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Needs Analysis for ESP: Enhancing English Proficiency Among Students at Tashkent Institute of Railway Engineers

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Abstract: The increasing globalization of railway engineering requires proficiency in English for technical communication, international collaboration and documentation in this industry. This study conducts a needs analysis to identify the English language requirements of railway engineering students at the Tashkent Institute of Railway Engineering. The data was collected through questionnaires and interviews with students, faculty members and industry professionals. It was decided to use task-based needs analysis approach. The findings reveal that students primarily struggle with productive skills due to a lack of specialized vocabulary. Additionally, a mismatch exists between the current English curriculum and the linguistic demands of the railway sector. Participants emphasized the need for ESP courses that focus on industry-relevant tasks, such as technical communication, report writing, and international project collaboration. Moreover, the study highlights the necessity of designing specialized ESP curricula that bridge the gap between academic language instruction and practical workplace communication. Overall, the recommendations include integrating content-based instruction, communicative teaching methods and professional vocabulary training to prepare students for their future career.

Keywords: English for Specific Purposes (ESP), needs analysis, railway engineering, task-based approach, technical communication.

Introduction: In the contemporary world, the English language has gained tremendous significance, serving as the primary lingua franca across various fields, including science, technology, and commerce (Crystal, 2003; Seidlhofer, 2011). In the Uzbek context, English has become a crucial language for business, tourism, scientific research, and academic pursuit (Ministry of Higher Education of Uzbekistan, 2023). Many students are required to have a working knowledge of English in order to access educational opportunities in the USA or Europe (British Council, 2020). Consequently, English language instruction has been emphasized in academic settings, with numerous universities adopting it as a medium of instruction, either partially or entirely, to facilitate access to international knowledge networks (Coleman, 2006).

Furthermore, the tourism sector represents another area where English proficiency plays a significant role. According to statistics provided by the government, the number of international tourists visiting Uzbekistan has surged, with a twofold increase recorded in 2023 compared to 2017, reaching approximately seven million visitors annually (State Committee of Tourism Development of Uzbekistan, 2023). Taking into consideration the connection between the railway industry and tourism, this study was conducted at the Tashkent Institute of Railway Engineering to explore the linguistic requirements of professionals in this sector.

In railway engineering, English proficiency is

particularly important for technical communication, international collaboration, and industry-specific documentation (Hutchinson & Waters, 1987). Given the increasing globalization of railway systems and technologies, professionals in this field must possess strong linguistic skills to engage in international projects, research, and regulatory compliance discussions (Dudley-Evans & St. John, 1998). However, current English courses offered by the institute fail to meet students' needs because they focus on general English skills rather than on providing students with the requirements of a particular profession (Anthony, 2018).

The results reveal the necessity of specialized English language training tailored to the specific communicative needs of railway engineering professionals, working in an interconnected and multilingual work environment (Long, 2005). English for Specific Purposes (ESP) plays a crucial role in equipping students with the language skills necessary for their professional fields (Basturkmen, 2010).

The primary aim of this research is to analyze the language needs of railway engineering students in order to design an effective ESP course. The study employs a task-based needs analysis approach to ensure correlation with real-world communicative tasks (Hyland, 2006). This research also investigates the pedagogical effectiveness of ESP courses developed for technical fields, emphasizing the necessity of courses that bridge the gap between theoretical knowledge and practical application (Belcher, 2009).

Literature Review

English for Specific Purposes (ESP) has become an essential field of study, focusing on designing language instruction that corresponds with the communicative needs of learners in specific academic and professional contexts. Unlike general English courses, ESP programs emphasize industry-specific vocabulary, workplace communication skills and professional discourse, allowing students to develop linguistic competencies relevant to their careers (Hyland, 2006; Saeidi & Ahmadi, 2021). A fundamental aspect of ESP is needs analysis, which ensures that language instruction directly addresses students' professional requirements by identifying skill gaps, workplace expectations and learning preferences (Long, 2005; Tajzad & Namaghi, 2020). Over the years, scholars have debated the most effective methods for conducting needs analysis, with task-based approaches gaining increasing recognition due to their ability to integrate real-world communicative tasks into the learning process (Tuyen & Huan, 2020; Ahmed et al., 2023). Task-based learning (TBL) in ESP has been used to enhance engagement, promote active learning and improve students' ability to apply English in practical settings. It has become a preferred framework for ESP curriculum development in various disciplines, including engineering, business, medicine and tourism (Setiawan & Wiedarti, 2020; Zhang & Liu, 2020; Zhu & Liu, 2020). Despite its significance, many traditional ESP courses fail to suit the professional realities, often focusing too heavily on theoretical aspects of English rather than the actual communicative tasks students will perform in their careers (Widodo & Pusporini, 2020; Rahman, 2021). This misalignment is particularly evident in technical fields such as engineering, railway systems and aviation, where professionals require highly specialized linguistic competencies to communicate effectively in multinational and multicultural work environments (Buriro et al., 2024; Elfatihi, 2021). Studies in ESP for engineering students have consistently highlighted critical gaps in current curricula, particularly regarding productive language skills such as technical writing, oral presentations, and professional negotiations (Kim, 2013; Wicaksono & Anugerahwati, 2020). Many engineering students possess adequate reading comprehension abilities, as most academic institutions emphasize textbook-based learning, but they often struggle with industry-specific communication, especially in high-stakes scenarios such as project collaborations, safety briefings, and technical documentation (Sari & Rahmat, 2020; Suwandi & Nurhayati, 2020). The problem is further compounded by the lack of interactive learning methodologies, with many ESP courses continuing to rely on lecture-based instruction rather than experiential, hands-on training (Puspitasari et al., 2020). Research suggests that blended learning models, incorporating both face-to-face instruction and digital resources, significantly improve student engagement and retention of specialized vocabulary (Tuyen & Huan, 2020; Widodo & Pusporini, 2020). Furthermore, there is growing evidence that the use of authentic materials, such as workplace case studies, simulation-based learning, and real industry documentation, enhances students' ability to navigate professional communication challenges more effectively (Rahman, 2021; Setiawan & Wiedarti, 2020). This approach has been particularly effective in ESP programs for business, law, and healthcare, where learners benefit from exposure to real-world discourse patterns, technical jargon, and collaborative problem-solving exercises (Zhang & Liu, 2020; Zhu & Liu, 2020). Given these findings, researchers argue that ESP curricula for engineering students should integrate workplace-relevant activities such as mock technical meetings, project-based discussions, and collaborative report writing to better prepare learners for their future roles (Buriro et al.,

