

# Exploring the Key Determinants of Language Proficiency in Polytechnic Engineering Students: A Critical Examination Using PSA Framework

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## ABSTRACT

English, as the global *lingua franca*, holds significant academic and professional relevance, particularly in non-native contexts such as Bangladesh. Despite its established role in the national curriculum, polytechnic engineering students frequently struggle to achieve the level of English language proficiency required for academic success and professional advancement. This study aims to identify the key socio-economic, psychological, and pedagogical factors hindering the language competence of these students through the lens of the Present Situation Analysis (PSA), a core component of needs analysis in English for Specific Purposes (ESP). The research further examines how these factors impact students' academic performance and employability, and proposes practical solutions to address the challenges. To achieve this, the researcher employed a mixed-method approach, collecting quantitative data from 511 students across ten polytechnic institutions and complementing these with qualitative insights from teachers, current students, and alumni. Data analysis using Microsoft Excel and SPSS highlighted several critical barriers, including students' low socio-economic and educational backgrounds, insufficient prior exposure to English, ineffective teaching methodologies, limited instructional resources, infrastructural inadequacies, teacher shortages, oversized classes, restricted class hours, lack of extracurricular language practice, the predominance of the mother tongue (L1) as the medium of instruction (MOI), and various learner affective and psychological challenges. Based on these findings, the study proposes strategic recommendations to enhance the quality of English language education in polytechnic institutions. These insights are expected to contribute to informed policy-making and the design of context-sensitive pedagogical interventions to improve language outcomes for engineering students in Bangladesh.

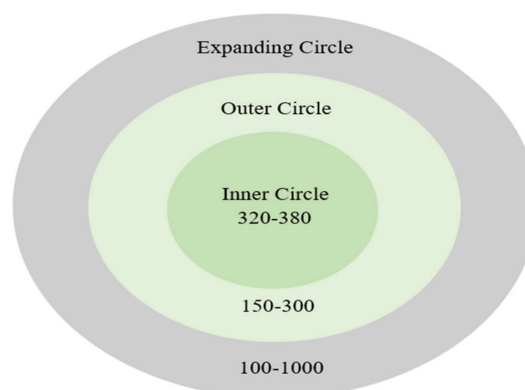
**Keywords:** ESP, Needs Analysis, PSA, Competence, Lingua Franca, EFL, Language Determinants

## 1. INTRODUCTION

English as a global *lingua franca* (ELF, a common language) has gained widespread attention among all nationalities worldwide in research and academic activities [1]-[7], higher education, national and international communications, job, and business sectors. A significant consequence of English's recent globalization has been the rise of non-native speakers (NNSs) in various parts of the world, who now comprise the vast majority of English users [8]. Due to the greater availability and number of non-native English speakers from the expanding circle compared to English speakers in either the inner or outer circles, they tend to utilize English in various academic, socio-cultural, professional, and economic contexts [9], [10].

Kachru's Three Circles Model (Inner, Outer, Expanding) provides a valuable framework for understanding the global spread and functional diversity of English, with a particular emphasis on the Expanding Circle, where non-native speakers predominantly use

English as a *lingua franca* in international settings. This model contextualizes the sociolinguistic realities of English variation and legitimizes the evolving norms beyond traditional native-speaker benchmarks.



**Fig. 1:** Kachru's Three Circles Model of English

The very nature of the internationalization of English thus precedes that it is no longer exclusively bound to

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the prominence of the native speakers (NESs); instead, it is now a sort of plurilithic language with diversities, varieties, and with extensive purposes.

To build English competence among engineering learners in Bangladesh, academic stakeholders have implemented English for Academic Purposes (EAP) and English for Specific Purposes (ESP) courses within the first two years of study [11]. However, students, especially those in polytechnic engineering, continue to struggle with mastering English language rules and strategies, which negatively affects their academic and professional performance [12]. These challenges are entrenched in systemic issues such as grammar-focused teaching methods, insufficient teacher training, and extensive reliance on Bangla as the medium of instruction, which collectively hinder the acquisition of English communicative competence [13], [14]. The ongoing difficulties underscore an urgent need to identify precise contextual factors that influence English learning and to develop effective, locally informed strategies to address them.

This study examines the intricate interplay of socio-economic, psychological, and pedagogical determinants that influence English language acquisition among diploma-level engineering students in Bangladesh. Grounded in the Present Situation Analysis (PSA) framework, the research examines how these interrelated variables restrict students' ability to develop adequate language proficiency. These constraints have significant implications for their academic achievement and future professional engagement, as inadequate language skills impede their ability to access technical content, communicate effectively, and compete in globalized job markets. The study further aims to identify practical, context-sensitive solutions that address these barriers and support the development of targeted pedagogical strategies to enhance language outcomes in polytechnic education.

### 1.1 Background of the Research Context

English, recognized as the *global lingua franca* [15], is a primary medium of communication across academic, professional, and technical domains worldwide. Cogo and Pitzl assert that English is now a truly international language for business, education, science, and global interaction [16]. With globalization intensifying cross-border communication, English has become essential in workplace settings [17]. For engineering and science students, English facilitates access to specialized knowledge and professional discourse [18]. As a result,

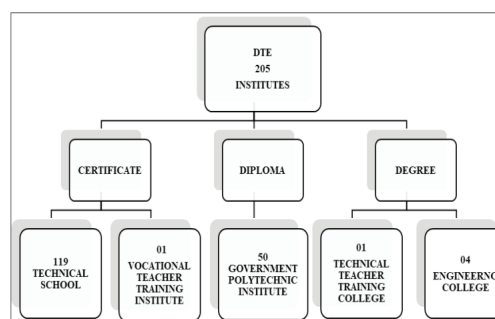
English language proficiency is prioritized in technical and vocational education globally, including in Bangladesh, where it is viewed as a vital tool for economic advancement and integration into the global market. Recognizing this, the Bangladeshi government has mandated English education at all levels, with a particular emphasis on its role in achieving Sustainable Development Goal 4, which aims to ensure inclusive, equitable, and quality education [19].

In Bangladesh, polytechnic students study English as a part of their four-year diploma program. These courses, grounded in English for Specific Purposes (ESP), aim to develop communicative skills relevant to technical disciplines. However, despite curriculum integration, many students struggle due to their socio-economic backgrounds, limited English exposure, and anxiety around language learning.

Diploma engineering students often come from Bengali-medium instruction backgrounds and rural or lower-middle-class families. Although these students acquire significant technical skills, their limited English proficiency obstructs their academic success and employability. Many students hesitate to communicate in English, both in and out of the classroom, due to fear, lack of confidence, and insufficient pedagogical support.

Moreover, while some diploma graduates pursue further education, such as B.Sc. engineering degrees from institutions like Dhaka University of Engineering and Technology, Gazipur, many enter the workforce directly. This bifurcation highlights the need for English skills that are both academically and professionally viable.

It has been found that, under the Directorate of Technical Education (DTE), 205 institutions operate technical education at the certificate, diploma, and degree levels. Among them, 50 government polytechnics offer diploma-level engineering education. These institutes aim to produce skilled mid-level technicians, but the gap in English proficiency continues to hinder the full realization of this goal.



