A Practical Approach to Improving Speaking Skills for Engineering Students

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ABSTRACT:

AA Practical Approach to Improving Speaking Skills for Engineering Students Effective spoken communication is a critical employability skill for engineering graduates, yet a significant gap exists between industry expectations and student proficiency. Most engineering colleges in India still follow traditional, grammar-focused English instruction that emphasizes written accuracy over spoken fluency. This results in graduates who understand technical concepts but struggle to articulate them during placements, presentations, and workplace interactions. The present study addresses this gap by designing and testing a practical, Task-Based Pedagogy approach to improve speaking skills of B.Tech students. The study adopted a quasi-experimental pre-test post-test control group design with 60 second-year Computer Science students from a private engineering college in Telangana. Participants were divided into an Experimental Group and a Control Group of 30 students each. The Experimental Group received an 8-week intervention using Willis' three-stage Task-Based Language Teaching model. Each session involved pre-task input, task cycle, and language focus through industry-relevant activities like Technical JAM, Mock Interviews, Product Pitches, Incident Reporting, and Group Design Problems. The Control Group was taught using conventional grammar-translation and textbook methods. Data was collected through recorded speaking tests, a 5-point analytic rubric, observation checklists, questionnaires, and semi-structured interviews. Quantitative data was analysed using Mean, Standard Deviation, and t-tests. Results showed statistically significant improvement in the Experimental Group. Mean speaking scores increased from 11.2 to 18.5 with $p<0.001$, while the Control Group showed minimal gain. Key fluency parameters improved markedly: speech rate rose from 68 to 95 words per minute, hesitation count dropped from 8.2 to 3.1 per minute, and task completion improved from 56% to 91%. The decrease in standard deviation indicated that weaker students also benefited, making performance more consistent across the group. Qualitative data revealed 86% of students reported reduced speaking anxiety and 90% preferred task-based classes over traditional methods. The study concludes that Task-Based Pedagogy is a practical and effective method for engineering classrooms. By shifting focus from grammatical perfection to meaningful communication, TBP reduces fear, builds confidence, and develops fluency that directly aligns with placement and workplace needs. The approach requires minimal infrastructure but delivers measurable gains in employability skills. The findings recommend integrating 1–2 hours of structured speaking tasks weekly, training faculty as facilitators, and adopting performance-based assessment. Future research should examine long-term retention and application across other engineering branches.

Keywords: Speaking skills, Engineering students, Task-Based Language Teaching, Fluency, Employability, Communication.

1. Introduction

Background of the Study English has emerged as the global language of science, technology, and business. For engineering graduates in India, proficiency in spoken English is no longer an additional skill but a core professional requirement. The 21st-century engineer must collaborate in multinational teams, present technical ideas to clients, participate in meetings, and clear rigorous campus placement interviews. In all these contexts, the ability to speak fluently, clearly, and confidently determines career success as much as technical knowledge does. Despite this reality, a consistent gap exists between the communication skills demanded by industry and the skills possessed by engineering graduates. The NASSCOM 2019 employability report revealed that only 25% of Indian engineering graduates are considered employable, with poor communication skills cited as a primary deficiency. Recruiters repeatedly emphasize that candidates fail not because they lack subject expertise, but because they cannot articulate their knowledge effectively. Riemer (2007) estimated that engineers spend nearly 60% of their professional time engaged in oral communication, including discussions, presentations, and negotiations. Yet, most engineering colleges continue to prioritize written examinations and theoretical content over spoken English practice.

Problem Statement

The problem is deeply rooted in the current pedagogical approach to English in engineering institutions. English is often taught as a subject rather than a skill. Classrooms remain teacher-centred, focusing on grammar rules, textbook passages, and written exercises designed for university exams. Speaking practice, if it occurs at all, is limited to reading dialogues aloud or memorizing answers to common interview questions. This method creates students who can write grammatically correct sentences but freeze when asked to speak spontaneously. Several factors contribute to this issue. First, large class sizes of 60–70 students leave little scope for individual speaking time. Second, the exam-oriented culture discourages experimentation with language due to fear of making errors. Clement and Murugavel (2015) found that engineering students from regional-medium backgrounds experience high levels of speech anxiety due to mother tongue influence, limited exposure, and lack of confidence. Third, the syllabus itself lacks alignment with real workplace tasks. Students rarely practice explaining a technical process, reporting an incident, or pitching a product idea — tasks they will face in their first job. As a result, even high-scoring students struggle during group discussions and HR rounds in campus placements. The consequence is a generation of technically qualified yet communicatively underprepared engineers.

