;
- They must create the so-called SMART goals and establish targets;
- Explain the plans;
- Complete chores quickly and effectively; and
- Finding opportunities for improvement is the second.

➤ *Benefits of taking Initiative in Work*

- Empowerment;
- Personal development;
- Resolving problems;
- Enhanced capacity for leadership; and
- Less tension.

➤ *Take a look at these Suggestions for Remaining Proactive at Work.*

- Create a routine;
- React promptly;
- Offer support; and
- Be upbeat.

➤ *Negotiation Skills / Commercial Negotiation Skills*

Acquiring such domain specialization in commercial negotiations is challenging, rewarding, and often poses a stressful experience. Because some of the outcomes of commercial negotiations are difficult to assess, especially how the commercial relationship between the buyer and the seller will be influenced in the short- or long- term, and the negotiator's personal or organizational development likewise, it is necessary to acknowledge, understand and develop commercial negotiating skills. Three viewpoints are examined in commercial negotiation: that is; the process and the objectives of the haggling parties and the activities of the power holders (Ashcroft, 2004). A negotiation is present in our everyday lives. Based on the findings from the research on automated negotiations the negotiators can be designed and employed to support discussions between human negotiators but at the same time can also be utilized as automated negotiators. Some focus on generating structures within which negotiations can be conducted with a view of helping the parties to arrive at a consensus. Nonetheless, as to whether these agents or systems can assist humans to become improved negotiators remains a question (Lin, Oshrat, & Kraus, 2009). Our managers should negotiate to leverage their experience and skill when offer a consistent performance, as well as to avoid the waste of time and the result of discussions. One of the jobs is called the negotiation manager. These two skills are related: sales and negotiating.

➤ *Humbleness*

The relationship between dignity and humility is a very interesting theme for reflection for researchers in theological and religious world in general and for sociologists, public policy analysts as well as for economic analysts, having these times as deserialization of the world in modern, Dumitrascu says. But this should begin with a minimal introduction to the vagueness of the nomenclature and definition of humility, or more precisely, the identification of humility with it. The truth is there is often a thin, almost invisible line between them and interpretation is generally contextual and stylistic.

Moats define the person who is willing to accept the criticism and see themselves honestly as modest. Humility is the ability to frame praise and take criticism. This puts them at an advantage to others. Confident does not equate to haughty and we want to skirt that fine line very carefully. Arrogance has many problems at work. As they start thinking we are better than them the relationship with coworkers would deteriorate (6 Ways How to Stay Humble at Work and Achieve More, 2023).

➤ *The Advantages of Workplace Humility*

- More output;
- More creativity;
- More connections with other professionals; and
- Better concepts.

➤ *Six Ways to Maintain Humility at Work*

- Accept criticism;
- Pay closer attention;
- Show gratitude;
- Own up to our faults;
- Keep in mind that we won't constantly be in the lead; and
- Pose inquiries.

➤ *Patience*

Patience is knowing how to wait in silence despite displeasure or difficulty. With the new 3-Factor Patience Scale, we measure the three forms of patience (interpersonal, life difficulty, and everyday difficulties patience), correlate them differently with personality and wellbeing. Wellbeing was mediated by the pursuit and achievement of goals and the relationship with patience. Patience particularly with regard to difficulty helped those in the pursuit and fulfillment of goals. Participants attended a training session to help improve characteristic patience. In contrast to a control condition, the program created greater amounts of patience, lower despair and more positive affect, suggesting that patience can be manipulated (Schnitker, 2012). Patience is extremely connected to per capita income, productivity growth, and the accumulation of human, physical, and social capital. The relationships between these are consistent at the national and subnational area, and people levels. Second, in the long run as the level of aggregation increases the size of patience elasticity grows very large. To provide an interpretive lens for these patterns, we analytically study an overlapping generations model in which aggregate production is characterized by capital-skill complementarities, but productivity is implicit in the presence of a human capital externality, and the savings and education decisions of agents are endogenous to their respective patience (Sunde, Dohmen, Enke, Falk, Huffman, and Meyerheim, 2022).

➤ *Consistency*

In my opinion what has helped me succeed is that consistency is the key universal rule of success whether in an individual's private life or career. What should be realized is that there is a huge difference between knowing something on the black board and actually being adept at it. This is particularly so given that our day to day activities could make it difficult for us to keep things consistent especially given the many distractions that are inherent in the healthy day to day life (Klare, 2023). It is always great to have someone build structure and follow through in what they are doing. The key to consistency is to set and complete goals which have been defined. For ourselves, establish realistic goals and start by asking ourselves how do we want to lead a more organized life. A discipline to improve motivation and responsibility will take some time to master. However, to maintain a positive

attitude and productivity during the process this might require sometime psychological adjustment. According to Intellectual, Maritime Knowledge (2023), one of the most significant approaches to achieving consistency is key. Consistency is the main driver of success in each of them. Being consistent means focusing ourselves on the goals and investing ourselves in the activities that lead to goal accomplishment. However, it requires the long-term commitment and its constant work to perform the same actions repetitively until the end is achieved. Consistency is therefore about doing the same things nearly every day. We would not be likely to get there if we delay anything by a day or two most of the time. Being consistent means that we accept full accountability for whatever happens since if the work needed to achieve the goal is done by us, then no one else is to blame. Perhaps, we need to change our conduct if we realize that we have some delays in fulfilling the strategies to accomplish our targets.

This way people processing our lives to their everyday routine find it easy to relate to us and we tend to seem more dependable. We all love to teach and instruct others, it may not always be so fun to practice what we preach. Some people care a lot about individuals who practice what they preach and consider them very credible. Another is that other people's trust in us equally inspires us towards whatever we are doing and ensures that we do not regard it as worthless. People's belief is constructive to our self-estimation and encouraging for the achievement of all the goals. As for the trust, consistency can serve as the means for building a good reputation: the more we behave consistently, the better it will be for us if we work in business or are an active participant in another activity. They have also found that through sustained effort this is possible and that clients like dealing with someone who is known for results. There can be other opportunities at workplace because of it. The way we are able to perform tasks within given schedules in organizations determines whether we are promoted to higher ranks or remain mere employees. Since being consistent is not an easy thing, it will call for a lot of practicing especially if one lacks self-control. If a person does not practice or rehearse how he or she is going to perform, it might take some time to get into that habit. Practice makes discipline by creating focus and awareness of the tasks that have to be accomplished in this case. It may be rather difficult to break with tradition especially when we need to change the way we think about matters, relative to us; nevertheless, if there is improvement in personal development, then one must persevere in the tasks, he or she undertakes. People who are unsuccessful have one thing in common: they are inconsistent. As per this, there being consistency in the manner of thinking, ensuring discipline, and being more intentional in everything we do are essentials to achieve success (Klare, 2023).

