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Challenges and Ways of Developing a Positive Attitude toward the Study of English in Engineering Education

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Abstract: The abilities in English have become indispensable in the other atmosphere of engineering education, both in the global academic system and profession. In spite of its vitality, however, adverse attitudes toward English study are widespread among Engineering students, who commonly regard English as irrelevant to their technical disciplines. In this article, the challenges to realize a positive and motivated perception of English learning in engineering education are discussed alongside suggestions for increasing willingness and motivation to learn English. This study is guided by two research questions: What are the major challenges preventing engineering students from developing a positive attitude towards learning English? What practices might lead to form positive learning attitudes in this type of learning context? This study used a mixed-methods approach combining surveys and interviews with engineering faculty and students. It has been discovered that perceptions of irrelevance, fear of failure and inadequate cultural ties with English language constitute major challenges. Among their suggestions were integrating English into technical coursework, using digital platforms such as TikTok, and fostering collaborative, supportive learning environments. The insights develop understanding of how to align English language education with the needs of engineering students, creating language proficiency and professional preparedness.

Keywords: preparedness, fostering, positive, perceptions

Introduction

In particular, as a global language in academia, interpersonal communication, and commerce, English has become essential, given that disciplines such as engineering require global access to knowledge and collaboration. In the context of engineering study, being able to read or write proficiently in English is of utmost importance ((Alhuqbani, 2014;Alqahtani (2015). Even in technical subjects, however, many students struggle to connect because they see little to no relevance (or even importance) for English in their subjects and subsequently their futures. Multiple studies have documented this problem, demonstrating that students care more about technical

perfection than written words. Ahmed et al. (2013) found that student's ethnic identification and accent estranged them from English and lowered their motivation to engage with the language.

Students' attitudes (and fear of failure) are greatly impacted by anxiety concerning the English language. These authors found that students who fear making errors in oral communication become reluctant to speak in class, thereby reinforcing their negative perceptions of English learning. On the one hand, Alzahrani (2017) found that students are less aware of English language resources such as on-line deposit, it reduces students' motivation and participation.

Literature Review

Perceived Futility of English Language Acquisition

Engineering students view English study as unrelated with engineering practice and as such present a major barrier toward creating a positive attitude toward English study. In a study focusing on perceptions of English preventing equivalent of these hierarchal elements of English in society in Saudi Arabia, Alqahtani (2015) found that the Saudi engineering students often considered English as irrelevant to their technical studies'. Alhuqbani (2014) confirms this as he noted that police cadets in Saudi Arabia preferred content that was undergraduate logical to their subject area rather than general English. Like these cadets, engineering students often view English to be inferior to their technical subjects, leading to a lack of desire to learn the language.

Fear of Failure and Language Anxiety

As a key aspect focusing on pessimism, a fear of failure to speak is a main feature that is responsible for students being reluctant to practice them. According to Alamri & Fawzi (2016), engineering students often feel embarrassed when scolded at oral tasks, that they do not want to participate. In technical fields, the stakes for errors often increase, making this issue all the more salient for language learners in those contexts. As Alharbi (2021) points out, weak learners often face dire challenges, particularly when their language skills are not strongly shaped by practical and contextualized instruction.

Meaning of Digital Tools and Technology has provided a role in enhancing students task with English. According to Alghameeti (2022), TikTok proved to be an instrument that was very effective in endorsing language learning, especially for vocabulary enhancement. Liu (2014) proved that computer-based platforms can promote autonomous out-of-class learning which can significantly enhance learners' willingness to learn on account of the freedom of pace at which they can learn. These applications are particularly relevant of engineering students since they offer out-of-class, real world experience on English approach that align with the interests of the students.

Motivational And Emotional Elements

Motivation is a primary factor of language acquisition and specifically for technical students. Bahous et al. (2011) emphasized that students who are motivated to learn English are more likely to succeed in learning. Hence, motivation creates an impact on English achievement, and the research conducted by Muftah & Rafic-Galea (2013) found a significant correlation between pre-university students' performance and motivation and proved that more intrinsic drive can help improve the learning process. This correlation between motivation and success emphasises the need for the creation of educational environments that interest and excite students.

Cultural Barriers and Contextual Challenges

The native language of a person produces cultural affinity surrounding it, and may deter a person to have a positive attitude towards English. Sharifi Feriz et al. (2017) found that the students who were strongly connected to their first cultural background often viewed instruction in English as an imposition of culture, thus resisting it. According to Fan (2019) Chinese ESL students studying English in Australia experienced cultural dissonance

where their motivation and engagement with the language was hindered. As (Zhu & Zhou, 2012) point out, affective factors (such as anxiety, confidence and cultural fit) play a vital role in language learning outcomes.

