INTERNATIONAL JOURNAL OF ENGLISH LANGUAGE, LITERATURE AND TRANSLATION STUDIES (IJELR)
A QUARTERLY, INDEXED, REFEREED AND PEER REVIEWED OPEN ACCESS INTERNATIONAL JOURNAL
http://www.ijelr.in (Impact Factor: 5.9745) (ICI)

RESEARCH ARTICLE

Vol. 11. Issue.2. 2024 (April-June)

INTERNATIONAL STANDARD SERIAL NUMBER INDIA
2395-2628(Print):2349-9451(online)

BRIDGING THE GAP: ENHANCING COMMUNICATION SKILLS IN ENGINEERING EDUCATION FOR CAREER SUCCESS

Dr. Khushbu Trehan
Assistant Professor (Communication Skills)
Dwarkadas J. Sanghvi College of Engineering, Mumbai
Email: khushbumalhotra1105@gmail.com

doi: 10.33329/ijelr.11.2.113

Article information
Article Received:14/5/2024
Article Accepted:19/06/2024
Published online:23/06/2024

ABSTRACT

Effective communication skills are increasingly recognized as essential for success in engineering professions. Despite this acknowledgment, communication training within engineering education often falls short of adequately preparing students for the demands of the workforce. This paper investigates the importance of communication skills from the perspective of 150 first year engineering students at D.J. Sanghvi College of Engineering, Mumbai examining their perceptions of existing communication training and offering insights for curriculum enhancement. Through a mixed-methods research approach involving a tailored questionnaire, this study delves into the significance of communication skills for engineering students, their experiences with current communication training, and their suggestions for improvement. The findings underscore the critical role of communication skills in preparing engineering students for future careers and highlight the need for targeted interventions to enhance communication training within engineering curricula.

Keywords: Communication Skills, Engineering Education, Student Perceptions, Curriculum Enhancement, Career Preparedness

1. Introduction

Engineering education traditionally emphasizes technical proficiency, focusing on imparting knowledge and skills in mathematics, science, and engineering principles. However, as engineering roles become increasingly interdisciplinary and collaborative, the importance of communication skills cannot be overstated. Effective communication is essential for conveying technical ideas to diverse audiences, collaborating with interdisciplinary teams, and engaging with clients and stakeholders. Despite its significance, communication training within engineering curricula often receives inadequate attention, leading to a gap between students' communication competencies and the expectations of employers in the workforce. Existing literature highlights this gap.

Shuman et al. (2005) discuss the difficulty in integrating communication skills within traditional engineering curricula, emphasizing that professional skills such as communication are often overlooked in favor of technical content. Paretti (2008) emphasizes the role of instructors in facilitating communication within capstone design courses, noting the variability in implementation across programs and the need for consistent pedagogical strategies. Passow and Passow (2017) systematically review competencies in engineering programs, underlining the need for enhanced communication training and identifying communication as a critical competency for engineering graduates. Furthermore, Ford and Riley (2003) explore the integration of communication and engineering education, highlighting successful models and support systems that facilitate this integration. They argue that embedding communication skills within technical courses can enhance students' ability to apply these skills in engineering contexts. Darling and Dannels (2003) report on the role of oral communication in the workplace, finding that practicing engineers frequently engage in communication tasks, underscoring the necessity of robust communication training in engineering education. More recent studies continue to support these findings. For instance, Rajprasit et al. (2014) investigate the English language skills of Thai engineers, concluding that both written and oral communication skills are crucial for professional success.

Similarly, Zhu (2017) examines the communication challenges faced by engineers in multinational companies, highlighting the need for intercultural communication competence in addition to technical proficiency. Despite these insights, there remains a significant gap in practical communication training within engineering curricula. Lappalainen (2009) argues that while engineering educators recognize the importance of communication skills, they often lack the resources and training to effectively teach these skills. This disconnect between theoretical instruction and practical application is a recurring theme in the literature, pointing to the need for curriculum enhancements that bridge this gap. This paper explores the importance of communication skills in engineering education from the perspective of engineering students, shedding light on their perceptions of existing communication training and offering recommendations for curriculum enhancement to better prepare students for successful careers.

2. Methodology:

To investigate the importance of communication skills among engineering students, a mixed-methods research approach was employed. The study was conducted at Dwarkadas J. Sanghvi College of Engineering in Mumbai, targeting first year engineering students across various disciplines. A total of 150 students participated in the study, with representation from mechanical, electrical, civil, and computer engineering departments. The sample included 60% male and 40% female students, with ages ranging from 18 to 22 years. A questionnaire was designed to gather quantitative and qualitative data on students' perceptions of communication skills, their experiences with current communication training, and their suggestions for improvement. The questionnaire comprised demographic questions, Likert-scale items, and open-ended prompts to elicit detailed responses. Quantitative data were analysed using descriptive statistics and inferential techniques, while qualitative data were subjected to thematic analysis to identify recurring patterns and themes.

3. Results & Discussion:

3.1 Perceptions of Communication Skills

The survey, consisting of 20 questions, revealed that engineering students overwhelmingly recognize the critical importance of communication skills for their future careers. The questions included both Likert-scale items (e.g., "Rate the importance of communication skills in your future career on a scale of 1 to 5") and open-ended prompts (e.g., "Describe a situation where you felt communication skills were crucial in an engineering context"). Respondents consistently assigned high significance to communication skills across various aspects of engineering professions.

