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# Life Skills: A Lynchpin of ESL Curriculum for Engineers & Technologists

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### ABSTRACT

In the present global scenario, today's learners' of science and technology need to develop an array of skills to achieve their full potential and navigate smoothly through a wide range of professional situations. The traditional educational approach of specializing in the specific subject is no longer considered adequate in the present global society. They need to develop the qualities such as understanding self and others, empathy, effective communication and social values, to create harmonious environment in the organization and society at large. A dire need is felt to broaden the vision of educational objectives to bridge the deep divide between the world of work and world of learning. Hence it is imperative to incorporate the life skills which influence the behavioural traits of the learners and facilitate in developing the individual as a holistic personality and improve their potentials in various dimensions.

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### Introduction

The globalization of economies over the past decades has profoundly transformed the skills set to be acquired by the engineering professionals. Apart from mastering occupation specific skills the learners need to explicitly learn high level cognitive and interpersonal skills to cope with the increasing pace and change of modern personal and professional life. In an increasingly interdependent world the qualities such as understanding of self and others, acknowledging the diversity of human race, empathy and communicative competence are highly relevant to meet the demands and challenges of everyday life. In this information- intensive and knowledge driven society it is also necessary to make the learners realize their responsibilities as an individual, a member of the family, society and organization.

There is a deep divide between the world of learning and world of work. The former is content and classroom based and the later is characterized by organizational practices and processes that demands practical learning. This skill gap reflects the inability of educational policies to connect content to real world experience. Hence, a dire need is felt immensely to align specific technical skills with life skills such as communication, critical and creative thinking, decision making, problem solving and team work.

#### Life Skills for Engineers

Professional environment is more complicated than it was a few decades ago. The traditional educational approach of specializing in the specific subject is no longer considered relevant in the present global society. In addition to technical skills, employees have been found to need generic 'employability' skills such as problem-solving, basic computer literacy, language and communication skills to make them employable (Aggarwal, 2010). To compete in this complex job market and navigate smoothly through a wide range of professional situations, acquiring analytic and interactive communication skills are imperative.

The consistent numerical growth of engineering graduates in the job market and whether these graduates meet the standards expected by the employers has become a matter of great concern in recent years. Once out of college and stepping into the professional world the graduates need to access and analyse information, solve problems and make decisions. Only thoughts and ideas born out of experiences will be good source of learning. To profit from the opportunities of global economy, today's engineering workforce is in need of competencies such as critical thinking, problem solving and decision making. "In addition to mastering occupation-specific skills, workers in the 21st century must also have a stock of information-processing skills, including literacy, numeracy and problem solving, and "generic" skills, such as interpersonal communication, self-management, and the ability to learn, to help them weather the uncertainties of a rapidly changing labour market" (OECD Skills Outlook 2013). Also team work has become an important part of the work culture. Hence employers place high value on group dynamics which impacts productivity. Hence, learner centred ideologies have to permeate the engineer curriculum tasks and activities for more meaningful and purposeful learning environment. In order to increase employment and promotional opportunities it is pivotal to provide an appropriate, active, experiential learning curriculum to transform the learner as future professional.

#### Life Skills in ESL Curriculum

In the milieu of globalized economy, the boundaries of teaching and learning the language skills are ever expanding. The English Language learning has traversed from learning through literature to learning the language for specific purpose. Especially for those learners in the science and technology institutions acquiring the nuances of the English language skills and the knowledge to apply that in variety of situations within and across the organizations is imperative.

As global citizens learners are likely to use English in all aspects of employment. Interaction in English with a wide range of abilities to use the language, is one of the key skills that aids

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in upward mobility in the corporate world. Discussing abstract or complex ideas is more common in engineering and business environment. As professionals engage in more complicated tasks they may have difficulty in expressing the depth and complexity of their thinking. Only individuals with strong verbal linguistic skill and the ability to articulate clearly and communicate coherently will be able to deliver appropriately in all situations. Many of the skills are about communication skills, such as persuading others, reaching a compromise or being a good team member. Students need to learn the precise ways in which we perform certain functions in English. For many life skills, there are particular forms of expression in English that need to be learned. English teachers should be able to develop our students' communication skills, beyond teaching the grammatical rules and structures.