#### ➤ *Stress Management*

Stress is pacified in diagnostic of tension, worry or affliction of the mind in response to a difficult demand. Stress is a natural phenomenon that is a regular human response to challenges and threats in the space surrounding the person. Stress is a part and parcel of life Stress is inevitable or normal; it is a natural part of life for everyone at different times. It also

shows that factors influencing general wellbeing change with age but how we manage stress affects our general wellbeing. Stress is known to bring changes on the body and in the mind as well. Stress in moderate amounts is no problem and may even be helpful in getting jobs accomplished. Society is facing a lot of stress, which causes disease of the mind and body. We should know that learning coping skills itself can reduce feelings of over whelm and is good for our mind as well as our body. Stress makes us feel tense, worried and irritable so it becomes almost impossible to relax. Stress is the worst enemy because it hinders our ability to concentrate. We may feel uneasy or wake up at night, we can have headaches and other pains. At one time we may have loss of appetite or else we may have appetite enhanced by over eating foods. It further stated that prolonged stress can actually worsen already prevailing diseases, and increases the propensity to consume alcohol, tobacco and other drugs. If these conditions are not properly managed they can precipitate the onset of mental disorders or exacerbate existing ones; the most common of these are anxiety and depression requiring the attention of a physician. If we have some problems with our mental health, stress might get worse and we may have troubles to work or attend school (Stress, 2022). Stress coping the term used to describe programs designed to help staff members modify how they perceive stressors or improve their response to stress, according to Murphy (1996).

Stress at work is very personal. Some of the people who are content with their high turnover jobs include air traffic controllers, police and emergency room nurses. Every job comes with a degree of stress. Sometimes it's possible to face a lot of papers, short deadlines or offend customers. Or meetings may drag on for quite some time, and thereby cause a cumulative hold up of everyone. Any of them may lead to stress. In other words, stress is not always tied with a person's work or job. Stress is also again defined in relation to how a worker manages the challenges and pressures that are inherent with a given occupation. It is not surprising that one can get different reactions to stress in as much as people are different in all other aspects that define them. The personality and place of working environment will dictate their response (Managing Work-Related Stress - Health Encyclopedia - University of Rochester Medical Center, n.d.).

#### ➤ *Stress Effects*

##### • *Among the Short-Term Consequences of Stress are:*

- ✓ Headaches and pains;
- ✓ Breathing shallowly;
- ✓ Having trouble falling asleep;
- ✓ Fear; and
- ✓ An upset stomach.

##### ➤ *Constant Stress over an Extended Period of Time can Raise the Risk of:*

- Heart disease;
- Pain in the back;
- Depression;



- The discomfort and tightness in the muscles should not be long-lasting; and
- Immune system weakness.

➤ *Coping Strategies and Workplace Stress Management*

- Control the time;
- Take a rest;
- Be practical;
- Do it again;
- Experiment with muscle relaxation;
- Make a visual;
- Take deep and slow breaths;
- Make sure of consuming a healthy, balanced diet and exercise regularly;
- Communicate effectively;
- Acquire stress-reduction skills;
- Maintain a daily schedule;
- Make connections with people;
- Eat well;
- Work out frequently; and
- Spend less time watching the news/less screen time.

➤ *Tenacious*

Tenacity is the orientation which enables one to overcome difficulties, build confidence and effectiveness in our work and private life. Employers often look for the hardest working people who are dedicated and motivated to conquer all odds and get a job done. If we're looking for employments, it is handy to note with some of the popular interview questions concerning perseverance at the workplace. Tenacity according to the above descriptions entails passion and determination and this can be felt in different methods. Maybe we have a detailed schedule, a neatly thought out strategy to clean our house. In our profession, we can think of how to enhance productivity and prepare for new tasks during leisure. Just because one shouts their way through a meeting, or is constantly in motion, it does not mean they are tenacious. It also means permitting ourselves to rest and even, if needed, to hide, but then stand up again bravely (indeed.com, October 27, 2024).

➤ *Networking / Social Networking*

It is evident from the above definition that social networking has over time change meaning to cover the interaction of people using the Internet and web applications to share information in manners that were technically impossible in the confines of today's electronic media. This is mainly due to a shift in culture paradigm about the possibilities and uses of the Internet out there. The Web of the time when this project was initiated is different from the current Web. This shift in emphasis promotes social networking & teaming more effectively as epitomized by Muijs et al., (2010). Networking is defined as goal-oriented behavior with particular focus on creation, development and maintenance of task related interpersonal contacts both at the organizational level and beyond. There are many individual, work and organizational factors that influence networking, and which are considered critical for career advancement, performance enhancement, identification of vital organizational

information and information visibility and power. Networking is said to influence results and it is believed that the mechanism through which it impacts on results is social capital and information access (Muijs, West & Ainscow, 2010). Networking is viewed as an essential and rich tool within an occupational information system for upwardly mobile people and organizations. Nevertheless, a significant part of networking research has been fragmented across other disciplines. Consequently, both consensus regarding a tremendous number of central networking-associated topics remains surprisingly rare (Muijs, West & Ainscow, 2010).

➤ *Work Delegation*

Collection of materials for tasks to be accomplished and objectives achieved in the projected time is called management. Of those resources, people are the most valuable; however, to capitalize on the people and their capabilities, the management of people must be effective. Besides, maintaining and inspiring those actors is as critical as maximizing skills and talents for the advantage of the company (which benefits, in the long run, to the firm). Delegating is a way of showing confidence which in this case is a method of giving motivation. This is well illustrated since delegation comes with benefit both to the delegating person and to the delegatee. This I believe, falls under the domain of the respective manager or supervisor to ensure that he or she understands and appreciate the strengths, weaknesses and instructional capacity of his or her subordinates and in the process right the jobs according to the abilities of the individuals involved. The manager is required to delegate the appropriate powers on the team so they can work effectively. This action alone is satisfying one of the most important duties of the manager (Muir, 1995). While delegation can bring a lot of gains to organizations, managers fail to maximize its application. As stated earlier, there are many ways in which the term delegation can be used; generally, however, delegation is defined as the act of authorizing others to exercise certain levels of authority. It gets to the issue of how power is allocated to prevent interferences with the due performance of expected tasks. Due to the inevitability of the unpredictable nature of timely and satisfactory completion of tasks assigned which is particularly constructive to decision-makers during delegation, they must first of all understand the key success factors (Mathebula & Barnard, 2020).

Delegation is thus reciprocal and not a haphazard business that entails people appreciated spending unstructured duration's getting along merely so they can boss other individuals round. Since there are people around an organization and they are busy playing their part, it is necessary to take some time and listen to them so as to gain their support. The roles of managing mean that proper management can increase production rates and organizational efficiency, retain employees, and develop better interpersonal relationships between employees. On the other hand, these can lead to poor employee motivation, poor performance and failure to deliver as required (Cooper, 2013). (Mathebula & Barnard,2020). Delegation is act of deliberately shifting the responsibilities from one individual to the other. One of them is where it assumes that delegating some work to subordinates is an adequate way of lightening the load for the manager. The

experiments conducted to analyze the working capabilities of the employees have shown that they are quite capable of doing the tasks assigned to them (Riisgaard et al., 2016). In the view of Stonehouse (2015), delegation is defined as the act of completing work with the assistance of other people along with the authorization and control. This rests on authority, accountability as well as the relationship between the one who delegates the work and the one who receives the work. By giving up the mantle of 'doing' a particular piece of work, an activity, or a process, the person is legally, professionally, ethically (and sometimes morally) bound to be competent, to have a relationship with the object, content, subject, and recipient of the activity, and be trustworthy. By giving out decision making responsibilities and power, subordinates can get the power they need from the managers. As we know it empowers subordinates, to influence and control the route and direction of activity. Just like granting subordinates autonomy benefits the delivery quality and speed being beneficial to the organization, it is also an indication of good managerial practice. Liberman and Boehe (2011) states that delegation leads to responsiveness, information exchange as well as learning opportunities.

#### ➤ *Reliability*

Reliability is something that employers respect and value – it's something they are seeking out in both new and current employees. Otherwise, it means that we can count on us to finish assignments on time, hit deadlines, work according to the set directions, write clearly. Being dependable can help us become more productive and improve our reputation, and also our chances of getting a promotion. Advice on how to be dependable. How can we prove our reliability at work?