**Fig. 2:** Technical Institutes Division Under DTE

Note. Adapted from the Directorate of Technical Education (DTE) Webpage, Bangladesh

The research highlights key areas where Bangladeshi polytechnic learners encounter significant challenges related to language proficiency, specifically in curriculum design, materials development, assessment practices, and teacher training, all of which require targeted improvement. While existing literature has examined learners' short-term English needs and challenges [20], [21], few studies have addressed comprehensive second language acquisition (SLA) practices, including learner autonomy, affective filter, needs-based instruction, and socio-economic and socio-cultural factors. The absence of these elements can significantly impede language development [22], [23].

This study adopts a needs analysis approach, examining the PSA framework for Bangladeshi polytechnic students to investigate the socio-economic, psycho-social, and pedagogical factors that pose challenges to their language competency. Hence, it examines their current language competencies and learning conditions that hinder their overall academic and professional achievement. By evaluating these factors, the study seeks to inform policy and curriculum development for more effective ESP implementation in Bangladesh's technical and vocational education system.

## 1.2 Implications of the Research Paper

Bangladesh is progressing toward achieving a developed country status, marked by advancements in education, technology, and trade. However, persistent unemployment, particularly among graduates, remains a significant challenge. One viable solution lies in strengthening technical and vocational education, which directly contributes to the development of skilled human resources. Enhancing polytechnic education, particularly through improved English language instruction, can play a pivotal role in addressing this issue, as English serves as a crucial gateway to global communication and employment opportunities.

Polytechnic students, as future engineers, have the potential to significantly impact sectors such as transport, construction, electronics, and textiles. However, many come from rural, underprivileged backgrounds and lack adequate educational support, particularly in English proficiency. Addressing this gap through targeted English language learning and needs-based instruction will better equip them for the job market, potentially reducing unemployment and supporting sustainable economic development.

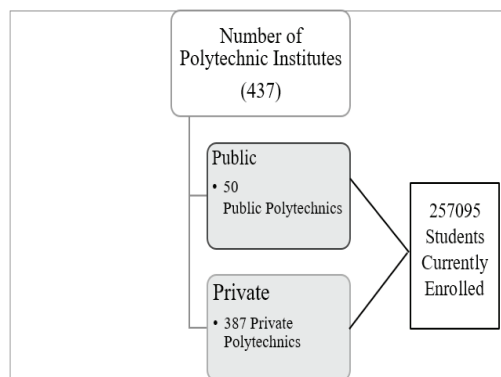
## 1.3 Problem Statement

Globalization has positioned English as the dominant medium of communication in engineering education and professional practice [24], [25]. Engineering students have to navigate English-based lectures, research materials, and technical documentation during their studies and use the language in professional contexts for collaboration and communication.

Bangladesh hosts 437 polytechnic institutes, comprising 50 public and 387 private institutions, with over 257,000 students enrolled [26]. Many students graduate annually, most continuing their education toward a B.Sc. degree.

Despite the scale of enrollment, English proficiency among these students remains limited. The primary factors include socio-economic disparities, inadequate teaching methodologies, and limited institutional resources [27]. Many students come from rural backgrounds and lack exposure to English in their formative years, which affects their ability to engage with technical content in English.

The curriculum in these institutes typically offers two English for Specific Purposes (ESP) courses, which are often insufficient in terms of content and duration. Furthermore, classrooms often consist of learners with varied proficiency levels, yet the instruction is not differentiated accordingly. Language instruction largely relies on the grammar-translation method, emphasizing rote memorization of grammar rules over functional language use [28], [29]. This results in the neglect of productive skills, such as speaking and listening, which are essential for effective workplace communication.



**Fig. 3:** Number of Polytechnic Institutes and Students in Bangladesh [23]

Institutional challenges, outdated curricula, and the lack of infrastructure hinder the development of comprehensive English language skills [30], [31]. Addressing these

gaps requires a thorough needs analysis framework, specifically the Present Situation Analysis (PSA). This study, employing a mixed-method approach, explores these determinants to inform ESP curriculum reform and enhance the employability of Bangladeshi polytechnic engineering students in national and international contexts.

#### 1.4 Research Questions

To critically investigate the existing realities of language development and learning challenges faced by Bangladeshi polytechnic learners, this paper formulates the following research question as the central focus of its inquiry.

1. What are the socio-economic, psychological, and pedagogical factors that influence the language proficiency levels of diploma engineering students as assessed through the PSA framework?
2. How do they affect their academic and professional competence?
3. What are the probable solutions to address these factors?

## 2. THEORETICAL OVERVIEW

### 2.1 Need for Technical Education in Bangladesh

A developing country like Bangladesh's economic and technological development largely depends on its investment in science, technology, and engineering education. Bangladesh needs engineering education more for the certainty of financial stability than developed countries do. Chowdhury and Alam thus advocate that "a nation can move forward and secure a place in global trade if it is adept and developed in technological and engineering education despite being deficient in wealth, power, and natural resources. The global industry and the demand in technical fields heightened the ardent need for engineers in Bangladesh. Accordingly, engineering education is valued highly in Bangladesh because it has immensely influenced and developed the nation's economic growth and sustainability" [32].

Thus, to make the country culturally, socially, and economically advanced in the global village, the prospect of engineering education and engineers can contribute immensely to all sectors of Bangladesh. Besides, the resurgence of technological advancement, industrialization, and globalization advocates the demand for quality education. It helps promote a country's economic, social, cultural, and national development. Quality education can be ascertained through the formation of human resource development. To equip the

learners with quality education, they need different skills to determine their human capacity [27].

Educational institutions play a crucial role in providing skills related to technical education and vocational training to designated learners. It is evident that a close relationship exists between a country's technical education system and its socio-economic and cultural development. It is an overriding requirement for Bangladeshi learners to be skilled in technical and vocational education and training to keep pace with the global community and its development force. Inopportunately, Neelim and Siddiqui have noticed that "the majority of students in Bangladesh predominantly enroll in mainstream schools and madrasa education, with a tiny fraction opting for vocational schools. Consequently, there is a limited supply of individuals equipped with vocational skills that align with both domestic and international labour market demands. Hence, Bangladesh primarily participates in the international labour market for unskilled and semi-skilled workers. These circumstances require reformulation of the education system to increase the pool of vocationally skilled human resources that can effectively cater to domestic and international job markets" [33, pp. 30-32].

Bangladesh's Technical and Vocational Education and Training (TVET) is striving to provide learners with specialized, practical knowledge of technologies and skills. Here, TVET runs short-length courses that last 360 hours. It also has a three-level formal technical education. They offer two-year vocational SSC, two-year vocational HSC, and four-year diploma courses in various engineering disciplines, including civil, mechanical, architecture, and electrical. Students can pursue diploma degrees from various public and private polytechnics located in different regions of Bangladesh.