#### **Four Pillars of Learning**

The educational content needs to be restructured with a broadened vision of developing the total personality of the individual. "It is the view of the Commission that, while education is an ongoing process of improving knowledge and skills, it is also - perhaps primarily - an exceptional means of bringing about personal development and building relationships among individuals, groups and nations" (Delors, Jacques et al. 1996). The four pillars of learning (learning to know, learning to do, learning to live together and learning to be) proposed by the International Commission for the Twenty-first Century, in its Report (Delors et al) to UNESCO, *Learning: The Treasure Within*, will serve as a guiding principle in identifying and integrating the key life skills competencies in the curriculum.

#### **Learning to Know**

Learning to know implies the process of learning to learn throughout the life. Learning does not mean just acquiring itemized, codified information or factual knowledge but development of faculties of memory, imagination, reasoning, problem solving and the ability to think in a coherent and critical way. (Nan-Zhao, Zhou)

#### **Learning to do**

Learning to do refers to the competency of applying the acquired knowledge in variety of situations through meaningful interpersonal relationship. The learning needs to go beyond developing the ability to perform the occupation specific tasks. Learners need to acquire higher order skills such as effective communication, adaptability to changes both in professional and personal life, competency to resolve conflicts and be a valuable part of a team.

#### **Learning to live together**

In the context of globalization learning to live together has to be viewed as a crucial aspect of education. Understanding of self and others, empathy, positive behavioural attitudes, ability to resolve conflicts through dialogues are the essential tools to accomplish common objectives.

#### **Learning to be**

Learning to be implies inculcating and retaining the human values and developing the individual as a holistic personality both in intellectual and moral dimensions in the backdrop of invading technical advancements. Development of individuals' personal traits such as memory, reasoning, aesthetic sense, physical capacity and communication skills need to be given due consideration while setting educational goals.

It is pertinent to note that areas of education emphasized by the four pillars of education offers a conceptual basis to restructure the educational content incorporating life skills. Also it relates to the specific life skills propounded by UNESCO and WHO.

#### **Life Skills**

Life skills are the specific competencies (i.e., knowledge, skills, and their application) of local and cultural relevance needed to perform everyday activities across a variety of settings. In general life skills refers to the process of learning, knowledge acquisition, the behavioural attitudes and values which enhances the specific competencies such as creative and critical thinking, interpersonal, communication, problem solving and conflict resolving. Walker defines social skills as "a set of competencies that a) allow an individual to initiate and maintain positive social relationships, b) contribute to peer acceptance and to a satisfactory school adjustment, and c) allow an individual to cope effectively with the larger social environment" (Walker, 1983).

In recent years, the employers find the graduates lack a wide range of skills which would facilitate to engage effectively in the organizational set up. Life skill instruction that depicts the real life needs of the learners should definitely be incorporated in the engineering curriculum. Upon inspection of engineering curricula it is evident that the focus is only on the mastery of core skills. Especially the English for science and technology syllabus weighs more on the basics of language skills and fails to channelize these skills towards the acquisition of higher order thinking skills. By associating these life skills in the engineering curriculum the learners will be able to develop those behaviour traits valued by employers pertinent in the world of work. Also it has to be ensured that the supply of skills is sufficient in both quantity and quality to meet current and emerging needs.

The World Health Organization defines life skills as 'abilities for adaptive behaviour that enable individuals to deal effectively with the demands and challenges of everyday life' (WHO, 1997). The core set of skills (WHO 1997) that follow the above description are: • Problem solving • Decision-making • Critical Thinking • Creative thinking • Communication • Intrapersonal skills • Interpersonal skills • Empathy • Coping with emotion • Coping with stress

#### **Intrapersonal skills**

In this highly complicated and increasingly challenging world of work the character traits of the individuals are directly relevant to their performance. Hence it is of paramount importance to learn to manage the attitude and behaviour of one's self. Intrapersonal skill is all about understanding and applying personal emotions. Intrapersonal skill refers to the ability to control impulses and focus on tasks (Raver, 2004). Self awareness is having a clear perception of one's strengths and weaknesses, focusing one's attention inwards and appreciating the thoughts, feelings and emotions. Self reflection leads to self regulation which helps to identify the actions required to behave competently in different situations. Self awareness is the first step towards controlling one's own emotions and behavior, fosters the ability to understand and empathize with others and ensures better personal and professional relationships.

