

AN ANALYSIS OF ENGLISH LANGUAGE NEEDS OF INFORMATICS ENGINEERING STUDENTS

Annur Awal^{1*}, Wafiq Azizah¹, Nurul Inayah¹

¹English Education Department, Tarbiyah and Teacher Training Faculty, Universitas Islam Negeri Alauddin Makassar, Indonesia

*Email: nurawal130805@gmail.com

Abstract

English is an essential competence that enhances the academic and professional development of students in Informatics Engineering at the Faculty of Science and Technology, Universitas Islam Negeri Alauddin Makassar. All teaching of English should be based on the real needs of the learners. Therefore, it is imperative to conduct a systematic needs analysis. This study attempts to identify the English language needs of Informatics Engineering students using a descriptive quantitative approach supported by descriptive statistical techniques. Thirty students are selected based on purposive sampling. The data were collected by using a closed-question instrument adopted from Dudley-Evans and St. John's Multidisciplinary Approach to Needs Analysis. The results show that the students need English not only to complete their academic tasks, such as reading technical literature and understanding programming documentation, but also in professional settings: writing reports, presenting ideas, and even communicating either formally or technically. Productive skills-speaking and writing-are identified as the most needed areas to be improved, besides grammatical mastery, academic vocabulary, and field-specific terminology. While students' reading and listening skills are relatively sufficient, many students still struggle with complex texts and native speaker input. It significantly highlights the importance of designing ESP materials and teaching methods relevant to students' needs and of continuous needs analysis to keep the relevance of the course.

Keywords: ESP; Needs Analysis; Informatics Engineering; English Language Requirements

INTRODUCTION

English has long been recognized as an international language that plays a vital role in education, technology, communication, business, and professional life. In the era of globalization and rapid digital development, English proficiency is no longer an optional skill but an essential competence for individuals who seek to compete at national and international levels. This is particularly evident in the field of information technology, where learning resources, software documentation, scientific publications, and technical references are predominantly produced in English (Basturkmen, 2015). Consequently, the ability to understand and use English effectively has become a crucial asset for students preparing to enter technology-based professional environments.

In higher education, English is commonly offered as a compulsory subject across various disciplines, including at the Universitas Islam Negeri Alauddin Makassar. Within the Informatics Engineering study program at the Faculty of Science and Technology, English proficiency plays a significant role in supporting academic achievement, research development, and professional competence (Dudley-Evans & St John, 1998). Students are

required not only to understand theoretical content delivered in Indonesian but also to engage with international textbooks, academic journals, programming tutorials, and digital learning resources that are largely written in English (Richards et al., 2019). In addition, they are expected to produce academic reports, deliver presentations, participate in discussions, and communicate effectively in academic and professional contexts using English.

Informatics Engineering is a rapidly evolving field due to continuous technological innovation. Areas such as artificial intelligence, machine learning, cybersecurity, data science, cloud computing, and software engineering rely heavily on English terminology and discourse. This condition indicates that teaching English for Informatics Engineering students cannot be equated with General English instruction. Instead, learners require English for Specific Purposes instruction that focuses on technical vocabulary, comprehension of academic and professional texts, interpretation of software documentation, and effective technological communication (Hutchinson & Waters, 1987).

The variety of English instruction custom-designed to meet the needs of a specific field of study or profession is known as English for Specific Purposes, ESP. Hutchinson & Waters (1987) define ESP as an approach to language teaching in which the content and methods are based on the learners' reason for learning English. The relevance to the learners' academic or occupational context is emphasized in ESP; hence, it has something different from General English. By taking ESP, students within the study program for Informatics Engineering will learn the necessary concepts of English that would enable them to work effectively within the field of information and communication technology.

ESP would, according to Kusumaningputri (2010), give learners two major advantages. First, ESP prepares students with skills in English to support their academic work, such as instructions given in class and completion of technology-related homework assignments. Second, it prepares students for professional environments where English competence is increasingly expected. Technology careers such as programmer, software developer, system analyst, data analyst, and network engineer require one to be able to understand technical instructions, collaborate in international teams, and produce English-based technical documentation.

In order to create an ESP course that truly responds to the needs of the students, a needs analysis has to be done as an essential first step. Dudley-Evans & St John (1998) point out that needs analysis should also identify which linguistic skills students require, in what learning conditions it suits them, and the differences between what they can do and what is demanded from them, both academically and professionally. The results from the needs analysis would give the basis for formulating learning objectives, choosing appropriate materials, designing efficient teaching methods, and determining evaluation strategies. With these considerations in mind, this research is directed toward an analysis of the English language needs of Informatics Engineering students at the Faculty of Science and Technology, Universitas Islam Negeri Alauddin Makassar. It is expected that the results will provide an overall insight that can be used as a basis for the development of better and more relevant English teaching to assist students in achieving academic success and future professional readiness.

Needs analysis has conventionally been seen as the foundation of ESP because the primary goal of ESP is to align language teaching with the real and specific needs of learners. Apart from General English, whose objectives are usually broad and universal, ESP seeks to equip learners with English competencies relevant to their specific academic or professional

contexts. Therefore, identification of learner needs becomes of prime importance in ensuring that English instruction becomes meaningful, focused, and effective. According to Basturkmen (2015), needs analysis is the stage at which ESP practitioners identify the linguistic and communicative requirements that learners should meet to be able to carry out tasks in the target context. Without systematic identification of these needs, ESP instruction runs the risk of being irrelevant or ineffective.

Over time, the concept of needs analysis has broadened to go beyond just the question of language use in target situations. The earlier approaches emphasized the activities of learners in academic or workplace contexts. Subsequent research, however, showed that needs analysis should also involve several dimensions centered on the learner, like prior learning experience, cultural background, motivation, expectations, attitudes regarding English, and preference for learning styles. Hutchinson & Waters (1987) identified three aspects of learner needs: necessities, wants, and lacks. Necessities are what learners need to know to cope with life in their target situations, while wants represent what learners feel they want or need to learn, and lacks describe the discrepancy between what learners can do at present and what they would have to do in order to achieve the desired level of proficiency. All three are essential in designing a course which, while addressing learners' weaknesses, will match their goals and motivational levels.