Likewise, language proficiency is essential for polytechnic engineering students to become competent global engineers. It is used as the medium of instruction (MOI) in almost all engineering institutes in Bangladesh. Currently, 257,095 polytechnic students are pursuing their four-year diploma in engineering courses from various polytechnic institutes in Bangladesh, who urgently need English to secure a place in the global market [26]. The requirement of English for engineering students in Bangladesh is evident in the culture of offering English as a compulsory ESP course in their first or second year of academic study. Regrettably, the language proficiency of polytechnic learners is found to be dissatisfactory due to socio-economic, cultural, infrastructural, and institutional logistical factors. Therefore, this paper attempts to examine



the determinants that hinder their language proficiency through the present situation analysis (PSA) framework.

## 2.2 ESP and PSA Framework as Theoretical Base

English for Specific Purposes (ESP) began its journey nearly fifty years ago because of the demand for English language skills in worldwide occupational pursuits; the transitional phase evolved in theoretical and applied linguistics, and the burgeoning stance in educational institutions for learners' justification for their needs.

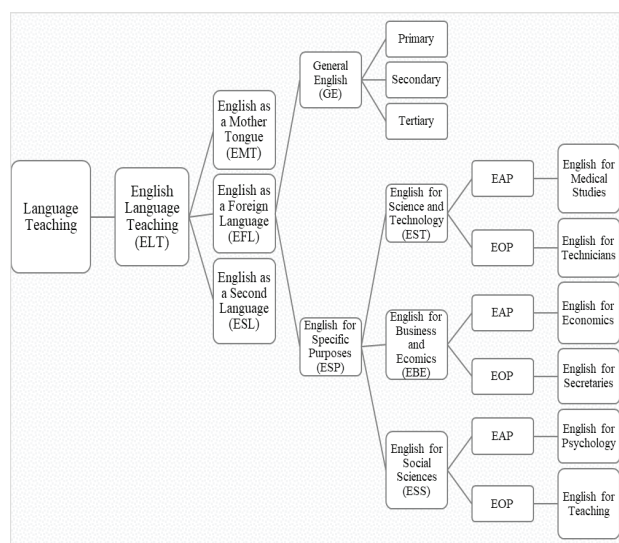


Fig. 4: The Prognoses of ELT and ESP [31]

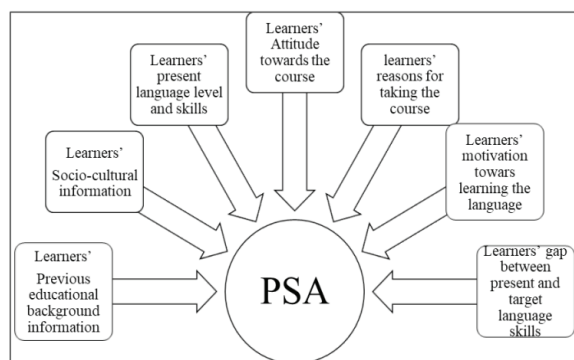
Hutchinson and Waters demarcated that ESP emerged during the mid-1980s as a part of the learner-centered style of teaching under the broly term EFL/ESL. It is a subfield of English language teaching (ELT) and learning that focuses on the language needs of learners in specific fields or professions [34]. One of the key components of ESP is the Needs Analysis (NA), a process that determines the language needs of learners. The NA process helps teachers identify what language skills and knowledge learners need to achieve their goals. It is again seen as a pre-course evaluation process and is crucial for the successful implementation of ESP. ESP needs analysis identifies the precise language needs of a particular group of learners to design an appropriate English language curriculum. ESP is notable for its purpose-oriented learning and teaching, which incorporates authentic and contextual materials, prioritizes affective and emotional factors, and emphasizes the nature of self-guided and directed learning.

Earlier, the learners as psycho-social human beings and their affective prospect of emotional behaviour were not emphasized in language-learning theories of English. However, the development found in ESP initiated the learners' prominence by emphasizing their affective factors in learning [35]. Thus, it guides the learners toward communicative tasks and the meaningfulness prospect of the language.

Students' language learning needs and determinants can be identified through present situation analysis (PSA), learning situation analysis (LSA), and target situation analysis (TSA). Robinson demonstrated that "needs analysis is formed of two types of the students' requirements in verbal skills. They are the present situation analysis (PSA) and target situation analysis (TSA)" [36, pp. 8-9]. Dudley-Evan and St. John augment another form of student needs: learning situation analysis (LSA). It focuses on the students' felt needs, subjective opinions, and requirements, as well as their process-oriented needs in the teaching-learning context and language skills [37].

PSA aims to assess and classify the students' current language levels and language skills needs at the beginning of their ESP courses, whereas TSA proposes to identify and categorize the language needs required in the target socio-cultural authentic contexts. Therefore, PSA determines the students' existing language status. It is sought by identifying their language proficiency, whether their level is primary, secondary, or advanced, and through their educational background information. Richterich and Chancerel presented intriguing efforts to consider the learners' PSA while addressing English language learning needs. It helps to emulate the linguistic gap between what the students face before the course starts and what actions need to be accomplished after the course ends [38]. It is the "lack" of students in the language course.

In this study, the author employs the PSA framework as a theoretical base to identify the challenges polytechnic engineering students face in learning English as an ESP course. The key factors essential in identifying PSA include the learners' language level, knowledge of the language and skills, their previous educational and cultural background, their attitude and motivational prospects for the course, and the reason for pursuing this course.



**Fig. 5:** Present Situation Analysis (PSA) Components (Author's creation)

The learners' gap between their existing language skills and the target language level they aim to develop is also addressed in this section of PSA. McDonough specified that PSA deals with the "fundamental variables" of language learners and language learning contexts that must be considered before conducting TSA [39].

As ESP is specialized in its nature, aims, and objectives, various challenges emerge for both teachers and learners in pedagogical contexts. These challenges include selecting appropriate content, materials, techniques, textbooks, and assessment methods, as well as ensuring adequate logistical and administrative support. Policy and funding limitations often exacerbate these issues, restricting the availability of resources and the implementation of targeted curriculum development [34]. Furthermore, the effectiveness of ESP instruction is influenced by the emotional and psychological states of learners. According to Krashen's Affective Filter Hypothesis, factors such as motivation, self-confidence, and anxiety can significantly impact language acquisition; a high affective filter may hinder input from being processed effectively, while a low affective filter can facilitate learning [40]. Therefore, addressing both institutional constraints and affective factors is crucial in successfully implementing ESP programs tailored to learners' specific needs.

Brown found three constraints that are generally encountered in ESP language learning situations. They are situational, stakeholder, and theoretical, which also comply with the PSA prospects [41].

Patil revealed that 75% of engineering students come from rural socio-economic backgrounds [25]. As they come from regional English language medium schools, they face obstacles in understanding the English language at every step of their life and careers. Thus, problems are noticed in the proficiency levels of students who are from rural and urban areas. The language inadequacy of the majority of the students led to inconsistency in selecting and applying materials, strategies, methodologies, and

approaches to teaching English holistically. Similarly, non-local and culturally inconsistent textbooks create problems for students to be intrinsically motivated to learn English, as they are generally removed from local and cultural realities [42].