3.2 Experiences with Current Communication Training

Despite the recognized importance of communication skills, many engineering students expressed dissatisfaction with the current communication training provided by their institutions. Several respondents indicated a lack of emphasis on practical skills development, citing a predominance of theoretical instruction without adequate opportunities for hands-on practice. Moreover, students perceived limited integration of communication training into engineering coursework, with communication skills often treated as ancillary rather than integral components of the curriculum.

3.3 Suggestions for Curriculum Enhancement

In response to the perceived shortcomings of current communication training, engineering students offered valuable suggestions for curriculum enhancement. Many respondents emphasized the importance of experiential learning opportunities, such as project-based assignments, simulations, and role-playing exercises, to facilitate practical skills development. Additionally, students advocated for the integration of communication training into existing engineering coursework, rather than relegating it to standalone modules or electives.

3.4 Implications for Engineering Education

The findings of this study have significant implications for engineering education, particularly in terms of curriculum design and pedagogical approaches. By prioritizing practical communication skills development and integrating communication training more seamlessly into engineering coursework, institutions can better prepare students for the dynamic demands of the workforce.

3.5 Limitations and Future Directions

It is essential to acknowledge the limitations of this study, including the potential for sampling bias and self-reporting bias inherent in survey research. Future research could employ longitudinal studies or qualitative interviews to provide more in-depth insights into students' experiences with communication training over time. Additionally, exploring the perspectives of faculty members and industry professionals could offer valuable perspectives on the efficacy of current communication training within engineering curricula and inform strategies for improvement.

4. Conclusion

In conclusion, effective communication skills are essential for the success of engineering students in their future careers. However, the current communication training within engineering curricula often falls short of meeting students' needs and expectations. To address this gap, engineering institutions must prioritize curriculum enhancements that integrate communication training more seamlessly into engineering coursework and provide students with ample opportunities for practical skills development. By fostering a culture of communication and equipping students with the necessary skills and resources, engineering education can better prepare students for the dynamic demands of the workforce and empower them to thrive in their future careers.

Through this research, we aim to contribute to ongoing discussions within the field of engineering education regarding the importance of communication skills and the need for curriculum enhancements to better prepare engineering students for successful careers. By addressing the challenges identified in this study and implementing targeted interventions, engineering institutions can play a crucial role in shaping the next generation of effective communicators and leaders in the engineering profession.

References/Bibliography:

References:

[1]. Shuman, L. J., Besterfield-Sacre, M., & McGourty, J. (2005). The ABET "Professional Skills" — Can they be taught? Can they be assessed? Journal of Engineering Education, 94(1), 41-55. https://doi.org/10.1002/j.2168-9830.2005.tb00828.x

[2]. Paretti, M. C. (2008). Teaching communication in capstone design: The role of the instructor in situated learning. Journal of Engineering Education, 97(4), 491-503. https://doi.org/10.1002/j.2168-9830.2008.tb00995.x

[3]. Passow, H. J., & Passow, C. H. (2017). What competencies should undergraduate engineering programs emphasize? A systematic review. Journal of Engineering Education, 106(3), 475-526. https://doi.org/10.1002/jee.20171

[4]. Ford, J. D., & Riley, L. A. (2003). Integrating communication and engineering education: A look at curricula, courses, and support systems. Journal of Engineering Education, 92(4), 325- 328. https://doi.org/10.1002/j.2168-9830.2003.tb00778.x

[5]. Darling, A. L., & Dannels, D. P. (2003). Practicing engineers talk about the importance of talk: A report on the role of oral communication in the workplace. Communication Education, 52(1), 1-16. https://doi.org/10.1080/03634520302457

[6]. Rajprasit, K., Pratoomrat, P., & Wang, T. (2014). Perceptions and Problems of English Language and Communication Abilities: A Final Check on Thai Engineering Undergraduates. English Language Teaching, 7(3), 111-120. https://doi.org/10.5539/elt.v7n3p111

[7]. Zhu, Y. (2017). Intercultural Communication in the Global Workplace. In The Routledge Handbook of Language and Intercultural Communication (pp. 422-435). Routledge. https://doi.org/10.4324/9781315691333-33

[8]. Lappalainen, P. (2009). Communication as part of the engineering skills set. European Journal of Engineering Education, 34(2), 123-130. https://doi.org/10.1080/03043790902752039

Bibliography:

Darling, A. L., & Dannels, D. P. (2003). Practicing engineers talk about the importance of talk: A report on the role of oral communication in the workplace. *Communication Education*, 52(1), 1-16. https://doi.org/10.1080/03634520302457

Ford, J. D., & Riley, L. A. (2003). Integrating communication and engineering education: A look at curricula, courses, and support systems. *Journal of Engineering Education*, 92(4), 325- 328. https://doi.org/10.1002/j.2168-9830.2003.tb00778.x

Paretti, M. C. (2008). Teaching communication in capstone design: The role of the instructor in situated learning. *Journal of Engineering Education*, 97(4), 491-503. https://doi.org/10.1002/j.2168-9830.2008.tb00995.x

Passow, H. J., & Passow, C. H. (2017). What competencies should undergraduate engineering programs emphasize? A systematic review. *Journal of Engineering Education*, 106(3), 475- 526. https://doi.org/10.1002/jee.20171

Shuman, L. J., Besterfield-Sacre, M., & McGourty, J. (2005). The ABET "Professional Skills"- Can they be taught? Can they be assessed? *Journal of Engineering Education*, 94(1), 41-55. https://doi.org/10.1002/j.2168-9830.2005.tb00828.x