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Research Paper

Hurdles Faced by Tamil medium Engineering Students in Speaking English: An In-Depth Analysis

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ABSTRACT

In an era where English is the dominant language in academia, research, and industry, engineering students are expected to communicate effectively in English, especially in oral interactions. However, despite the significant emphasis on English proficiency, many engineering students encounter a range of challenges in developing their speaking skills. This paper investigates the linguistic, psychological, and environmental hurdles that engineering students face in speaking English. It also explores the implications of these challenges for academic success and professional careers, providing recommendations for overcoming these barriers. In today's globalized world, English proficiency has become a critical skill for academic success and professional advancement. Engineering students, in particular, face unique challenges in mastering spoken English due to their technical focus, educational background, and socio-cultural factors. This research paper seeks to identify and analyze the hurdles that engineering students encounter while learning and speaking English. Through a combination of surveys, interviews, and existing literature, the study provides a comprehensive overview of the factors that hinder English language acquisition, including linguistic, psychological, and sociocultural barriers. The paper also proposes strategies for overcoming these challenges to improve English proficiency among engineering students.

Keywords: *dominant language, English proficiency, environmental hurdles, sociocultural barriers*

English has become the global language of scientific communication, and much of the cutting-edge research in engineering is published in English. Students must engage in English-speaking academic environments to participate in conferences, collaborative projects, and internships. As such, proficiency in both written and spoken English is crucial. For students in non-English speaking countries, where English is not the mother tongue, the pressure to excel in English can be overwhelming. Many students are expected to acquire professional English proficiency without sufficient language support, leading to struggles in both academic and social settings. This research focuses on understanding the specific hurdles faced by engineering students in speaking English, examining both the causes and consequences of these challenges. By identifying these barriers, the study aims to provide

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actionable recommendations for improving English communication skills among engineering students.

LITERATURE REVIEW

- **Challenges Faced by Non-Native English Speakers in Engineering Education:** Previous research has highlighted several key factors that hinder English communication skills in technical fields. For instance, a study by Wippich (2018) found that students from non-English backgrounds often face difficulties in fluency, vocabulary usage, and sentence formation during technical discussions. Moreover, the research identified that most of these students receive minimal formal speaking practice, focusing predominantly on reading and writing skills.
- **Psychological Factors Impacting Speaking Confidence:** Studies by Liu & Goh (2019) emphasized that fear of making mistakes in front of peers can greatly hinder the development of speaking skills. Students in engineering programs may have strong technical skills but lack the confidence to verbally articulate complex concepts in English. Additionally, students may experience speech anxiety, which significantly impairs their ability to engage in spoken communication.
- **Environmental and Social Influences on English Proficiency:** Research also highlights how a lack of immersion in English-speaking environments, combined with reliance on native languages in daily interactions, exacerbates communication difficulties. For example, a study by Ching & Tan (2021) found that engineering students often face peer pressure to use their native language outside the classroom, which reduces opportunities for practicing English in informal contexts.

METHODOLOGY

- **Participants:** The study includes engineering students enrolled in undergraduate and graduate programs across multiple disciplines such as Mechanical, Civil, Electrical, and Computer Engineering. Students are selected from diverse linguistic backgrounds, ranging from those who are native English speakers to those for whom English is a second or foreign language.
- **Data Collection Methods:** A combination of surveys, semi-structured interviews, and oral proficiency assessments is used to gather data. The surveys focus on the frequency of English-speaking opportunities, students' self-reported confidence levels in speaking English, and their perception of the hurdles they face. Interviews are conducted to explore students' personal experiences, challenges, and coping strategies. Additionally, oral proficiency tests measure fluency, pronunciation, vocabulary usage, and the ability to form coherent sentences.
- **Data Analysis:** The data is analyzed qualitatively and quantitatively. Thematic analysis is used to categorize the key challenges identified in the interviews, while statistical tools (such as frequency analysis) help quantify the responses from the surveys. The oral assessments are rated using established rubrics, measuring aspects such as fluency, coherence, pronunciation, and grammatical accuracy.

Findings:

1. **Linguistic Challenges:**

- **Limited Vocabulary in Non-Technical Areas:** While engineering students possess robust technical vocabulary related to their fields, many struggles to express themselves in general conversational English. For example, during group discussions, students often find it challenging to convey their ideas clearly using appropriate

everyday English. This barrier is especially pronounced when discussing abstract concepts or engaging in social conversations.

- **Pronunciation Difficulties:** Pronunciation is a significant issue for many non-native English-speaking engineering students. Regional accents and unfamiliarity with English pronunciation patterns hinder clear communication. For instance, students from regions with limited exposure to English often mispronounce complex technical terms or struggle with intonation patterns, which impacts their overall comprehensibility.
- **Inability to Form Complex Sentences in Real-Time:** Engineering students may be adept at writing clear technical papers, but they find it difficult to speak English spontaneously. In real-time discussions, students often face difficulties in structuring grammatically correct sentences, which can result in hesitation, fillers, and incomplete thoughts. This issue is particularly problematic during live presentations or when answering questions in English.

