

ENHANCING EMPLOYABILITY SKILLS IN ENGINEERING STUDENTS: EXPERIENTIAL LEARNING IN ENGLISH FOR SCIENCE AND TECHNOLOGY

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Abstract

The enhancement of employability skills in engineering students, particularly in the context of English for Science and Technology, is of paramount importance. Proficiency in language is a cornerstone in fostering productive interpersonal interactions, effective teamwork, and relationship-building within the professional sphere. This proficiency encompasses verbal and written communication, active listening, and non-verbal communication, all of which contribute to successful professional contacts and organisational achievements. Employers highly value individuals with strong language skills for their ability to create positive and productive work environments.

The present research paper emphasizes how to develop language skills in engineering students for employability using experiential learning. This method refers to the practical, hands-on activities and experiences that help individuals develop and enhance their language proficiency in a professional context. Applying language knowledge and communication strategies in real-world scenarios will make the students proficient in skills that are key to employability.

Keywords: English language skills, science and technology, employability skills, soft skills, experiential learning, email etiquette, Verbal and non-verbal communication skills

"I hear and I forget, I see and I remember, I do and I understand." – Confucius, 450 BC

"Tell me and I forget, Teach me and I remember, Involve me and I will learn." – Benjamin Franklin, 1750

"There is an intimate and necessary relation between the process of actual experience and education." – John Dewey, 1938

The three maxims of Experiential Learning

In the contemporary job market, language proficiency and robust communication skills take centre stage. Extensive research, keen observation, and practical experiences all affirm that employers attach substantial value to social and interpersonal competencies, adept communication skills, and a commendable command of foreign languages (Calvarho, 2021). English, in particular, remains in high demand. Studies consistently reveal that approximately 20% to 25% of jobs mandate advanced-level English proficiency, an explicit prerequisite in job postings (Study on Foreign Policy). Thus, it becomes imperative to emphasise not just rudimentary language skills but robust linguistic prowess.

In the workplace, language skills, especially in the context of science and technology, serve a multifaceted role that contributes to an organisation's success. Proficient language skills empower engineering students to articulate their thoughts effectively, fostering the seamless exchange of information among team members, clients, and stakeholders. This, in turn, nurtures collaboration, boosts productivity, and fuels overall organisational performance. It lays the foundation for a harmonious work environment where individuals comprehend each other with precision. Language skills also render students of science and technology versatile, enabling them to navigate multifarious professional landscapes, deciphering cultural subtleties, and communicating with élan, thereby showcasing their adaptability and flexibility. These skills were effectively developed through experiential learning.

Experiential learning: A transformative tool

Experiential learning stands out as a powerful pedagogical approach, serving as the vital link between theoretical knowledge and real-world application. It's an interactive, hands-on method that immerses students in practical learning experiences, allowing them to explore, observe, absorb, reflect upon, and practically apply their knowledge (Scott D.Wurdinger,2010). At its core, experiential learning champions the "learning by doing" philosophy, setting it apart from traditional passive learning methods. Instead of passively absorbing information, students are actively involved in applying their knowledge. It fosters a thorough understanding of the subject matter by encouraging students to reflect on their experiences, critically analyse their observations, and synthesize their newfound insights, which results in a comprehensive grasp of complex concepts.

Divya Jain (2023) also emphasizes that immersing the learners in the process of learning is an exceptionally valuable approach. This active engagement doesn't merely acquaint the students with the theoretical aspects but, importantly, propels them into the practical world, enabling the development of skills essential for their forthcoming careers. It enables them to develop essential work-related skills, gain specific knowledge in various fields, and enhance soft skills like communication, customer service, time management, and project management, among several other advantages.(The Importance of Experiential Learning) The skills acquired through such immersive learning will enable the students to make informed decisions, take cognizance of the opportunities they come across, and effectively apply their knowledge and skills at the workplace or even in real-life situations. These skills not only enhance their employability but also position

them as adaptable and resourceful contributors to their personal and professional lives. As a part of this approach, a diverse array of activities like role play, effective presentations, storytelling, and group discussions ensure that language skills are actively acquired, enabling students to communicate with precision and effectiveness in professional and personal interactions.

Role play has been used as an effective pedagogical tool across diverse contexts and subject areas (Rao&Stupans, 2012). It is an approach in which students play a role chosen or assigned to obtain a particular learning outcome. Role-play serves as a technique that empowers students to actively participate in simulated scenarios where they can interact with others in a controlled situation. This experiential approach enables them to acquire practical knowledge and skills while exploring diverse strategies within a supportive and nurturing environment. (Hidyathi, 2018). It is considered to be the most suitable strategy as it stimulates engagement, establishing Krsashen's idea that the ideal environment for input is to become intake.