2024; El Ouardi & El Fatihi, 2021).

Another significant challenge in ESP for technical professions is the underdevelopment of speaking skills, which are essential for professional success but often neglected in standard curricula (Ahmed et al., 2023; Saeidi & Ahmadi, 2021). While most engineering students are trained in reading and writing technical documents, they receive little instruction in oral communication, particularly in the context of workplace discussions, technical briefings, and industry networking (Tuyen & Huan, 2020; Buriro et al., 2024). This deficiency is particularly problematic in globalized industries such as railway engineering, aviation, and information technology, where professionals must collaborate across cultural and linguistic boundaries (Wicaksono & Anugerahwati, 2020; Puspitasari et al., 2020). Several studies suggest that incorporating role-playing exercises, scenario-based learning, and simulated workplace interactions can significantly enhance ESP learners' confidence in spoken communication (Setiawan & Wiedarti, 2020; Suwandi & Nurhayati, 2020). Additionally, technology-assisted learning tools, such as AI-driven language applications, virtual reality (VR) simulations, and online discussion forums, have been shown to improve students' proficiency in industry-specific communication (Widodo & Pusporini, 2020; Yulia & Prastyo, 2020). The integration of digital learning resources allows learners to engage with authentic industry discourse in a controlled, interactive environment, fostering the development of both linguistic accuracy and communicative competence (Rahman, 2021; Zhang & Liu, 2020). Another crucial consideration in ESP curriculum development is collaboration between academic institutions and industry stakeholders, ensuring that ESP programs remain relevant to workplace demands and technological advancements (El Ouardi & El Fatihi, 2021; Tuyen & Huan, 2020). Studies emphasize that ESP courses designed in partnership with industry professionals result in higher levels of student preparedness and employability, as learners gain exposure to real-world communication tasks, employer expectations, and field-specific language usage (Zhu & Liu, 2020; Wicaksono & Anugerahwati, 2020). In technical disciplines such as railway engineering, aeronautics, and civil engineering, institutions that have successfully implemented work-integrated learning models, internship-based ESP courses, and project-based collaborations with industry experts have reported greater student engagement and improved learning outcomes (Buriro et al., 2024; Setiawan & Wiedarti, 2020). Given these insights, it is evident that ESP curricula for railway engineering students must go beyond traditional language instruction and adopt a multi-faceted approach that integrates professional discourse training, digital learning tools, and industry partnerships (Puspitasari et al., 2020; Widodo & Pusporini, 2020). However, despite the extensive research on ESP needs in general engineering disciplines, limited studies have explored the specific linguistic challenges faced by railway engineering students, highlighting the need for a targeted investigation into their professional communication requirements (Elfatihi, 2021; Tuyen & Huan, 2020). This study seeks to address this gap by conducting a task-based needs analysis, examining the language competencies required in railway engineering, and developing an ESP curriculum that better aligns with the expectations of industry professionals and academic stakeholders (Rahman, 2021; Buriro et al., 2024). By adopting a learner-centered approach that incorporates real-world communicative tasks, content-based instruction, and interactive learning methodologies, this research aims to contribute to the ongoing evolution of ESP course design in technical fields, ensuring that students develop the linguistic proficiency necessary for success in the railway sector and beyond.

Task-Based Needs Analysis (TBNA) has emerged as a superior method for identifying learners' linguistic requirements in ESP contexts, as it focuses on real-world tasks that professionals must perform in their workplaces. Unlike traditional approaches such as Target Situation Analysis (TSA) (Munby, 1978), which primarily emphasizes what learners should know rather than how they use language in practice, TBNA ensures that language instruction is directly linked to authentic job-related activities (Long, 2005; Robinson, 2011). This approach is particularly effective in technical disciplines such as railway engineering, where professionals need to engage in specialized discourse, interpret technical documentation, and participate in collaborative problem-solving (Ahmed et al., 2023; Tajzad & Namaghi, 2020).

Comparatively, deficiency analysis, another widely used method, identifies gaps between learners' current language proficiency and their required competencies (West, 1994). However, it often relies on subjective self-assessments rather than task-based observations, making it less reliable for designing ESP curricula that genuinely reflect workplace needs (Tuyen & Huan, 2020). TBNA, on the other hand, incorporates direct observation, interviews with industry professionals, and analysis of real job-related communication tasks to create a more precise and practical ESP framework (Long, 2005; Zhu & Liu, 2020).