In addition, according to Westerfield (2010), needs analysis also includes Target Situation Analysis (TSA), Present Situation Analysis (PSA), and Learning Situation Analysis (LSA). The first one identifies the learner's future tasks that will be carried on using English at an academic or professional environment; the second one identifies what learners are able to do presently with the language, and the third one examines the learning environment, the institutional resources and situational constraints that could influence the learning process. All these perspectives are very relevant in regard to students of Informatics Engineering because their academic activities involve understanding programming documentation, reading scientific articles, carrying out technical tutorials, and writing structured reports. In this regard, the current study identifies the needs concerning English of the Informatics Engineering students at UIN Alauddin Makassar by using Multidisciplinary Approach of Needs Analysis by Dudley-Evans & St John (1998), a framework that encompasses the linguistic, academic, personal, and contextual perspectives on learners' needs. There are eight major aspects in this framework, as described in the following table.

Table 1. A Multidisciplinary Approach of Need Analysis (Dudley-Evans and St. John)

No	Aspect	Description	Indicators (list)	Item (Statement/Question)
1	Professional information about the learners:	The tasks and activities learners are/will be using English for — target situation analysis and objective needs	1. The type of professional or academic tasks learners needs to perform in English 2. The frequency and importance of using English in their	1. What professional or academic tasks do you usually perform in English? 2. How often do you need to use English in your work or studies?

			workplace or studies.	3. What specific communication skills do you need most?
			3. The skills required in real-world communication.	
		Factors which may affect the way they learn such as previous learning experiences, cultural information, reasons for attending the course and expectations of it, attitude to English — wants, means, subjective needs	1. Previous Learning Experiences 2. Cultural Information 3. Reason for Attending the course 4. The expectation for attending the course 5. Attitude to English	1. What was your previous experience of learning English? 2. Does your cultural background influence the way you prefer to learn? 3. Why are you attending this course? 4. What are your expectations from this course and the teacher? 5. How do you feel about learning English?
2	Personal information about the learners:			
3	English language information about the learners:	What their current skills and language use is — present situation analysis	1. Current level of the learners' skills: speaking, reading, listening, writing 2. Current level of the learners' skills	1. My current level of skills in speaking, listening, reading, and writing is lower intermediate. 2. I know basic grammar and vocabulary, but I sometimes struggle with complex sentences.
4	The learners' lacks:	The gap between (C) and (A) — lacks	1. Identifying which skills are missing or insufficient for learners' needs. 2. Recognizing problem areas such as grammar, vocabulary, pronunciation.	1. The skills I feel are missing for my academic needs are advanced writing, formal presentation, and academic vocabulary. 2. The areas I find most difficult are grammar especially tenses,

			3. Understanding pronunciation, and using what prevents technical vocabulary. 3. What prevents me from learners from achieving my English reaching their goals. 4. Pinpointing learning goals is lack of immediate areas of practice and confidence. 4. The areas that need improvement. 4. The areas that need immediate improvement is speaking fluency and academic writing.
5	Language learning information:	Effective ways of learning the skills and language in (D) — learning needs	1. Learners' preferred learning styles. 2. Preferred classroom activities. 3. Strategies learners use to learn vocabulary and grammar. 4. Use of technology or outside resources for learning English. 1. My preferred learning style is visual. 2. I prefer to learn in pair work to practice speaking and listening. 3. The strategies I use to learn new vocabulary or grammar include taking notes and doing exercises. 4. I use technology or outside resources such as language apps and online videos to study English.
6	Professional communication information	Knowledge of how language and skills are used in the target situation — linguistic analysis, discourse analysis, genre analysis	1. The types of documents, reports, or emails learners need to produce. 2. Whether communication is formal, semi-formal, or informal. 3. The specific vocabulary or jargon needed in their professional field. 1. What types of documents, reports, or emails do you need to produce in English? 2. Do you usually need to communicate in formal, semi-formal, or informal English? 3. Do you need to understand or use technical vocabulary specific to your profession?

			4. Expectations for tone, register, and accuracy in communication.	4. What are the expectations for tone, accuracy, and style in your communication? 1. The outcomes I expect from this course are improved fluency, better academic writing, and increased confidence in speaking. 2. The English skill I want to focus on most is speaking. 3. My long-term goals for learning English are to succeed in my studies, participate in international programs, and improve my future career opportunities.
7	Learner's Need from the course	What is wanted from the course	1. Learners' expectations of the outcomes. 2. Priority skills learners want to focus on. 3. Long-term goals for learning English.	1. What resources do you have for learning English? 2. How much time can you realistically dedicate to studying English each week? 3. Do you have exposure to English outside the classroom? 4. What facilities and institutional support are available for your English learning?
8	Environmental Situation	Information about the environment in which the course will be run — means analysis	1. Availability of resources. 2. Amount of time learners can dedicate to studying. 3. Opportunities for exposure to English outside class. 4. Institutional support	

The multidisciplinary framework outlined in the table forms the analytical basis for understanding the English language needs of Informatics Engineering students in a systematic and comprehensive manner. Needs analysis in ESP is inherently multidimensional, incorporating academic, linguistic, and professional perspectives to ensure relevance and coherence (Dudley-Evans & St John, 1998). Each component of the

framework contributes essential information that reflects different dimensions of learners' needs and target contexts (Hutchinson & Waters, 1987). The professional information aspect, in particular, identifies the types of tasks students are required to perform in English, such as interpreting programming documentation, reading scholarly articles, and producing technical project reports, which demonstrates that their needs extend far beyond general language competence and are closely tied to disciplinary demands (Basturkmen, 2015).

