

I Want It That Way! —Engineering Students' Needs for English Language Preparation for the TOEIC Listening and Reading Test¹

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Abstract

Needs analysis is a critical step to undertake when executing the design and development of a course. This quantitative research aimed to investigate the engineering students' reasons for taking the TOEIC Listening and Reading Test and their needs for English language preparation for taking the test. The participants were 83 voluntary and anonymous engineering students. The instrument was the researcher-constructed needs analysis questionnaire. The gathered quantitative data were statistically analyzed, and responses to an open-ended question were examined through thematic analysis. The results revealed that the participants would take the TOEIC Listening and Reading Test to fulfill one of the requirements to obtain an official teacher's license. As for the need for English language preparation, the participants wanted to be prepared with English listening, reading, vocabulary, and grammar essential for achieving the expected TOEIC scores at a high level. According to the short answers obtained from the open-ended question, it was found that the participants mentioned their significant concern of being unable to understand words' meaning. In addition, the participants expressed their interest in developing communication abilities simultaneously with test-taking preparation. Consequently, the information provided in this study can be the basics for designing and developing a training course that enhances the linguistic knowledge necessary for test-taking and communication.

Keywords: engineering students, needs analysis, official teacher's license, TOEIC Listening and Reading Test

Introduction

Preparations for exams are beneficial as students will have an opportunity to be well-prepared to achieve expected scores. Students usually, if not always, prepare themselves for upcoming exams by reviewing class notes, attending group discussions, consulting more competent classmates or friends, or practicing doing mock exams. In the case of standardized tests in English proficiency, like the Test of English for International Communication (TOEIC), Test of English as a Foreign Language (TOEFL),

International English Language Testing System (IELTS), and Chulalongkorn University Test of English Proficiency (CU-TEP), which are not academic subjects at school, students tend to opt for private English tutoring since they believe that it has a potential to help them achieve expected scores within a short time (Charoenroop, 2021; Saengboon, 2019). Moreover, commercial test preparation books from both domestic and international publications are available in the market, and various language institutions have offered courses with test-taking strategies to help students be successful in taking such tests (Chaisuriya & Shin, 2019).

Like various educational institutions that have offered English language training courses to enhance students' English performance to achieve the targeted scores of standardized English tests, the Language Center of Rajamangala University of Technology Lanna Phitsanulok (RMUTL Phitsanulok) is also one of those institutions focusing on the Listening and Reading Test of English for International Communication (TOEIC Listening and Reading Test) as it is widely accepted for international workplaces. Moreover, to respond to the university's policy to standardize students' English language proficiency that aligns with the CEFR level, a language preparation course is required.

Among the current students at RMUTL Phitsanulok, engineering students tend to be more motivated to attend the offered language training course. Engineering students at RMUTL Phitsanulok are studying a course in Technical Education and preparing to become licensed teachers who specialize in pedagogical and practical skills in electrical engineering, mechanical engineering, and industrial engineering. However, before officially entering the teaching profession, they must be granted an official teacher's license. One of the requirements to obtain an official teacher's license stipulated by the Teachers Council of Thailand (2021) is English communication. To prove that they are qualified and capable of English communication, these students are required to present proof of English communicative performance level equivalent to the B1 level of the Common European Framework of Reference for Languages (CEFR). Without evidence showing their English communication performance, these students tend to experience difficulty obtaining an official teacher's license. Besides working in the teaching profession, these engineering students can opt for engineering jobs in the industry sector. Whether they opt for a career in teaching or engineering, having proof of English for communication will enhance a higher chance of employability. Based on the ETS report of test-takers worldwide in 2021 (Educational Testing Service [ETS], 2021a), the highest number of test-takers majored in engineering (24.7%), followed by liberal arts (19.5%) and business-related (17.1%). Therefore, engineering students tend to take the TOEIC Listening and Reading Test more than the others and, as a result, be motivated to prepare for the test by attending a language preparation course provided by the institution.

Concerning the provision of a language training course, the English training course previously offered by the Language Center of RMUTL Phitsanulok was usually designed according to the TOEIC test structure without including students' needs for test preparations since it is unavoidable that the ultimate aim of taking a test preparation course is to learn test-taking techniques to reach the expected

scores. However, test-taking strategies will be highly efficient when students possess certain levels of English proficiency, as Macaro and Erler (2008) mentioned that linguistic knowledge is the fundamental and essential element that comes first in the meaning construction process. Even though students possess strategic competence, they still require linguistic knowledge to process the language.

Although a language training course is available, whether to take it or not depends on various motivating and demotivating factors. According to Cook (2008), motivation, attitude, aptitude, and age are affecting factors that can ameliorate or deteriorate the student's language learning. Hence, with low language proficiency and a lack of interest as dominant barriers, it is likely that students may be demotivated from taking a language preparation course or seek help for language learning as Fukuda (2019) pointed out that low-proficient students are likely to present a self-perception of not being successful in English learning which leads them to be discouraged and hesitate to consult the teacher. Based on this statement, there can be a high tendency that students will refrain from taking the course due to the feeling of discouragement. Therefore, a course designer should consider students' needs to arrange an English language preparation course that embraces students with low English language proficiency and enhances their English language development. Once they possess better English language performance, students will effectively implement test-taking tactics and achieve expected scores with few or minimal difficulties.

Students' needs for language learning play a significant role in designing an English language training course (Brown, 1995; Richards, 2001), as well as courses in other fields. Recognizing what aspects students need to improve the most will provide a course designer with a clear direction during the course design process. Consequently, the present study investigates engineering students' needs for English language preparation for undertaking the TOEIC Listening and Reading Test. In terms of needs, the study examines why the students consider taking the TOEIC Listening and Reading Test soon and what aspects of English they expect proper training to achieve satisfying scores. The engineering students were selected as the research participants as they tend to possess more motivation to take the TOEIC Listening and Reading Test to prove their English communication ability, as previously mentioned. Also, the TOEIC Listening and Reading Test is emphasized as it aims to assess test-takers' ability to communicate in English in a global workplace setting rather than academic language proficiency.