Moreover, unlike learner-centered approaches such as Present Situation Analysis (PSA) (Richterich &

Chancerel, 1980), which focus on students' existing skills, TBNA proactively aligns course content with future workplace demands, ensuring students develop practical competencies essential for professional success (Kim, 2013; Setiawan & Wiedarti, 2020). By integrating TBNA into ESP curriculum design, educators can ensure that railway engineering students acquire the necessary linguistic skills for industry-specific tasks such as safety briefings, technical negotiations, and compliance reporting. This methodology fosters a more dynamic and relevant learning experience, bridging the gap between theoretical language instruction and professional communication in real-world settings (Buriro et al., 2024; Rahman, 2021).

METHODOLOGY

Regarding the methodology, we have chosen to conduct a task-based needs analysis, which is believed to enhance the real-world relevance of the course while increasing students' engagement and motivation. According to Long (2005), task-based needs analysis offers several advantages over traditional approaches:

1. It provides valid information about students' target tasks.
2. It identifies how the target language is used in real-world situations.
3. The data collected can be directly utilized as input for a content-based ESP course.

Before conducting the needs analysis, students were invited to a meeting to familiarize themselves with the process and discuss their current language situation. The needs analysis was then carried out using questionnaire surveys and interviews, which helped identify the railway engineering tasks that require English proficiency. The survey questions focused on assessing students' strengths and weaknesses, as well as their learning goals for English.

Long (2005) asserts that "the use of interviews is widely reported in needs analysis." Additionally, Hyland (2006) emphasizes that reliability and validity in needs analysis procedures can be achieved through three main approaches:

1. Triangulation
2. Prolonged engagement
3. Participant verification

Setting and Subjects

The Tashkent Institute of Railway Engineering trains professionals across various faculties, including Organization of Transportation and Logistics, Electromechanical Engineering, and Construction Engineering. There is no English language requirement for the state-mandated entrance exam. Consequently, most students enter the institute with only A1 or A2 English proficiency.

However, once enrolled, students receive 80-minute English lessons once a week from the beginning of their coursework through to the Master's level. At the end of their Bachelor's degree, students are required to achieve B2-level proficiency in Academic English.

The Content and Language Integrated Learning (CLIL) approach is primarily recommended in their syllabus, but in practice, Communicative Language Teaching (CLT) methods are often used to develop academic language skills. While classes are well-structured and equipped with modern facilities, some students attend intensive English courses to further improve their proficiency.

Candidates who wish to pursue a Master's degree must take an English placement test, which consists of 50 multiple-choice questions, each worth one point. Alternatively, students can submit an IELTS certificate (minimum 5.5) or a B2-level CEFR skill-based test result. In both cases, they can receive a maximum of 50 points toward their application.

Table 1. Participants

N	Participants	Age	Level	Certification	EAP experience	Work experience
1	A.H	25	B2	IELTS 6.0	4 years	2 years
2	A.N	26	B2	IELTS6.0	4years	3 years
3	J.G	24	B2	IELTS6.5	3 years	1 year
4	L.M	24	B1	IELTS 5.5	3 years	2 years
5	E.M	24	B1	CEFR B1	3 years	2 years
6	D.K	24	B2	TOEFL 86	4 years	2 years
7	L.I	27	B1	CEFR B1	6 years	5 years

8	D.U	28	B2	IELTS 6.5	5 years	5 years
9	S.A	25	B2	TOEFL 90	5 years	3 years
10	T.R	25	B1	TOEFL 55	4 years	2 years
11	N.H	28	B2	CEFR B2	5 years	3 years
12	A.J	24	B1	IELTS 5.5	3 years	2years
13	G.B	28	B1	IELTS 5.5	4 years	3 years
14	U.A	24	B2	IELTS 6.0	3 years	2 years
15	M.A	25	B2	IELTS 6.5	3 years	2 years
16	N.I	28	B2	IELTS 6.0	4 years	2years
17	S.K	26	B1	IELTS 5.5	3 years	2years
18	S.T	26	B1	IELTS 5.5	3 years	2 years
19	T.M	27	B2	CEFR B2	4 years	3 years
20	A.A	28	B2	IELTS 6.5	4 years	2years

As seen in the data provided in the table above, 20 graduate learners have been selected for the ESP course. The learners are between 24 and 28 years old and have varying levels of language proficiency. The average proficiency level is B2, and all participants hold IELTS, TOEFL, or CEFR skill-based test certificates that verify their language skills.

It is immediately apparent from the table that all learners have at least three years of experience in English for Academic Purposes (EAP) and two years of work experience. These numbers indicate that the graduate students who participated in this research have a good level of English proficiency and professional experience. However, they still require more specialized vocabulary to effectively participate in in-service training.

Methodology & Data Collection Procedures

Phases	***Data Collection Instruments***	***Stakeholders***	***Aims***
I Phase	Organizing meetings with the students	Faculty members EFL teachers Engineering students	• To get acquainted with students' general language learning conception and inform them of future plans, terms, and conditions
II Phase	Needs Analysis Questionnaire	EFL instructors Faculty members Engineering students Employees	• To identify the basic language needs of students in the content area courses

		Engineers of other companies	• To evaluate the importance of integrated skills tasks and activities in the content area courses
III Phase	Interviews	EFL instructors Faculty members Engineering students	• To determine their levels of speaking skills, critical thinking and sociability

The procedure of the data collection is divided into 3 phases. In the first phase, faculty members and EFL teachers of this educational institution meet the students in order to familiarize and reveal their current knowledge and inform them about terms and conditions and future phases that will be held in the course.