#### **Coping with emotions**

There is a range of emotions expressed in different ways. Individuals may experience different emotions in response to various situations. Only self awareness and self control help to manage with the emotions as one's words and actions are highly influenced by them.

#### **Coping with stress**

Stress is defined as a state of mental or emotional strain or tension resulting from adverse or demanding circumstances. To work at high speeds and working under pressure of tight deadlines is a common phenomenon in the present corporate world. Improved quality of thought, efficient time management

by prioritizing the works, good interpersonal relationship and positive attitude are the qualities that help in reducing stress.

Intrapersonal skills have the ability to make the learners more positive in their attitude and bring significant changes in the engineering students' behaviour and relationships with their subordinates, higher authorities and co-workers. Thus intrapersonal skills possessed by individuals facilitate better interpersonal relationships.

#### **Interpersonal skills**

The structural changes in the employment in recent decades imply a rise in the demand of interpersonal skills. It is the tool the individuals use to interact and communicate effectively with others in an organization. Mastery of interpersonal skill will ensure a positive and constructive approach in negotiation and team work.

Interpersonal communication is the process by which people exchange information, feelings, and meaning through verbal and non-verbal messages. It is a face-to-face communication. Clarity of speech, effective listening, reflecting and clarifying the received messages, warm facial expressions, and managing eye contact are few basic elements of interpersonal skill. Interpersonal Relationship establishes and maintains mutually beneficial relationships.

#### **Empathy**

Empathy is a significant aspect of emotional intelligence and a key link between self and others. Empathy the behavioural trait which influences the listening and understanding of others needs is also a key interpersonal skill. The quality of understanding and validating other person's perspective will build a strong bond between the members of a team and also be more productive.

#### **Critical thinking**

Critical thinking refers to higher order thinking that questions assumptions (Brookfield, 2000). In the research conducted for the Bill and Melinda Gates Foundation, University of Oregon professor David T. Conley finds that "habits of mind" such as "analysis, interpretation, precision and accuracy, problem solving, and reasoning" can be as or more important than content knowledge in determining success. According to philosophers Richard Paul and Linda Elder, "...sound thinking requires both imagination and intellectual standards." When one engages in high-quality thinking, one function both critically and creatively; one produces and assesses, generates and judges the products of his or her thought. (Paul, Richard, and Linda Elder, 2006)

In the context of globalisation engineers have to master the rudimentary skills of critical thinking. To make sound decisions they need to sift through wide array of information available, analyse contra claims, compare and contrast evidences. Critical thinking is an indispensable trait that enables the learners to develop improved thought processing, deeper analytical abilities and to function well in engineering teams.

The following points are essential for acquiring critical thinking skill:

1. Employ sound reasoning (deductive and inductive) as appropriate to the purpose and situation.
2. Also reflect on the quality of the reasoning process while reasoning to conclusion.
3. Understand the connections between the systems and analyse how parts of a whole interact with each other to produce a sensible outcome.
4. Evaluate the evidence, arguments and claims effectively.
5. Identify and frame questions for clarification on various points of view to lead for a better solution.

6. Synthesize the information and relate the information and arguments.

7. Analyse the concepts or ideas to be applied.

8. Reflect critically on the whole process and draw conclusion.

9. Evaluate the implications of the conclusions.

10. Use both conventional and innovative methods to resolve unfamiliar issues.

Critical thinking skill is not a standalone trait. It is interwoven with other life skills such as creative thinking, problem solving and decision making.

#### **Creative thinking**

Creativity and innovation are the key skills of the present global economy. Creative thinking is thinking and doing in different perspective and generating new ideas. It involves the skills of originality, flexibility, imagination, curiosity and metaphorical thinking. Author Daniel Pink remarked, "The future belongs to a very different kind of person with a very different kind of mind—creators and empathizers, pattern recognizers and meaning makers. These people...will now reap society's richest rewards and share its greatest joys." (Pink Daniel, 2006). In today's competitive world innovative thinking and creative ability are highly essential for personal and professional success.