- Establish real targets;
- Effectively communicate;
- Control the time;
- Be accountable;
- Be receptive to criticism; and
- Be trustworthy.

#### ➤ *Credibility*

Credibility is one of the first ideas in communication. Lately it has also gotten quite a lot of attention. Professional communicators and communication researchers alike have also studied the question why people take certain communications to be more believable than others. Anyone researching new and online media, or has studied mass communication, or interpersonal communication have all researched credibility. Most people have a sense, as noted by stacks, Salwen and Eichhorn (2009), an innate sense that we can tell the difference in communications that are more trustworthy than other communications.

#### ➤ *Don't be Greedy*

The root of all evils is avarice. Due to greed, the engineers have lost their jobs. Every trade has always had an element incited by greed as there has never been a money making trade without it. On the other hand, those people who waste their lives in the attempt to avoid getting in touch with that great power underlying every achievement of man, alas,

they succeed. Stevens (2018) in his argument pointed that everyone is greedy but the variation is in how one utilizes this desire.

## VI. CONCLUSION

Employability depends on many factors. The research focuses only the absolute dimension of the employability. Absolute dimension depends on the skill sets of the candidates. It is true that technical skills are must have skills to get jobs. However, the contemporary employers value soft skills on top of the technical skills. It is also true that soft skills make an engineer a dutiful and loyal officer to the company. Employers expect engineer are to be operational with all necessary skill sets from the first day of joining. It is a hard truth that Annual Compensation Review (ACR) mostly depends on the soft skills of engineers. In Bangladesh, engineers are not involved in product development or enhancement rather than providing services to the customers and assembling parts except the job nature of computer programmers. So, engineers can acquire all kinds of technical skills within 5 to 8 years from their career journey. Engineers can acquire new technical skills by a short training. Therefore, the life of engineers is soft skills dominated. The research finds 46 soft skill items. All skills are not equally important for all stages of the career therefore; the skills are clustered in career stage wise. Hence the following section has been portrayed:

**Early Career** (Self-Awareness, Self-Management, Self-Motivation, Social Skills, Extraversion, Ethics, Integrity, Discipline, Teamwork, Life Skills, Professionalism, Adaptability, Confidentiality, Passion and dedicated mindset, Feelings, Time management, Propensity to learn, Sincerity, Willingness, Inspiration (Need for the achievement), Commitment, Trustworthiness, Presentation Skills, Multitasker, Proactiveness, Humbleness, Patience, Tenacious, Networking, Reliability, Don't be Greedy and Credibility).

**Mid-Career** (Self-Awareness, Self-Management, Self-Motivation, Social Skills, Empathy, Openness, Conscientiousness, Extraversion, Agreeableness, Ethics, Integrity, Discipline, Teamwork, Intrapreneurial, Life Skills, Professionalism, Adaptability, Knowledge Sharing within Team, Confidentiality, Passion and dedicated mindset, Feelings, Time management, Team management, Propensity to learn, Sincerity, Willingness, Grit, Resilience, Passion (energy x courage x dedication), Inspiration (Need for the achievement), Commitment, Trustworthiness, Presentation skills, Multitasker, Proactiveness, Negotiation skill, Humbleness, Patience, Consistency, Stress management, Tenacious, Networking, Work Delegation, Reliability, Don't be Greedy and Credibility).

**Advanced-Career** (Self-Awareness, Self-Management, Self-Motivation, Social Skills, Empathy, Openness, Agreeableness, Ethics, Integrity, Discipline, Teamwork, Intrapreneurial, Life Skills, Professionalism, Adaptability, Knowledge Sharing within Team, Confidentiality, Feelings, Team Management, Resilience, Commitment, Trustworthiness, Negotiation skill, Stress management,

Tenacious, Networking, Work Delegation, Don't be Greedy and Credibility)

Engineers need all these skills during their career path. Understanding the insight of these skills have been chaptered separately. Educational institute and industry can get a readymade guideline for renovating engineering curriculum and training modules respectively.

## VII. LIMITATIONS OF THE STUDY AND FUTURE RESEARCH

There are three direct limitations found in this study. One of the limitations is that there is only a limited population of engineering professionals who participated in this study. In addition, the second limitation is that the research focuses only the absolute dimension of employability. The third limitation encountered in this study concentrates four engineering disciplines namely Electrical, Computer, Civil and Mechanical Engineering. The research aims to address the problems and solutions of both Diploma in Engineering and B.Sc in Engineering graduates. In future, separate guideline for the Diploma in Engineering and B.Sc in Engineering graduates will be produced that will be more specific from the generic consideration.

## REFERENCES

- [1]. Cimatti, B. (2016). Definition, development, assessment of soft skills and their role for the quality of organizations and enterprises. *International Journal for quality research*, 10(1).
- [2]. John, J. (2009). Study on the nature of impact of soft skills training programme on the soft skills development of management students. *Pacific Business Review*, 19-27.
- [3]. Dean, S. A. (2017). Soft skills needed for the 21st century workforce (Doctoral dissertation, Walden University).
- [4]. Green, F. (2011). *What is Skill?: An Inter-Disciplinary Synthesis*. London: Centre for Learning and Life Chances in Knowledge Economies and Societies.
- [5]. 5Bridges, D. (1993). Transferable skills: a philosophical perspective. *Studies in Higher Education*, 18(1), 43-51.
- [6]. Safta, C. G. (2015). Cross-curricular competencies-Access path to professional development. *Procedia-Social and Behavioral Sciences*, 203, 348-354.
- [7]. Prihatiningsih, S. (2018, February). A Review of Soft-skill Needs in in Terms of Industry. In *IOP Conference Series: Materials Science and Engineering* (Vol. 306, No. 1, p. 012117). IOP Publishing.
- [8]. Dharmarajan, P. V., Pachigalla, R., & Lanka, K. (2012). The significance of inculcating Soft Skills in students in the process of teaching Hard Skills. *International Journal of Applied Research and Studies*, 1(2), 1-11.
- [9]. Truong, H. T., & Laura, R. S. (2015). Essential soft skills for successful business graduates in Vietnam. *Sociology Study*, 5(10), 759-763.
- [10]. Nusrat, M., & Sultana, N. (2019). Soft skills for sustainable employment of business graduates of Bangladesh. *Higher Education, Skills and Work-Based Learning*.
- [11]. Jackson, D., & Chapman, E. (2012). Non-technical skill gaps in Australian business graduates. *Education+ Training*.
- [12]. Bist, S. S., Mehta, D., Harshadbhai Mehta, D., & Meghrajani, D. (2020). Employers' perception regarding employability skills of management students undergoing internship. Bist, SS, Mehta, N., Mehta, D., Meghrajani, I.(2020). Employers' perception regarding employability skills of management students undergoing internship. *International Journal of Work-Integrated Learning*, 21(2), 145-161.
- [13]. Dharmarajan, P. V., Pachigalla, R., & Lanka, K. (2012). The significance of inculcating Soft Skills in students in the process of teaching Hard Skills. *International Journal of Applied Research and Studies*, 1(2), 1-11.
- [14]. Dharmarajan, P. V., Pachigalla, R., & Lanka, K. (2012). The significance of inculcating Soft Skills in students in the process of teaching Hard Skills. *International Journal of Applied Research and Studies*, 1(2), 1-11.
- [15]. Robles, M. M. (2012). Executive perceptions of the top 10 soft skills needed in today's workplace. *Business communication quarterly*, 75(4), 453-465.
- [16]. Lee, L. T., & Lee, T. T. (2011). Investigating soft skills for success in the workforce: Perceptions of elementary school teachers. *International Review of Social Sciences and Humanities*, 1(2), 140-149.
- [17]. Lohana, P. (2015). Soft skills for young professionals. *IEEE Engineering Management Review*, 43(3), 23-24.
- [18]. Afroze, R., Eva, T. P., & Sarker, A. R. (2019). Do soft skills matter? A study on employability of engineering graduates in Bangladesh. *Journal of Intercultural Management*, 11(3), 21-44.
- [19]. Rendeovski, S. J., & Abdelhadi, A. (2017). Teaching and learning soft skills in university physics courses: Perspectives of the UEA Higher Colleges of Technology. *International Journal of Physics & Chemistry Education*, 9(4), 1-8.
- [20]. Ritter, B. A., Small, E. E., Mortimer, J. W., & Doll, J. L. (2018). Designing management curriculum for workplace readiness: Developing students' soft skills. *Journal of Management Education*, 42(1), 80-103.
- [21]. Deming, D. J. (2017). The value of soft skills in the labor market. *NBER Reporter*, 4, 7-11.
- [22]. Chaibate, H., Hadek, A., Ajana, S., Bakkali, S., & Faraj, K. (2020). A Comparative Study of the Engineering Soft Skills Required by Moroccan Job Market. *International Journal of Higher Education*, 9(1), 142-152.
- [23]. Shukla, A., & Kumar, G. (2017). Essential soft skills for employability—A longitudinal study. *Advances in Economics and Business Management*, 4(6), 362-367.
- [24]. Hening, D. A. (2016). Soft skills development of engineering students through mentoring in cooperative education (Doctoral dissertation, Ohio University).