The personal information aspect addresses learners' educational backgrounds, learning experiences, cultural influences, and motivational factors, all of which play a significant role in the learning process. Research in adult education and ESP suggests that learners' motivation and prior experiences strongly influence persistence and success in language learning (Knowles, 1990; Robinson, 1991). Understanding these personal variables is therefore essential in designing instruction that aligns with learners' goals and expectations (Hutchinson & Waters, 1987). Furthermore, information related to students' current English proficiency and linguistic lacks highlights the discrepancy between learners' present abilities and the competencies required for effective academic and professional performance, often revealing gaps in technical vocabulary, grammatical accuracy, reading comprehension, and academic writing skills (West, 1994; Javid, 2015).

The framework also emphasizes the ways in which learners acquire the language, including their preferred learning styles, strategies, and modes of engagement. Learning-centered ESP theory highlights that instruction should be adapted to how learners learn most effectively, rather than focusing solely on what they need to learn (Hutchinson & Waters, 1987). Informatics Engineering students, who are generally familiar with and reliant on digital technologies, may benefit greatly from technology-enhanced learning, interactive tasks, and tutorial-based instruction (Nunan, 2004). In addition, identifying the types of texts and communicative events encountered by learners, such as technical documentation and formal communication within software development contexts, is essential for aligning instruction with authentic disciplinary practices (Swales, 1990).

Further insights are gained through the analysis of learners' expectations and environmental conditions. Learners' expectations reflect what they hope to achieve through English instruction, while environmental conditions refer to institutional factors such as facilities, technological resources, and academic support systems that shape the learning experience (Dudley-Evans & St John, 1998). Studies in language learning ecology emphasize that a supportive environment rich in input, interaction, and resources significantly enhances language development (van Lier, 2004). In technology-oriented disciplines such as Informatics Engineering, access to digital tools and authentic materials becomes especially critical for meaningful ESP learning.

Based on these interrelated considerations, including linguistic needs, learning preferences, motivational factors, and contextual conditions, needs analysis serves as the foundation for formulating relevant research questions in ESP studies (West, 1994). As Hutchinson & Waters (1987) argue, identifying learners' needs is the first step in developing effective ESP programs that respond directly to target and learning situations. Accordingly, the central research question of this study is formulated as follows: "What are the English language needs of Informatics Engineering students at the Faculty of Science and Technology, Universitas Islam Negeri Alauddin Makassar?"

METHOD

As pointed out by (Hossain, 2013), each context of needs analysis in English language teaching possesses distinct characteristics, which require researchers to carefully select appropriate research methods. Consequently, methodological choices are often influenced by factors such as time limitations, availability of resources, and access to participants (Creswell & Creswell, 2017). Taking these considerations into account, this study employed a descriptive quantitative approach, as recommended by Fraenkel et al. (2019). This approach is considered suitable because it enables the systematic measurement of students' English language needs through numerical data. The data were analysed using descriptive statistical techniques, particularly frequencies and percentages, to clearly identify patterns and tendencies in students' responses, thereby providing a measurable overview of the English language needs of Informatics Engineering students (Ary et al., 2010).

Data collection for this study was conducted through the administration of a questionnaire to the selected sample. Questionnaires are widely recognized as an effective instrument for needs analysis in ESP research, as they allow researchers to gather information from a relatively large group of participants efficiently (Dudley-Evans & St John, 1998). The instrument used was a closed-ended questionnaire employing a five-point Likert scale, ranging from strongly disagree to strongly agree, which is commonly used to measure attitudes, perceptions, and needs in educational research (Likert, 1932). The development of the questionnaire items was guided by the eight components of the Multidisciplinary Approach to Needs Analysis proposed by Dudley-Evans and St. John, namely professional information, personal information, English language information, learners' lacks, language learning information, professional communication information, learners' expectations, and environmental situations. All items were carefully formulated based on these indicators to ensure clarity and accurate responses from the participants.

The population of this study comprised all students enrolled in the Informatics Engineering Study Program, Faculty of Science and Technology, Universitas Islam Negeri Alauddin Makassar, during the odd semesters of the 2025/2026 academic year. The sampling technique applied was purposive sampling, which involves selecting participants based on their relevance to the research objectives and their accessibility to the researcher (Cohen et al., 2002). This technique is particularly appropriate in ESP research, where participants are chosen because they represent a specific academic or professional group (Robinson, 1991). The sample consisted of 30 students who shared common academic characteristics and learning profiles representative of Informatics Engineering students at the faculty level.

The data analysed in this study were derived from students' responses to the questionnaire. Each response was tabulated and converted into frequencies and percentages based on the Likert scale options, following standard procedures in descriptive quantitative research (Fraenkel et al., 2019). The results were then analysed both descriptively and narratively to explain students' English language needs, perceived weaknesses, and expectations toward English learning. To maintain clarity and generalizability, the findings were presented as aggregate data rather than by subgroup categories, ensuring a comprehensive yet accurate representation of the overall English language needs of the Informatics Engineering students (Ary et al., 2010).

RESULTS AND DISCUSSION

This section presents the findings obtained from the questionnaire regarding the English language needs of Informatics Engineering students at the Faculty of Science and Technology, Universitas Islam Negeri Alauddin Makassar. The findings are analyzed using the needs analysis framework proposed by Dudley-Evans & St John (1998), which emphasizes the importance of understanding students' current English abilities, the linguistic demands of their academic and professional contexts, and the learning needs they perceive as most relevant. By structuring the findings according to the eight categories of needs used in the questionnaire, this section offers a comprehensive picture of how students view the role of English in their discipline, the difficulties they encounter, their learning preferences, and their expectations toward ESP instruction. The presentation of the results aims to provide a clear profile of the students' English language needs as a whole.