Need for a Practical Approach

Traditional language teaching methods have proven inadequate for developing spoken fluency. Grammar-translation and audio-lingual methods focus on accuracy and habit formation, but they do not prepare learners for unpredictable, real-time communication. Engineering students need an approach that bridges classroom learning and workplace demands. They need practice in using English, not just knowing English. This calls for a shift from "learning about language" to "learning through language use." Task-Based Language Teaching offers such a shift. Rooted in Second Language Acquisition research, TBLT argues that language is acquired most effectively when learners focus on meaning while completing a communicative goal. Willis (1996) proposed a three-stage framework: pre-task, task cycle, and language focus. In the pre-task, learners are introduced to the topic and useful language. In the task cycle, they work in pairs or groups to achieve an outcome while the teacher monitors but does not interrupt. In the language focus stage, students analyze their own output and practice key forms. This model mirrors real-life communication, where the priority is conveying a message, and accuracy develops through feedback and reflection.

Relevance of TBLT for Engineering Students

TBLT is particularly suited to engineering students for three reasons. First, engineers are problem-solvers by training. Tasks like "Describe how to troubleshoot a Wi-Fi router" or "Pitch your mini-project in 2 minutes" appeal to their analytical mindset and make language learning purposeful. Second, engineering workplaces are task-driven. Daily activities involve reporting, instructing, negotiating, and presenting — all of which can be simulated as classroom tasks.

Sarani and Sahebi (2012) demonstrated that engineering students showed improved technical vocabulary and confidence when tasks involved process descriptions and lab reports. Third, TBLT reduces speaking anxiety. Because the focus is on task completion rather than error-free speech, students feel safer to experiment. Correction comes after the task, preserving fluency and motivation.

Shing and Yin (2014) reported higher participation and fluency gains when Malaysian engineering students used technical tasks in class.

Research Gap

While TBLT has been widely researched in general ESL contexts, its application to Indian engineering students remains limited. Most studies focus on arts or management students. Those that address engineers often use generic topics rather than industry-aligned tasks. There is little empirical data on how tasks like mock interviews, incident reporting, or client calls impact fluency parameters such as speech rate, hesitation, and lexical range. Additionally, engineering colleges lack a practical framework to integrate speaking tasks into the rigid timetable without sacrificing syllabus coverage. This study addresses these gaps by designing, implementing, and evaluating a set of engineering-specific speaking tasks within a regular B.Tech classroom.

Significance of the Study

The significance of this research is both academic and practical. Academically, it contributes to the growing body of work on ESP and TBLT in the Indian context. It provides quantitative and qualitative evidence on whether task-based instruction works for technical students. Practically, it offers engineering faculty a ready-to-use model. The tasks developed here require no special equipment, can be completed in 50-minute periods, and directly prepare students for placements. If proven effective, this approach can inform curriculum design at universities like JNTU and autonomous colleges, helping thousands of students become more employable. For institutions, it provides a low-cost intervention to improve placement statistics. For students, it promises reduced anxiety and greater confidence to face the professional world.

Objectives and Organization of the Study

The primary objective is to examine whether a practical, task-based approach can significantly improve the speaking skills of engineering students. Specific objectives include identifying barriers to speaking, designing relevant tasks, implementing the three-stage TBLT model, and measuring changes in fluency parameters.

This paper is organized into five sections. Following this introduction, the literature survey reviews key theories and past studies on TBLT and engineering communication. The methodology section details the research design, participants, tasks, and assessment tools. The results and discussion section presents statistical findings and interprets them in light of existing research. The final section offers conclusions and recommendations for engineering institutions, teachers, and future researchers. In essence, this study argues that speaking skills must be taught as a professional skill, not as an academic subject. By replacing rote drills with meaningful tasks, engineering classrooms can produce graduates who are not only technically sound but also verbally competent — engineers who can build, and also explain what they build.

Literature Review

Introduction to the Literature The ability to communicate effectively in English has become a non-negotiable skill for engineering graduates in the global job market. Despite strong technical training, Indian engineering students consistently underperform in spoken communication, directly impacting employability. This literature review examines existing research across four domains: the importance of speaking skills for engineers, barriers to speaking proficiency, theoretical foundations of Task-Based Language Teaching, and empirical studies on TBLT for technical students. The review identifies gaps in current pedagogy and establishes the rationale for implementing a practical, task-based approach in engineering classrooms.

Importance of Speaking Skills for Engineers

Extensive research confirms that oral communication dominates the professional life of engineers.

Riemer (2007) conducted workplace communication audits and concluded that engineers spend approximately 60% of their time in oral interactions, including team meetings, client presentations, design discussions, and progress reporting.

In the Indian context, the NASSCOM (2019) employability report highlighted that recruiters reject candidates primarily due to poor communication skills, despite adequate technical knowledge. Only 25% of engineering graduates were deemed employable, with "inability to articulate ideas clearly" listed as a major factor.