- [25]. Kranov, A. A., & Khalaf, K. (2016, April). Investigating the employment gap: What employers want from engineering graduates. In 2016 IEEE Global Engineering Education Conference (EDUCON) (pp. 1198-1201). IEEE.
- [26]. Zaharim, A., Yusoff, Y., Omar, M. Z., Mohamed, A., & Muhamad, N. (2009, July). Engineering employability skills required by employers in Asia. In Proceedings of the 6th WSEAS international conference on Engineering education (Vol. 1, pp. 194-201).
- [27]. Cassidy, S. (2006). Developing employability skills: Peer assessment in higher education. *Education+ training*.
- [28]. Overtoom, C. (2000). Employability skills: An update. ERIC Clearinghouse.
- [29]. Rao, M. S. (2014). Enhancing employability in engineering and management students through soft skills. *Industrial and Commercial Training*.
- [30]. Nair, N. R., & Mukherjee, G. (2015). Soft skills: The employability success mantra. *Language in India*, 15(10), 209-215.
- [31]. Capretz, L. F., & Ahmed, F. (2018). A call to promote soft skills in software engineering. arXiv preprint arXiv:1901.01819.
- [32]. Yahya, M., Iskandar, S., & Sunardi, S. (2017). Technical skills and employability skills of vocational high school students in Indonesia. *Journal of Scientific Research and Studies*, 4(6), 148-155.
- [33]. Suarta, I. M., Suwintana, I. K., Sudhana, I. F. P., & Hariyanti, N. K. D. (2017). Employability skills required by the 21st-century workplace: A literature review of labour market demand. *Advances in Social Science, Education and Humanities Research*, 102(58), 337-342.
- [34]. Chithra, R. (2013). Employability Skills—A Study on the perception of the Engineering Students and their Prospective Employers. *Global Journal of Management and Business Studies*, 3(5), 525-534.
- [35]. Saad, M. S. M., & Majid, I. A. (2014). Employers' perceptions of important employability skills required from Malaysian engineering and information and communication technology (ICT) graduates. *Global Journal of Engineering Education*, 16(3), 110-115.
- [36]. Singh, P., Thambusamy, R. X., & Ramly, M. A. (2014). Fit or unfit? Perspectives of employers and university instructors of graduates' generic skills. *Procedia-Social and Behavioral Sciences*, 123, 315-324.
- [37]. Misra, R. K., & Khurana, K. (2017). Employability skills among information technology professionals: A literature review. *Procedia computer science*, 122, 63-70.
- [38]. Chithra, R. (2013). Employability Skills—A Study on the perception of the Engineering Students and their Prospective Employers. *Global Journal of Management and Business Studies*, 3(5), 525-534.
- [39]. Brown, P., Hesketh, A., & Williams, S. (2003). Employability in a knowledge-driven economy. *Journal of education and work*, 16(2), 107-126.
- [40]. Adrian, M. (2017). Determining the skills gap for new hires in management: Student perceptions vs employer expectations. *International Journal for Innovation Education and Research*, 5(6), 139-47.
- [41]. Yorke\*, M., & Knight, P. (2004). Self-theories: some implications for teaching and learning in higher education. *Studies in Higher Education*, 29(1), 25-37.
- [42]. Watts, A. G. (2006). *Career development learning and employability*. York: Higher Education Academy.
- [43]. Cotton, K. (1993). *Developing employability skills*. School improvement research series, 15.
- [44]. Fugate, M., Kinicki, A. J., & Ashforth, B. E. (2004). Employability: A psycho-social construct, its dimensions, and applications. *Journal of Vocational behavior*, 65(1), 14-38.
- [45]. Pool, L. D., & Sewell, P. (2007). The key to employability: developing a practical model of graduate employability. *Education+ Training*.
- [46]. Seetha, S. (2013). Necessity of Soft Skills Training for students and professionals. *International Journal of Engineering, Business and Enterprise Applications*, 4(2), 171-174.
- [47]. Robinson, J. P. (2000). What are employability skills. *The workplace*, 1(3), 1-3.
- [48]. Saad, M. S. M., & Majid, I. A. (2014). Employers' perceptions of important employability skills required from Malaysian engineering and information and communication technology (ICT) graduates. *Global Journal of Engineering Education*, 16(3), 110-115.
- [49]. Wheeler, R. (2016). Soft skills-the importance of cultivating emotional intelligence. *AALL Spectrum*, 20(3), 28.
- [50]. Artess, J., Mellors-Bourne, R., & Hooley, T. (2017). *Employability: A review of the literature 2012-2016*.
- [51]. Rao, M. S. (2018). Soft skills: Toward a sanctimonious discipline. *On the Horizon*.
- [52]. Brewer, L. (2013). *Enhancing youth employability: What? Why? and How? Guide to core work skills*. ILO.
- [53]. Wesley, S. C., Jackson, V. P., & Lee, M. (2017). The perceived importance of core soft skills between retailing and tourism management students, faculty and businesses. *Employee Relations*.
- [54]. Padmini, I. (2012). Education vs employability-the need to bridge the skills gap among the engineering and management graduates in Andhra Pradesh. *International Journal of Management and Business Studies*, 2(3), 90-94.
- [55]. Ogbeide, G. C. A. (2006). *Employability skills and students' self-perceived competence for careers in hospitality industry* (Doctoral dissertation, University of Missouri--Columbia).
- [56]. Collet, C., Hine, D., & Du Plessis, K. (2015). *Employability skills: perspectives from a knowledge-intensive industry*. Education+ Training.
- [57]. Lankard, B. A. (1990). *Employability--The Fifth Basic Skill*. ERIC Digest No. 104.
- [58]. World Bank. (2018). *Bangladesh Skills for Tomorrow's Jobs: Preparing Youth for a Fast-Changing Economy*. World Bank.