Table 2. Professional Information about Learners

Statement	1	2	3	4
I often use English in my study or work activities.	0 (0.0%)	2 (6.67%)	8 (26.67%)	14 (46.67%)
I need English to read and understand professional or academic texts.	0 (0.0%)	0 (0.0%)	2 (6.67%)	14 (46.67%)
I need English to write reports, papers, or formal correspondence.	0 (0.0%)	3 (10.0%)	13 (43.33%)	9 (30.0%)
I will use English regularly in my future profession.	1 (3.33%)	1 (3.33%)	4 (13.33%)	10 (33.33%)
The English I need must include technical or field-specific vocabulary.	0 (0.0%)	0 (0.0%)	4 (13.33%)	19 (63.33%)

The first part of the questionnaire probes students' perceived needs for English in academic and professional contexts. Overall, the results of the survey indicate that students have a sharp sense of the importance of English as a profession-related competence for the domain of Informatics. Over 93% of the students responded that they require English for reading and understanding professional or academic texts. It means that the students constantly access international learning materials, research articles, technical documentation, programming manuals, and other sources published in English.

Moreover, the students anticipate to use English frequently in their future careers. Almost 80% answered "Agree" or "Strongly Agree" that, in their profession. Nearly 80% responded "Agree" or "Strongly Agree" that English will be used routinely in their profession. This also coincides with the nature of the Informatics discipline, where understanding English documents, being able to follow global technological developments, and communicating professionally through reports, documentation, or communication in teams are core competencies required.

The most salient issue in this section relates to technical vocabulary. More than 86% of the respondents agreed that mastering specialized vocabulary is necessary for their field. It follows that ESP instruction for the students in Informatics Engineering should not be limited

to general English but also domain-specific terminology such as algorithm, deployment, framework, debugging, and other similar concepts. On the other hand, the items referring to writing formal documents received a high number of neutral responses; this may mean the students are uncertain or have low confidence in their formal writing ability. This indicates that technical writing should also be directly taught in the ESP class.

Table 3. Personal Information about Learners

Statement	1	2	3	4
I have had positive experiences in learning English before.	1 (3.33%)	1 (3.33%)	7 (23.33%)	15 (50.0%)
My cultural background influences the way I learn English.	0 (0.0%)	2 (6.67%)	6 (20.0%)	15 (50.0%)
I take this course to improve my English ability in my field of study or work.	0 (0.0%)	0 (0.0%)	3 (10.0%)	13 (43.33%)
I expect this course to help me communicate better in my field.	0 (0.0%)	0 (0.0%)	2 (6.67%)	12 (40.0%)
I enjoy learning English and consider it important.	0 (0.0%)	0 (0.0%)	4 (13.33%)	13 (43.33%)
I feel confident when using English.	2 (6.67%)	3 (10.0%)	12 (40.0%)	10 (33.33%)
I prefer learning through discussions or group work.	0 (0.0%)	1 (3.33%)	10 (33.33%)	12 (40.0%)
I often have difficulty understanding English grammar.	1 (3.33%)	6 (20.0%)	12 (40.0%)	9 (30.0%)
I want to learn more about the culture of English-speaking people.	0 (0.0%)	3 (10.0%)	10 (33.33%)	10 (33.33%)
I am motivated to master English for my future.	0 (0.0%)	0 (0.0%)	3 (10.0%)	12 (40.0%)

The second section looks into personal, motivational, and affective determinants of students' experiences in learning English. Among those, the majority report positive prior experiences with learning English: 70% agree or strongly agree. This suggests that most are adequately prepared and open to ESP learning.

Motivation for improving English proficiency is also very high: about 90% of the students agreed that they enrolled in the English course in order to enhance their proficiency for their studies or professions. Long-term motivation can also be gauged from the replies: half of the respondents strongly agreed that proficiency in English is important for their future profession. This indicates the participants' awareness of the global nature of the technology industry, wherein the ability to apply and communicate information in English is the basis of professional advantage.

The data also show clear learning preferences. About 63% of the students prefer to learn by discussion or group work. It follows that collaborative learning strategies might increase their engagement. Their confidence in using English is sharply divided, however.

One other hand, confidence in using English is an area with great divergence: although some students feel relatively confident, about 40% ticked the neutral option while 10% reported feeling unconfident. This insecurity is matched by another finding, indicating that many students still struggle with English grammar. With 40% choosing neutral and 30% choosing "Agree," grammar is clearly an area where students need a lot of support. All these results demonstrate the need for ESP learning to incorporate activities that focus on confidence-building, combined with structured grammar reinforcement.

Table 4. Learners' English Language Information

Statement	1	2	3	4
My speaking ability is sufficient for daily conversation.	0 (0.0%)	3 (10.0%)	15 (50.0%)	9 (30.0%)
I can understand lectures, presentations, or conversations in English.	0 (0.0%)	2 (6.67%)	12 (40.0%)	13 (43.33%)
I can read and understand academic or professional texts in English.	0 (0.0%)	1 (3.33%)	5 (16.67%)	16 (53.33%)
I can write reports, essays, or formal emails in English.	1 (3.33%)	5 (16.67%)	17 (56.67%)	6 (20.0%)
I have sufficient vocabulary in my field of study or work.	0 (0.0%)	2 (6.67%)	12 (40.0%)	12 (40.0%)
My English pronunciation is clear and easy to understand.	0 (0.0%)	4 (13.33%)	15 (50.0%)	8 (26.67%)

This section concerns the current linguistic capabilities of students within the context of the present situation analysis. Based on the data, it is obvious that receptive skills such as reading and listening are comparatively higher than productive skills like speaking and writing. Reading was the strongest amongst the respondents. Over 53% agreed and 26.67% strongly agreed that they were able to understand academic texts in English. It is not surprising since students at Informatics often face English documentation and scientific materials.

The weakest skills are writing. On the question showing the ability to write reports or essays in English, more than 56% of the students answered "Neutral." A neutral response likely reflects a lack of exposure rather than lack of interest or effort and therefore suggests that structured practice in academic and technical writing is needed. Only 3.33% of students felt very confident with their writing ability.

Speaking and pronunciation skills fall somewhere in the middle but require improvement. While many students rated their speaking ability for everyday conversations as moderate, fewer felt strongly confident about professional communications. Such findings confirm the necessity to enhance productive language skills within the ESP curriculum so that students perform effectively in technical presentations, interviews, and group discussions.

