International Journal for Research Trends in Social Science & Humanities
Volume 4, Issue 1
Jan-Feb 2026, PP 1-4

Innovative Language Teaching Among Engineering Students with Respect to Speaking and Writing

Indu Sharma
Department of English, Sunrise university, Alwar

Abstract- As English remains the global language for science and technology, engineering students must master professional communication to remain competitive in the job market. This study investigates the transition from traditional General English (GE) to English for Specific Purposes (ESP). Utilizing a mixed-methods approach with 143 participants, the research evaluates the effectiveness of technological interventions and task-based learning. Results indicate that 73.4% of students showed significant improvement in writing skills following innovative interventions, with a strong correlation between technology use and language proficiency. The study draws on various philosophical and linguistic frameworks.

Keywords- English for Specific Purposes (ESP); General English (GE); Engineering students; Professional communication; Writing skills; Technology-enhanced learning; Task-based learning; ESP pedagogy; Language proficiency; Engineering education.

I. Introduction

English has become the global lingua franca for international business, science, and technology, making proficiency essential for engineers to collaborate globally and access technical documentation. Despite its importance, many engineering students struggle with effective communication due to non-contextualized teaching methods and personal hesitation.

English proficiency is no longer a supplementary skill but a core requirement for technical survival and professional advancement. Engineering documentation, research, and global collaboration are predominantly conducted in English.
However, many graduates struggle with “communicative conviction” due to non-contextualized teaching methods. This research aims to identify new, technologically driven ways to bridge the gap between academic learning and real- world professional requirements.

- The Problem: Traditional instruction often isolates language practice from professional contexts, leading to diminished motivation and a “writing phobia”.
- Study Objective: To develop and evaluate new teaching methods—specifically technologically innovative language acquisition—to prepare students for real-world professional situations.

The study draws on various philosophical and linguistic frameworks:

- **Theoretical Foundations:** The research incorporates Socratic inquiry for precise language, Sociocultural theory (Vygotsky) emphasizing social interaction in learning, and Pragmatism for practical implementation in work culture.

- **ESP and Needs Analysis:** English for Specific Purposes (ESP) is identified as a vital, purpose-driven approach that aligns instruction with the specific linguistic demands of the engineering profession.
- **Current Policy:** The study aligns with India's National Education Policy (NEP) 2020, which advocates for a three-language formula and updated instructional strategies.
- A mixed-methods research design was employed to gather comprehensive data

II. Literature Review

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III. Methodology

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IV. Results and Observations

- The implementation of innovative methods yielded significant improvements:
- Speaking Proficiency: Presentation-based interventions saw a marked shift, with the percentage of students rated "Excellent" in speaking increasing from 5.6% to 17.5% ($p < 0.001$).
- Writing Success: 73.4% of participants showed improvement in writing skills following the intervention. A strong correlation ($p = 0.004$) was found between regular reading habits (novels, technical journals) and writing success.
- Technological Adoption: High usage rates were recorded for digital tools: Grammarly (76.9%) and DuolingoNational Education PolicyThe Innovators bridge the gap between academic learning and professional survival, engineering

institutions must adopt a hybrid, immersive methodology. By leveraging AI as a collaborator and focusing on task-based situational confidence, educators can better prepare graduates for the competitive global market. Future efforts should focus on reducing teacher workloads and enhancing digital literacy to ensure equitable access to these technologies.

V. Discussion: Innovative Teaching Strategies

- The study identifies several key strategies for modernizing engineering English curriculum:
- **Blended Learning:** Combining traditional classroom instruction with digital media, such as YouTube (scientific content), movies, and AI-driven platforms.
- **Task-Based Learning (TBLT):** Engaging students in real-world simulations, such as mock client meetings, project-based presentations, and peer-review sessions.
- **AI Integration:** Using Large Language Models (LLMs) like Claude for conversational practice and writing assistants like ProWritingAid for technical document clarity.
- **Metacognition:** Utilizing reflective writing and speaking journals to help students track their own progress and build confidence.

VI. Conclusion

- To bridge the gap between academic learning and professional survival, engineering institutions must adopt a hybrid, immersive methodology. By leveraging AI as a collaborator and focusing on task-based situational confidence, educators can better prepare graduates for the competitive The study concludes that a shift from traditional, passive lectures to interactive, student-centred, and technology-enhanced approaches is vital for engineering education. Institutions are encouraged to invest in digital platforms and infrastructure to support these innovative methodologies. While the current sample was limited to 143 students, the strong statistical significance ($p < 0.001$) suggests these methods are highly effective for improving both writing and speaking skills in a professional context.

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