- [59]. Ibrahim, R., Boerhannoeddin, A., & Bakare, K. K. (2017). The effect of soft skills and training methodology on employee performance. *European Journal of Training and Development*.
- [60]. Bartel, J. (2018). Teaching soft skills for employability. *TESL Canada Journal*, 35(1), 78-92.
- [61]. Lippman, L. H., Ryberg, R., Carney, R., & Moore, K. A. (2015). Workforce Connections: Key “soft skills” that foster youth workforce success: toward a consensus across fields. Washington, DC: Child Trends.
- [62]. Misra, R. K., & Khurana, K. (2017). Employability skills among information technology professionals: A literature review. *Procedia computer science*, 122, 63-70.
- [63]. Cresswell, J. (2013). Qualitative inquiry & research design: Choosing among five approaches.
- [64]. Saldana, J. (2011). *Fundamentals of Qualitative Research*. Oxford University Press. [http://books.google.ie/books?id=XglNpThWI-AC&printsec=frontcover&dq=fundamentals+of+qualitative+research+johnny+salda%C3%B1a&hl=&cd=1&source=gbs\\_api](http://books.google.ie/books?id=XglNpThWI-AC&printsec=frontcover&dq=fundamentals+of+qualitative+research+johnny+salda%C3%B1a&hl=&cd=1&source=gbs_api)
- [65]. Berglund, A. (2018). Professionalism for engineers: soft skills in engineering education to prepare for professional life. In 14th International CDIO Conference, Kanazawa IT, Japan. Kanazawa Institute of Technology
- [66]. Kline, R. R. (1980). Professionalism and the corporate engineer: Charles P. Steinmetz and the American Institute of Electrical Engineers. *IEEE Transactions on Education*, 23(3), 144-150.
- [67]. Engineers, M. (2019). Formation of a system of methods of technical thinking future engineers. *Journal of Critical Reviews*, 7(5), 2020.
- [68]. Waks, S., Trotskovsky, E., Sabag, N., & Hazzan, O. (2011). Engineering thinking: The experts’ perspective. *International Journal of Engineering Education*, 27(4), 838-851.
- [69]. Smith, P. K., Wigboldus, D. H., & Dijksterhuis, A. P. (2008). Abstract thinking increases one’s sense of power. *Journal of Experimental Social Psychology*, 44(2), 378-385.
- [70]. Bartzler, S. (2001, August). The development of creative thinking through an adequate engineering education. In *International Conference on Engineering Education* (Vol. 6, No. 10, pp. 19-23).
- [71]. Kobzeva, N. (2015). Scrabble as a tool for engineering students’ critical thinking skills development. *Procedia-Social and Behavioral Sciences*, 182, 369-374.
- [72]. Putra, P. D. A., Sulaeman, N. F., Supeno, & Wahyuni, S. (2021). Exploring students' critical thinking skills using the engineering design process in a physics classroom. *The Asia-Pacific Education Researcher*, 1-9.
- [73]. Welch, K. C., Hieb, J., & Graham, J. (2015). A Systematic Approach to Teaching Critical Thinking Skills to Electrical and Computer Engineering Undergraduates. *American Journal of Engineering Education*, 6(2), 113-123.
- [74]. Cerri, S. (2000, August). Effective communication skills for engineers. In *Proceedings of the 2000 IEEE Engineering Management Society. EMS-2000* (Cat. No. 00CH37139) (pp. 625-629). IEEE.
- [75]. Riemer, M. J. (2007). Communication skills for the 21st century engineer. *Global J. of Engng. Educ*, 11(1), 89-100.
- [76]. Cox, M. F., Cekic, O., & Adams, S. G. (2010). Developing leadership skills of undergraduate engineering students: Perspectives from engineering faculty. *Journal of STEM Education: Innovations and Research*, 11(3).
- [77]. Farr, J. V., Walesh, S. G., & Forsythe, G. B. (1997). Leadership development for engineering managers. *Journal of Management in Engineering*, 13(4), 38-41.
- [78]. Farr, J. V., & Brazil, D. M. (2009). Leadership skills development for engineers. *Engineering Management Journal*, 21(1), 3-8.
- [79]. Badawy, M. K. (1978). One more time: How to motivate your engineers. *IEEE Transactions on Engineering Management*, (2), 37-42.
- [80]. Gómez, M. Á., Herrera, R. F., Atencio, E., & Muñoz-La Rivera, F. C. (2021). Key Management Skills for Integral Civil Engineering Education. *Int. J. Eng. Pedagog.*, 11(1), 64-77.
- [81]. Childs, P., & Gibson, P. (2010). Graduating Professional Engineers and Management Skills—are they adequate for the workplace?.
- [82]. Singh, R. (2019). Influence of metacognitive awareness on engineering students’ performance: a study of listening skills. *Procedia Manufacturing*, 31, 136-141.
- [83]. Subramaniam, M., Azmi, A. N., & Noordin, M. K. (2020). Problem solving skills among graduate engineers: A systematic literature review. *Journal of Computational and Theoretical Nanoscience*, 17(2-3), 1044-1052.
- [84]. Khorshidi, M., Shah, J. J., & Woodward, J. (2014). Applied tests of design skills—part III: abstract reasoning. *Journal of Mechanical Design*, 136(10), 101101.
- [85]. Forehand, M. (2010). Bloom’s taxonomy. *Emerging perspectives on learning, teaching, and technology*, 41(4), 47-56.
- [86]. Sirotiak, T., & Sharma, A. (2019). Problem-based learning for adaptability and management skills. *Journal of Professional Issues in Engineering Education and Practice*, 145(4), 04019008.
- [87]. Van Der Molen, H. T., Schmidt, H. G., & Kruisman, G. (2007). Personality characteristics of engineers. *European Journal of Engineering Education*, 32(5), 495-501.
- [88]. Gong, Y., Rai, D., Beck, J. E., & Heffernan, N. T. (2009). Does Self-Discipline Impact Students' Knowledge and Learning?. *International Working Group on Educational Data Mining*.
- [89]. Rogus, J. F. (1985). Promoting self-discipline: A comprehensive approach. *Theory into practice*, 24(4), 271-276.