Research Questions

1. What is the engineering students' main reason for taking the TOEIC Listening and Reading Test?
2. What are the engineering students' needs for English language preparation for the TOEIC Listening and Reading Test?
3. What are the engineering students' additional needs for English language improvement?

Literature Review

Needs Analysis

The term 'needs' refers to gaps between what individuals have or are capable of doing and what they lack or should have done better. In order to obtain information about individuals' needs to perform particular tasks better or to improve certain skills, a needs analysis or assessment is primarily executed. According to Brown (1995) and Richards (2001), a needs analysis is defined as the systematic and procedural practice of gathering and analyzing information associated with individuals' needs in order to develop or improve their particular skills. In education, a needs analysis is employed to obtain essential information about learners' needs or desires to improve their skills. Similarly, a needs analysis in language studies attempts to identify appropriate and valid elements to be included in a language curriculum in order to accommodate students' language learning requirements (Brown, 1995).

In English for Specific Purposes (ESP), needs, referred to as an umbrella term, are associated with various aspects, including learning goals, backgrounds, students' levels of language proficiencies, reasons for undergoing a course, preferred learning and teaching styles, and situational use of the language (Hyland, 2006). Also, needs can be analyzed using a wide range of methods. The information obtained through a needs analysis can serve as the basics for designing and developing a course that meets students' needs and preferences (Songhori, 2008). According to various scholars (e.g., Flowerdew, 2012; Kusumoto, 2008; Munby, 1978; Richards, 2001), a thoroughly designed course should begin with analyzing the needs of target students as conducting a needs analysis in foreign language learning will allow course designers and developers to learn about essential information of what language skills students require in order to perform particular language-based tasks successfully. Therefore, a plethora of studies (e.g., Doğan & Mede, 2017; Hwang & Kim, 2019; Karimi & Sanavi, 2014; Piamsai, 2017) investigating language learning needs of students in English as a foreign language (EFL), particularly in the field of ESP, have been conducted. In addition, in a workplace setting, a needs analysis has also been implemented as an initial step of a training course design and development (e.g., Kaewkunha, 2021; Kusumoto, 2008; Namtapi, 2022; Nomnian, 2014; Prachanant, 2012). Thus, it is not exaggerated to mention that a needs analysis is widely accepted and inextricable in a language course design and development.

Even though a needs analysis plays a significant role in language course design and development, scant research (Anuyahong, 2012; Lertcharoenwanich et al., 2018) has been carried out to obtain students' needs and desires to improve their English language proficiency to prepare themselves for standardized English tests like TOEIC, TOEFL, and IELTS. Taking a standardized English test, every student appears to have the same goal. That goal is to achieve expected test scores. Hence, test preparation is considered essential as they allow students to familiarize themselves with the test formats and be ready for upcoming tests. However, individual students possess different levels of English language proficiency, and their needs for English language preparation and support for

standardized English tests can be diverse. Therefore, designing and developing a language preparatory course for standardized tests should take a needs analysis as the initial step rather than solely constructing the course based on the test structure.

Test of English for International Communication

The Test of English for International Communication, widely known as TOEIC, is overseen, and administered by the Educational Testing Service (ETS). It is divided into three types, namely TOEIC Listening and Reading Test, TOEIC Speaking and Writing Tests, and TOEIC Bridge Tests. As the name suggests, TOEIC Listening and Reading Test mainly assesses test-takers' listening and reading abilities in English for the workplace and everyday communication. On the other hand, TOEIC Speaking and Writing Tests measure test-takers' productive skills as they have to speak and write in response to test prompts. Rather than assessing test-takers' particular skills, the TOEIC Bridge Tests include all test prompts in the four skills of English. However, the TOEIC Bridge Tests are more suitable for beginner to intermediate learners of English.

TOEIC is a widely taken standardized English for communication test, and test-takers hold different objectives for taking the test. According to the 2021 report of test-takers worldwide, the top three reasons for taking the TOEIC Listening and Reading Test were for learning, job application, and graduation, respectively. In the same report, the majority of test-takers from Thailand took the test for job application purposes (ETS, 2021a). Based on this information, it can be assumed that individuals who particularly aim at entering a globalized labor market take the TOEIC Listening and Reading Test in order to obtain proof showing that they are able to communicate in an international work environment.

Regarding the 2021 reports of test takers worldwide of the TOEIC Listening and Reading Test, TOEIC Speaking and Writing Tests, and TOEIC Bridge Tests, test-takers from Thailand took the TOEIC tests for varied reasons. The majority of individuals who took the TOEIC Listening and Reading Test required TOEIC scores for job application purposes, while the majority of Thai test-takers of the TOEIC Speaking and Writing Tests undertook the tests for promotion purposes (ETS, 2021a, 2021b). In 2021, most of the test-takers of the TOEIC Bridge Tests were students, and the majority of these students were studying at the high school level (Institute for International Business Communication, 2022). However, the report did not clearly specify reasons why these high school students took the tests.

English Requirements for Thailand Official Teacher's License

In Thailand, undergraduate students taking a bachelor's degree in education are trained to become teachers in different selected disciplines. After finishing the program and completing all the requirements, these undergraduate students can apply for an official teacher's license. Besides the academic and teaching practicum requirements, the students taking the course in the Academic Year 2019 (B.E. 2562) onwards must achieve a score of at least 60 percent on the Teacher Professional

Competency Testing and Assessment on Knowledge and Professional Experience, including 101 Thai for Communication, 102 English for Communication, 103 The Use of Digital Technology for Education, and 104 Teaching Profession, as stipulated in the 2021 Royal Gazette mentioning the regulations of the Teachers' Council of Thailand regarding Professional License (2nd issue) B.E. 2564 (Teachers' Council of Thailand, 2021).