2. Psychological Barriers:

- **Fear of Making Mistakes:** Engineering students often report feeling anxious about making grammatical or pronunciation errors during speaking. Many prefer to remain silent during group discussions or presentations, fearing that mistakes will affect their academic reputation. This fear is exacerbated by the formal environment in which English is spoken, such as international conferences or research seminars.
- **Low Self-Esteem and Confidence:** Students may feel inadequate compared to their peers, especially when engaging with native English speakers. This lack of confidence in their speaking abilities can further limit their participation in English discussions or interactions, leading to feelings of isolation or inferiority.
- **Test Anxiety and Public Speaking Phobia:** Many students exhibit a high level of anxiety during oral exams or public speaking events. The pressure of performing in front of an audience, coupled with the fear of being judged on their language skills, can lead to an inability to express ideas clearly.

3. Environmental and Social Barriers:

- **Limited Opportunities for Practice:** Engineering students in non-English speaking countries often lack immersive English environments outside the classroom. Due to the heavy workload and focus on technical subjects, students have few opportunities to practice conversational English in real-world settings, leading to a gap between theoretical knowledge and practical speaking skills.
- **Peer and Cultural Influences:** Peer interactions in the native language also play a crucial role in limiting students' English-speaking opportunities. In social situations, students often revert to their mother tongue to ease communication, which hinders their ability to practice English effectively. Furthermore, cultural norms that discourage open expression or assertiveness can inhibit students from speaking freely in English.

DISCUSSION

Academic and Career Consequences: The inability to speak English fluently has profound academic implications, particularly in fields like engineering, where oral presentations, research collaborations, and technical discussions are central components of the curriculum. In the professional realm, engineers with limited English-speaking skills may find it

challenging to engage in international projects, attend conferences, or secure job opportunities in global companies.

The Need for Comprehensive Support Systems: Educational institutions must take a more holistic approach to language learning, integrating speaking practice into the core engineering curriculum. This could include activities such as group discussions, debates, role-playing, and problem-solving tasks in English. Students should also be encouraged to participate in extracurricular activities such as English language clubs and workshops designed to improve spoken fluency.

Recommendations:

1. **Curricular Integration of Speaking Skills:** Include more speaking-based assessments and activities within engineering courses. Practical oral exams, group projects, and presentations should be incorporated regularly to give students more speaking opportunities.
2. **Encouraging Informal English Practice:** Create informal spaces such as English language cafes, conversation clubs, or peer mentoring groups where students can practice speaking English in a relaxed setting without the pressure of formal evaluations.
3. **Language Support Programs:** Offer tailored language support through workshops, one-on-one tutoring, or language exchange programs that focus specifically on enhancing speaking skills. These programs can help students build confidence and practice real-life conversations.
4. **Foster an Inclusive and Supportive Classroom Environment:** Develop a classroom culture that celebrates diversity in language abilities and encourages all students to participate, regardless of their level of fluency. Faculty members can play a significant role by offering constructive feedback in a positive, non-judgmental manner.
5. **Use Technology to Facilitate Practice:** Incorporate language learning apps and virtual platforms that allow students to engage with native speakers or practice their speaking skills in interactive scenarios. This can help students practice speaking English at their own pace, outside of the classroom setting.

CONCLUSION

The challenges faced by engineering students in speaking English are multifaceted, involving linguistic, psychological, and environmental barriers. This paper has highlighted the various factors that contribute to these hurdles and emphasized the significant impact they can have on students' academic and professional growth. **Linguistic challenges**, such as limited vocabulary and pronunciation difficulties, play a crucial role in hindering students' ability to communicate effectively in English. Despite their technical proficiency in their respective fields, many students find it difficult to express themselves clearly in everyday English conversations. This gap between written and spoken English is particularly evident in oral presentations, group discussions, and technical meetings, where students are often required to articulate complex concepts in a clear and concise manner.

Moreover, the **psychological barriers** faced by students, including a fear of making mistakes and low self-confidence, further exacerbate these linguistic difficulties. The pressure to perform in front of peers and faculty members often leads to anxiety, which hinders students' ability to speak fluently and with confidence. Many students experience self-doubt when engaging in English communication, particularly in formal or public speaking contexts,

which can affect their overall academic performance and their professional opportunities in the future. **Environmental factors**, such as a lack of immersion in English-speaking environments, limited opportunities for informal practice, and reliance on native languages in social settings, are also significant obstacles. The classroom environment in engineering programs tends to focus heavily on written assignments and exams, often neglecting the development of speaking skills. Without regular exposure to English outside the academic context, students miss out on valuable opportunities to practice and refine their language skills.

The consequences of these barriers are far-reaching. On an academic level, students with limited English-speaking proficiency may struggle to participate in seminars, deliver presentations, or engage in technical discussions. In a globalized job market, engineers are expected to collaborate with international teams, present research findings, and participate in conferences where English is the common language. Therefore, the inability to communicate effectively in English can hinder their career progression and limit their professional opportunities. To address these challenges, it is essential to adopt a more comprehensive approach to language learning. Engineering curricula should integrate oral communication skills into everyday academic activities. For example, group discussions, peer-to-peer learning, and oral exams should be regularly incorporated into the curriculum to provide students with more opportunities to practice speaking English. Educational institutions should also offer supplementary language support, such as conversation clubs, language exchange programs, and workshops designed to build speaking confidence.

In conclusion, overcoming the hurdles in speaking English requires a collaborative effort between students, instructors, and institutions. By creating an inclusive and supportive environment that encourages speaking practice, reduces anxiety, and promotes confidence-building, engineering students can enhance their communication skills and become more prepared for global challenges. Improving English-speaking proficiency is not only a necessity for academic success but also an essential skill for engineers who aspire to thrive in an increasingly interconnected and competitive world.

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Conflict of Interest

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