Constraints	Situational	Society
		Policy/Policies
Stakeholder		Resource
		Curriculum
		Students
		Teachers
Theoretical		Local Administrators
		Approaches
		Syllabus

**Fig. 6:** Constraints Found in ESP Context

Besides, some other challenges appear in terms of the lack of trained English teachers and practitioners, inadequate ESP resources and materials, and students' poor socio-economic and educational background, which have greatly influenced the use of local or mother tongue instead of English as MOI in the tertiary level education system. It is directed at using the local language or L1 as MOI in classroom teaching and assessing the students using English [43], [44]. The use of L1 in classrooms introduces "translanguaging," a pedagogical practice where language exposure and input are provided in one language, and students are assessed in another, especially in bilingual classes [45].

It has been found that a handful of studies have been conducted on the analysis of ESP needs and challenges for polytechnic engineering learners. Unswervingly, certain aspects of language determinants in the context of Bangladeshi polytechnic engineering students have still not been advocated so far by any prospective researcher. More specifically, the challenges faced by polytechnic engineering students have not been adequately addressed, as they do not align with learners' preferences in selecting content, materials, techniques, methods, and approaches for learning English. Furthermore, no in-depth research study has been conducted to examine the teaching-learning challenges prevailing in Bangladesh's polytechnic engineering contexts, particularly in learning English as an ESP course. As their needs are not justified in their syllabus, it has been found that most diploma engineering students feel demotivated to learn English, and their affective filter becomes higher.

As a result, in most cases, Bangladeshi polytechnic engineering students remain incompetent in their language

skills and fail to secure the higher academic education and prospective careers they desire. These perspectives on inattention necessitate more significant research implications for identifying the challenges that polytechnic engineering students face in learning English. Therefore, this research work aims to address the gap that prevails in the polytechnic engineering sector in Bangladesh, specifically in identifying language impediments among students.

#### 4. METHODOLOGY OF THE RESEARCH

This section of the research focuses on the method that has been applied in this study. It has considered the research design, including population, sampling, data analysis, and the construction of the instruments used for the study.

##### 4.1 Nature of the Research

The research has employed both qualitative and quantitative methods to collect research data. Hence, it is mixed-methods (Qn-QI) research. It has used survey questionnaires and interviews as part of the mixed-methods strategy.

##### 4.2 Population

For this study, the target population is drawn from the engineering sector, with Bangladeshi engineering students specifically identified as the target group. The reason for selecting them as the target population is that they are believed to comprise a larger proportion of the population in a country like Bangladesh. Additionally, they have been identified as the most expedient sources of human resources over the last couple of years, who can consistently influence and contribute to the country's sustainable development through their expertise and skills.

##### 4.3 Sampling

The samples that have been used in this research study were selected from polytechnic engineering learners studying at different public polytechnic institutes in Bangladesh. For the students' questionnaire survey data, the researcher took a sample of five hundred eleven (511) polytechnic engineering students who have completed the two English courses [English- I (25712) and English- II (25722)] from ten diverse public polytechnic institutes situated in five divisions of Bangladesh. The participants were randomly selected from the six departments (Civil Technology, Mechanical Technology, Electronics Technology, Computer Technology, Power Technology, and Architecture).

For the students' interview data, the researcher randomly chose fifteen (15) present polytechnic students from the six departments mentioned above, ten (10) English instructors for the teachers' interview data, and six (6) alumni students for the alumni interview data.

##### 4.4 Data Analysis Instrument

For quantitative analysis, the scholar used SPSS software version 20 and MS Excel, and for the qualitative component, she employed descriptive analysis and textual/content analysis procedures. The findings are presented using tables and graphs, displaying data in terms of frequency (F), percentage (P), cumulative percentage (CP), mean (M), standard deviation (St. D), and mode (Mo). Four-point Likert scales are used to present the language skills and the severity of challenges encountered at the research sites while learning English as an ESP course.

**Table I:** The List of Polytechnic Institutes and the Number of Students

Name of Polytechnic Institutes	Division	Name of the Departments						Frequency	Percentage (%)
		Civil	MECHANICAL	ARCHITECTURE	ELECTRONICS	POWER	COMPUTER		
Dhaka Polytechnic Institute	Dhaka	115	115	114	66	44	22	556	10.96%
Narsingdi Polytechnic Institute	Dhaka	113	110	N/A	99	NN/A	113	445	8.81%
Munshiganj Polytechnic Institute	Dhaka	221	112	NN/A	99	55	77	554	10.57%
Mymensingh Polytechnic Institute	Mymensingh	115	88	NN/A	111	77	99	550	9.78%
Sylhet Polytechnic Institute	Sylhet	221	113	NN/A	44	33	66	447	9.20%
Khulna Polytechnic Institute	Khulna	114	44	NN/A	111	112	88	449	9.59%
Kulna Mahila Polytechnic Institute	Khulna	99	NN/A	117	221	N/A	110	557	11.15%
Kustia Polytechnic Institute	Khulna	99	115	NN/A	113	33	117	557	11.15%
Jhenidah Polytechnic Institute	Khulna	226	NN/A	NN/A	222	NN/A	88	556	10.69%
Dinajpur Polytechnic Institute	Rangpur	88	112	110	NN/A	NN/A	110	440	7.83%
N =								511	100%

The four-point Likert scale is employed as a structured and reliable instrument to quantify the self-assessed language proficiency levels of polytechnic learners. It facilitates clear differentiation across performance categories and enables statistically meaningful analysis of their abilities and challenges in ESP course contexts [46].

**Table II:** Mean Range Value for Likert Four-Point Scale [46]

Numerical Value	Items	Range/ Mean Interval Scale	Descriptive Mean Equivalent / Interpretation
1	Very Poor	1.00 - 1.75	Poor Language Skill
2	Below Average	1.76 - 2.49	Below-average Language Skill
3	Average	2.50 - 3.24	Average Language Skill
4	Excellent	3.25 - 4.00	Excellent Language Skill

#### 4.5 Conceptual Theories Applied in this Study

The study employs multiple theoretical approaches to systematically identify and analyze critical variables in language learning, with a focus on the specific features and challenges associated with the PSA framework.

The researcher used Brown's framework when choosing the interview questions for the study's concerned stakeholders [37].

**Table III:** Theories Applied in this Research

SL.	Name of the Theorist/s	ESP Needs/Determinants Identifying Theories
1.	Richterich and Chancerel (1977)	Present Situation Analysis (PSA)
2.	Jordan (1997)	"Means Analysis" for identifying the existing challenges

**Table IV:** Interview Scheme Used in this Research [37]

SL.	Areas Addressed	What to Ask About
1.	Abilities	<ul style="list-style-type: none"> <li>General language aptitudes, proficiencies of students, especially with regard to reading, writing, speaking, listening, pragmatics, but also their abilities in the same aspects of the ESP involved</li> </ul>
2.	Problems	<ul style="list-style-type: none"> <li>Difficulties and problems participants perceive in a particular ESP learning and teaching context</li> </ul>

SL.	Areas Addressed	What to Ask About
3.	Attitudes	<ul style="list-style-type: none"> <li>Wants, desires, and attitudes (for example, toward the language being studied, toward existing course objectives, and toward the ESP involved)</li> </ul>
4.	Priorities	<ul style="list-style-type: none"> <li>Topics, activities, functions, skills, grammar points, vocabulary, and so on that stakeholders' feel are most important, second most important, third most important, and so on</li> </ul>
5.	Solutions	<ul style="list-style-type: none"> <li>Answers or solutions to whatever problems or issues are uncovered in the process of gathering NA data</li> </ul>

## 5. FINDINGS OF THE STUDY

This section of the research presents the interpretation and findings of survey data, with a focus on the insights gathered from student questionnaires. Additionally, the study incorporates results from interviews conducted with current students, teachers, and alumni to identify the key issues affecting language development among polytechnic learners.