The first part aims at collecting information about the participants, while the second phase focuses on language needs under five sections. In this stage, students are given special application forms, which include various personal and study-related questions in order to learn why these students have chosen the English language and its necessity in their future lives. One more essential point of this organized questionnaire is that students can evaluate their strengths and weaknesses themselves and share their opportunities to acquire language skills better. In short, this questionnaire is an extended form of SWOT analysis. Besides, students can suggest activities according to their levels and individual differences by answering questionnaire items.

In the last phase, interviews are organized to check students' oral proficiency. In this procedure, students answer the questions that identify students' needs better. Students are asked one by one, individually and answer the questions on topics:

- Motivating factors,
- Educational factors,
- Preferred learning method, etc.

Findings

This part encompasses findings from the data collected through the selected methodology. For this, the section was divided into three parts in order to deliver the information in a structured and understandable manner.

1. Questionnaires

As was mentioned in previous sections, the selected method for needs analysis was a task-based approach and the first step of it was set as a questionnaire. For this, the target learners were asked to fill in the questionnaire forms that consisted of 3 parts. Part 1 served to collect general information on students' identity, language-learning experience, age, gender as well as the preferred schedule for taking this ESP course. The results showed that 6 out of 20 participants are aged 24, four of them are 25, three of them are 26, two are 27, and 5 are at the age of 28. Moreover, it was detected that 40% (8) are at the intermediate level (B1 from CEFR) while 60% (12) of them are at the upper-intermediate level (B2 from level) (Fig.1). It was detected that participants have certifications from International English Language Testing System (IELTS), Test of English as a Foreign Language (TOEFL) and CEFR-based national tests. In particular, most students (5 out of 20) tended to have IELTS 5.5, while scores of 6.0 and 6.5 were obtained by four participants to each. As for TOEFL, three people in total owned it with scores of 55, 86 and 90. Four participants mentioned that they have CEFR-based test certification with results of B1 for two

learners and B2 for the other two objects.

The second part of the questionnaire was designed to detect participants' learning styles by giving them multiple-choice questions on different situations.

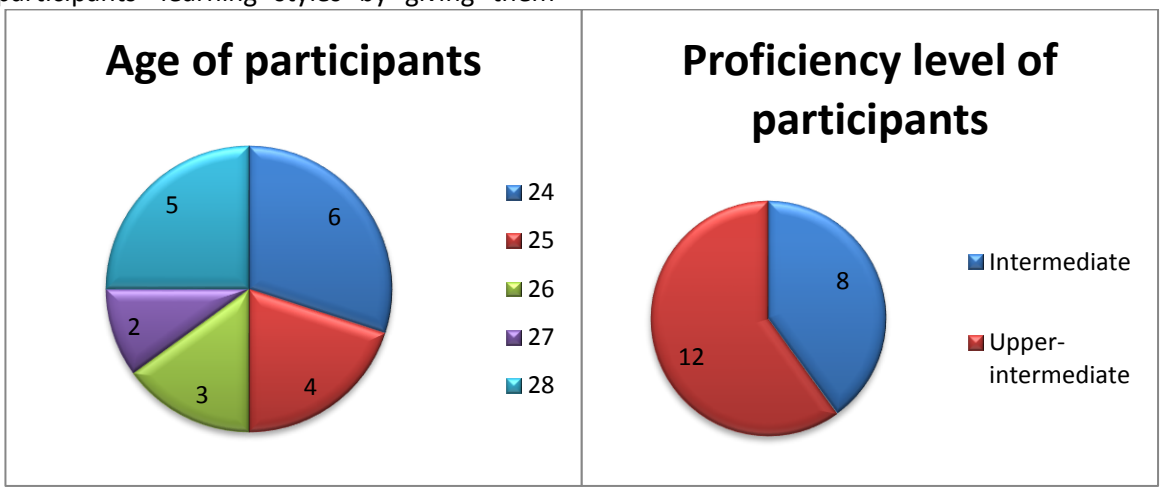

Fig. 1. Participants' age and proficiency levels revealed from questionnaires.

Options a, b, and c were suitable for visual, auditory, and kinesthetic styles of learning, respectively. As the results illustrate, the participants mostly tended to choose options a and b indicating that they are visual and auditory learners. On the whole, 50% of students have chosen option a, 40% of them preferred option b, whereas only 10% circled option c (Note: the results from 10 questions were generalized and categorized to one particular option if this option was chosen at least 6 times) (Fig.2).