Another alternative to prove the teacher students' English communication proficiency is by providing an official test score report of one of the specified standardized English tests, including TOEFL iBT, TOEIC, IELTS General Training Module, CU-TEP & Speaking, CU-TEC, and TU-GET (CBT). The acceptable score must be equivalent to a B1 level of the Common European Framework of Reference for Languages (CEFR) for non-English majoring teacher students and at a B2 level for English majoring teacher students (Teachers' Council of Thailand, 2020).

According to the stated English language proficiency requirement, all teacher students, with no exceptions, are expected to possess at least a B1 level of English language for communication before entering the real teaching profession. Referring to the CEFR Global Scale (Council of Europe, 2001), possessing a B1 CEFR level of English, these teacher students are perceived to be able to communicate and understand main points of familiar topics related to educational, work, and recreational activities when clear inputs are present. They are also expected to manage most problematic or inconvenient situations well using the language. Besides, in terms of speaking performance, they tend to be able to describe personal matters with brief and appropriate reasoning and explanations to support their points of view and plans.

Challenges of Achieving the TOEIC Listening and Reading Test

When they decide to take a TOEIC test, whether the TOEIC Listening and Reading Test, TOEIC Speaking and Writing Tests, or TOEIC Bridge Tests, potential test-takers usually set their expected TOEIC scores. With this goal in mind, most of them, if not all, particularly consider TOEIC test preparation essential. However, not everybody is successful in taking the TOEIC tests despite spending a great deal of time studying. It is because different affecting factors that hinder or challenge success in the TOEIC tests exist.

The first common hindrance is insufficient vocabulary knowledge. Test-takers with greater vocabulary knowledge tend to achieve better scores than those with limited vocabulary knowledge (Chiang, 2018). According to Masaya (2017), possessing a minimum of 3,000-word families or 95 percent vocabulary coverage appears essential for success in the TOEIC Listening and Reading Test. Besides, for individuals who attempt to achieve 98 percent coverage of the listening test, an addition of 1000-word families is preferred, while an addition of 2,000 to 3,000-word families for achieving the reading test is necessary. Therefore, it can be assumed that a minimum of 4,000 to 6,000-word families are necessary for achieving expected TOEIC scores for general test-takers.

In addition to vocabulary knowledge, the ability to process real-time native speakers' natural speech is indispensable, as the TOEIC tests include the listening test sections. Thus, it does not seem to overstate that aural capacity plays a predominant role as vocabulary knowledge does. According to Lange and Matthews (2020), to be successful in a listening test, test-takers must be able to tackle and understand spoken words in natural speech. They further mentioned that as words are not uttered in isolation, a grasp of phonological modification like assimilation, reduction, and deletion is necessary. Hence, it can be assumed that test-takers with limited aural word processing ability will encounter difficulties while completing the listening test section and vice versa.

Another factor that can pose hindrances in achieving expected TOEIC scores is limited grammatical knowledge. Although the TOEIC tests do not directly evaluate test-takers' knowledge of grammatical rules, grammar structures explicitly and implicitly appear in every TOEIC test section, especially the Incomplete Sentences and Text Completion parts in which test-takers have to rely on their grammatical knowledge to select the correct answer options to the prompts. In these TOEIC reading parts, in addition to vocabulary knowledge, test-takers' knowledge of grammatical rules is tested (Imsa-ard, 2019). Consequently, both grammatical and vocabulary knowledge is critical for the TOEIC reading test section. Not only is grammatical knowledge a pivotal element in the TOEIC reading section, but it is also an essential attribute in achieving the TOEIC listening test section, particularly the Question-Response part in which test-takers have to select the correct answer choices that best respond to the test prompts without seeing the test scripts. Besides the aural processing ability, test-takers require sufficient grammatical knowledge as some test items employ grammatical distractors (Iimura, 2018) to divert their attention from the correct answer options.

Regarding a non-linguistic challenge, poor time management appears to draw difficulty to test-takers. Like other standardized tests, the TOEIC tests are timed. Consequently, test-takers must finish all the test items within the allotted time. To be more specific, the time allocation for the TOEIC Listening and Reading Test is two hours and 30 minutes for the 200 test items. The first 100 items in the listening section are allotted 45 minutes, and the second 100 items in the reading section are allotted 75 minutes. Also, additional 30 minutes are intended for test-takers to respond to the biographical questionnaire. Hence, suitable time management is as essential as other linguistic knowledge for test achievement. According to Sarich (2011), if test-takers can manage the allotted time well, it will lessen their anxiety. As a result, their test scores tend to increase. Besides, Behnam et al. (2014) also confirmed in their study that there is a relationship between time management and test anxiety that efficient time management can decrease test anxiety and vice versa.

The Present Study

Although studies related to EFL students' needs toward English learning courses have been conducted (e.g., Hwang & Kim, 2019; Piamsai, 2017; Pongklee & Sukying, 2022), there were a small number of studies that conducted a needs analysis by making use of widely accepted standardized

English tests like Oxford Placement Test over two decades ago (Moll, 1999) and the TOEIC Listening and Reading Test (Anuyahong, 2012; Lertcharoenwanich et al., 2018). Moreover, an emphasis on engineering students, who require the TOEIC scores as alternative proof of English language proficiency before entering the real teaching profession, has not been the center of a needs analysis study. Consequently, the present study aims to explore engineering students' needs for English language preparation in order to be ready to achieve the expected TOEIC scores so that an appropriate TOEIC Listening and Reading Test preparation course can be designed based on information obtained from this study.