### Q1. What is your Current Level of English Language Skills?

Table V presents participants' self-assessments of their English language proficiency across various skills, measured on a 4-point scale (1 = very poor, 2 = below average, 3 = average, 4 = excellent). Overall, respondents reported average competence in listening, reading, and writing but below-average ability in speaking, grammar, and vocabulary.

Listening comprehension was rated as average ( $M = 2.89$ ,  $SD = 0.764$ ), with 63% of respondents identifying their ability as average, 17% as excellent, and only 20% as below average or very poor. In contrast, speaking fluency and confidence received a below-average rating ( $M = 2.27$ ,  $SD = 0.834$ ), with 35% rating it as below average and 21% rating it as very poor, while 40% considered it average.

Similarly, accuracy in speaking was also rated below average ( $M = 2.27$ ,  $SD = 0.878$ ), with 34% rating themselves below average, 22% very poor, and only 6% excellent. Reading comprehension was viewed more favorably ( $M = 2.96$ ,  $SD = 0.724$ ), with 59% rating it average and 21% excellent.

In writing, participants assessed their academic writing accuracy as average ( $M = 2.70$ ,  $SD = 0.775$ ); 55% rated themselves average, while 25% rated below average



**Table V:** Students' Current Level of English Language Skills

English Language Skills	Excellent (E)		Average (A)		Below Average (BA)		Very Poor (VP)		M	St. D	Mo	Cur-rent Level
	F	P	F	P	F	P	F	P				
Understanding other speakers while listening	85	17%	321	63%	67	13%	38	7%	2.89	.764	3	A
Fluency and confidence in speaking	22	4%	202	40%	178	35%	109	21%	2.27	.834	3	BA
Accuracy in speaking	32	6%	189	37%	176	34%	114	22%	2.27	.878	3	BA
Comprehension when reading any text	106	21%	300	59%	86	17%	19	4%	2.96	.724	3	Av
Accuracy in academic writing	59	12%	283	55%	128	25%	41	8%	2.70	.775	3	A
Accuracy in Grammar	40	8%	237	46%	167	33%	67	13%	2.49	.819	3	BA
Range of vocabulary	52	10%	219	43%	163	32%	77	15%	2.48	.869	3	BA

and 12% excellent. Grammar accuracy was rated below average ( $M = 2.49$ ,  $SD = 0.819$ ), with 33% identifying as below average and 13% as very poor. Only 8% considered their grammar excellent. Finally, the vocabulary range was also assessed as below average ( $M = 2.48$ ,  $SD = 0.869$ ), with 32% rating it as below average and 43% average. One of the students in an interview session uttered:

*"I have always been more inclined towards developing my core disciplined courses, focusing more on numbers and equations rather than language skills. Unfortunately, it has left me with a language level that I would describe as below average. I fight with conveying my ideas expressively in reading, writing, and verbal formats."*

Despite acknowledging the critical role of English in polytechnic education, instructors report that students' current proficiency levels fall significantly short of expected standards across multiple domains. According to teacher evaluations, 90% rate students' listening comprehension as poor, and an equal proportion identify a lack of fluency and confidence in speaking. One teacher expressed his concern as:

*"Out of every 40 to 50 students, there are two to three students who really want to study English and do well in English. As they are concerned about their future career. The rest are poor in language skills*

*and just want to pass the exam. The rest of the weak students are not able to improve their condition even if the teachers put a lot of pressure on them. But this situation will improve if students are more interested in English."*

Additionally, 85% note deficiencies in spoken accuracy, 65% report weak reading comprehension, and 55% highlight inadequacies in academic writing. Furthermore, 70% of instructors observe insufficient grammatical knowledge, while 75% assess students' vocabulary range as inadequate. Likewise, the alumni also stressed that polytechnic learners tend to be weaker in speaking, vocabulary, listening, and grammar skills than in writing and reading skills.

These results suggest that productive language skills (e.g., speaking and vocabulary) were perceived as less developed compared to receptive skills (e.g., listening and reading), and they highlight potential areas for targeted instructional support.

Table VI outlines the frequency and percentage of responses from Bangladeshi polytechnic engineering students regarding perceived causes of their English language weaknesses. Participants were asked to identify factors contributing to their language difficulties across six predefined categories.

The most frequently cited factor was the lack of English learning facilities in academic institutions, reported by 348 respondents. It highlights a perceived inadequacy in institutional support, including limited access to language labs, libraries, and multimedia resources. The second most reported factor was the lack of opportunities to practice English outside the classroom (n = 312), which reflects insufficient exposure to authentic communicative contexts such as language clubs, conversational interactions, or extracurricular language activities.

## Q2. What do You Think are the Reasons for Weakness in English?

**Table VI:** Reasons for Polytechnic Students' Weakness in English

SL.	Reasons for Weakness in English				
	Options	F	P	VP	CP
1.	Lack of English learning facilities in your academic institutions	348	26.1	26.1	26.1
2.	Lack of opportunities to practice outside the classrooms	312	23.4	23.4	49.5
3.	Lack of English teachers' co-operation	203	15.2	15.2	64.8
4.	English phobia as a foreign language	101	7.6	7.6	72.4
5.	Weakness in English since childhood	195	14.6	14.6	87.0
6.	Weak syllabus of English	173	13.0	13.0	100.0
	Total	1332	100.0	100.0	

The third prominent cause was the lack of co-operation from English teachers, as indicated by 203 participants. It suggests perceived deficiencies in instructional support, motivation, and engagement from educators. Additionally, 195 respondents attributed their weakness to a long-standing difficulty in English since childhood. It reflects foundational gaps in early language education.

Another contributing factor, identified by 173 participants, was the ineffectiveness of the English syllabus, suggesting a misalignment between curriculum content and learners' needs. Finally, 101 students reported English language anxiety or phobia as a key issue, implying that psychological barriers such as fear or low self-confidence negatively impact their language acquisition and use.

Both teachers and alumni concur that polytechnic learners face significant challenges in acquiring the English language, mainly due to their disadvantaged socio-economic and cultural backgrounds. These learners have limited exposure to English, insufficient academic resources and learning facilities, and a lack of structured opportunities for language practice. One teacher uttered as:

*"It is seen that the main reason is that English only remains in two semesters, 1st and 2<sup>nd</sup> in their first academic year. The credit for each course is only 2. Besides, the result of the first year in their diploma program contributes only 5% to their overall result. As English remains in its first year, the proportion for contribution in English goes to only 2 to 3%, which is very much scanty compared to the overall result of 100%."*

Another teacher outlined the phobia of English since childhood as:

*"The students somehow pass English with a little study as if they want to be trouble-free. They treat it like a course of antibiotics. A big reason for this is their fear of English. Having a weak background in English, they somehow want to pass engineering subjects well. Besides, English is considered an optional subject required only for the examination to them."*

These findings reveal that students' language difficulties are influenced by a combination of institutional limitations, pedagogical gaps, curriculum inadequacies, and psychological factors.