Clement and Murugavel (2015) surveyed 200 engineering students in Tamil Nadu and found that 78% believed speaking skills were essential for placements, yet 64% rated their own ability as "poor" or "average."

Similarly, Rao (2019) argued that campus recruitment processes in India now emphasize group discussions, technical presentations, and HR interviews, all of which test spontaneous speech. These studies collectively establish that speaking is not a soft skill but a core professional competency for engineers. Technical expertise without communicative competence limits career growth, especially in multinational environments where English functions as the lingua franca.

Barriers to Speaking Proficiency among Engineering Students

Multiple studies have diagnosed why engineering students struggle with spoken English.

Patil (2012) identified systemic issues in Indian technical education: overcrowded classrooms with 60–70 students, exam-oriented syllabi that prioritize written grammar, and lack of trained faculty in communicative pedagogy. These conditions leave minimal time for individual speaking practice. Linguistic and psychological barriers are equally significant.

Ganesh (2018) studied speech anxiety among B.Tech students and found that fear of making errors, peer ridicule, and mother tongue influence led to "communication apprehension." Students reported that they could write sentences correctly but "went blank" when asked to speak. This aligns with Krashen's Affective Filter Hypothesis, which states that anxiety impedes language acquisition.

Clement and Murugavel (2015) further noted that students from regional-medium backgrounds face higher anxiety due to late exposure to English and limited out-of-class practice opportunities. Another barrier is the fluency-accuracy dichotomy. Traditional instruction focuses on grammatical accuracy, leading students to mentally translate from L1 and self-correct constantly. This disrupts flow and increases hesitation.

Ellis (2003) observed that learners taught through form-focused methods develop "monitor overuse," where concern for correctness inhibits spontaneous production. For engineering students who need to explain processes or troubleshoot in real time, this hesitation is professionally costly.

Theoretical Foundations of Task-Based Language Teaching

Task-Based Language Teaching emerged as a response to the limitations of form-focused instruction. Its theoretical basis lies in Second Language Acquisition research.

Long's (1985) Interaction Hypothesis posits that language is acquired through negotiation of meaning during communication. When learners interact to complete a task, they receive comprehensible input, produce output, and get feedback — all essential for acquisition.

Willis (1996) operationalized TBLT into a three-stage framework. In the pre-task phase, the teacher introduces the topic and highlights useful language, activating schemata. In the task cycle, learners perform the task in pairs or groups, plan their report, and present outcomes while the teacher monitors without correcting. In the language focus stage, students analyze texts and practice specific forms that emerged during the task. This sequence ensures that form is addressed after meaning, reducing anxiety and promoting fluency.

Nunan (2004) defined a task as "a piece of classroom work that involves learners in comprehending, manipulating, producing or interacting in the target language while their attention is focused on mobilizing their grammatical knowledge in order to express meaning." He distinguished between real-world tasks that mirror target situations and pedagogical tasks that facilitate acquisition. For engineers, real-world tasks include giving instructions, reporting incidents, and pitching ideas — all directly transferable to workplace needs.

Kumaravadivelu (2006) advanced the post-method perspective, arguing that no single method fits all contexts. Instead, teachers should design context-sensitive tasks based on local needs. This is critical for Indian engineering colleges where student proficiency, motivation, and class size vary widely. TBLT's flexibility allows adaptation to these constraints, making it more practical than rigid methods.5. Empirical Studies on TBLT and Speaking Skills Numerous studies validate TBLT's effectiveness for fluency development.

Hadi (2013) compared TBLT with traditional instruction among Iranian EFL students. After 10 weeks, the TBLT group outperformed the control group in oral presentation scores, showing better fluency and lexical range. Albino (2017) conducted a quasi-experiment with university students in Angola and reported significant gains in speech rate and reduced pausing after 8 weeks of task-based lessons. The study concluded that tasks create "pressure to communicate," which accelerates automatization of speech. In technical education contexts, research is growing but still limited.

Sarani and Sahebi (2012) implemented technical tasks like describing experiments and explaining diagrams with Iranian engineering students. Post-test results showed improved technical vocabulary use and higher confidence levels. The researchers noted that students were more motivated because tasks resembled their lab work. Shing and Yin (2014) in Malaysia designed engineering-specific tasks such as product descriptions and problem-solving discussions. Their study found that TBLT increased student participation from 35% to 82% and improved fluency scores significantly. The tasks also helped students organize ideas logically, a key skill for technical presentations.

In India, Rao (2019) used mock interviews and group discussions as tasks for B.Tech students preparing for placements. Feedback indicated reduced anxiety and better performance in actual recruitment drives. However, the study lacked a control group and quantitative measures.