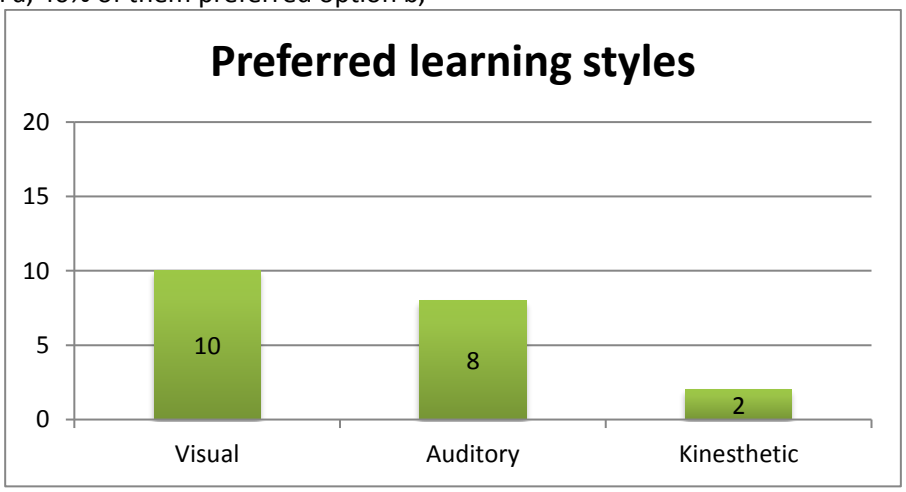

Fig. 2. Learning styles chosen based on the questionnaire's multiple-choice items

Part 3 of the questionnaire aimed to collect information on participants' language usage and needs as well as their strengths and lacks in particular skills of the English language. Specifically, the data collected exhibited that students are mostly challenged to use productive skills.

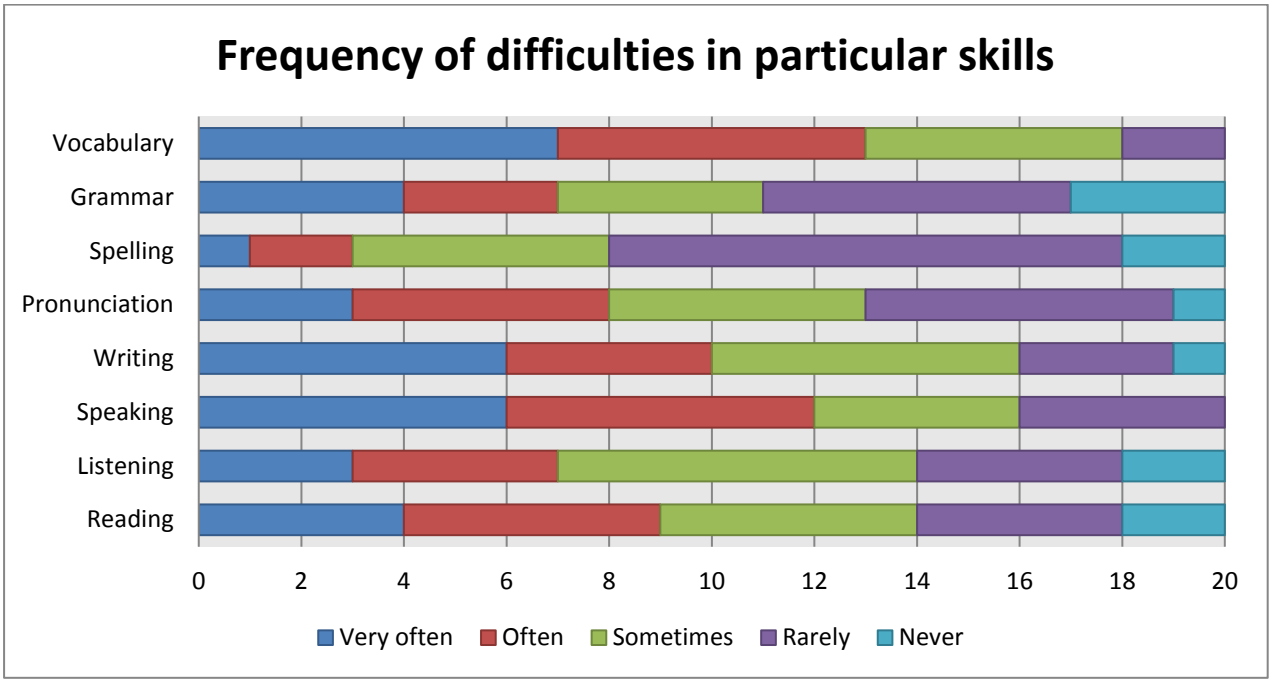

Fig. 3. Frequency of difficulties in particular skills

The bar chart provided above (Fig. 3) shows that the majority of participants suffer from a lack of vocabulary, consequently speaking and writing skills were considered problematic areas. Moreover, students emphasized that grammar is the least problematic skill as well as reading and listening.