Deficiencies in Research

Despite considerable research on the problems of learning English, very little is focused on engineering undergraduate students - particularly with respect to combining English with technical content. While the current literature describes motivating factors, it lacks in practical means to incorporate English language acquisition into students professional and academic aims. The purpose of this study is to fill in these gaps by exploring the development of positive attitudes in English learning in an engineering education environment while considering the implications of technology, collaboration, and the design of curricula.

Investigative Inquiries

1. What are the main challenges hindering a positive attitude toward English learning among engineering students?

2. What strategies can effectively promote positive learning attitudes among these students?

Methodology of Research

Research Methodology

By adopting both quantitative and qualitative data, the study follows a mixed-methods process which exposes the issues and solutions for developing positive perspectives toward the learning of English. A complimentary explanatory sequential design is used, starting with a survey, followed by in-depth interviews to gain a deeper understanding of the issues.

Individuals involved

Participants include 100 government engineering college undergraduate students who study their technical subjects along with English courses at Anna University, Chennai. In addition, a pair of English instructors from the same college is interviewed to gather their perspectives about students' engagement in their practice of language learning.

Data Acquisition Protocol

This quantitative data is collected through a Likert-scale survey assessing students' attitudes, motivations, and perceived barriers in English learning. Qualitative data is gathered through semi-structured interviews with students and instructors, highlighting their experiences in acquiring the English language and suggestions for improvement.

Ethical Considerations

Participants are fully informed of the purpose of the study and consent is obtained prior to data collection. The study process preserves confidentiality and anonymity and ensures participants that their responses will only be used for academic purposes. Ethics statement: The study was carried out in accordance with ethical guidelines for studies involving human subjects.

Exploration and Discussion about the Questionnaire

Responses to the questionnaire provide a detailed view on undergraduate engineering students' attitudes, challenges and strategies when it comes to improving English learning. The participants were evenly distributed across years of study and included various engineering majors, with 100% native Tamil speakers.

Demographic Data

Table: 1 Year of Study Distribution

[redacted]	**First-Year (30%)**
[redacted]	**Second-Year (25%)**
[redacted]	**Third-Year (20%)**
[redacted]	**Fourth-Year (25%)**

As depicted in Table 1, 30% of the subjects were First-Year, indicating a strong representation of the newcomers in the program. In addition, 25% are Second-Year students, and another 25% are Fourth-Year students, suggesting evenly distributed participation across different academic years. Nonetheless, Third-Year students only represent 20%, suggesting they may be underrepresented in the poll.

Table: 2 Major Distribution of Students

[redacted]	Electrical Engineering (40%)
[redacted]	Mechanical Engineering (30%)
[redacted]	Civil Engineering (20%)
[redacted]	Computer Science Engineering (10%)

As Table 2 shows, 40% of responders belong to Electrical Engineering, which makes it the most common major of participants. 30% are from Mechanical Engineering, which shows a strong showing from this discipline as well. 20% of the evaluated students belong to Civil Engineering, and 10% to Computer Science Engineering, indicating various engineering backgrounds among the surveyed participants. 30% in year 1, 25% in year 2, 20% in year 3 and 25% in year 4.

Table: 3 Challenges Faced by Students (Percentage Distribution)

Challenge	**Percentage (%)**
Lack of time	30%
Difficulty understanding concepts	25%
Limited access to resources	20%
Language barriers	15%
Lack of motivation	10%

As can be seen from Table 3, the major issue students face is lack of time since 30% of them cite this as the main hindrance in their education. Then, we know that 25% of students struggle to get their heads around concepts, hence impacting their learning and performance as a whole. Over 20% of respondents are most concerned with limited access to resources, signalling that their academic performance may be dependent on the availability of materials and aid. Additionally, language-related challenges (15%) and a lack of sufficient motivation (10%)

present challenges for smaller segments of the student population -- exposing opportunities where targeted interventions could be beneficial.

Necessary Judgments on Acquisition of English

Table: 4 Attitude Toward English Learning

[redacted]	Very Important (70%)
[redacted]	Important (20%)
[redacted]	Neutral (10%)

Indeed, Table 4 shows that a large proportion of them are (70%) those who believe learning English is really important. Moreover, 20% see it as important, meaning they might not rank it highly as a priority but still understand its value. Well, just 10% of respondents are neutral (suggesting a very small number of students who doesn't seem to care that much about learning English language).