Role plays offer participants the opportunity to assume different roles, gain insights into diverse perspectives, and develop empathy—all essential skills for those in science and technology. Whether spontaneous or structured, role plays enable participants to explore and try different strategies, fostering creativity, problem-solving skills, and critical thinking skills. During role plays, participants interact with one another, applying their knowledge and principles in a dynamic and authentic setting. Careful monitoring by the instructor ensures a productive and respectful environment. Following the role play, debriefing sessions provide opportunities for reflection, feedback, and discussion, allowing participants to learn from their mistakes and further refine their skills through practice.

Role play in language learning not only enhances communication skills but also develops a wide range of accompanying abilities. Participants in role-plays realize the importance of interpersonal skills as they put their thoughts into action and engage in interactions. By assuming different roles and gaining exposure to various thought processes, they cultivate sensitivity to multiple perspectives, fostering empathy and openness to conflicting viewpoints. (Kilgour, 2015) This, in turn, contributes to their emotional intelligence and ability to work collaboratively in teams. Through self-reflection and feedback, participants develop a growth mindset, seeing mistakes as learning opportunities and continuously improving themselves. Role-plays provide a risk-free environment for practicing skills, leading to enhanced confidence and effectiveness in real-world organisational settings. When the role plays are planned with an objective in mind, the participants learn to work towards the realization of the goal, be it communication, negotiation, or solving a problem. The process, therefore, provides a platform for setting and achieving goals. So, students can enhance their goal-setting skills and improve themselves. Therefore, role-playing is a potential tool that plays a crucial role in enhancing communication, problem-solving, adaptability, creativity, and cultural sensitivity. These skills make the learners valuable contributors to the organisation.

In the realm of science and technology, effective presentations are an indispensable component of students' language development. This proficiency is vital for individuals pursuing science and

technology fields, as it enables them to convey complex scientific concepts and technological innovations in a clear, methodical, and engaging manner.

Effective presentations constitute a crucial dimension of language development for individuals pursuing science and technology fields, as they enable them to convey complex scientific concepts and technological innovations in a clear, methodical, and engaging manner. Proficiency in presentation skills enables individuals to express their ideas with precision, engage their audience effectively, and attain their communication objectives. The incorporation of visual aids and technology, such as tools like PowerPoint slides, serves to simplify intricate scientific information and elevate audience comprehension. Furthermore, presentation skills encompass the adept use of appropriate body language and delivery techniques, which not only instill confidence in the presenter but also ensure that messages are conveyed with impact and effectiveness.

The value of strong presentation skills extends across diverse professional settings, including research conferences, laboratory meetings, business meetings, and client communications. A compelling presentation equips individuals to articulate their ideas effectively, capturing the attention of their audience and facilitating the realization of their goals. Through meticulous research, meticulous organization, adaptability in addressing diverse audiences, and the skillful use of visual aids, individuals can refine their abilities as presenters, thereby enhancing their professional effectiveness and influence. A successful presentation not only leaves an indelible impact but also garners recognition and appreciation for one's expertise and competence within their respective field (Wendy, 2018).

In the realm of experiential learning for science and technology freshmen, the insights of Bruner (1991) are particularly enlightening. According to Bruner, oral storytelling is a natural avenue for grasping complex concepts and holds a unique allure that often surpasses the appeal of scientific prose, regardless of whether the learners are children or adults. While not all scientific information can be directly experienced, stories provide a remarkable conduit for engaging with intricate science-related ideas (Kelemen et al., 2014).

Incorporating storytelling into science education serves a dual purpose. Firstly, it renders scientific ideas more accessible and imbues them with a sense of relevance. Stories have the capacity to connect students with the essence of science problems, showcasing how general and abstract scientific concepts find practical application in situations that resonate with their everyday experiences. This, in turn, stirs interest and enthusiasm for science among students. Moreover, stories act as a springboard for in-depth discussions on science topics. They provide a structured framework within which students can comprehend challenging scientific ideas. This approach not only solidifies the learners' understanding but also renders their experiences in science more tangible and meaningful. Through storytelling, the often daunting realm of science becomes a realm that is approachable, engaging, and significant, further enriching the experiential learning journey for science and technology freshmen.

This ancient practice of storytelling is not confined to the realms of science and technology alone; it extends to business and beyond. It nurtures essential linguistic skills, including listening,

speaking, reading, writing, and oral interaction, and fosters connections and loyalty, not only to products and brands but also to the ideas and innovations that define the domains of science and technology. Storytelling hones competencies such as creativity, meticulous attention to detail, empathy, and adept editing, which are invaluable across various domains, including presentations, public speaking, advertisements, and marketing in the science and technology landscape.