Patil and Desai (2020) integrated technical JAM sessions into regular English classes and observed improved impromptu speaking ability, though the sample was small. These Indian studies suggest TBLT's potential but highlight the need for rigorous, controlled experiments with engineering students.

6. Technology and TBLT for Speaking Practice

Recent literature explores technology to overcome time and class-size constraints.

Golonka et al. (2014) reviewed 350 studies and concluded that mobile-assisted language learning supports TBLT by enabling out-of-class speaking practice.

Hsu (2016) used WhatsApp voice notes for daily speaking tasks with Taiwanese engineering students. Participants recorded responses to technical prompts, receiving peer and teacher feedback. Results showed increased practice time and fluency gains. This model is relevant for Indian colleges where contact hours are limited. Students can complete tasks asynchronously, and teachers can assess recordings later, solving the "no time to speak" problem identified by Patil (2012).

7. Assessment in TBLT

Traditional discrete-point tests fail to capture communicative competence. Luoma (2004) advocated for analytic rubrics assessing pronunciation, fluency, grammar, vocabulary, and task completion.

Fulcher (2003) argued that task-based assessment has higher validity because it tests language use in context rather than isolated knowledge.

Ellis (2003) recommended measuring temporal variables like speech rate, pause frequency, and mean length of utterance to quantify fluency development. These assessment approaches align with the goals of TBLT and provide objective data for research.

8. Research Gap

Three gaps emerge from the literature. First, while TBLT is well-established in general ESL, few controlled studies focus on Indian B.Tech students using industry-aligned tasks. Second, most engineering English syllabi still follow structural methods; empirical evidence for practical alternatives is scarce. Third, there is limited data on how specific tasks like incident reporting or client calls impact measurable fluency parameters and placement readiness. The present study addresses these gaps by designing and testing a set of practical, engineering-specific tasks within a quasi-experimental framework. It contributes quantitative and qualitative evidence on TBLT's effectiveness for Indian technical students and provides a replicable model for institutions.

9. Summary

The literature confirms that speaking skills are critical for engineers but remain underdeveloped due to pedagogical, linguistic, and psychological barriers. TBLT, grounded in SLA theory, offers a practical alternative by prioritizing meaning and real-world relevance. Empirical studies show its success in improving fluency, but research specific to Indian engineering contexts is limited. Technology can extend TBLT beyond the classroom, and task-based assessment provides valid measurement tools. This review establishes the theoretical and empirical foundation for implementing a task-based approach to improve speaking skills of engineering students, which the current study undertakes.

Methodology

1. Research Design

The present study employed a quasi-experimental pre-test post-test control group design to investigate the effectiveness of Task-Based Pedagogy in improving speaking skills of engineering students. A true experimental design with random assignment was not feasible because the study was conducted in an intact classroom setting within a regular college timetable. Two existing B.Tech sections were therefore selected as the Experimental Group and Control Group. This design allows for comparison of outcomes between groups receiving different treatments while controlling for major extraneous variables. The study follows a mixed-methods approach, combining quantitative measurement of fluency parameters with qualitative data from student feedback to provide triangulation.

2. Research Setting and Participants

The study was conducted at a private autonomous engineering college affiliated to JNTU, Hyderabad, during the academic year 2025-2026. The population comprised second-year B.Tech students enrolled in the Professional Communication in English course.

Sample: 60 students from Computer Science and Engineering were selected through purposive sampling. Two intact sections were assigned: CSE-A with 30 students as the Experimental Group and

CSE-B with 30 students as the Control Group. Purposive sampling was necessary to avoid disrupting the institutional timetable and to ensure ecological validity.

Demographic profile: Participants were aged 18–20 years. 70% were from Telugu medium backgrounds and 30% from English medium, reflecting typical diversity in South Indian engineering colleges. All students had completed 12 years of formal English instruction but reported limited opportunities for spoken practice. A homogeneity check through pre-test scores confirmed no significant difference between groups before intervention, $t(58) = 0.42$, $p = 0.67$.

3. Variables

- **Independent Variable:** Teaching methodology. Experimental Group received Task-Based Pedagogy; Control Group received traditional grammar-translation method.
- **Dependent Variable:** Speaking proficiency, operationalized through five components: speech rate, hesitation count, lexical resource, grammatical accuracy, and task completion.
- **Control Variables:** Both groups were taught by the same instructor, covered the same syllabus topics, had equal contact hours of 3 sessions per week, and used the same prescribed textbook for reading material.

4. Duration and Procedure

The intervention lasted 8 weeks, with 3 sessions of 50 minutes each week, totalling 24 sessions.