Table 5. Learners' Lacks

Statement	1	2	3	4
I find it difficult to speak English fluently in academic or professional contexts.	0 (0.0%)	4 (13.33%)	9 (30.0%)	12 (40.0%)
I have difficulty understanding native English speakers.	0 (0.0%)	3 (10.0%)	10 (33.33%)	11 (36.67%)
My writing ability is not sufficient to produce academic texts.	0 (0.0%)	4 (13.33%)	18 (60.0%)	6 (20.0%)
I need to improve my grammar and vocabulary for study/work.	0 (0.0%)	1 (3.33%)	9 (30.0%)	15 (50.0%)
There is a significant gap between my current English ability and what is needed in my field.	0 (0.0%)	2 (6.67%)	13 (43.33%)	11 (36.67%)

This section pinpoints the gaps between students' current English abilities and those skills that are needed for academic and professional purposes. The data show that a lack of fluency in speaking academically or professionally is a big problem. Slightly over 40% agreed and 16.67% strongly agreed that they struggle with fluent English communication. This struggle corresponds to the earlier finding that productive skills are less developed.

The ability to understand native English speakers presents quite a big challenge, too: more than 56% admitted having difficulties in this sphere, and this is quite understandable since native speakers use different accents, tempos of pronunciation, and idiomatic expressions in everyday life.

Another priority area that emerged is writing skills. Although most of the students chose a neutral option when assessing their writing skills in doing academic texts, the pronounced level of agreement on insufficient levels of writing ability indicates that they are conscious of the shortfall. The grammar and vocabulary garnered the highest number of votes, above 66 percent, who mentioned that those aspects need to be improved to assist them either in studies or professional work.

This is further supported by the perception that there exists a considerable gap between their current level of English proficiency and what is actually required in their field—a call and an urgent need for an ESP curriculum that addresses these competencies explicitly and systematically.

Table 6. Language Learning Information

Statement	1	2	3	4
I learn better through discussions and group work.	0 (0.0%)	1 (3.33%)	9 (30.0%)	14 (46.67%)
I prefer learning through real-life activities and simulations.	0 (0.0%)	1 (3.33%)	8 (26.67%)	13 (43.33%)
I frequently use videos, apps, or the internet to learn English.	0 (0.0%)	2 (6.67%)	9 (30.0%)	10 (33.33%)

I often review English lessons outside the classroom.	1 (3.33%)	3 (10.0%)	8 (26.67%)	12 (40.0%)
I expect the lecturer to use interactive teaching methods.	0 (0.0%)	0 (0.0%)	4 (13.33%)	16 (53.33%)
I understand better when the lecturer gives real examples.	0 (0.0%)	0 (0.0%)	5 (16.67%)	15 (50.0%)
I enjoy learning activities that involve hands-on practice.	0 (0.0%)	0 (0.0%)	6 (20.0%)	13 (43.33%)

This section outlines the students' learning style, preferences, and habits in studying English. The results indicated that students strongly prefer interactive and activity-based learning approaches. As many as 86.66% of the respondents agreed or strongly agreed that they prefer an interactive teaching approach. Learning through real-life activities and simulations proved highly positive, with a large proportion of the students responding well.

Technology-based learning habits are highly visible among the students. More than 63% indicated that, in order to study English, they often use either videos, applications, or the Internet. Given their academic background in Informatics, such reliance on technology aligns well with their comfort in digital learning environments.

Students have also pointed out that they understand the material better when the instructor uses examples from real situations. This again leads us to contextualized teaching methods which reflect real-life situations concerning Informatics. Generally, based on these findings, ESP learning for Informatics students in higher education could focus on task-based learning, simulations, group work, and multimedia-based instruction to meet student preferences and promote relevant and effective learning.

Table 7. Professional Communication Information

Statement	1	2	3	4
I need to learn how to communicate professionally in my field.	0 (0.0%)	0 (0.0%)	1 (3.33%)	12 (40.0%)
I need to understand how to write formal reports or documents in English.	0 (0.0%)	1 (3.33%)	8 (26.67%)	12 (40.0%)
I need to use polite and formal English when speaking with supervisors or clients.	0 (0.0%)	0 (0.0%)	6 (20.0%)	15 (50.0%)
I need to master technical terminology used in my field.	0 (0.0%)	0 (0.0%)	2 (6.67%)	18 (60.0%)
I need to understand how professionals in my field interact using English.	0 (0.0%)	1 (3.33%)	4 (13.33%)	14 (46.67%)

This section represents one of the strongest throughout the dataset. Almost all students (about 97%) agreed that they need to know how to communicate professionally within the discipline or profession. This can also involve the knowledge of both spoken and written

skills in the preparation of project reports, participation in technical meetings, professional email correspondence, and making presentations.

Another dominant need is mastery of technical terminology. Agreement or strong agreement on understanding the field-specific terminology was recorded for 93.33% of the students. In addition, a high majority reported that they have to use polite and formal English when dealing with clients, supervisors, or external collaborators.

These findings reflect the Informatics environment, where English is the principal language of international communication and collaboration. Consequently, ESP instruction should focus on technical writing, professional e-mailing, presentation, and proper register use in professional settings.

Table 8. Learners' Needs from the ESP Course

Statement	1	2	3	4
I expect this course to help me communicate effectively in my field.	0 (0.0%)	0 (0.0%)	1 (3.33%)	11 (36.67%)
I want this course to focus on skills relevant to my study/work.	0 (0.0%)	0 (0.0%)	1 (3.33%)	12 (40.0%)
I want the materials to be practical and aligned with the workplace.	0 (0.0%)	0 (0.0%)	1 (3.33%)	12 (40.0%)
Course topics should be relevant to real-life situations in my field.	0 (0.0%)	0 (0.0%)	0 (0.0%)	13 (43.33%)
I believe the ESP course will be beneficial for my future career.	0 (0.0%)	0 (0.0%)	1 (3.33%)	11 (36.67%)

The seventh section highlights the students' expectations toward the ESP course. The data reveal overwhelmingly positive expectations. Nearly all the respondents expressed that the course should help them in communicating effectively in their field. More than 90% stated that the course should concentrate on skills useful for their academic and professional needs.