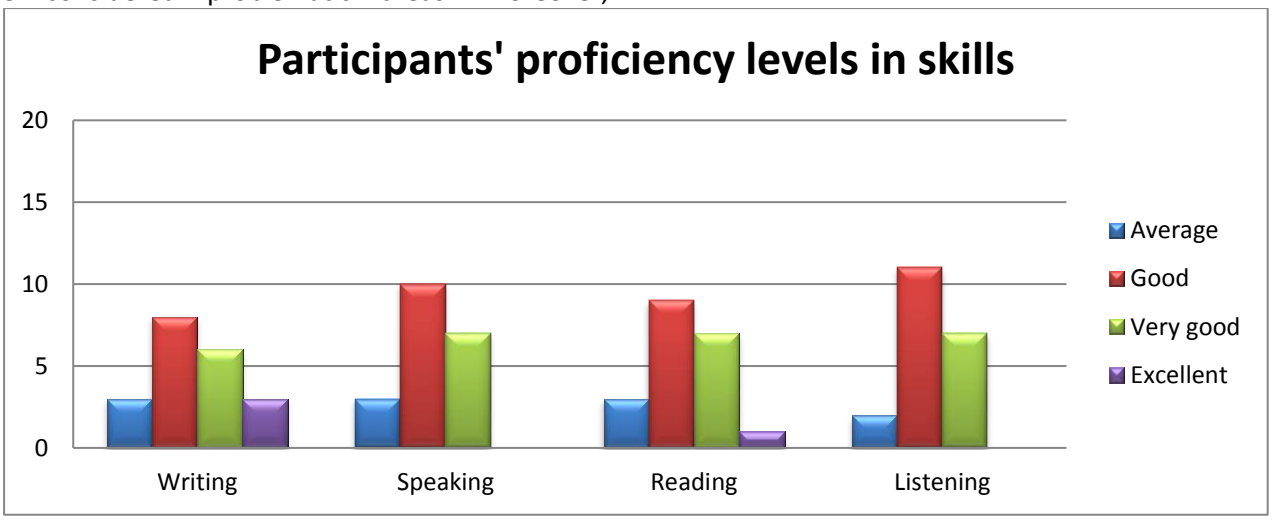

Fig. 4. Proficiency levels of participants in different skills

Fig. 4 exhibits that 50% of learners marked listening to be in a "good" state while speaking was considered to be the least developed skill among participants. In addition, few learners highlighted writing to be in excellent condition.

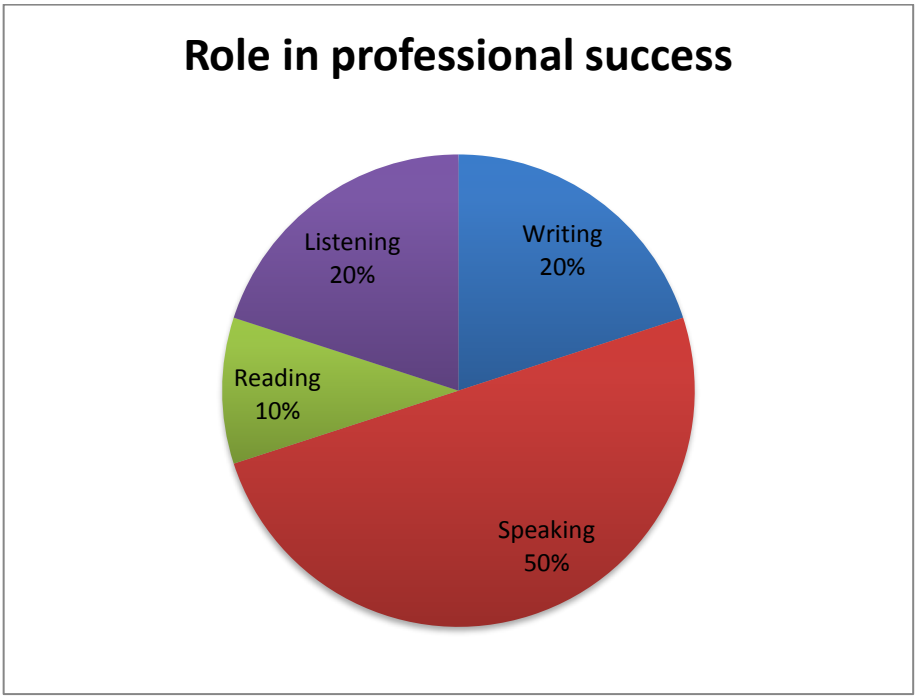

Fig. 5. Role of particular skills in professional success

Regarding the importance of productive and receptive skills in participants' professional development, a huge amount of learners (50%) responded speaking was the most imperative skill, while reading (10%) tended to have no significant status in their professional routine. Writing and listening skills were chosen by 20% of participants and are not so important compared to speaking. Here, it should be mentioned that to be a proficient worker in the field of railway engineering, learners should enhance their speaking skills to interact at their workplace, they should expand vocabulary, especially in their field of interest.

2. Interview

The interviews were conducted using a structured approach, incorporating both face-to-face and virtual sessions to accommodate candidates' availability. A combination of open-ended and specific questions was used to gather comprehensive insights into their knowledge, skills and motivations. The majority of candidates emphasized the importance of understanding regulations related to railway operations, possessing strong communication skills and being prepared to handle train components in urgent situations. Their primary reasons for pursuing this profession included a strong interest in the field, the opportunity to gain professional experience and the potential for international exchange of expertise. Additionally, during the interviews, candidates provided detailed information about the driver's cabin setup, ticketing systems and their various types, as well as the rules governing the transportation of goods and passengers.

DISCUSSION

The findings of this study provide valuable insights into the English language needs of railway engineering students, highlighting critical gaps in their current linguistic competencies and the necessity for a more specialized ESP curriculum. The results confirm that railway engineering students, like their counterparts in other technical disciplines, face significant challenges in productive language skills, particularly speaking and writing, which are crucial for professional success in a globalized industry (Buriro et al., 2024; Saeidi & Ahmadi, 2021). While most participants demonstrated adequate reading comprehension skills, their ability to communicate technical information orally and in written form remained underdeveloped, a trend consistent with findings in ESP research across engineering and technical fields (Rahman, 2021; Wicaksono & Anugerahwati, 2020). This gap is particularly concerning given that railway professionals frequently engage in technical discussions, regulatory compliance procedures, and international collaborations, all of which demand a high level of proficiency in specialized English communication (Tuyen & Huan, 2020; Ahmed et al., 2023).