## Q3. How do you Value the Importance of Learning English for Polytechnic Engineering Students?

Table VII illustrates the Bangladeshi polytechnic engineering students' perceptions of the importance of learning the English language. The data reveal a strong consensus on its critical role in academic and professional advancement.

**Table VII:** Students' Perception Toward the Value of Learning English

SL.	Importance of Learning English				
	Options	F	P	VP	CP
1.	Absolutely essential	341	66.7	66.7	66.7
2.	Important	159	31.1	31.1	97.8
3.	Moderately important	10	2.0	2.0	99.8
4.	Not important at all	1	0.2	0.2	100.0
	Total	511	100.0	100.0	

A substantial majority (n = 341) regarded English as “absolutely essential,” while 159 participants rated it as “very important.” Only 10 respondents considered it “moderately important,” and a single participant deemed it “not important at all.”

During the Interview, one Student Said:

*“In the present world, learning English is very important for all. Because in our daily activities, English is ingrained invisibly, and its existence and significance cannot be undermined. I need to develop my skills for educational achievement in my polytechnic and B.Sc phases and for my career pursuits.”*

Similarly, teachers and alumni also recognized its importance for both pedagogical and professional excellence. One of the teachers opined on the importance of English as:

*“For polytechnic engineering students, English is very important. I think they will need the English language for higher studies and the job sector as well.”*

As well, one Alumnus Expressed their Need as:

*“Some of our senior brothers who joined the Ruppur Power Plant were sent to Russia directly after joining for their first training. As the whole training is conducted in English in a foreign setting, it seems to me that English is, of course, important for both professional development and communication.”*

#### Q4. Why are you taking this course/s?

Table VIII outlines the motivations of Bangladeshi polytechnic engineering students for enrolling in English language courses, categorized into six predefined options.

The most frequently reported reason (n = 362) is the belief that English proficiency enhances social status. It suggests that students perceive the language as a means for achieving upward social mobility and greater life opportunities, particularly in professional contexts. The second most common motivation (n = 308) is the pursuit of higher education, reflecting awareness of English as a key medium of instruction in both national and international academic institutions.

Additionally, 277 students cited improved employment prospects and financial stability as a major reason for studying English. It highlights the language’s perceived value in an increasingly competitive job market. A total of 229 participants reported academic purposes,

such as enhancing writing, communication, and research skills, as their primary motivation.

**Table VIII: Students’ Reasons for Taking the English Course/s**

SL.	Reasons for Taking English Course/s				
	Options	F	P	VP	CP
1.	The course is compulsory	185	12.2	12.2	12.2
2.	For academic purposes	229	15.1	15.1	27.3
3.	Learning English will enhance your status	362	23.9	23.9	51.2
4.	Help getting a job	277	18.3	18.3	69.5
5.	For higher study	308	20.3	20.3	89.8
6.	Because learning English is interesting to me	154	10.2	10.2	100.0
	Total	1515	100.0	100.0	

A further 185 students noted that English courses were a compulsory part of their academic program, while 154 expressed a genuine interest in the language itself, including its literature and culture. Likewise, teachers and alumni viewed the course as necessary for academic, social, professional, and higher studies.

These results demonstrate the diverse and layered motivations behind English language learning, shaped by practical, academic, and personal factors. They also point to the importance of aligning English curricula with the real-world goals and needs of learners in polytechnic education.

#### Q5. What is your Polytechnic Background?

Table IX presents the educational backgrounds of Bangladeshi polytechnic engineering students. The majority of respondents (n = 427) reported completing SSC General, which offers a broad academic curriculum without vocational specialization. The second most common background was SSC Vocational (n = 71), indicating prior exposure to industry-specific skills. A small minority reported completing HSC Vocational (n = 11) and HSC General (n = 2), and they likely represent limited representation from higher secondary education streams.

The teachers’ and alumni interview data also represent the same scenario. However, some teachers noted that, to some extent, students from madrassas and vocational backgrounds are comparable to those from the general SSC level in certain polytechnics.

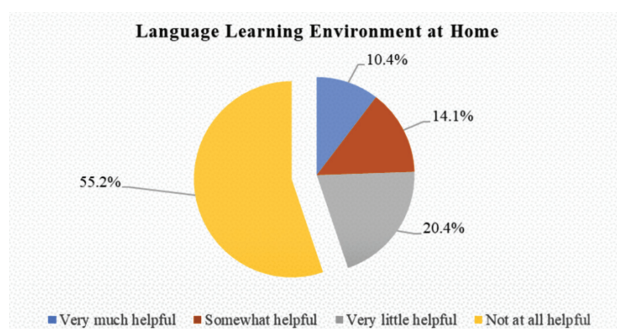
**Table IX: Students' Polytechnic Background**

SL.	Learners' Polytechnic Background				
	Options	F	P	VP	CP
1.	SSC vocational	71	13.9	13.9	13.9
2.	SSC general	427	83.6	83.6	97.5
3.	HSC vocational	11	2.2	2.2	99.6
4.	HSC general	2	0.4	0.4	100.0
	Total	511	100.0	100.0	

#### Q6. How was the Learning Environment at Your Home?

Figure 7 presents participants' evaluations of the English language learning environment at home. Over half of the respondents (55.2%) reported that their home environment was *not at all helpful*, indicating a substantial lack of familial or material support for language development. A further 20.4% described it as *minimally supportive*. It suggests that while some language-related resources or encouragement may exist, they are insufficient to make a meaningful impact.

Only 14.1% of respondents found their home environment *somewhat helpful*, which reflects inconsistent or limited support. Notably, just 10.4% considered it *very helpful*, revealing that strong home-based reinforcement of English language learning is rare among these learners.

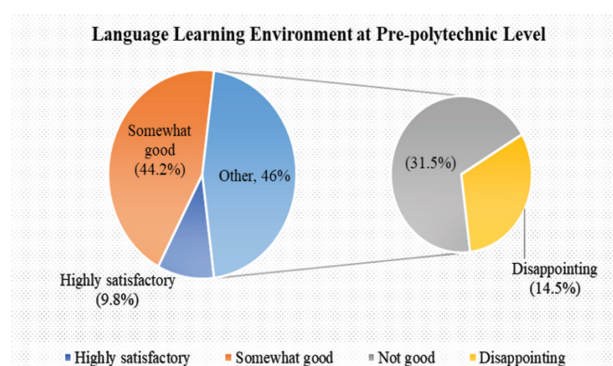


**Fig. 7:** Students' Perception of the Learning Environment Experienced at Their Homes

The interview data gathered from three-level participants also indicate the same scenario regarding the home atmosphere as a language learning setting. Thus, these findings highlight a critical gap in domestic language support, which likely hinders learners' ability to develop proficiency outside the classroom.