In addition, students stressed the relevance of practical materials which represent real-life applications. They wish topics to coincide with what actually happens in the professional world of Informatics, such as system analysis, software documentation, troubleshooting interactions, and technical reporting. Furthermore, 96% of students argued that the ESP course will benefit their future careers, hence highlighting the pragmatic orientation of their needs and expectations.

These results underline that ESP curriculum design should be competence-based, concentrating on practical discipline-specific activities relevant to students' future communication competencies in the technology area.

Table 9. Environmental Situation

Statement	1	2	3	4
The classroom environment supports my English learning well.	0 (0.0%)	0 (0.0%)	6 (20.0%)	16 (53.33%)
The facilities and learning resources (LCD, internet, books) are adequate.	1 (3.33%)	4 (13.33%)	10 (33.33%)	12 (40.0%)
The English course schedule fits my study time.	1 (3.33%)	4 (13.33%)	11 (36.67%)	12 (40.0%)
The duration of each meeting is sufficient to understand the material.	0 (0.0%)	7 (23.33%)	3 (10.0%)	17 (56.67%)
I have opportunities to practice English outside the classroom.	2 (6.67%)	0 (0.0%)	8 (26.67%)	13 (43.33%)

The last part assesses students' perceptions regarding their learning environment. In general, students have positive assessments of the learning environment for English. More than 79% showed that the classroom environment is helpful to nurture their English learning. However, the distribution of opinion for the facilities such as LCD projectors, internet access, or books was variable. While 40% agreed that these facilities are adequate, more than 33% chose Neutral, and 13% chose Disagree, indicating that some students perceived there was room for improvement.

In general, students felt that the length of a typical class session was satisfactory; a majority felt that due time was available to grasp whatever concepts were being introduced in class. However, there is inconsistency in being able to apply the language outside of class. Though some students reported having opportunities to practice, according to the distribution of responses, not all students have or can frequently find such opportunities.

These findings suggest that more institutionalized English practice opportunities should be offered, such as through an English Club, peer discussion groups, technical presentation workshops, or online practice opportunities.

Present Situation Analysis (PSA) regarding learner characteristics shows that ESP is generally designed for adult learners at higher education levels, which corresponds closely to the characteristics of Informatics Engineering students. Dudley-Evans & St John (1998) emphasize that ESP learners typically have clear academic and professional orientations. Hutchinson & Waters (1987) further explain that ESP learners possess specific communicative purposes, and therefore instruction should be tailored to their disciplinary contexts. (Robinson, 1991) supports this view by arguing that adult learners bring concrete needs, motivations, and expectations into the classroom. In this research context, PSA reveals that Informatics Engineering students learn English not for daily social interaction but to read technical literature, write project reports, and engage in professional communication. Knowles (1990), through the theory of andragogy, also underlines that adults are more motivated to learn content related to their work and life experiences. Therefore, PSA indicates that ESP instruction for Informatics Engineering should closely reflect technological and professional realities.

Present Situation Analysis (PSA) of learner motivation indicates that students demonstrate strong motivation to learn English. Gardner & Lambert (1972) describe this type of motivation as instrumental, where learners are driven by academic and professional goals. Knowles (1990) also argues that adult learners are primarily motivated by intrinsic factors related to career development and future opportunities. Based on PSA findings in this study, students' express motivations such as accessing technical literature, preparing for professional communication, and improving employment prospects. These motivations align strongly with ESP principles as highlighted by Dudley-Evans & St John (1998). In addition, Brown & Lee (2025) notes that motivation is a key variable in curriculum development. Thus, PSA confirms that understanding students' motivational orientation is essential for designing effective ESP instruction.

Present Situation Analysis (PSA) of learning preferences shows that students favour instructional methods consistent with established learning theories. Bruner (1973) states that meaningful learning occurs when learners actively construct knowledge through experience. Vygotsky (1978) concept of the Zone of Proximal Development emphasizes the importance of social interaction and collaboration in learning. Hutchinson & Waters (1987) also stress that ESP instruction should align with learners' preferred learning modes. Nunan (2004) highlights task-based learning as effective in simulating real professional situations. In this study, PSA reveals that Informatics Engineering students prefer collaborative problem-solving, coding activities, and project-based learning. These preferences suggest the need for ESP methods that emphasize authentic, interactive, and practice-oriented tasks.

Present Situation Analysis (PSA) of the learning environment indicates that environmental factors significantly influence ESP learning effectiveness. van Lier (2004) explains that environments rich in input, interaction, and meaningful engagement facilitate deeper learning. PSA findings in this study show that Informatics Engineering students require adequate facilities such as reliable internet access, multimedia tools, computer laboratories, and digital learning resources. Since much academic and professional content in Informatics is delivered through digital media, insufficient facilities limit students' engagement with authentic English materials. Consequently, PSA highlights the importance of an enabling learning environment for successful ESP implementation.

Present Situation Analysis (PSA) of instructor-related factors reveals that the role of the ESP instructor is crucial in shaping learning outcomes. Adnan (2012) states that ESP instructors should not only deliver linguistic content but also design instructional strategies that address learners' specific needs. Javid (2015) emphasizes that adult learners benefit from collaborative approaches such as case studies, role-plays, and information-gap activities. Johnson (1982) recommends techniques such as information transfer, jigsaw tasks, case-based analysis, and problem-solving activities to encourage active learning and authentic language use. PSA in this context indicates that ESP instructors in Informatics Engineering need sufficient technological knowledge to guide students effectively in producing professional oral and written communication.