#### **Communication**

The work readiness of the engineering graduates depends on their ability to communicate clearly and coherently in the English language. To compete in this complex job market and navigate smoothly through a wide range of professional situation, acquiring analytic and interactive communication skills are imperative. According to Professor Carol Seefeldt social skills and communication skills go hand in hand, the persons who understand turn taking when communicating, and who know how to solve verbal conflicts, are those who make and keep friends easily. (Seefeldt, Carol, 2004). Communication is used in the organizations for variety of purposes such as to inform, to instruct, to persuade and to motivate. 'Global Teams' a common feature of the multinational companies, necessitates linguistically and culturally effective communication process. Strong communication skill is an attribute that facilitates effective participation in negotiation, team work and any other form of intense human interaction. Communication skill is required at all the three levels of an organization.

The following points are essential for acquiring communication skill:

- Listen effectively to understand and interpret the meaning.
- Express thoughts and ideas effectively using oral, written or nonverbal communication skills, appropriate to the situation and audience.
- Communicate effectively in diverse environments (including multilingual and multicultural)

Individuals' personality traits and integrity play major role in shaping their personal communication style.

#### **Problem solving and decision making**

All organisations big or small experience problems simple or complex while working towards a goal. Difficulty either with co-workers or with the task at hand need to be dealt with constructively and fairly. Analytical and creativity are the two essential mental skills required for problem solving. Analytical thinking comprises skills like comparing, contrasting, selecting and ordering the issues involved in the conflict. The ability to use knowledge, facts and information to assess the problem and arrive at an effective solution within a reasonable time will definitely be a value addition to the prospective employee. Since problem solving and decision making processes are thought

processes the ability to reason and react promptly under critical conditions and deciding efficiently is essential.

The following points are essential for acquiring problem solving and decision making skills:

- Identify accurately the real cause and nature of the problem and also the critical issues involved.
- Gather all relevant information pertaining to the problem from all sources.
- Ensure the validity of the information that leads to cause of the problem.
- Analyse objectively and logically and develop the possible courses of action.
- Compare and contrast the identified courses of action for best supportable conclusion.
- Reflect on the consequence of the implementation of the solution.

### Listening

Listening though not explicitly propounded as independent life skill, has a significant role in enhancing the life skills. Listening skill is imperative for career progress and organizational development. Also listening is an essential leadership quality. Effective listening enables to receive the messages accurately and interpret appropriately in the communication process and plays crucial role in making decisions and resolving conflicts. Listening is not just hearing, it involves deliberate attention on the messages that are being communicated.

The following points are essential for acquiring listening skill:

1. Listen without preconceived ideas
2. Look at the issues also from the perspective of the speaker
3. Pay attention to the volume, tone and pitch, to understand what the speaker tries to emphasize.
4. Try to conceive the idea being communicated by linking the bits and pieces of information.
5. Listen not only to the uttered words but also the attitudes, motives behind the words.
6. Observe the body language to get the message transmitted through the non-verbal communication.

### Life Skills Training

Interactive, participative and practical training methodologies are the tools to impart the life skills. To internalize the competencies the learners need to be engaged in meaningful activities. Training design should reflect the educational principle that "learning is both an individual and a group process," providing a blend of small-group activities and space for individual reflection. (See Hansen, Rick, 2006). Also exercises need to be framed with inputs for conversational practice, seminar strategies such as introducing a topic, developing a topic, explaining particular points of view, seeking information through questions, explaining through illustrative examples stimulus variation, summarizing and concluding. Small and large group activities, group discussions, role plays, self reflection activities are beneficial interactive teaching tools in imparting life skills.

### Conclusions

In an era where contents of the courses are tailored to the needs of economy, including life skill components will provide a valuable linkage with the transitional activities that occur at the world of work. Life skills can be included directly in to

curriculum and can be delivered through training and workshops. Life skills approach in the professional and personal life will allow students to make valuable contributions to organization and also to the society at large. Refined social behaviour and positive attitudes towards people will help students to develop sense of contentment and build a harmonious environment around them.

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