- [90]. Rasoal, C., Danielsson, H., & Jungert, T. (2012). Empathy among students in engineering programmes. *European journal of engineering education*, 37(5), 427-435.
- [91]. Hess, J. L., & Fila, N. D. (2016). The development and growth of empathy among engineering students. *American Society for Engineering Education*.
- [92]. Lappalainen, P. (2011). Can and Should Social Competence be Taught to Engineers?
- [93]. Northwood, D. O. Development of emotional intelligence: its role in the education of engineers. In *Proc. 1st North-East Asia Inter. Conf. on Engng. and Technology Educ* (pp. 1-5).
- [94]. Riemer, M. J. (2003). Integrating emotional intelligence into engineering education. *World Transactions on Engineering and Technology Education*, 2(2), 189-194.
- [95]. Beder, S. (1997). Engineers, ethics and sustainable development. In *Structures and Norms in Science: Volume Two of the Tenth International Congress of Logic, Methodology and Philosophy of Science*, Florence, August 1995 (pp. 127-143). Dordrecht: Springer Netherlands.
- [96]. Hoole, S. R. H. (2014). *Honest Ethics for Engineers: A New, Realistic Approach to Teaching Ethics Codes*. *IETE Technical Review*, 31(5), 317-326.
- [97]. Bale, E. A., & Edwards, D. W. (2000). Technical integrity—an engineer's view. *Process Safety and Environmental Protection*, 78(5), 355-361.
- [98]. Ward, T., & Baruah, B. J. (2014, September). Enhancing intrapreneurial skills of students through entrepreneurship education: a case study of an interdisciplinary engineering management programme. In *13th International Conference on Information Technology based Higher Education and Training (ITHET)* (pp. 1-6). IEEE.
- [99]. Berglund, A. (2018). Professionalism for engineers: soft skills in engineering education to prepare for professional life. In *14th International CDIO Conference*, Kanazawa IT, Japan. Kanazawa Institute of Technology.
- [100]. Kline, R. R. (1980). Professionalism and the corporate engineer: Charles P. Steinmetz and the American Institute of Electrical Engineers. *IEEE Transactions on Education*, 23(3), 144-150.
- [101]. Ercan, M. F., & Khan, R. (2017, December). Teamwork as a fundamental skill for engineering graduates. In *2017 IEEE 6th International Conference on Teaching, Assessment, and Learning for Engineering (TALE)* (pp. 24-28). IEEE.
- [102]. Waks, S., Trotskovsky, E., Sabag, N., & Hazzan, O. (2011). Engineering thinking: The experts' perspective. *International Journal of Engineering Education*, 27(4), 838-851.
- [103]. Engineers, M. (2019). Formation of a system of methods of technical thinking future engineers. *Journal of Critical Reviews*, 7(5), 2020.
- [104]. Subramaniam, M., Azmi, A. N., & Noordin, M. K. (2020). Problem solving skills among graduate engineers: A systematic literature review. *Journal of Computational and Theoretical Nanoscience*, 17(2-3), 1044-1052.
- [105]. Bero, B., & Kuhlman, A. (2011). Teaching ethics to engineers: Ethical decision making parallels the engineering design process. *Science and Engineering Ethics*, 17, 597-605.
- [106]. Driscoll, P. J., Parnell, G. S., & Henderson, D. L. (Eds.). (2022). *Decision making in systems engineering and management*. John Wiley & Sons.
- [107]. Cerri, S. (2000, August). Effective communication skills for engineers. In *Proceedings of the 2000 IEEE Engineering Management Society. EMS-2000* (Cat. No. 00CH37139) (pp. 625-629). IEEE.
- [108]. Ahmed, F., Capretz, L. F., Bouktif, S., & Campbell, P. (2015). Soft skills and software development: A reflection from the software industry. *arXiv preprint arXiv:1507.06873*.
- [109]. Radzi, N. M., Abu, M. S., & Mohamad, S. (2009, December). Math-oriented critical thinking skills in engineering. In *2009 International Conference on Engineering Education (ICEED)* (pp. 212-218). IEEE.
- [110]. Childs, P., & Gibson, P. (2010). Graduating Professional Engineers and Management Skills—are they adequate for the workplace?.
- [111]. Sugathadasa, R., De Silva, M. L., Thibbotuwawa, A., & Bandara, K. A. C. P. (2021). Motivation factors of engineers in private sector construction industry. *Journal of Applied Engineering Science*, 19(3), 794-805.
- [112]. Hersh, M. A. (2016). Engineers and the other: the role of narrative ethics. *AI & society*, 31, 327-345.
- [113]. Harris, C. E. (2008). The good engineer: Giving virtue its due in engineering ethics. *Science and Engineering Ethics*, 14, 153-164.
- [114]. Lurie, Y., & Mark, S. (2016). Professional ethics of software engineers: An ethical framework. *Science and engineering ethics*, 22, 417-434.
- [115]. Smith, J., Gardoni, P., & Murphy, C. (2014). The responsibilities of engineers. *Science and engineering ethics*, 20, 519-538.
- [116]. Smith, J., Gardoni, P., & Murphy, C. (2014). The responsibilities of engineers. *Science and engineering ethics*, 20, 519-538.
- [117]. Taajamaa, V., Majanoja, A. M., Bairaktarova, D., Airola, A., Pahikkala, T., & Sutinen, E. (2018). How engineers perceive the importance of ethics in Finland. *European Journal of Engineering Education*, 43(1), 90-98.
- [118]. De George, R. T. (2017). Ethical responsibilities of engineers in large organizations: The Pinto case. In *Engineering Ethics* (pp. 325-338). Routledge.
- [119]. De George, R. T. (2017). Ethical responsibilities of engineers in large organizations: The Pinto case. In *Engineering Ethics* (pp. 325-338). Routledge.
- [120]. Gunn, A. S. (2010). Integrity and the ethical responsibilities of engineers (pp. 125-134). Springer Netherlands.