Target Situation Analysis (TSA) regarding academic and professional language demands indicates that the needs analysis of English within the ESP framework is essential for preparing learners to function effectively in future academic and professional contexts. Dudley-Evans & St John (1998) argue that ESP instruction is derived from learners' needs related to future target situations, alongside their current proficiency and linguistic gaps. Hutchinson & Waters (1987) support this view by emphasizing that ESP is an approach

focused on organizing learning according to target communicative demands. Johnson (1982) further state that needs analysis enables the identification of academic and professional tasks that learners are expected to perform in English. From a TSA perspective, Informatics Engineering students at UIN Alauddin Makassar are required to engage with technical documentation, English-based resources, and global professional communication. Therefore, TSA highlights the necessity of designing ESP instruction that prepares students for these future academic and occupational tasks.

Target Situation Analysis (TSA) of required language skills reveals that students must master a range of language skills to meet the communicative demands of the Informatics Engineering discipline. Hutchinson & Waters (1987) explain that ESP instruction may focus on specific skills or integrate multiple skills depending on target disciplinary needs. TSA in this study shows that Informatics students are expected to read technical documentation, listen to lectures and tutorials, write technical and academic reports, and speak to present ideas and participate in team-based projects. Swales (1990) emphasizes that different disciplines require mastery of distinct genres shaped by professional conventions. The TSA findings indicate that although all four skills are required in the target situation, the level of urgency varies according to specific academic and professional tasks. Consequently, TSA supports the inclusion of both receptive and productive skills in the ESP curriculum to prepare students for future disciplinary demands.

Target Situation Analysis (TSA) of professional communication requirements demonstrates that effective participation in professional contexts requires familiarity with discipline-specific communicative genres. Richards et al. (2019) explains that professional communication is governed by genre conventions that differ from everyday language use. Swales (1990) further notes that each professional community develops characteristic patterns of communication. From a TSA perspective, Dudley-Evans & St John (1998) identify key professional communicative activities such as presentations, formal emails, technical explanations, and report writing. In the field of Informatics Engineering, TSA shows that future professionals must be able to describe system architecture, report programming processes, and collaborate within international teams. Students expressed needs for professional communication training therefore reflect the linguistic demands they will encounter in their target professional situations.

Target Situation Analysis (TSA) of instructional materials indicates that future academic and professional contexts require learners to engage with authentic and discipline-specific materials. Chovancová (2014) argues that authentic materials help learners bridge the gap between classroom learning and real-world application. Adnan (2012) also highlights the importance of adapting ESP materials to the specialized content of particular disciplines. From a TSA viewpoint, Lave et al. (1991) situated learning theory suggests that effective learning occurs within authentic contexts and communities of practice. For Informatics Engineering students, TSA identifies target materials such as software documentation, case studies, API references, research articles, and project reports as essential resources. Thus, TSA underscores the importance of incorporating authentic materials that mirror the academic and professional environments students will face.

Learning Situation Analysis (LSA) of learners' English proficiency indicates that ESP learners require a minimum threshold of linguistic competence to participate effectively in content-based learning. Based on LSA findings in this study, Informatics Engineering students demonstrate stronger receptive skills, particularly reading and listening, compared

to productive skills such as speaking and writing. This finding supports Brown & Lee's (2025) argument that productive skills demand greater cognitive control over grammar, discourse structure, and pragmatic competence. In addition, Krashen (2003) suggests that comprehensible input alone is insufficient to generate productive output without opportunities for language production. Thus, LSA reveals that despite frequent exposure to English through technical documentation and software interfaces, students experience difficulty expressing technical ideas orally.

Learning Situation Analysis (LSA) of speaking performance reveals that students encounter significant challenges in oral communication, which is a common issue in many ESP contexts. Brown & Lee (2025) further explains that performance anxiety may inhibit speaking even when learners understand the linguistic content. Horwitz et al. (1986), through the theory of Foreign Language Classroom Anxiety, attribute oral performance limitations to fear of negative evaluation and communication apprehension. LSA findings also reflect Harmer's (2001) observation that large class sizes reduce opportunities for speaking practice. Given the professional demands in Informatics Engineering, such as project presentations, system design discussions, and algorithm explanations, LSA highlights these speaking difficulties as critical gaps that must be addressed through targeted ESP instruction.

Learning Situation Analysis (LSA) of writing ability shows that students face considerable difficulties in producing academic and professional written texts. Richards et al. (2019) emphasizes that professional writing is genre-based and follows specific rhetorical conventions, and without genre awareness learners are unable to produce appropriate texts. From an LSA perspective, Informatics Engineering students struggle with genres such as system analysis reports, code documentation, progress reports, and bug descriptions, which require precision and consistency. West (1994) argues that needs analysis must identify target genres so that instruction can equip learners with the skills needed to perform such tasks effectively. Therefore, LSA clearly demonstrates the need for systematic and genre-based writing instruction within the ESP curriculum.

CONCLUSION

In the light of the findings of this study, it is concluded that the English language needs of Informatics Engineering students at the Faculty of Science and Technology, UIN Alauddin Makassar, are varied and have highly particular characteristics in accordance with the nature of their study. They strongly need the development of productive skills, mainly speaking and writing, for their academic presentation, class discussion, report writing, and also for the preparation of professional communication in the technology workplaces. Besides, they need better mastery of grammar and technical vocabulary to comprehend software documentation, academic literature, and specialized technical communications.

While the receptive skills of reading and listening are perceived as sufficient, students need further assistance in comprehending complex technical texts. The diversity of their needs suggests that ESP instruction cannot be generalized but must be tailored to the actual academic and professional needs of the learners. Thus, the findings of this study can help provide a basis for developing an ESP-based English syllabus, selecting authentic materials, and determining the proper teaching strategies. Needs analysis should also serve as a continuous assessment tool in order for the English instruction to be relevant and effective.