Methodology

Participants

The participants of the present study were 83 engineering students at RMUTL Phitsanulok. These engineering students were studying Mechanical Engineering (ME; $n = 31$, 37.35%), Electrical Engineering (EE; $n = 36$, 43.37%), and Industrial Engineering (IE; $n = 16$, 19.28%). Since they are studying in a program in Education, these engineering students are trained to be teachers in technical education, and they must obtain an official teacher's license to become eligible to teach in schools or vocational institutions. So, having a chance to prepare themselves for English proficiency testing is beneficial.

Of the 197 active engineering students at the time of the study, 83 engineering students participated in the present research anonymously and voluntarily. They were recruited based on their willingness to answer the questionnaire distributed to them with the help of lecturers of English courses in the General Education Program. They were also well informed that responding to the questionnaire did not affect their learning assessment. Furthermore, information obtained from the questionnaire would be solely for academic purposes. After the distribution of the online questionnaire, they were allowed a month to complete it, and it turned out that 83 engineering students completed the questionnaire and turned it in online.

To protect their privacy, the participants were named according to the abbreviations of their academic disciplines, followed by the number reorganized and assigned to them after the online raw data were retrieved. For example, ME-23 refers to the 23rd Mechanical Engineering student.

Instrument

The research instrument was a researcher-constructed needs analysis questionnaire. It was a 5-point Likert scale, with five on the rightmost referring to an extremely high need and one on the leftmost referring to an extremely low need, and comprised four main sections. Items in Section 1 asked the participants to provide some general information, including their gender, year of study, and major. A questionnaire item in Section 2 asked the participants to express the purpose of their taking the TOEIC

Listening and Reading Test. Then in Section 3, the participants had an opportunity to specify the extent of needs they wanted to be prepared with their English language skills in English listening, reading, vocabulary, and grammar. Finally, in Section 4, the participants were allowed to answer an open-ended question, asking about other areas of English that they wanted to improve to help them reach expected TOEIC Listening and Reading Test scores.

Before the distribution of the questionnaire, the researcher-constructed questionnaire was evaluated and validated by three experts in English Language Teaching and Applied Linguistics to find the Index of Item-Objective Congruence (IOC). The items with an IOC value equal to or greater than 0.50 would be included in the questionnaire. Based on the evaluation and validation of the three experts, the researcher-constructed questionnaire items earned an overall IOC value of 0.94.

The validated and revised questionnaire was piloted with 30 EFL students at RMUTL Phitsanulok to find Cronbach's Alpha Coefficient value. The result of the pilot attempt revealed that the constructed questionnaire earned the value of Cronbach's Alpha Coefficient of 0.99. Therefore, it could be confirmed that the questionnaire was reliable.

Data Collection Method

The validated questionnaire items were made available online using the Google questionnaire form. To avoid confusion and misinterpretation, the questionnaire was administered in Thai. At the time of the study, the online questionnaire was purposively employed because the COVID-19 situation had not been fully subsided, and classes at RMUTL Phitsanulok were still conducted online. The target participants were provided with a QR code and a link to access the online questionnaire, and they were given a month to complete and submit the questionnaire online.

Data Analysis

The quantitative data were statistically analyzed to find the mean values, standard deviations, and percentages with the aid of the Analysis ToolPak of Microsoft Excel version 2016. The interpretation of the mean scores of needs for English language preparation was based on the statistical criteria adapted from Namtapi's (2020), as presented in Table 1.

Table 1

Interpretation Criteria of Mean Scores

Mean Score Range	Interpretation
4.50–5.00	Extremely high need
3.50–4.49	High need
2.50–3.49	Moderate need
1.50–2.49	Low need
1.00–1.49	Extremely low need

In addition to the statistical analysis, the qualitative data obtained from the open-ended question included in the questionnaire were analyzed through thematic analysis (Braun & Clarke, 2006) as follows:

Step 1 Familiarizing with the gathered qualitative data: The participants' answers to the open-ended question, which were retrieved from the online questionnaire in an Excel file format, were read and reread, allowing the researchers to be familiar with the data.

Step 2 Generating initial codes: Pivotal and significant information regarding the participants' additional needs for English language preparation was identified.

Step 3 Assigning themes: The identified information with shared characteristics was grouped.

Step 4 Reviewing the assigned themes: The assigned themes of the participants' additional needs for English language preparation were reviewed and rechecked by the researchers for accuracy. Corrections were also executed at this stage.

Step 5 Finalizing the themes: The themes of participants' additional needs for English language preparation to undertake the TOEIC Listening and Reading Test were finalized and categorized into two main categories, namely needs for improvement of linguistic aspects they perceived themselves to lack and needs for improvement of linguistic aspects for testing and communication purposes.

Step 6 Writing the report: The participants' additional needs for English language preparation to undertake the TOEIC Listening and Reading Test were reported and written up.

Results

This section presents the results of the study. It consists of four main parts, including Part 1: The participants' general information of gender, year of study, and academic disciplines; Part 2: The participants' reasons for taking the TOEIC Listening and Reading Tests; Part 3 The participants' needs for English language preparation for the TOEIC Listening and Reading Test; and Part 4: The participant's additional needs for language improvement.

The Participants' General Information

Table 2 presents the information about the participants, including gender, year of study, and major. As seen in Table 2, the majority of the 83 participants ($n = 73$, 87.95%) were male, while a few of them ($n = 10$, 12.05%) were female. Most of the participants were third-year students ($n = 45$, 54.22%), followed by fourth-year students ($n = 22$, 26.52%) and second-year students ($n = 16$, 19.28%), respectively. Based on the participants' academic disciplines, most of them ($n = 36$, 43.37%) were doing an educational degree in EE, followed by ME ($n = 31$, 37.35%) and IE ($n = 16$, 19.28%), respectively.