One of the most striking findings of this study is the mismatch between the current ESP curriculum and the linguistic requirements of the railway industry. While existing ESP courses at the university primarily focus on grammar and general English proficiency, they fail to equip students with industry-specific discourse, technical report writing skills, and spoken interaction strategies (Setiawan & Wiedarti, 2020; Suwandi &

Nurhayati, 2020). This misalignment mirrors the challenges identified in previous research on ESP instruction for engineering students, where a lack of real-world application in language learning led to low professional preparedness among graduates (Elfatihi, 2021; Zhang & Liu, 2020). A key reason for this discrepancy is that many ESP courses continue to adopt a one-size-fits-all approach, without tailoring instruction to specific industry demands (Widodo & Pusporini, 2020; Tajzad & Namaghi, 2020). Given the rapid technological advancements in railway engineering, professionals must regularly interpret complex technical documents, engage in cross-border collaborations, and ensure compliance with international safety regulations, all of which require precise and contextually appropriate language use (Zhu & Liu, 2020; Rahman, 2021). The findings of this study strongly support the argument that ESP instruction should transit from traditional, generic language courses to a more targeted, industry-driven approach (Puspitasari et al., 2020; Buriro et al., 2024).

In addition to the gaps in productive skills, this study revealed that railway engineering students struggle with industry-specific vocabulary, echoing concerns raised in prior research on ESP needs analysis for technical disciplines (Setiawan & Wiedarti, 2020; El Ouardi & El Fatihi, 2021). Many participants reported difficulty in understanding technical terminologies used in railway manuals, project documentation, and international safety standards, which hindered their ability to engage effectively in professional discussions and collaborative projects (Sari & Rahmat, 2020; Tuyen & Huan, 2020). The lack of exposure to authentic materials and real-world linguistic input further strengthens this challenge, preventing students from developing fluency in professional discourse (Ahmed et al., 2023; Zhang & Liu, 2020). These findings align with research in ESP for medical, business, and legal fields, which has shown that students develop stronger language proficiency when exposed to authentic industry-related materials, workplace simulations, and field-specific tasks (Widodo & Pusporini, 2020; Wicaksono & Anugerahwati, 2020).

Given this evidence, it is clear that ESP courses for railway engineering students should integrate specialized vocabulary training, content-based instruction, and exposure to real industry documents to enhance technical language acquisition (Suwandi & Nurhayati, 2020; Tajzad & Namaghi, 2020).

Based on these findings, this study proposes several key strategies for improving ESP instruction for railway engineering students. First, ESP courses should adopt a task-based learning (TBL) approach, where students engage in real-world communicative tasks such as writing maintenance reports, conducting safety briefings, and presenting project updates (Puspitasari et al., 2020; Rahman, 2021). TBL has been widely recognized for its effectiveness in bridging the gap between classroom learning and professional application, particularly in technical disciplines where practical communication is essential (Setiawan & Wiedarti, 2020; Tuyen & Huan, 2020). Second, ESP curricula should incorporate content-based instruction (CBI) by integrating industry-relevant case studies, technical manuals, and workplace dialogues into classroom activities, allowing students to develop familiarity with professional discourse patterns (Buriro et al., 2024; El Ouardi & El Fatihi, 2021). Third, technology-enhanced learning tools, such as AI-driven language training programs, virtual reality (VR) simulations, and interactive online modules, should be utilized to provide students with immersive and engaging learning experiences (Widodo & Pusporini, 2020; Yulia & Prastyo, 2020). The effectiveness of digital learning tools in ESP education has been well-documented, particularly in fields where learners must develop specialized communication skills within a short timeframe (Zhu & Liu, 2020; Wicaksono & Anugerahwati, 2020). Finally, collaborations between academic institutions and railway industry professionals should be strengthened to ensure that ESP course content aligns with current workplace expectations (Tajzad & Namaghi, 2020; Setiawan & Wiedarti, 2020). Industry partnerships allow for work-integrated learning opportunities, where students gain hands-on experience through internships, technical workshops, and mentorship programs, significantly enhancing their linguistic preparedness for professional roles (Rahman, 2021; Zhang & Liu, 2020).

These recommendations corelate with best practices in ESP curriculum development for other highly specialized fields such as business, law, and healthcare, where studies have demonstrated that industry-specific training, interactive learning methodologies, and blended instruction lead to higher levels of language proficiency and workplace readiness (Puspitasari et al., 2020; Suwandi & Nurhayati, 2020). Given the increasing internationalization of the railway sector, future engineers must develop strong communicative competencies not only in technical writing and spoken interaction but also in cross-cultural collaboration and regulatory compliance (Ahmed et al., 2023; El Ouardi & El Fatihi, 2021). The results of this study confirm that railway engineering students require a more comprehensive, skill-focused ESP curriculum that emphasizes real-world applications, task-based methodologies, and interactive learning strategies (Buriro et al., 2024; Setiawan & Wiedarti,

2020). By implementing learner-centered, industry-driven pedagogical frameworks, ESP instruction can better equip students with the linguistic tools necessary for success in the railway sector and beyond (Tuyen & Huan, 2020; Widodo & Pusporini, 2020).

CONCLUSION

This study highlights the urgent need for a specialized ESP curriculum tailored to railway engineering students' professional requirements. The findings suggest that current English courses do not adequately prepare students for real-world communication in the railway sector, particularly in the areas of productive skills such as technical writing and spoken interaction. As railway professionals frequently engage in safety briefings, technical discussions, regulatory documentation and international collaborations, it is imperative that ESP instruction shifts from a generic language approach to a more industry-specific, skill-focused framework.