REFERENCES

- Adnan, S. (2012). Needs analysis: a process to improve the learning of ESP at the college of administration-the department of Administration and Economy-university of Basra. *The Arab Gulf*, 15(3-4), 1-20.
- Ary, D., Jacobs, L. C., Sorensen, C., & Razavieh, A. (2010). Introduction to research in education 8th edition. *Canada: Wadsworth Cengage Learning*, 8(8), 1-320.
- Basturkmen, H. (2015). *Developing courses in English for specific purposes*. [https://www.google.com/books?hl=en&lr=&id=if2GDAAAQBAJ&oi=fnd&pg=PP1&dq=3.%09Basturkmen,+H.+\(2010\).+Developing+courses+in+English+for+specific+purposes.+Palgrave+Macmillan.&ots=AssECBWTPX&sig=qnrqSen8t1Ql5FZ5hK5EfqLy9o](https://www.google.com/books?hl=en&lr=&id=if2GDAAAQBAJ&oi=fnd&pg=PP1&dq=3.%09Basturkmen,+H.+(2010).+Developing+courses+in+English+for+specific+purposes.+Palgrave+Macmillan.&ots=AssECBWTPX&sig=qnrqSen8t1Ql5FZ5hK5EfqLy9o)
- Brown, H. D., & Lee, H. (2025). Principles of language learning and teaching: A course in second language acquisition. In *Principles of Language Learning and Teaching: A Course in Second Language Acquisition, Seventh Edition*. Taylor and Francis. <https://doi.org/10.4324/9781003494294>
- Bruner, J. S. (1973). Going beyond the information given. *Beyond the Information Given*, 143-175.
- Chovancová, B. (2014). Needs Analysis and Esp Course Design: Self-Perception of Language Needs Among Pre-Service Students. *Studies in Logic, Grammar and Rhetoric*, 38(51), 43-57. <https://doi.org/10.2478/SLGR-2014-0031>
- Cohen, L., Manion, L., & Morrison, K. (2002). *Research methods in education*. routledge.
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- Dudley-Evans, T., & St John, M. J. (1998). *Developments in English for specific purposes*. Cambridge university press.
- Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2019). *How to Design and Evaluate Research in Education*. <https://lccn.loc.gov/2017050811>
- Gardner, R. C., & Lambert, W. E. (1972). *Attitudes and motivation in second-language learning*.
- Harmer, J. (2001). The practice of English language teaching. *London/New York*, 32(1), 401-405.
- Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign Language Classroom Anxiety. *Source: The Modern Language Journal*, 70(2), 125-132.
- Hossain, M. J. (2013). ESP Needs Analysis for Engineering Students: A Learner Centered Approach. *@2013 Journal of PU*, 2(2), 16-26.
- Hutchinson, T., & Waters, A. (1987). *English for specific purposes*. Cambridge university press.
- Javid, C. Z. (2015). English for specific purposes: role of learners, teachers and teaching methodologies. *European Scientific Journal*, 11(20).
- Johnson, K. (1982). *Communicative syllabus design and methodology*. Pergamon press.
- Knowles, M. (1990). The adult learner: A neglected species. Houston. TX: *Gulf Publishing*.
- Krashen, S. D. (2003). What's wrong with oral grammar correction? The Canadian Modern Language Review. *Modern Language Journal*, 73(2), 437-456.
- Kusumaningputri, R. (2010). English for specific purposes diuniversitas jember: tantangan dan solusi. *Jurnal Pengembangan Pendidikan*, 7(2).
- Lave, J., knowledge, E. W.-L. and, & 1999, undefined. (1991). Legitimate peripheral participation. *Books.Google.Com*.

- [https://www.google.com/books?hl=en&lr=&id=9jwON-NuDtsC&oi=fnd&pg=PA21&dq=22.%09Lave,+J.,+%26+Wenger,+E.+\(1991\).+Situated+learning:+Legitimate+peripheral+participation.+Cambridge+University+Press.&ots=NldmK4m5fX&sig=0glXiwDxunPMqq8KzbKHiG1dv8s](https://www.google.com/books?hl=en&lr=&id=9jwON-NuDtsC&oi=fnd&pg=PA21&dq=22.%09Lave,+J.,+%26+Wenger,+E.+(1991).+Situated+learning:+Legitimate+peripheral+participation.+Cambridge+University+Press.&ots=NldmK4m5fX&sig=0glXiwDxunPMqq8KzbKHiG1dv8s)
- Likert, R. (1932). A technique for the measurement of attitudes. *Archives of Psychology*.
- Nunan, D. (2004). *Task-Based Language Teaching*. <http://www.cambridge.org>
- Richards, J. C., Johnson, K. E., Genesee, F., Upshur, J. A., Aebersold, J. A., Field, M. L., Day, R. R., Bamford, J., Gebhard, J. G., Oprandy, R., & Golombek, P. R. (2019). *Second language writing*.
[https://www.google.com/books?hl=en&lr=&id=6DCdDwAAQBAJ&oi=fnd&pg=PR11&dq=16.%09Hyland,+K.+\(2003\).+Second+language+writing.+Cambridge+University+Press.&ots=4nFwPkNxbJ&sig=QBL5i6nn0X2oy103YI0VY7lbdqA](https://www.google.com/books?hl=en&lr=&id=6DCdDwAAQBAJ&oi=fnd&pg=PR11&dq=16.%09Hyland,+K.+(2003).+Second+language+writing.+Cambridge+University+Press.&ots=4nFwPkNxbJ&sig=QBL5i6nn0X2oy103YI0VY7lbdqA)
- Robinson, P. (1991). *ESP today: A practitioner's guide*. Prentice Hall.
- Swales, J. M. (1990). *Genre analysis*. Cambridge university press.
- van Lier, L. (2004). *The ecology and semiotics of language learning: A sociocultural perspective*. Springer.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes* (Vol. 86). Harvard university press.
- West, R. (1994). Needs analysis in language teaching. *Language Teaching*, 27(1), 1–19.
- Westerfield, K. (2010). An overview of needs assessment in English for specific purposes. *Best Practices in ESP E-Teacher Course*, 1–6.