Table 2

The Participants' General Information

General Information	No. of Participants (n = 83)	Percent
Gender		
• Male	73	87.95
• Female	10	12.05
Total	83	100
Year of Study		
• Second Year	16	19.28
• Third Year	45	54.22
• Fourth Year	22	26.51
Total	83	100
Major		
• ME	31	37.35
• EE	36	43.37
• IE	16	19.28
Total	83	100

Reasons for Taking the TOEIC Listening and Reading Test

When asked why they considered taking the TOEIC Listening and Reading Test, the participants were allowed to select from the provided options that most corresponded to their objective of taking the TOEIC Listening and Reading Test. The participants were also permitted to specify additional reasons if the provided options did not meet their need. Table 3 presents the participants' significant objectives of taking the TOEIC Listening and Reading Test.

Table 3

Reasons for Taking the TOEIC Listening and Reading Test

Reasons for Taking the Test	No. of Participants (n = 83)		Rank
	n	%	
1. To apply for a job	19	22.89	2
2. To fulfill one of the graduation requirements	12	14.46	4
3. To be eligible to obtain professional licenses, such as an official teacher's license	34	40.96	1
4. To assess communicative English competency	16	19.28	3
5. To apply for scholarships or student exchange programs	2	2.41	5
Total	83	100	

As presented in Table 3, the primary reason that nearly half of the engineering participants ($n = 34$, 40.96%) would take the TOEIC Listening and Reading Test was to fulfill one of the requirements to be eligible to obtain an official teacher's license. Also, almost the same number of the participants would take the test for job application purposes ($n = 19$, 22.89%) and an assessment of their communicative English competency ($n = 16$, 19.28%), making them rank second and third, respectively. A small portion of the participants ($n = 12$, 14.46%) would take the test to fulfill one of the graduation requirements. Very few participants ($n = 2$, 2.41%) would take the test to apply for scholarships or student exchange programs.

Needs for English Language Preparation for the TOEIC Listening and Reading Test

After responding to questions asking for their personal information and objectives for taking the TOEIC Listening and Reading Test, the participants were directed to the 5-point Likert scale questionnaire items. To complete the questionnaire, they were advised to read each statement carefully and decide to what extent they agree with it. The rightmost scale of 5 represents an extremely high need, while the leftmost scale of 1 refers to an extremely low need. This section presents the findings obtained from the questionnaire, and it comprises four main parts as follows:

Overall needs for English language preparation.

Table 4 shows the participants' overall needs for English language preparation for the TOEIC Listening and Reading Test. It includes preparation for listening, reading, vocabulary, and grammar.

Table 4

Overall Needs for English Language Preparation

Linguistic Areas and Skills for Preparation	Participants ($n = 83$)		
	\bar{x}	SD	Level
1. Listening skills	3.80	0.89	High
2. Reading skills	3.79	0.97	High
3. Vocabulary	3.76	0.87	High
4. Grammar	3.82	0.89	High
Average	3.79	0.91	High

As presented in Table 4, the participants demonstrated the overall needs for English language preparation at a high level ($\bar{x} = 3.79$, $SD = 0.91$). Among the four areas of specified English language preparation, there was no statistical significance, which could be assumed that the participants wanted to be well-prepared for the test in all aspects at a high level. When considering the overall needs of the participants according to their academic disciplines, the findings are presented in Table 5.

Table 5

ME, EE, and IE Participants' Needs for English Language Preparation

Linguistic Areas and Skills for Preparation	ME (n = 31)			EE (n = 36)			IE (n = 16)		
	\bar{x}	SD	Level	\bar{x}	SD	Level	\bar{x}	SD	Level
1. Listening skills	3.90	0.89	High	3.69	0.84	High	3.85	1.00	High
2. Reading skills	3.81	0.95	High	3.84	0.89	High	3.63	1.17	High
3. Vocabulary	3.79	0.85	High	3.82	0.82	High	3.59	1.02	High
4. Grammar	3.90	0.89	High	3.84	0.83	High	3.60	1.05	High
Average	3.85	0.90	High	3.80	0.85	High	3.67	1.06	High

According to Table 5, the ME, EE, and IE participants similarly showed the overall needs for English language preparation for the TOEIC Listening and Reading Test at a high level ($\bar{x} = 3.85$, SD = 0.90; $\bar{x} = 3.80$, SD = 0.85; $\bar{x} = 3.67$, SD = 1.06, respectively). Considering each area of language preparation, ME participants showed a high need for language preparation in listening skills and grammar ($\bar{x} = 3.90$, SD = 0.89), while the EE participants presented a high need for preparation in reading skills and grammar ($\bar{x} = 3.84$, SD = 0.89; $\bar{x} = 3.84$, SD = 0.83, respectively). Like the ME participants, the IE participants demonstrated a high need for listening skills preparation ($\bar{x} = 3.85$; SD = 1.00).

Needs for listening skills preparation.

The participants were asked to rate to what extent they needed to be prepared for the listening sub-skills to achieve the TOEIC listening test section. Table 6 presents the ME, EE, and IE participants' responses toward the extent of needs for the eight listening sub-skills.

As presented in Table 6, the three groups of participants demonstrated a high need for the specified listening sub-skills preparation. Among the eight listening sub-skills, all groups of participants showed the same need to be prepared to understand and distinguish similar-sounding words at a high level ($\bar{x} = 4.03$, SD = 0.84; $\bar{x} = 3.83$, SD = 0.88, $\bar{x} = 4.00$, SD = 0.89, respectively). Besides, it was also found that, in addition to listening to and distinguishing similar-sounding words, the ME participants showed the same high need for the preparation to listen to and understand different types of questions ($\bar{x} = 4.03$, SD = 0.87).