#### Q7. How was the Learning Environment at Your Pre-Polytechnic Level?

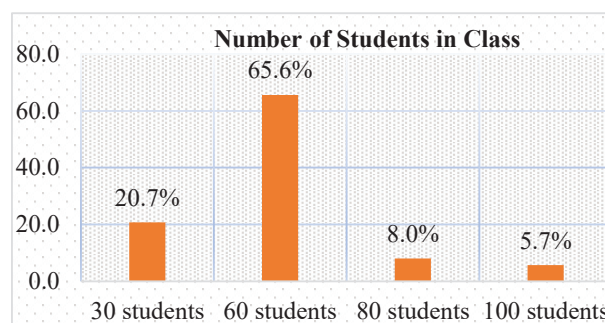
The pie chart illustrates students' perceptions of their language learning experiences before entering polytechnic education. According to the data, 44.2% of respondents rated the environment as "somewhat good," while only 9.8% found it "highly satisfactory." In contrast, a considerable portion expressed dissatisfaction: 31.5% rated the environment as "not good," and 14.5% found it "disappointing," together comprising 46% of the responses. During interview sessions, teachers, alumni, and current students consistently expressed concern about a notable lack of adequate exposure to language development at the school level.



**Fig. 8:** Students' Perception Regarding the Learning Environment at Pre-polytechnic Level

These findings suggest that nearly half of the students perceived their pre-polytechnic language learning environment as inadequate, which underscores the need for significant improvements in early language education practices and support systems.

#### Q8. How many students are there in your class?



**Fig. 9:** Present Number of Students in Language Class

The bar chart illustrates the distribution of classroom sizes based on respondents' experiences. A significant majority (65.6%) reported being in classes of around 60 students.



It indicates the most prevalent class size in polytechnic institutes across most departments. In contrast, only 20.7% experienced smaller classes of 30 students, which are generally more conducive to personalized instruction. Larger class sizes were comparatively rare, with 8.0% and 5.7% reporting classes of 80 and 100 students, respectively. These figures suggest a predominant trend of large class sizes, which generally limit opportunities for individual engagement and pose challenges to effective language learning for Polytechnic learners.

#### Q9. How Frequently does the ESP Course Take Place at Your Polytechnic Institute?

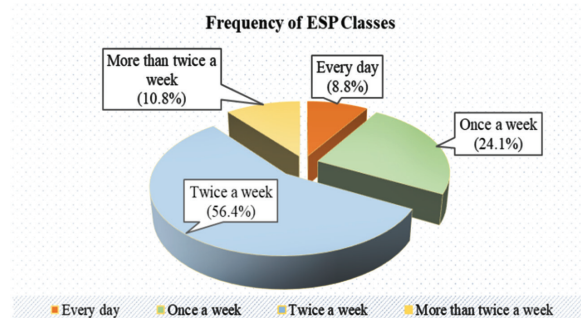


Fig. 10: Frequency of ESP Classes Held at Polytechnic Institutes

The chart presents the distribution of how often English for Specific Purposes (ESP) classes are conducted. The majority of respondents (56.4%) reported attending ESP classes twice a week. It indicates the most common scheduling pattern. A smaller portion (24.1%) noted having classes once a week, while 10.8% reported attending more than twice a week. Only 8.8% of respondents stated that ESP classes were held every day. The findings suggest that the frequency of language classes remains limited for polytechnic students in their academic contexts, potentially hindering learners' consistent language skill development.

#### Q10. How Many Teachers are there for the Assigned English Courses in Your Polytechnic Institution?

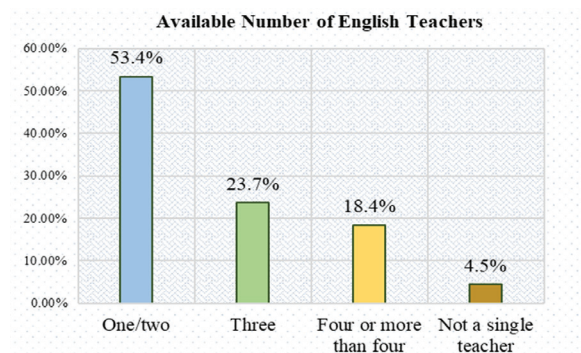


Fig. 11: Students' Perception of the Frequency of English Teachers' Availability at Polytechnic Institutes

Figure 11 illustrates that 53.4% of respondents indicated that only one or two English teachers are available to conduct ESP classes at their polytechnic institutes. Additionally, 23.7% reported access to three teachers, while 18.4% noted the availability of four or more teachers. Notably, 4.5% of respondents stated that no English teacher was available to conduct language classes.

This data reflects a significant disparity in teacher allocation, and it suggests potential challenges in ensuring consistent and effective ESP instruction at the polytechnic institutes.

#### Q11. Do you Think Language Learning Materials are Available in your Polytechnic Institution?

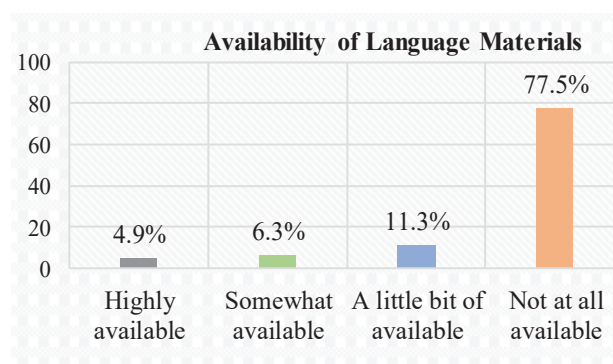


Fig. 12: Students' Perception Regarding the Availability of Language Materials

Figure 12 highlights a severe shortage of language learning materials reported by the participants. Only 4.9% of respondents indicated that such materials are readily available, and 6.3% stated they are somewhat available. An additional 11.3% noted that only a limited number of materials could be accessed. Most notably, 77.5% of participants reported a complete lack of available language learning resources.

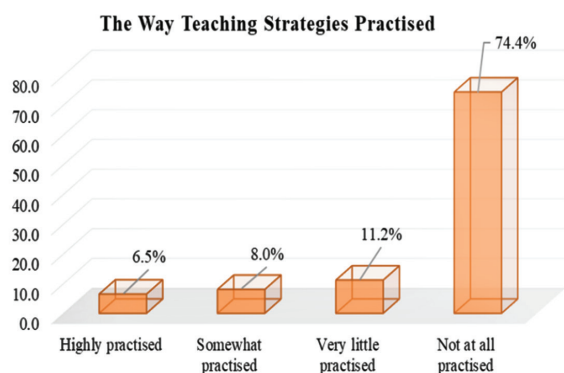
These findings highlight a significant gap in instructional support, which can substantially hinder the language development of polytechnic engineering students. Addressing this issue is essential, as it emphasizes the need for targeted efforts to enhance the availability and accessibility of language learning materials across these institutions.

#### Q12. How are the Teaching Strategies, Like Pair Work, Group Discussion, and Practice, Done in Your Class?

Figure 13 shows that 74.4% of participants reported no use of teaching strategies in language classrooms.