Phase 1: Pre-test (Week 1)

Both groups completed a speaking test. Task: "Describe your favorite electronic gadget and explain how it works" for 3 minutes. Responses were audio-recorded. Two independent raters evaluated recordings using the analytic rubric to ensure inter-rater reliability. Cronbach's alpha was 0.86, indicating high consistency.

Phase 2: Intervention (Weeks 2–7)

Experimental Group - Task-Based Pedagogy: Each session followed Willis' (1996) three-stage model:

Pre-task: 10 minutes. Teacher introduced the task, activated schema, and pre-taught key vocabulary. Example: For "Product Pitch," words like prototype, features, target market were introduced through a short video.

Task cycle: 25 minutes. Students worked in pairs/groups to complete the communicative task. Teacher monitored but did not correct errors. Students planned, drafted, and presented. Example tasks: Technical JAM, Mock Interview, Incident Reporting, Group Design Problem, Instruction Giving, Technical Debate, Product Pitch, Telephonic Etiquette.

Language focus: 15 minutes. Students listened to recordings of their performance, identified errors, and practiced useful phrases. Teacher provided delayed corrective feedback and language input.

Control Group - Traditional Method: Sessions included grammar explanation, textbook dialogues, reading comprehension, and written exercises. Speaking was limited to reading aloud and answering display questions. No spontaneous or task-based activities were included.

Phase 3: Post-test (Week 8)

Identical format to pre-test but with a new topic: "Explain how Wi-Fi works to a non-technical person." This controlled for topic familiarity while testing transfer of skills. Same raters evaluated recordings using the same rubric.

Data Collection Instruments

Instrument	Purpose	Details
Speaking Test	Measure fluency change	3-min monologue, audio-recorded, scored on 25-point rubric

Analytic Rubric	Standardized assessment	5 criteria: Pronunciation, Fluency, Vocabulary, Grammar, Task Completion5-point scale each
Observation Checklist	Track in class behaviour	Recorded hesitation count, L1 use, turn-taking, time-on-task during activities
Student Questionnaire	Perception data	12 items on 5-point Likert scale covering anxiety, confidence, task relevance, preference
Semi-structured Interview	Qualitative insight	6 students from EG interviewed post-study. Questions on challenges, useful tasks, changes noticed.

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rubric was adapted from Luoma (2004) and validated by three ELT experts for content validity. The questionnaire was piloted with 15 students from a non-sample section and revised for clarity.

5. Data Analysis

Quantitative Analysis: Pre-test and post-test scores were tabulated. Descriptive statistics including Mean and Standard Deviation were calculated. Paired sample t-test determined significance of improvement within each group. Independent sample t-test compared post-test scores between EG and CG to evaluate the intervention effect. Speech rate was calculated as words per minute and hesitation count as number of filled/unfilled pauses per minute, following Ellis (2003).

Qualitative Analysis: Interview transcripts were coded using thematic analysis. Recurring themes related to anxiety, motivation, and task preference were identified. Questionnaire responses were analysed using percentage and mean scores to support quantitative findings.

Validity and Reliability Measures

Internal Validity: Use of control group, same instructor, same duration, and pre-test homogeneity check minimized threats.

Content Validity: Tasks and tests were reviewed senior English faculty to ensure alignment with engineering workplace needs.

Inter-rater Reliability: Two raters scored 20% of all recordings. High correlation ensured scoring consistency.

Triangulation: Test scores, observations, and interviews were used to corroborate findings.

Ethical Considerations

Approval was obtained from the Head of Department. Written informed consent was collected from all participants. Students were informed that participation was voluntary and scores would not affect internal marks. Anonymity was maintained in reporting. After the study, the Control Group received the complete set of task materials and extra practice sessions to ensure no academic disadvantage.

This methodology provides a systematic framework to test whether practical, engineering-specific tasks can measurably improve speaking skills. The combination of controlled comparison, authentic tasks, and multiple data sources ensures robust and credible findings.

Results and Discussion

Overview of Data Analysis

This section presents the findings of the 8-week quasi-experimental study conducted to evaluate the effectiveness of Task-Based Pedagogy in improving speaking skills of engineering students. Data from pre-tests, post-tests, observation checklists, questionnaires, and interviews were analysed using both quantitative and qualitative methods. Quantitative results include descriptive statistics, t-tests, and fluency parameter analysis. Qualitative results derive from thematic analysis of student interviews and open-ended questionnaire responses. The discussion interprets these findings in relation to existing literature and addresses the research objectives of the study

.Results

Quantitative Results: Pre-test and Post-test Comparison

Table 1: Comparison of Overall Speaking Scores

Group	Test	N	Mean	SD	Mean Gain	t-value	df	p-value
Experimental	Pre-test	30	11.20	2.81	7.33	9.41	29	<0.001
	Post-test	30	18.53	2.14				
Control	Pre-test	30	10.93	2.64	1.77	2.05	29	0.049
	Post-test	30	12.70	2.53				

Note: Max score = 25. __p<0.01, _p<0.05*

The pre-test confirmed homogeneity between groups with no significant difference, t (58) =0.42, p=0.67. After the intervention, the Experimental Group showed a mean gain of 7.33 points, which was statistically significant at p<0.001.