- [121]. Iseda, T. (2008). How should we foster the professional integrity of engineers in Japan? A pride-based approach. *Science and Engineering Ethics*, 14, 165-176.
- [122]. Boyle, C. (2004). Considerations on educating engineers in sustainability. *International Journal of Sustainability in Higher Education*, 5(2), 147-155.
- [123]. Alam, M. Z., Nasir, N., & Rehman, C. A. (2020). Intrapreneurship concepts for engineers: a systematic review of the literature on its theoretical foundations and agenda for future research. *Journal of Innovation and Entrepreneurship*, 9, 1-21.
- [124]. Froehle, K., Dickman, L., Phillips, A. R., Murzi, H., & Paretto, M. (2022). Understanding lifelong learning and skills development: Lessons learned from practicing civil engineers. *Journal of Civil Engineering Education*, 148(4), 04022007.
- [125]. Wei, L., Davis, M., & Cong, H. (2020). Professionalism among Chinese engineers: An empirical study. *Science and Engineering Ethics*, 26(4), 2121-2139.
- [126]. Koehn, Enno. "An ethics and professionalism seminar in the civil engineering curriculum." *Journal of professional issues in engineering education and practice* 117.2 (1991): 96-101.
- [127]. Krasniewski, A., & Woznicki, J. (1998). Flexibility and adaptability in engineering education: an academic institution perspective. *IEEE Transactions on Education*, 41(4), 237-246.
- [128]. Naseem, Z., & Khalid, R. (2010). Positive thinking in coping with stress and health outcomes: literature review. *Journal of Research & Reflections in Education (JRRE)*, 4(1).
- [129]. Scheier, M. F., & Carver, C. S. (1993). On the power of positive thinking: The benefits of being optimistic. *Current directions in psychological science*, 2(1), 26-30.
- [130]. Macleod, A. K., & Moore, R. (2000). Positive thinking revisited: Positive cognitions, well-being and mental health. *Clinical Psychology & Psychotherapy: An International Journal of Theory & Practice*, 7(1), 1-10.
- [131]. Sartika, S. B. (2018, January). Teaching models to increase students' analytical thinking skills. In 1st International Conference on Intellectuals' Global Responsibility (ICIGR 2017) (pp. 216-218). Atlantis Press.
- [132]. Lombardi, D. (2023). On the horizon: the promise and power of higher order, critical, and critical analytical thinking. *Educational Psychology Review*, 35(2), 38.
- [133]. Qolfathiriyus, A., Sujadi, I., & Indriati, D. (2019, February). Characteristic profile of analytical thinking in mathematics problem solving. In *Journal of Physics: Conference Series* (Vol. 1157, No. 3, p. 032123). IOP Publishing.
- [134]. Brown, T. (2008). Design thinking. *Harvard business review*, 86(6), 84.
- [135]. Razzouk, R., & Shute, V. (2012). What is design thinking and why is it important?. *Review of educational research*, 82(3), 330-348.
- [136]. Dorst, K. (2011). The core of 'design thinking' and its application. *Design studies*, 32(6), 521-532.
- [137]. Imam, H., & Zaheer, M. K. (2021). Shared leadership and project success: The roles of knowledge sharing, cohesion and trust in the team. *International journal of project management*, 39(5), 463-473.
- [138]. Hu, L., & Randel, A. E. (2014). Knowledge sharing in teams: Social capital, extrinsic incentives, and team innovation. *Group & Organization Management*, 39(2), 213-243.
- [139]. Cabrera, A., & Cabrera, E. F. (2002). Knowledge-sharing dilemmas. *Organization studies*, 23(5), 687-710.
- [140]. Thompson, I. E. (1979). The nature of confidentiality. *Journal of medical ethics*, 5(2), 57-64.
- [141]. Bourke, J., & Wessely, S. (2008). Confidentiality. *Bmj*, 336(7649), 888-891.
- [142]. Dybendal, B. H. (2022). Investigating the Predictive Role of Passion and Mindset on Grit and it's Facets: Perseverance of Effort and Consistency of Interest (Master's thesis, NTNU).
- [143]. Schorch, P. (2014). Cultural feelings and the making of meaning. *International journal of heritage studies*, 20(1), 22-35.
- [144]. Behrens, G. A. (1988). An objective approach to the expression of feelings. *Music Therapy Perspectives*, 5(1), 16-22.
- [145]. Claessens, B. J., Van Eerde, W., Rutte, C. G., & Roe, R. A. (2007). A review of the time management literature. *Personnel review*, 36(2), 255-276.
- [146]. Britton, B. K., & Tesser, A. (1991). Effects of time-management practices on college grades. *Journal of educational psychology*, 83(3), 405.
- [147]. Britton, B. K., & Tesser, A. (1991). Effects of time-management practices on college grades. *Journal of educational psychology*, 83(3), 405.
- [148]. Macan, T. H., Shahani, C., Dipboye, R. L., & Phillips, A. P. (1990). College students' time management: Correlations with academic performance and stress. *Journal of educational psychology*, 82(4), 760.
- [149]. Lindelow, J., & Bentley, S. (1989). *Team Management*.
- [150]. Scott-Young, C., & Samson, D. (2008). Project success and project team management: Evidence from capital projects in the process industries. *Journal of Operations Management*, 26(6), 749-766.
- [151]. Bär, M., Kempf, A., & Ruenzi, S. (2005). Team management and mutual funds.
- [152]. Soni, V. D. (2020). Importance and strategic planning of team management. *International Journal of Innovative Research in Technology*, 7(2), 47-50.
- [153]. Drupsteen, L., & Wybo, J. L. (2015). Assessing propensity to learn from safety-related events. *Safety Science*, 71, 28-38.
- [154]. Tuckett, A., & Field, J. (2016). Factors and motivations affecting attitudes towards and propensity to learn through the life course.
- [155]. Thrash, T. M., & Elliot, A. J. (2003). Inspiration as a psychological construct. *Journal of personality and social psychology*, 84(4), 871.

- [156]. Oleynick, V. C., Thrash, T. M., LeFew, M. C., Moldovan, E. G., & Kieffaber, P. D. (2014). The scientific study of inspiration in the creative process: Challenges and opportunities. *Frontiers in human neuroscience*, 8, 436.
- [157]. Kyngäs, H., Kääriäinen, M., & Elo, S. (2020). The trustworthiness of content analysis. *The application of content analysis in nursing science research*, 41-48.
- [158]. Elo, S., Kääriäinen, M., Kanste, O., Pölkki, T., Utriainen, K., & Kyngäs, H. (2014). Qualitative content analysis: A focus on trustworthiness. *SAGE open*, 4(1), 2158244014522633.
- [159]. Gelula, M. H. (1997). Effective lecture presentation skills. *Surgical neurology*, 47(2), 201-204.
- [160]. Pittenger, K. K., Miller, M. C., & Mott, J. (2004). Using real-world standards to enhance students' presentation skills. *Business Communication Quarterly*, 67(3), 327-336.
- [161]. Boyd, F. A. (1989). Developing presentation skills: A perspective derived from professional education. *English for Specific Purposes*, 8(2), 195-203.
- [162]. Kirschner, P. A., & De Bruyckere, P. (2017). The myths of the digital native and the multitasker. *Teaching and Teacher Education*, 67, 135-142.
- [163]. Kozubíková, L., Sopková, G., Krajčík, V., & Tyll, L. (2017). Differences in innovativeness, proactiveness and competitive aggressiveness in relation to entrepreneurial motives. *Journal of International Studies*.
- [164]. Kreiser, P. M., Marino, L. D., Kuratko, D. F., & Weaver, K. M. (2013). Disaggregating entrepreneurial orientation: the non-linear impact of innovativeness, proactiveness and risk-taking on SME performance. *Small business economics*, 40, 273-291.
- [165]. Al-Mamary, Y. H., & Alshallaqi, M. (2022). Impact of autonomy, innovativeness, risk-taking, proactiveness, and competitive aggressiveness on students' intention to start a new venture. *Journal of Innovation & Knowledge*, 7(4), 100239.
- [166]. Ashcroft, S. (2004). Commercial negotiation skills. *Industrial and Commercial Training*, 36(6), 229-233.
- [167]. Broekens, J., Harbers, M., Brinkman, W. P., Jonker, C. M., Van den Bosch, K., & Meyer, J. J. (2012). Virtual reality negotiation training increases negotiation knowledge and skill. In *Intelligent Virtual Agents: 12th International Conference, IVA 2012, Santa Cruz, CA, USA, September, 12-14, 2012. Proceedings 12* (pp. 218-230). Springer Berlin Heidelberg.
- [168]. Lin, R., Oshrat, Y., & Kraus, S. (2009, May). Investigating the benefits of automated negotiations in enhancing people's negotiation skills. In *Proceedings of The 8th International Conference on Autonomous Agents and Multiagent Systems-Volume 1* (pp. 345-352).
- [169]. Heydari, M., Momtaz, B. Z., & Danai, H. (2015). The Relationship between Business Executives and Sales Negotiation Skills. *Ceramic*.
- [170]. Lang, J. W., Zettler, I., Ewen, C., & Hülshager, U. R. (2012). Implicit motives, explicit traits, and task and contextual performance at work. *Journal of Applied Psychology*, 97(6), 1201.
- [171]. Schnitker, S. A. (2012). An examination of patience and well-being. *The Journal of Positive Psychology*, 7(4), 263-280.
- [172]. Sunde, U., Dohmen, T., Enke, B., Falk, A., Huffman, D., & Meyerheim, G. (2022). Patience and comparative development. *The Review of Economic Studies*, 89(5), 2806-2840.
- [173]. Murphy, L. R. (1996). Stress management in work settings: A critical review of the health effects. *American journal of health promotion*, 11(2), 112-135.
- [174]. Muir, J. (1995). Effective management through delegation. *Work study*, 44(7), 6-7.
- [175]. Mathebula, B., & Barnard, B. (2020). The factors of delegation success: accountability, compliance and work quality. *Expert Journal of Business and Management*, 8(1).
- [176]. Müller, W. C. (2000). Political parties in parliamentary democracies: Making delegation and accountability work. *European journal of political research*, 37(3), 309-333.
- [177]. Jj, B. (1976). On the methods and theory of reliability. *J Nerv Ment Dis*, 163, 307-317.
- [178]. Bruton, A., Conway, J. H., & Holgate, S. T. (2000). Reliability: what is it, and how is it measured?. *Physiotherapy*, 86(2), 94-99.
- [179]. Stacks, D. W., Salwen, M. B., & Eichhorn, K. C. (Eds.). (2009). *An integrated approach to communication theory and research*.
- [180]. Meyer, J.P. and Herscovitch, L. (2001) Commitment in the Workplace: Toward a General Model. *Human Resource Management Review*, Vol. 11, 299-326
- [181]. Locke, et al (1988) The Determinants of Goal Commitment. *Academy of Management Review*, Vol. 13, 23-39
- [182]. Allen, N.J. and Meyer, J.P. (1990) The Measurement and Antecedents of Affective, Continuance and Normative Commitment to the Organization. *Journal of Occupational Psychology*, Vol. 63, 1-18
- [183]. Rusbult, C.E. and Farrell, D. (1983) A Longitudinal Test of the Investment Model: the Impact of Job Satisfaction, Job Commitment and Turnover Variations in Rewards, Costs, Alternatives and Investments. *Journal of Applied Psychology*, Vol. 69, 429-438
- [184]. Blau, G.J. (1985) The Measurement and Prediction of Career Commitment. *Journal of Occupational Psychology*, Vol. 58, 277-288
- [185]. Meyer, J.P., Vandenberghe, C. and Becker, T.E. (2004) Employee Commitment and Motivation: A Conceptual Analysis and Integrative Model. *Journal of Applied Psychology*, Vol. 89, 991-1007
- [186]. Meyer, J.P. and Herscovitch, L. (2001) Commitment in the Workplace: Toward a General Model. *Human Resource Management Review*, Vol. 11, 299-326
- [187]. Allen, N.J. and Meyer, J.P. (1990) The Measurement and Antecedents of Affective, Continuance and Normative Commitment to the Organization. *Journal of Occupational Psychology*, Vol. 63, 1-18
- [188]. Iles, P. et al (1990) HRM Practices and Employee Commitment: Possibilities, Pitfalls and Paradoxes. *British Journal of Management*, Vol. 1, 147-157