Table 6

ME, EE, and IE Participants' Needs for Listening Sub-Skills Preparation

Listening Sub-Skills Preparation	ME (n = 31)			EE (n = 36)			IE (n = 16)		
	\bar{x}	SD	Level	\bar{x}	SD	Level	\bar{x}	SD	Level
1. Listening to and distinguishing similar-sounding words (weekend-weakened, dinner-winner, etc.)	4.03	0.84	High	3.83	0.88	High	4.00	0.89	High
2. Listening to and understanding connected speech and intonations	3.81	0.91	High	3.72	0.81	High	3.69	1.08	High
3. Listening to and understanding different types of questions (wh-questions, yes-no questions)	4.03	0.87	High	3.67	0.79	High	3.88	0.89	High
4. Listening to and understanding fast speech	3.81	0.98	High	3.53	0.88	High	3.88	0.96	High
5. Listening to and understanding descriptions of photos	3.97	0.87	High	3.72	0.70	High	3.81	1.05	High
6. Listening to and understanding questions and responses	3.90	0.79	High	3.72	0.81	High	3.88	1.02	High
7. Listening to and understanding conversations	3.81	0.98	High	3.69	0.92	High	3.88	1.09	High
8. Listening to and understanding talks	3.87	0.88	High	3.67	0.93	High	3.81	1.05	High
Average	3.90	0.89	High	3.69	0.84	High	3.85	1.00	High

Table 7

ME, EE, and IE Participants' Needs for Reading Sub-Skills Preparation

Reading Sub-Skills Preparation	ME (n = 31)			EE (n = 36)			IE (n = 16)		
	\bar{x}	SD	Level	\bar{x}	SD	Level	\bar{x}	SD	Level
1. Skimming for general ideas	3.74	1.00	High	3.92	0.94	High	3.69	1.08	High
2. Scanning for specific information	3.77	0.84	High	3.81	0.82	High	3.63	1.15	High
3. Reading for main ideas	3.84	1.10	High	3.75	0.84	High	3.63	1.20	High
4. Reading and understanding tables, charts, and graphs	3.74	0.93	High	3.74	0.89	High	3.63	1.20	High
5. Reading and understanding different types of announcements	3.90	0.91	High	3.78	0.90	High	3.63	1.20	High
6. Reading and understanding business correspondences	3.84	0.93	High	3.83	0.97	High	3.56	1.21	High
Average	3.81	0.95	High	3.84	0.89	High	3.63	1.17	High

Needs for reading skills preparation.

After completing the questionnaire items associated with the listening sub-skills preparation, the participants were directed to the questionnaire items surveying their needs for reading sub-skills preparation. Table 7 demonstrates the participants' responses about the extent they needed to be prepared in the reading sub-skills.

According to Table 7, the three participating groups demonstrated an overall high need for preparation in the reading sub-skills. The EE and IE participants showed the same high level of preparation to be able to skim for general ideas when reading ($\bar{x} = 3.92$, $SD = 0.94$ and $\bar{x} = 3.69$, $SD = 1.08$, respectively). For the ME participants, reading and understanding different types of announcements attracted their need for preparation at a high level ($\bar{x} = 3.90$, $SD = 0.91$).

Needs for vocabulary preparation.

Another area of English language preparation for the TOEIC Listening and Reading Test that was included in the questionnaire was vocabulary. The participants answered the nine questionnaire items related to English vocabulary. Table 8 presents the participants' responses of needs for vocabulary preparation.

Table 8

Needs for Vocabulary Preparation

Vocabulary Preparation	ME (n = 31)			EE (n = 36)			IE (n = 16)		
	\bar{x}	SD	Level	\bar{x}	SD	Level	\bar{x}	SD	Level
1. Commonly found words in the TOEIC Listening and Reading Test	3.58	0.92	High	3.64	0.93	High	3.56	1.09	High
2. Guessing word meanings	3.84	0.86	High	3.89	0.75	High	3.63	1.02	High
3. Word's part of speech	3.74	0.86	High	3.89	0.95	High	3.56	0.96	High
4. Word formation	3.81	0.87	High	3.78	0.76	High	3.63	1.02	High
5. Synonyms	3.90	0.87	High	3.89	0.78	High	3.63	0.96	High
6. Antonyms	3.71	0.78	High	3.75	0.81	High	3.56	1.03	High
7. Words with the same pronunciation	3.81	0.83	High	3.86	0.80	High	3.69	0.95	High
8. Words with multiple meanings	3.81	0.79	High	3.92	0.91	High	3.50	1.03	High
9. Vocabulary memorization techniques	3.90	0.87	High	3.78	0.72	High	3.56	1.09	High
Average	3.79	0.85	High	3.82	0.82	High	3.59	1.02	High

Overall, the three groups of participants showed a high need for vocabulary preparation. When the sub-areas of vocabulary were rated, the participants demonstrated a different need for preparation. The ME participants showed the same degree of a high need for synonymous word preparation and techniques for vocabulary memorization ($\bar{x} = 3.90$, $SD = 0.87$), while the EE participants presented a

high need for multi-meaning word preparation ($\bar{x} = 3.92$, $SD = 0.91$). On the contrary, the IE participants demonstrated a high need for preparation with words with the same pronunciation ($\bar{x} = 3.69$, $SD = 0.95$).

Needs for grammar preparation.

The final area of English language the participants were asked to determine the extent of the need for preparation for the TOEIC Listening and Reading Test was grammar. The participants responded to three questionnaire items related to essential grammar for the test. Table 9 presents their need for grammar preparation.