By incorporating task-based learning, industry-specific vocabulary and interactive teaching methods, ESP courses can bridge the existing gaps in students' linguistic competencies. Task-based learning, for instance, can provide students with hands-on experience in professional communication scenarios such as writing maintenance reports, conducting safety briefings, and presenting technical updates. Additionally, content-based instruction that integrates railway-related case studies, authentic industry materials, and real-world workplace dialogues can enhance students' familiarity with technical discourse. The inclusion of digital learning tools, such as AI-based language training programs and virtual simulations, can further enrich the learning experience by offering immersive and practical engagement with industry-relevant communication tasks.

Moreover, strengthening partnerships between universities and railway industry professionals is essential to ensuring that ESP curricula remain aligned with evolving workplace demands. Collaborations with industry stakeholders can facilitate the development of tailored language programs, work-integrated learning opportunities, and mentorship initiatives that expose students to real-world professional settings. Future research should further investigate the long-term impact of such curricular adjustments on students' job performance and career progression, as well as explore additional pedagogical innovations that enhance technical language acquisition.

Ultimately, this research underscores the critical role of needs analysis in shaping effective ESP course development. The insights gained from this study contribute to the growing body of literature on ESP instruction in technical disciplines and serve as a valuable reference for curriculum designers, language instructors and policymakers. As the railway sector continues to expand and internationalize, equipping future engineers with strong English communication skills will not only enhance their professional readiness but also support the industry's global operational standards. By implementing learner-centered, industry-driven ESP curricula, institutions can ensure that railway engineering students are well-prepared to navigate the linguistic challenges of their profession and contribute effectively to the field.

APPENDIX

Part 1: A learner profile

Full name:	
Age:	
Gender:	
English proficiency level: (write if you have any language certification)	
Period of learning English:	

Availability for classes – please specify for each day the hours that you are able to attend classes:

	8:30-10:00	10:00-11:30	11:30-13:00	14:30-16:00	16:00-17:30
MONDAY					
TUESDAY					
WEDNESDAY					
THURSDAY					
FRIDAY					
SATURDAY					

For what immediate purposes do you need to learn Railway and Transportation English?

A. Study
B. Research
C. Travel
D. Profession
E. Other

Part 2: Learning Styles Self-Assessment

Procedure: Circle the answer that most represents how you generally behave.

1. *When I operate new equipment I generally:*
   a. *read the instructions first*
   b. *listen to an explanation from someone who has used it before*
   c. *go ahead and have a go, I can figure it out as I use it*

2. *When I need directions for traveling I usually:*
   a. *look at a map*
   b. *ask for spoken directions*
   c. *follow my nose and maybe use a compass*

3. *When I cook a new dish, I like to:*
   a. *follow a written recipe*
   b. *call a friend for an explanation*
   c. *follow my instincts, testing as I cook*

4. *If I am teaching someone something new, I tend to:*
   a. *write instructions down for them*
   b. *give a verbal explanation*
   c. *demonstrate first and then let them have a go*

5. *I tend to say:*
   a. *watch how I do it*
   b. *listen to me explain*
   c. *you have a go*

6. *During my free time I mostly enjoy:*
   a. *going to museums and galleries*
   b. *listening to music and talking to my friends*
   c. *playing sport or doing activities*

7. *When I go shopping for clothes, I tend to:*
   a. *imagine what they would look like on*
   b. *discuss them with the shop staff*
   c. *try them on and test them out*

8. *When I am choosing a holiday I usually:*
   a. *read lots of brochures*
   b. *listen to recommendations from friends*
   c. *imagine what it would be like to be there*

9. *If I was buying a new car, I would:*
   a. *read reviews in newspapers and magazines*
   b. *discuss what I need with my friends*
   c. *test-drive lots of different types*

10. *When I am learning a new skill, I am most comfortable:*
   a. *watching what the teacher is doing*
   b. *talking through with the teacher exactly what I am supposed to do*
   c. *give it a try myself and work it out as I go*

The questionnaire template was adapted from http://www.sqa.org.uk/files_ccc/

Part 3: Language usage and needs

Please complete the following table by putting a tick in the appropriate box

1. How often do you face difficulties with each of these skills?	Very often	Often	Sometimes	Rarely	Never
a. Reading					
b. Listening					
c. Speaking					
d. Writing					
e. Pronunciation					
f. Spelling					
g. Grammar					
h. Vocabulary					

What is your current level of English in writing and speaking?

a) Writing: Average Good Very good Excellent
b) Speaking: Average Good Very good Excellent
c) Reading: Average Good Very good Excellent
d) Listening: Average Good Very good Excellent

Which skills do you think may play a significant role in your professional success?

a) Reading
b) Writing
c) Listening
d) Speaking

Interview questions:

1. What do you think are the most important requirements of your job?
2. Why did you choose this profession?
3. To what extend do you tie your language knowledge with the job you would be involved?
4. Could you describe driver's cabinets on trains?
5. Could you give some information about train tickets and their types?
6. Do you imagine yourself to be in command?
7. What are the basic rules of handling goods and passengers?
8. Have you ever had to write transport document in foreign language, for example, in English? Was it difficult/ would it be difficult?
9. What are the advantages of road signs? Could you tell me about them?

Meeting:

Discussion topics and questions

- Why are the learners taking course?
- How do the learners learn?
- What resources are available
- Who are the learners and how old are they?
- What subjects and skill should be prioritized?
- What methods and strategies should be implemented?

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