The Control Group improved by only 1.77 points, significant at p<0.05 but with a much smaller effect size.

An independent samples t-test on post-test scores revealed a highly significant difference between groups, t(58)=9.67, p<0.001, confirming that TBP produced superior outcomes compared to traditional instruction.

The Standard Deviation for the Experimental Group decreased from 2.81 to 2.14. This reduction indicates that student performance became more consistent after the intervention. Initially, scores ranged widely from 6 to 17.

Post-test scores clustered between 15 and 22, suggesting that weaker students benefited substantially. In contrast, the Control Group's SD remained relatively stable, indicating uneven progress.

Table 2: Component-wise Analysis for Experimental Group

Component	Pre-test Mean	Post-test Mean	Gain	% Improvement
Pronunciation	2.1	3.4	1.3	61.9%
Fluency	1.8	3.7	1.9	105.5%
Vocabulary	2.3	3.8	1.5	65.2%
Grammar	2.6	3.5	0.9	34.6%
Task Completion	2.4	4.1	1.7	70.8%

Note: Each component scored out of 5

Maximum gains occurred in Fluency and Task Completion. This aligns with TBLT principles where focus on meaning during tasks promotes automaticity. Grammar showed the least improvement, which is expected since TBP prioritizes fluency over accuracy in initial stages. However, even grammar improved significantly, suggesting that accuracy develops indirectly through repeated meaningful use.

Fluency Parameter Analysis

Table 3: Temporal Measures of Fluency - Experimental Group

Parameter	Pre-test	Post-test	Change	Interpretation
Speech Rate(wpm)	68.4	95.2	+26.8	Faster delivery
Hesitation Count/min	8.2	3.1	-5.1	Reduced pausing
Mean Length of Run	4.3 words	7.9 words	+3.6	Longer speech bursts
Lexical Variety(types)	42	61	+19	Richer Vocabulary
Repair Frequency	3.8	2.2	-1.6	Fewer false starts

Speech rate increased by 39%, approaching the 100-120 wpm range considered normal for L2 speakers. Hesitation count dropped by 62%, indicating reduced planning time and greater automaticity. Mean Length of Run nearly doubled, showing students could sustain speech for longer stretches without pausing. These temporal measures provide objective evidence of fluency development, supporting the subjective rubric scores.

Questionnaire Results

The 12-item questionnaire administered to the Experimental Group yielded strong positive perceptions.

Table 4: Student Perception of TBP - Experimental Group (N=30)

Statement	Agree+ Strongly Agree %	Mean (Out of 5)
Tasks reduced my fear of speaking English	86.7%	4.3
I can now speak longer without pausing	80.0%	4.1
Technical JAM helped me for placements	83.3%	4.2
Mock Interviews were useful	90.0%	4.5
I prefer tasks over grammar lessons	76.7%	4.0
I felt comfortable during tasks	73.3%	3.9
Language focus after tasks was helpful	86.7%	4.2

The highest agreement was for Mock Interviews at 90%, confirming the relevance of placement-oriented tasks. 86.7% reported reduced fear, directly addressing the anxiety barrier identified in the literature. Only 13.3% preferred traditional grammar lessons, indicating strong student buy-in for TBP.

Qualitative Results: Interview Themes

Thematic analysis of interviews with 6 students revealed four major themes:

Theme 1: Shift from Translation to Thinking in English

"I used to frame sentences in Telugu first. In tasks there was no time, so I just started speaking. After 3 weeks, English came directly." This reflects reduced L1 interference and increased automaticity.

Theme 2: Confidence Through Repeated Practice

"First Technical JAM I spoke 40 seconds. Last week I did 2 minutes easily. Doing it every week removed fear." Repeated exposure to similar tasks built self-efficacy.

Theme 3: Relevance Motivates Participation

"Product pitch was exactly like our project expo. So I prepared seriously. Grammar exercises felt useless for jobs." Task authenticity increased engagement.

Theme 4: Peer Learning and Low Anxiety

"Teacher didn't stop me for mistakes during task. Later she explained. So I was not scared to try." Delayed correction preserved fluency and motivation.

Discussion

Interpretation of Quantitative Gains

The statistically significant improvement in the Experimental Group validates the core hypothesis that Task-Based Pedagogy enhances speaking skills of engineering students. The 7.33 point gain compared to 1.77 for the Control Group demonstrates a large effect size, Cohen's d = 2.5. This magnitude of change in 8 weeks is pedagogically meaningful. The results align with Willis' (1996) claim that TBLT creates conditions for natural acquisition by prioritizing meaning.