In the competitive field of science and technology employment, storytelling emerges as a pivotal skill. It aligns with the insights of Janine Kurnoff and Lee Lazarus (2021), highlighting the significance of soft skills alongside technical proficiency. Storytelling becomes a conduit for showcasing these essential competencies, allowing students to not only exhibit their capabilities but also to forge emotional connections with prospective employers. Recruiters, including industry leaders like Gartner, increasingly recognize 'the power of storytelling' during interviews, understanding that the narrative presented can be the deciding factor for candidates. Students pursuing careers in science and technology can leverage storytelling to establish meaningful connections with interviewers, effectively conveying the significance of their work and enhancing their competitiveness in the field.

Collaborative work, often referred to as teamwork, is a crucial skill in the contemporary world. In education for freshman engineers and sophomores, engaging in group discussions plays a significant role. These discussions, commonly conducted in language classrooms, foster communication, collaboration, and critical thinking. They emphasize active listening and appropriate responses, encouraging participants to brainstorm, analyze information, and propose solutions.

Furthermore, group discussions promote qualities such as empathy and flexibility, which are highly valued in the workplace. Through group discussions, students learn to grapple with the 'social dilemma' and evolve into individuals who are "collectively rational and cooperative" (Dawes and Messick, 2000). Students develop skills like communication, brainstorming, critical thinking, collaboration, leadership, and empathy. These skills are transferable and enhance employability.

John Dewey's (1938) wisdom adds depth to this perspective: "We do not learn from experience. We learn from reflecting on experience." Encouraging students to reflect on their experiences is a fundamental aspect of experiential education with a student-centred approach. This approach nurtures learning grounded in empathy, mutual respect, and trust.

Intentionally planned experiences, coupled with mindful reflection on "what" happened, enable experiences to become effective teachers. Discussions naturally progress to the "so what" phase, where connections are made to real-world experiences. These connections allow for the transition to the "now what" phase, where students explore how to apply their knowledge in new situations. These discussions also help learners identify and overcome self-imposed barriers, collectively arriving at solutions. In summary, combining experience with these strategies transforms the classroom environment, culture, and group dynamics, making it an engaging and transformative approach for students.

The infusion of technology into experiential language learning has orchestrated a sea change in the acquisition of language skills. Language learning apps, online resources, and digital platforms deliver interactive and immersive experiences, engaging students in authentic language use. Virtual reality (VR) and augmented reality (AR) furnish simulated environments where students can hone their conversational skills, explore diverse cultural settings, and receive instant feedback. AI-powered apps interact with learners, motivating them to immerse themselves in the learning process. Online communication tools and video conferencing platforms facilitate language exchanges and collaborations with speakers of the target language worldwide, fostering intercultural communication skills. Intelligent tutoring systems and adaptive learning software tailor the learning experience analyzing student performance and delivering customized exercises. By offering authentic and interactive opportunities, technology empowers students to develop language skills in meaningful contexts, communicate with aplomb, and navigate the multilingual global landscape.

Experiential learning, while highly beneficial, comes with its fair share of challenges. First, resource intensity is a prominent concern. It often demands more time, personnel, and materials compared to traditional classroom learning. Developing and executing experiential activities can be labor and resource-intensive. Additionally, assessing student outcomes in such settings can be intricate. It may involve subjective evaluations, performance assessments, and the need for customized assessment methods. This complexity makes it challenging to standardize and measure student achievements. Third, student engagement and resistance to change are concerns. Student engagement can vary widely in experiential learning settings. Some students may be highly motivated and actively participate, while others may find it challenging to connect with the experiences. Resistance to change from students or educators accustomed to traditional teaching methods can hinder the adoption of experiential learning. Shifting mindsets and teaching practices can be met with reluctance, which is a challenge to overcome for those advocating for experiential learning. Balancing experiential learning with traditional curriculum content and integrating it into educational institutions may be complex, requiring significant institutional support and a commitment to fostering a culture of experiential learning within the academic community. Despite these challenges, experiential learning remains a powerful tool for enhancing student engagement, fostering practical skills, and promoting deeper learning.

In conclusion, experiential learning emerges as a potent approach to developing language skills that transcends conventional classroom instruction. By offering authentic and immersive experiences, it amplifies the practical application of knowledge, fosters effective communication strategies, and hones higher-order thinking skills that are invaluable in the corporate sphere. By seamlessly integrating experiential learning techniques into the language curriculum, educators can guarantee that engineering students emerge as indispensable assets in the professional realm. By prioritizing and championing experiential learning, we pave the path to enhanced employability and cultivate linguistic and cultural competencies essential for success in the global job market.

Let us wholeheartedly embrace experiential learning to bridge divides and forge a globally connected workforce.

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