It implies a widespread neglect of contemporary and eclectic instructional methods in polytechnic institutes. An additional 11.2% observed minimal application, while only 8.0% reported a moderate level of strategy use.

These findings indicate a notable shortfall in pedagogical planning and suggest limited implementation of effective teaching strategies, which can negatively impact the overall quality of language instruction.



**Fig. 13:** Students' Perception Regarding the Teaching Strategies Practised in Language Classrooms

## 6. OVERALL FINDINGS AND DISCUSSIONS

This segment provides an overview of the findings, discussions, and recommendations derived from the questionnaires and interview data.

All respondents who participated in the research study unanimously agreed that the English proficiency needs of Bangladeshi polytechnic engineering students are multifaceted, primarily centered on achieving proficiency for effective academic and professional communication. It aligns with the study by Herve, where the scholar posits that English language proficiency is crucial for engineering learners, particularly for educational and professional purposes [47]. To keep pace with global academic and professional standards, students prioritize developing speaking and communication skills, followed by writing, reading, and listening abilities.

**Answer to Research Question 1:** What are the socio-economic, psychological, and pedagogical factors that influence the language proficiency levels of diploma engineering students as assessed through the PSA framework?

Regarding the present situation analysis (PSA) based on socio-economic and psycho-social prospects, it has been found that most of the students are from disadvantaged socio-economic, educational, and cultural

backgrounds, as reflected in [22], [24], and [39]. Patil noted that a significant proportion of engineering learners are weak in English, as 75% come from rural socio-economic backgrounds [22].

Although the polytechnic learners showed intrinsic interest in the language and a desire to acquire language proficiency, their PSA reveals that most of the learners' grammar, vocabulary, listening, speaking, reading, and writing skills are "below average" or "poor." The data findings indicate that polytechnic learners rarely receive proper language exposure during their childhood and pre-polytechnic educational phases due to their poor socio-economic backgrounds and limited institutional support. Thus, the reasons for their weakness in English are outlined as the lack of socio-cultural, instructional, and educational support.

Moreover, the polytechnic student population represents a diverse range of educational backgrounds, including SSC General, SSC Vocational, HSC General, and SSC Dakhil (a religious or madrasa stream). This heterogeneity presents challenges in uniformly assessing language proficiency levels. The study indicates that students from SSC General backgrounds generally demonstrate stronger English language skills than those from vocational or religious education. This disparity suggests a poor intake system for polytechnic learners, where both students and teachers face challenges in demonstrating and practicing language skills in classrooms.

Polytechnic learners face several pedagogical challenges that hinder their language development. The key issues identified include inadequate teaching and learning facilities at the research sites, a limited frequency of language classes (typically only one or two sessions per week), and an insufficient number of qualified language instructors. Additional constraints include the absence of pair and group activities, a lack of structured feedback mechanisms, overcrowded classrooms that often accommodate around 60 students, and the scarcity and inaccessibility of language learning materials. Furthermore, limited opportunities for language practice outside the classroom exacerbate these challenges. The interview data also revealed that the frequent use of Bangla during English classes, along with an outdated and poorly structured syllabus and curriculum, further impede effective language acquisition.

**Answer to Research Question 2:** How do they affect their academic and professional competence?

The study findings indicate that the language competence of polytechnic learners is unsatisfactory, which has an adverse impact on their academic and professional performance. A majority of students report experiencing anxiety when using English in educational and professional contexts. It leads to reduced confidence and hesitation in communication. Consequently, they often exhibit a sense of inertia or reluctance in comparison to their peers. One of the alumni expressed his concern like this:

*“In my profession, the problem I face is that we are habituated to speaking Bengali. So, when I suddenly start talking in English, I face difficulties, shyness, or nervousness. Sometimes, L1 interference does often happen frequently. This case happens not just with me but mostly with others in my profession. It happens because we did not get any scopes to practice at our earlier institutions and are not habituated to speaking English; rather, we do use Bengali.”*

**Answer to Research Question 3:** What are the probable solutions to address these factors?

Recognizing the promising potential of English for academic and career advancement, the surveyed and interviewed participants offer prospective solutions to address the aforementioned issues. They are outlined as:

- The upgradation and modification of the language syllabus and curriculum;
- Increasing the language credit hours and classes;
- Using English as EMI in polytechnic institutes and avoiding teaching English using the L1, Bengali;
- Integrating extensive and advanced English language skills into the polytechnic engineering curriculum;
- Creating interactive, standard, authentic, and easily accessible language learning materials;
- Using multimedia-enhanced language classrooms;
- Providing support and guidance from teachers;
- Increasing interaction and communication between teachers and students;
- Creating opportunities for out-of-class practice sessions;
- Creating opportunities for English sessional or lab classes;
- Altering the language assessment systems and focusing on small-scale assessments like quizzes, language puzzles, language games, presentations, debates, role-playing, mock-viva, story-telling, etc.

- Ensuring more listening and speaking opportunities;
- Recruiting more skilled and proficient language teachers and facilitating teacher training in resource-scarce settings;
- Introducing sessions at regular intervals with the guardians to let them know the sources and resources on how they can assist their children in teaching and supporting language education at home;
- Ensuring remedial support as constructive feedback on learners' errors and mistakes;
- Inclusion of technical registers or jargon;
- Improving the overall communication strategies of polytechnic learners.

## 7. CONCLUSION

In this study, the researcher aims to identify the key determinants of English language learning among selected polytechnic engineering students in Bangladesh using the PSA framework. Here, she considers the socio-economic, psycho-social, and pedagogical factors to determine the challenges. To address this, she formulated three research questions. The scholar used qualitative interviews and quantitative questionnaire survey data as part of a mixed-methods research. She collected data from the current polytechnic students, language instructors, and alumni students to focus on the respective research questions.

The triangulation of quantitative and qualitative data from the three-level participants (students, teachers, and alumni) shows that polytechnic learners are highly motivated to learn and develop English language proficiency. However, in most cases, they lag behind due to inadequate socio-cultural, economic, educational, instructional, and institutional support during their pre-polytechnic and polytechnic educational phases. As a result, their expertise in grammar, vocabulary, listening, speaking, and reading skills appears dissatisfactory, marking the levels as “below average” and “poor.” The primary challenges they encounter revolve around issues such as an inadequate language curriculum with minimal credit allocation and a scarcity of classroom hours, the use of sub-standard language contents and materials, a deficiency of qualified language instructors, the utilization of Bengali (L1) as the medium of instruction (MOI) in language classrooms, too many students in one class, few language classes, lack of pair and group activities, lack of language lab sessions, and limited opportunities for practical sessions. Finally, some groundbreaking

recommendations; syllabus modification, more credit hour allocation, use of English as EMI, availability of language materials, recruiting more language teachers, providing feedback, focusing on communicative skills, ensuring out-of-class practices, and ensuring more structured assessment systems are proposed for polytechnic engineering learners in Bangladesh. It is expected that this will help the ELT teachers, practitioners, and concerned authorities take the necessary initiatives to determine and remove their specific English language barriers. Consequently, it will result in a significant segment of the Bangladeshi population becoming a proficient and skilled workforce, thereby substantially contributing to the nation's sustainable economic growth and global social standing.

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