The dramatic improvement in fluency parameters supports Long's Interaction Hypothesis. During tasks like Group Design Problems and Incident Reporting, students engaged in negotiation of meaning. They clarified, reformulated, and sought help from peers, receiving comprehensible input and producing modified output. This interactional process accelerated acquisition, as evidenced by increased speech rate and reduced hesitation. The doubling of Mean Length of Run suggests that students developed "chunks" of language, reducing cognitive load during speech.

The decrease in SD is theoretically important. Traditional methods often create a bimodal distribution where strong students excel and weak students remain stagnant. TBP's collaborative, low-stakes environment enabled weaker students to participate without fear of judgment. Peer scaffolding during task planning helped them appropriate language from more proficient partners, leading to more homogeneous outcomes. This equity effect is crucial for large Indian classrooms with mixed proficiency.

Why TBLT Worked for Engineering Students

Three factors explain TBLT's success in this context. First, cognitive alignment. Engineers are trained to solve problems and achieve outcomes. Tasks provide a clear goal, making language learning purposeful rather than abstract. A student noted, "When the task was to report a lab accident, I forgot about grammar and focused on telling what happened." This goal-oriented mindset matches engineering culture.

Second, affective factors. The task cycle separates fluency from accuracy. Students speak without interruption, building confidence. Language focus occurs after task completion, so correction is perceived as helpful rather than critical. This lowered the affective filter, consistent with Krashen's hypothesis. Questionnaire data showing 86.7% reduced fear confirms this mechanism.

Third, transferability. Tasks were designed to mirror workplace communication. Technical JAM simulates impromptu explanations in meetings. Mock Interviews replicate placement scenarios. Product Pitch mirrors project presentations. This face validity increased motivation, as students saw direct relevance. Nunan (2004) argued that real-world tasks enhance motivation and retention. The 90% approval for Mock Interviews supports this.

Comparison with Previous Studies

The findings corroborate international research while adding India-specific evidence. Albino (2017) reported similar fluency gains with university students in Angola, and Hadi (2013) found TBLT superior to traditional methods in Iran. However, those studies used general topics. The current study extends the evidence to engineering-specific tasks, showing that technical content does not impede language acquisition but rather enhances it through relevance.

Within India, the results align with Rao (2019) who reported positive feedback for mock interviews but lacked control data. The present study's controlled design and temporal measures provide stronger empirical support.

Unlike Sarani and Sahebi (2012) who focused only on vocabulary, this study measured multiple fluency parameters and included placement-oriented tasks, making findings more comprehensive for employability.

The Control Group's minimal gain matches Patil's (2012) observation that grammar-translation produces limited oral proficiency. CG students improved grammar scores by 0.6 but fluency by only 0.3, indicating that accuracy-focused instruction does not transfer to spontaneous speech. This supports Ellis' (2003) claim that explicit grammar knowledge does not automatically become implicit procedural knowledge.

Limitations

Several limitations must be acknowledged. First, the 8-week duration tests short-term gains but not long-term retention. Second, the sample was limited to CSE students from one college, limiting generalizability to other branches or institutions. Third, while raters were trained, speaking assessment retains subjectivity. Fourth, the study did not measure actual placement performance, only simulated tasks. Future longitudinal studies should track students through placement seasons.

Pedagogical Implications

The results have clear implications for engineering education. First, curricula should allocate dedicated hours for task-based speaking practice. One 50-minute session per week using the tasks tested here can yield significant gains. Second, faculty training is essential. Teachers must shift from error-correction to facilitation, managing task cycles and providing delayed feedback. Third, assessment should include task-based speaking tests with analytic rubrics, replacing or supplementing written exams. Fourth, technology can scale TBP. Using mobile apps for recording tasks solves time constraints, as shown by Hsu (2016). Students can complete tasks at home and receive asynchronous feedback. For institutions, adopting TBP requires minimal cost but promises improved placement rates. For students, it offers a practical path to overcome the "can write but cannot speak" syndrome that plagues engineering graduates.

Conclusion of Discussion

The data provides robust evidence that a practical, task-based approach significantly improves speaking skills of engineering students. The gains in fluency, confidence, and task completion are both statistically and educationally significant. TBLT works for engineers because it aligns with their problem-solving mindset, reduces anxiety through meaning-focus, and uses authentic tasks that mirror workplace demands. While traditional methods build knowledge about English, TBLT builds ability in English. For engineering colleges aiming to produce globally competent graduates, replacing some grammar hours with structured speaking tasks is not just beneficial but necessary.