Table 9

Needs for Grammar Preparation

Grammar Preparation	ME (n = 31)			EE (n = 36)			IE (n = 16)		
	\bar{x}	SD	Level	\bar{x}	SD	Level	\bar{x}	SD	Level
1. Essential grammar for the listening test section	3.84	0.86	High	3.81	0.86	High	3.63	1.09	High
2. Essential grammar for the reading test section	3.94	0.89	High	3.89	0.75	High	3.63	1.02	High
3. Essential grammar for the Incomplete Sentences and Text Completion tests	3.94	0.93	High	3.83	0.88	High	3.56	1.03	High
Average	3.90	0.89	High	3.84	0.83	High	3.60	1.05	High

Overall, the three groups of participants showed a high need for grammar preparation. All of the ME, EE, and IE participants demonstrated the same need for preparation of essential grammar for the reading test section at a high level ($\bar{x} = 3.94$, $SD = 0.89$, $\bar{x} = 3.89$, $SD = 0.75$, and $\bar{x} = 3.63$, $SD = 1.02$, respectively). In addition, another area that the ME participants showed a similar high need for preparation was essential grammar for the Incomplete Sentences and Text Completion tests ($\bar{x} = 3.94$, $SD = 0.93$), while the IE participants also displayed a high need for preparation of essential grammar for the listening test section ($\bar{x} = 3.63$, $SD = 1.09$).

Additional Needs Specified in an Open-Ended Question

Besides answering the 26 questionnaire items, the participants were allowed to freely respond to an open-ended question asking for additional English language areas that they might need preparation for the TOEIC Listening and Reading Test. Although the majority of the participants only provided short answers, their responses were beneficial and could be categorized into two main themes, including preparation of language areas essential for testing and communication and improvement of incompetent language areas.

Preparation of essential language areas for testing and communication.

Interestingly, some participants mentioned that they would also like to be prepared to communicate in English. Concerning communication, some participants, such as ME-01 and EE-29 responded that they wanted to improve English pronunciation as it is considered part of productive communication skills. On the other hand, some participants, such as ME-15, EE-32, and EE-35 specified that they wanted to emphasize listening to catch general ideas and listening tricks that help them understand the speakers better.

Moreover, three participants mentioned that they wanted to learn about essential grammar for doing tests. ME-04 showed an interest in learning essential grammar points for a listening test, while EE-01 mentioned grammar and meaning as his or her need for preparation. EE-36 wrote that he or she wanted to learn about the present simple tense.

Improvement of incompetent language areas.

Other intriguing comments the participants provided showed their need for specific language area improvement, which they perceived to lack or be incompetent. Among the 83 participants, three ME students responded with a lack of vocabulary knowledge. The ME-21 and ME-22 participants mentioned that they could read words but did not know their meanings. Regarding reading, it can be assumed that the two participants referred to reading aloud. Besides, the other ME participants (ME-27) wrote that he or she could not read or understand words, which means this participant needs intensive language preparation; otherwise, he or she will encounter more difficulties than the others when completing the test.

Discussion and Conclusion

Preparation for tests is essential, but providing test preparation that meets the needs of students is even more critical. Like classroom-based tests, the TOEIC Listening and Reading Test requires students to be well-prepared to achieve expected scores. To fulfill classroom-based test achievement, students receive help from teachers during class sessions to provide necessary learning content. On the contrary, to be successful in the TOEIC Listening and Reading Test, students tend to do self-study or attend a public institution or commercial cram school for test preparation (Charoenroop, 2021; Saengboon, 2019). In the latter case, enrolling in a test preparation course provided by a private organization can be costly, and sometimes it is inconvenient due to time conflicts. Furthermore, different students require different levels of preparation as their levels of linguistic knowledge vary.

Intriguingly, engineering students desire to be prepared with essential grammatical characteristics to help them achieve the TOEIC Listening and Reading Test. According to Wang (2010), grammar is an essential element that EFL students need proper training to enhance their communicative skills, and it should not be in opposition to communicative competence. Similarly, Saengboon et al. (2022) mentioned that language use would not be successful without grammar. They further commented

that once grammar and structures are delivered with clear objectives, like for taking a standardized test or understanding reading texts in an academic field, they are perceived by students to be beneficial. It is reasonable to admit that being tested with grammatical knowledge is unavoidable, and the TOEIC Listening and Reading Test usually explicitly and implicitly include grammar-related test items (Imsaard, 2019). Consequently, being well-prepared with necessary grammatical points, these engineering students believe they can achieve the test with the expected scores.

Listening skills for the TOEIC Listening and Reading Test also draw attention from engineering students. Listening tests can be tricky as they usually contain distractors to divert test-takers from selecting the correct answer options (Iimura, 2018; Taladngoen & Esteban, 2022). Moreover, students with limited language processing ability tend to encounter difficulties completing tests, particularly the listening section (Harmer, 2015; Lange & Matthews, 2020). Consequently, being able to discriminate similar-sounding or overlapping words or understand connected speech and intonation will enhance the TOEIC test achievement. Regarding an attempt to enhance engineering students' listening competence, listening strategies are worth teaching. Zhang (2012) suggested that increased use of listening strategies by EFL students benefits their listening achievements; therefore, formal training in the application of listening strategies should be offered. Based on a study by Sodachan and Chayanuvat (2018), listening strategies like cognitive and metacognitive strategies can facilitate the students to process incoming messages more precisely. Besides boosting students' listening performance, listening strategies instruction will also lessen students' listening anxiety (Fathi et al., 2020). As a result, to enhance engineering students' success in the TOEIC Listening and Reading Test, comprehensive teaching of listening strategies is recommended.

Since the second half of the TOEIC Listening and Reading Test contains the reading comprehension test parts, preparation for reading skills and vocabulary is as important as other skills. Effective implementation of reading techniques will lessen the time spent completing test items and enhance test achievement (Waiprakhon & Jaturapitakkul, 2018). Also, reading techniques will be more effective if test-takers possess enough vocabulary knowledge since Chiang (2018) previously mentioned that test-takers with sufficient vocabulary knowledge tend to accomplish the test. The engineering students also demonstrate a high need for vocabulary preparation, especially vocabulary memorization techniques, multi-meaning words, and synonymous words. Vocabulary preparation can increase the engineering students' vocabulary knowledge, so they can accomplish the TOEIC Listening and Reading Test, as Masaya (2017) emphasized a minimum of 3,000-word families for the TOEIC test success.