Table: 5 Enjoyment of Learning English

[redacted]	Agree (50%)
[redacted]	Neutral (30%)
[redacted]	Disagree (20%)

As reflected in the Table 5 data, 50% of the pupils enjoyed studying English, showing a positive attitude towards the language. However, 30% stay neutral, indicating a need for better engagement approaches, whereas 20% show disagreement, suggesting potential issues of struggle or lack of relevance. Many students do appreciate English education; however, it is possible to discover the aid for regard readers.

Perceptions of Barriers to English Acquisition

Table: 6 Perceived Challenges in English Learning

[redacted]	Anxiety about Speaking (60%)
[redacted]	Struggling with Technical Terms (50%)
[redacted]	Lack of Relevance to Studies (40%)

According to the Table 6, 60% of students believe that anxiety when speaking is an important factor blocking their English learning, so it is a common phenomenon in students, which makes them lack confidence in learning and making progress. Additionally, 50% reported struggling to understand technical language, which represents a challenge highly relevant to the field of engineering education. Additionally, 40% perceive that English is irrelevant to their studies, hence why they don't learn it — which suggests a schism between what happens in language classes and what students might need for their studies.

Half struggled with technical jargon.

Table: 7 Strategies for Improving Attitudes

Engineering-related Content	[redacted] (70%)
Technology Tools	[redacted] (60%)
Group Discussions	[redacted] (50%)

It shows that 70% of students are in agreement with engineering-related information in their English studies (Table 7) providing a clear bias towards discipline relevant content. Furthermore, 60% of respondents agree with the use of the technological appliances, suggesting that digital resources can facilitate their participation and understanding. Furthermore, 50% of individuals support group discussions as a way to build positive attitudes, underlining collaborative learning's role in developing a positive climate for English learning.

Incentive and Future Prospective

Table. 8 Motivation for Learning English

[redacted]	Career Prospects (80%)
[redacted]	Academic Success (60%)

As shown in Table 8, 60% responded that they value English for their performance in academic context and 80% for their future job. However, nearly half of the participants showed no willingness to study English by feeling happy, and a gap between importance and interest was evident. Participants suggested the need for teaching technical English, as well as for more practical exercises.

Table: 9 Suggestions for Improvement

[redacted]	Integrating Technical English (40%)
[redacted]	Providing Real-life Case Studies (35%)
[redacted]	Increasing Collaborative Tasks (25%)

As shown in Table 9, students expressed that 40% of students on average agree that the integration of technical English in the curriculum strengthens their learning experience significantly, stating that they need appropriate language skills within their specific field. Additionally, 35% advocate for real-life case studies in the curriculum to connect theoretical knowledge to practical applications, and 25% support the addition of collaborative projects in the curriculum to promote collaboration and peer learning. These recommendations highlight the fact that students are seeking a more relevant and enjoyable approach in their English classes. This is in line with Alghameeti (2022) about the use of digital tools.

Descriptive statistics are applied to the quantitative data, while thematic codes for the qualitative data are applied in order to determine recurring patterns. Early results show that students consider English irrelevant to their studies, and many of them expressed fear of speaking. Teachers frequently struggle with student motivation, noting that traditional methods of instruction often fail to engage students.

Results and Suggestions

Findings show that students' negative attitudes towards English are mainly attributed to their view of English as unnecessary in their discipline of expertise, as well as concerns over speaking ability. To overcome these challenges the following techniques are recommended:

English Inclusion in Technical Education: As a curriculum-based proposition, Alqahtani (2015)and Kabooha (2016) have laid the foundation that integration of English inside technical choice fields will allow for additional relevance and user understanding. That could mean teaching technical jargon by using English or explaining technical concepts through English, for instance.

Using Digital Tools have the potential to create a more inviting environment for language learning Alghameeti (2022). These tools must be used in conjunction with traditional methods to enhance engagement.

Creating collaborative learning relieves Bahous et al. (2011) emphasize the importance of peer learning This will lessen their feeling of being judged by others which will help them to give their best during the interactions, thereby reducing anxiety and improving confidence in using English.

Encouraging Cultural Awareness: Sharifi Feriz et al. (2017) show the importance of recognizing and taking students' cultural backgrounds into account while at the same time promoting the international importance of English.

Conclusion

The present study describes the prevailing nature of the impediments leading to an unpropitious attitude of students towards learning English in an engineering setting, such as irrelevance, fear and anxiety. However, using targeted methods including the blending of the curricular and technical subjects, use of technology and appropriate environments for learning, teachers can create a more positive attitude towards English. These strategies improve language-learning and prepare students for the global demands of the engineering community.

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