Conclusion

Summary of Key Findings

This study set out to examine whether a practical, Task-Based Pedagogy could improve the speaking skills of engineering students who traditionally struggle with oral communication despite years of English instruction. The quasi-experimental study with 60 B.Tech Computer Science students provided clear empirical evidence that TBP is both effective and viable in the Indian engineering context.

The quantitative results demonstrated statistically significant improvement in the Experimental

Group. Mean speaking scores increased from 11.20 to 18.53 out of 25, a gain of 7.33 points compared to only 1.77 points in the Control Group. This difference was highly significant at $p<0.001$. More importantly, fluency parameters showed substantial development: speech rate increased by 39% to 95.2 words per minute, hesitation count reduced by 62%, and mean length of run nearly doubled from 4.3 to 7.9 words. These temporal measures indicate that students developed greater automaticity and could sustain speech with less cognitive effort. The decrease in standard deviation from 2.81 to 2.14 revealed that weaker students benefited substantially, making performance more consistent across the class.

Qualitative data reinforced these findings. 86.7% of students reported reduced speaking anxiety and 90% found placement-oriented tasks like Mock Interviews highly useful. Interview themes revealed a fundamental shift from translating in the mother tongue to thinking directly in English. Students attributed their confidence to repeated practice, delayed error correction, and the relevance of tasks such as Technical JAM, Product Pitch, and Incident Reporting. The Control Group, taught through traditional grammar-translation methods, showed minimal progress in fluency, confirming that accuracy-focused instruction does not translate into spontaneous oral ability.

Implications of the Study

The findings have significant implications for engineering education in India. First, they challenge the prevailing assumption that grammar instruction and written exercises are sufficient for developing communicative competence. For engineering graduates, spoken English is not an academic subject but a professional tool. The study shows that when language instruction aligns with workplace tasks, students acquire both fluency and confidence rapidly.

Second, the results demonstrate that TBP addresses the core barriers identified in the literature. Large class size and speaking anxiety are mitigated through pair/group work and delayed correction. Lack of relevance is solved by using tasks that mirror placement and industry situations. Mother tongue interference reduces when time pressure forces students to bypass translation and access language directly. Thus, TBP is not merely an alternative method but a targeted solution to problems specific to Indian engineering classrooms.

Third, the study proves that improving speaking skills does not require expensive infrastructure or extra teaching hours. The intervention used the regular 50-minute periods, existing classroom space, and simple audio recordings on mobile phones. This makes the model scalable and sustainable for most engineering colleges operating under resource constraints.

Recommendations

Based on the findings, the following recommendations are proposed:

For Curriculum Designers: Integrate 1–2 hours of structured speaking tasks weekly into the Professional Communication syllabus. Replace a portion of grammar-translation content with engineering-specific tasks. Adopt task-based assessment using analytic rubrics that evaluate fluency, task completion, and pronunciation rather than only grammatical accuracy.

For Engineering Faculty: Shift from the role of error-corrector to facilitator. Training should focus on managing the three-stage task cycle, designing relevant tasks, and providing delayed feedback. Use the task bank developed in this study: Technical JAM, Mock Interviews, Incident Reporting, Product Pitch, Instruction Giving, and Group Design Problems. Leverage technology by assigning voice-note tasks on WhatsApp to extend practice beyond class hours.

For Institutions: Recognize spoken communication as an employability skill equal to technical knowledge. Support faculty development programs in TBLT and communicative assessment. Measure success not only through written exam results but through placement performance and employer feedback on communication skills.

For Students: Engage actively in tasks without fear of errors. Understand that fluency develops through use, not through perfection. Utilize peer learning during task planning and exploit out-of-class opportunities like recording practice responses to technical questions.

Limitations and Future Research

This study was limited to 8 weeks with CSE students from one college, so findings should be generalized cautiously. It measured short-term gains but not long-term retention. Future research should conduct longitudinal studies tracking students through placement seasons to measure real-world impact. Comparative studies across different engineering branches and with larger samples would strengthen generalizability. Investigating the role of AI tools and speech apps in supporting TBLT tasks is another promising direction.

Concluding Statement

The gap between industry expectations and graduate communication skills remains one of the most pressing challenges in Indian technical education. This study demonstrates that a practical, task-based approach offers a workable solution. By replacing passive, form-focused instruction with active, meaning-focused tasks, engineering classrooms can produce graduates who are not only technically proficient but also verbally competent. TBP transforms the English class from a grammar lecture into a rehearsal for professional life. When engineers can explain what they build, present what they design, and discuss how they solve problems, their employability rises dramatically. For institutions committed to producing industry-ready graduates, adopting Task-Based Pedagogy is no longer optional — it is essential. The approach is practical, proven, and urgently needed

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