It can also be inferred from the responses to the open-ended question that, besides being prepared for the TOEIC Listening and Reading Test, engineering students want to improve their language competence for oral communication using English. In terms of verbal communication, speaking, listening, and pronunciation are involved (Murphy, 1991). In this current study, the productive skill of pronunciation and the receptive skills of listening and understanding meanings have

gained the engineering students' emphasis and attention. However, speaking is not mentioned directly. Offering a language preparation class that is meaningful in terms of achieving expected scores and enhancing language for communication will be more interesting and advantageous for students. Exposure to language use will enhance students' vocabulary knowledge, pronunciation improvement, and familiarity with the language (Triwittayayon & Sarobol, 2018). On the other hand, providing a language preparation class that ultimately targets high scores will not be sustainable for language learning as high scores do not usually reflect students' actual proficiency (Charoenroop, 2021). Hence, it will be more beneficial if a language training course can address the two goals of students, which are to earn high scores on the TOEIC Listening and Reading Test and to improve English skills for communication.

Based on the results of the present study, it can be concluded that engineering students consider test preparation essential to be successful in the TOEIC Listening and Reading Test. In addition, test preparation should cover pivotal linguistic aspects, such as vocabulary and grammar, listening skills, and reading skills that enhance high achievement in taking the test. Test strategies are also necessary, but they will be ultimately effective when students possess sufficient linguistic knowledge, which is a prerequisite in the meaning construction process (Macaro & Erler, 2008). Therefore, the most fundamental step to take when initiating test preparation is to increase the language knowledge of students, and a needs analysis will provide beneficial information about which linguistic aspects a particular group of students requires. Moreover, strong linguistic knowledge will strengthen students' ability to employ test strategies. As a result, as Sarich (2011) mentioned, test anxiety can be reduced, and test achievement can be better.

Test Preparation and Pedagogical Implications

The results of this study yield two critical implications, including a test preparation implication and a pedagogical implication.

For the test preparation implication, the obtained information about the engineering students' needs for listening, reading, vocabulary, and grammar essential for taking the TOEIC Listening and Reading Test can be the basics for designing and developing a test preparation course to help them achieve the expected scores. Regarding the needs for listening skill development, an emphasis should be placed on listening to and distinguishing similar-sounding words so that the students are able to avoid being tricked by these types of distractors. Moreover, a focus on listening to and understanding different types of questions is necessary. With a clear understanding of potential answers to varying types of questions, the students will be able to eliminate irrelevant answer options and select the answer options more correctly. As for the needs for reading skills development, an enhancement of skimming for general ideas should be focused. As the TOEIC Listening and Reading Test is timed, students have to read fast to grasp the general information of the provided reading texts. Hence, being prepared to

employ skimming skills efficiently will increase a chance that the students can finish the test within the allotted time and achieve higher scores.

While the listening and reading skills preparation plays a significant role in accomplishing the TOEIC Listening and Reading Test, grammar preparation is indispensable as engineering students expressed a high need for it, especially essential grammar for the reading comprehension test section. Therefore, a TOEIC preparation course should include essential grammar points to enhance students' TOEIC test achievement. Also, grammar should be contextualized in the listening and reading skills preparation, as teaching grammar explicitly can discourage the students. Additionally, vocabulary is a pivotal element that students have to be prepared for. Without vocabulary knowledge, achieving the expected TOEIC scores tends to be burdensome. Like grammar, vocabulary can be delivered along with listening and reading skills preparation. Since some vocabulary words have multiple meanings depending on the context, introducing words in the context will help the students extract their exact meanings.

In terms of the pedagogical implication, it is recommended that essential grammar for taking the TOEIC Listening and Reading Test, particularly grammar for the reading comprehension section, is frequently and continuously introduced throughout English courses in the General Education program, as the engineering students showed the highest need for grammar preparation to undertake the TOEIC Listening and Reading Test. Moreover, listening instruction like listening to and distinguishing similar-sounding words, listening to and understanding different types of questions and how to respond to those questions, and listening to and understanding descriptions of photographs is worth initiating. Regarding reading instruction, authentic materials like announcements and correspondences are recommended, as the engineering students wanted preparation to read and understand these materials. Besides, reading techniques like skimming for general ideas and reading for main ideas should also be introduced. The instruction of essential vocabulary for the TOEIC Listening and Reading Test is also necessary, especially synonymous words, multiple-meaning words, and identically pronounced words. Furthermore, techniques for vocabulary memorization should be introduced to help engineering students gain substantial vocabulary knowledge over time.

Collaborative and continuous instruction of essential grammar, listening skills, reading skills, and vocabulary for taking the TOEIC Listening and Reading Test will allow students to accumulate linguistic knowledge, as spending a short time preparing for the test can be tedious and may not yield effective results. In addition, each skill element should be introduced according to its level of complexity to scaffold low-proficiency students. Finally, time allocation for engineering students to do mock tests using learned skills can also be beneficial because it allows them to incorporate skills and employ them to do practice tests.

Limitations of the Study and Recommendations

The most significant limitation of the present study was the number of voluntary and anonymous participants which might not be big enough to represent the entire population of engineering

students at RMUTL Phitsanulok. For future research studies dealing with EFL students' needs for English language skills preparation and development or other related areas, it is recommended that a larger number of participants be recruited to participate in the study for more accurate generalization.

Another significant limitation was the use of only one research instrument, which was a questionnaire with an open-ended question. Instead of utilizing only a questionnaire with an open-ended question to gather data for analyses, it is recommended that a semi-structured interview should also be employed to reveal more insight into the participants' additional needs for linguistic and non-linguistic preparation for taking the TOEIC Listening and Reading Test.

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Endnote

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