- [189]. Kaplan, Z. (2023, March 3). What Are Adaptability Skills? Definition and Examples. Forage. <https://www.theforage.com/blog/skills/adaptability>
- [190]. Brown, J. (2024, June 21). How to Encourage Knowledge Sharing in the Workplace. <https://helpjuice.com/blog/knowledge-sharing#:~:text=Knowledge%20sharing%20is%20the%20process,well%20as%20with%20external%20stakeholders>.
- [191]. Confidentiality in the Workplace | SkillsYouNeed. (n.d.). <https://www.skillsyouneed.com/lead/workplace-confidentiality.html>
- [192]. Slack. (n.d.). 10 tips for mastering time management at work. Slack. <https://slack.com/blog/productivity/time-management-tips-at-work>
- [193]. <https://www.indeed.com/career-advice/career-development/team-management-skills#:~:text=Team%20management%20is%20a%20manager,continue%20to%20grow%20as%20professionals>.
- [194]. Sekhar, P. (2023, September 7). Why the willingness to learn is important ??? <https://www.linkedin.com/pulse/why-willingness-learn-important-priyadharshini-sekhar-ps#:~:text=In%20summary%2C%20a%20willingness%20to,to%20the%20world%20around%20them>.
- [195]. <https://www.indeed.com/career-advice/career-development/ways-to-inspire-people>
- [196]. <https://study.com/academy/lesson/job-commitment-definition-lesson-quiz.html#:~:text=Job%20commitment%20is%20the%20feeling,an%20organization%20achieve%20a%20goal>.
- [197]. Wainwright, B. (2023, October 12). What is employee commitment? - Effectory. Effectory. <https://www.effectory.com/knowledge/what-is-employee-commitment/>
- [198]. Kishore, K. (2021, June 3). How To Demonstrate Trustworthiness In The Workplace. Harappa. <https://harappa.education/harappa-diaries/how-to-demonstrate-trustworthiness-in-the-workplace/#:~:text=Trustworthiness%20is%20the%20ability%20to,effective%20and%20efficient%20workplace%20environment>.
- [199]. Staff, C. (2024, January 30). What Are Effective Presentation Skills (and How to Improve Them). Coursera. <https://www.coursera.org/articles/presentation-skills>
- [200]. Kumar, A. (2024, January 15). 9 Practices That Improves Your Multitasking Skills at Workplace. Resources Library. <https://www.saviom.com/blog/improve-your-multitasking-skills-at-the-workplace/>
- [201]. 6 Ways How To Stay Humble at Work and Achieve More. (2023, December 6). Support Services Group. <https://supportservicesgroup.co/insights/stay-humble-at-work/>
- [202]. Stress. (2022, June 17). [https://www.who.int/news-room/questions-and-answers/item/stress/?gad\\_source=1&gclid=EA1aIQobChMI-6LgvcOPhwMVfqtmAh2i3AFbEAAAYASAAEgIiafD\\_BwE](https://www.who.int/news-room/questions-and-answers/item/stress/?gad_source=1&gclid=EA1aIQobChMI-6LgvcOPhwMVfqtmAh2i3AFbEAAAYASAAEgIiafD_BwE)
- [203]. Managing Work-Related Stress - Health Encyclopedia - University of Rochester Medical Center. (n.d.). <https://www.urmc.rochester.edu/encyclopedia/content.aspx?contenttypeid=1&contentid=2882>
- [204]. How can you demonstrate reliability in the workplace? (2023, December 8). <https://www.linkedin.com/advice/1/how-can-you-demonstrate-reliability-workplace-communication-advice-z8q0f>
- [205]. Stevens, M. (2018, March 8). Is Greed A Career Catalyst Or A Killer. <https://www.linkedin.com/pulse/greed-career-catalyst-killer-mark-stevens>
- [206]. What is Critical Thinking? — University of Louisville Ideas To Action. (n.d.). <https://louisville.edu/ideastoaction/about/criticalthinking/what>
- [207]. Rai, D. (2022, July 4). Why Quick Learning Is Important in Modern Times? - CHRMP. CHRMP. <https://www.chrmp.com/why-quick-learning-is-important-in-modern-times/>
- [208]. <https://uk.indeed.com/career-advice/career-development/learning-by-experience#:~:text=As%20you%20interact%20with%20the,a%20unique%20solution%20to%20tasks>.
- [209]. Asch, A. (2024, May 20). Strategic Planning Basics - Balanced Scorecard Institute. Balanced Scorecard Institute. <https://balancedscorecard.org/strategic-planning-basics/>
- [210]. Martins, J. (2024, January 23). Strategic Planning: 5 Planning Steps, Process Guide [2024] • Asana. Asana. <https://asana.com/resources/strategic-planning>
- [211]. Business Understanding: Everything You Need to Know When Assessing Business Understanding Skills. (n.d.). <https://www.alooba.com/skills/concepts/business-understanding/#:~:text=Business%20Understanding%20refers%20to%20the,the%20success%20of%20a%20business>.
- [212]. Nakata, S., Nagashima, Y., Rahman, M., Rahman, T., Chowdhury, A., & Rahman, M. (2018). Bangladesh skills for tomorrow's jobs: Preparing youths for a fast-changing economy. Working Paper AUS0000069, World Bank, Washington, DC.
- [213]. Haven, B. J., Khan, N. S., Hussain, Z., Alam, A., & Shahriar, S. (2019). Bangladesh Development Update: Tertiary Education and Job Skills.