ESP Need Analysis of Computer and Network Engineering in Vocational High School

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ABSTRACT

A vocational school is an educational institution that focuses on providing students with practical skills and training for specific careers or professions. Unfortunately, the English lessons given to vocational schools still follow the same English as English in general high school which does not support their needs in their specific major resulted in gaps in English skill for vocational students. The gaps between secondary schools teaching English and vocational schools in terms of resources, curriculum, and even infrastructure. Examining the ESP of computer and network engineering in vocational high school was the aim of this study. As research tools for this study, a questionnaire about needs analysis, analysis of textbooks, and analysis of interviews were used. The findings indicated that in vocational schools, ESP teaching and learning based on the school program is needed by both students and teachers. The poor value of English language proficiency, particularly ESP in vocational schools, is due to a number of factors, including a lack of ESP for computer and network engineering starting from the content, such as textbooks, suitable school facilities, and even the competence of teachers to teach ESP.

KEYWORDS
ESP; Need analysis;
Vocational school

ABSTRAK

Sekolah kejuruan adalah lembaga pendidikan yang berfokus untuk membekali siswa dengan keterampilan praktis dan pelatihan untuk karir atau profesi tertentu. Sayangnya, pelajaran bahasa Inggris yang diberikan kepada SMK masih mengikuti bahasa Inggris yang sama dengan bahasa Inggris di SMA pada umumnya yang tidak mendukung kebutuhan siswa SMK terkait jurusan yang dipilih sehingga mengakibatkan kesenjangan dalam kemampuan berbahasa inggris di SMK. Kesenjangan antara sekolah menengah yang mengajarkan bahasa Inggris dan sekolah kejuruan terdapat dalam hal sumber daya, kurikulum, bahkan infrastruktur. Mengkaji ESP teknik komputer dan

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jaringan di SMK menjadi tujuan penelitian ini. Sebagai alat penelitian untuk penelitian ini, digunakan kuisioner tentang analisis kebutuhan, analisis buku pelajaran, dan analisis wawancara. Hasil penelitian menunjukkan bahwa di sekolah kejuruan, guru dan siswa menginginkan ESP yang sesuai dengan kebutuhan jurusan yang diambil. Rendahnya nilai kecakapan berbahasa Inggris, khususnya ESP di sekolah kejuruan, disebabkan oleh beberapa faktor, antara lain kurangnya ESP untuk teknik komputer dan jaringan mulai dari materi, seperti buku pelajaran, fasilitas sekolah yang sesuai, bahkan kompetensi guru untuk mengajar ESP.

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INTRODUCTION

In Indonesia, vocational high schools are secondary schools that strive to develop qualified and competent graduates ready to work in their particular fields of specialization. The vocational high school aims to train students for careers in business and industry (Elmiana & Shen, 2022). This is required under the National Education System Law (No. 20 of 2003). Prior to this clarification, the definition of vocational education was found in Article 13 of Government Regulation No.29/1990 on Secondary Education. They are taught in English for Specific Purposes (ESP) because the students at these schools are learning English for a specific reason—to succeed in their chosen fields of study (Prayoga et al., 2021). One of the essential aspects for vocational high school students to ensure a successful professional job after graduation is their skill level (Rahmawati et al., 2020).

English for Specific Purposes (ESP) is a discipline within the realm of teaching second or foreign languages, aiming to equip learners with the ability to apply English effectively within specific contexts, including workplaces, professions, academic settings, and areas of study (Basturkmen, 2021). The word "specific" denotes special linguistic needs in learning English as well as a specific region as a reason why students are learning English. Therefore, the purpose of the ESP course is to aid students in acquiring English so that they may participate in all activities in their particular field. Abidah et al., (2023) and Widodo (2016) explained that ESP is seen as educating learners to use English in an academic, professional, or workplace setting. ESP focuses on a more specific issue to help students develop the necessary communication skills in their chosen field (Dewi et al., 2020).

Vocational education institutions need to be able to contribute to economic competitiveness, through improving skills, soft skills, and increasing the use of technology (Mahbub, 2018). It is necessary to strengthen vocational education graduates by providing skill-ups such as training for fresh graduates so that they are better prepared to enter the workforce which becomes the reason why the curriculum between vocational schools and the industrial world is interrelated (Haryudin, 2020).This is the reason why students of vocational school have the option of going straight to work or to college after graduation. Graduates from vocational high schools can also get work in well-known corporations. The salary is

comparable to that of senior high school or undergraduate students. Furthermore, individuals can continue their education at state institutions because vocational students can pursue a variety of college majors (Simonova et al., 2021).

Computer and Network Engineering major is one of the majors in vocational school which is now popular among junior high school graduates. Based on survey by Nanda (2022), Computer and Network Engineering major is one of the top 20 majors in vocational School. The Computer and Network Engineering graduates are also one of the top 20 highly paid workers. Students of Computer and Network Engineering major study how to assemble computers, basic computing, computer systems, servers, network devices, and internet access. After they graduate, they can work as a network technician, administrator, system analyst, or consultant, among other things (Apriliana & Basikin, 2021).

In high school, students cover all aspects of the English subject (Triyogo & Hamdan, 2018). The skills they need to acquire are not new or unique. The majority of students become proficient in all language abilities and components. However, those attending Vocational Secondary Schools (SMK) might have specific requirements (Chi, 2021). They don't need to study the full range of subjects that traditional high school students do. Rather, teacher should comprehend their expectations and necessities to support them in securing employment, as most vocational students aim to enter the workforce after graduating. Such tailored guidelines can also aid them in job placement.

Performing a needs analysis is fundamentally crucial prior to an instructor initiating a language program (Rizqiani & Novitri, 2023). In doing need analysis, there are some issue to answer as to whether the materials used to teach English in schools, particularly at the vocational level, are appropriate for students. Regrettably, the majority of these students were taught using a generalized approach, known as General English. The content they are taught closely mirrors that taught to high school students, based on the Curriculum 2013 syllabus (Mahbub, 2018). There is a lack of differentiation or customization of content for vocational students. Utilizing General English for vocational students might not be suitable due to the English content needing alignment with their specific needs and interest (Marhasni et al., 2013)

This is not in line with what vocational students need. Many English teachers at the vocational level use the same textbook for all majors and all vocational schools is even more surprising. Due to no financial and moral supports from the institution or the government, there is no interest in creating materials that meet students' needs (Noho et al., 2018; Simatupang & Siregar, 2022.; Sinaga et al., 2019.) Some other factors such as lack of time and a lack of knowledge about how to create English materials that meet students' needs become the reasons why teachers are also reluctant in creating materials (Ataş & Tomak, 2019; Bevilaqua & Didoné, 2022.; Nurtanto et al., 2021).

Concerning instructional materials, the teaching materials provided to educators should align with the objectives outlined in the curriculum. Additionally, for more efficient learning outcomes, the most suitable teaching resources are those that are well-suited to the local context (Anggara & Azizah, 2017) noted. English instructors must take into account the students' requirements when designing an English course, particularly regarding the materials chosen to fulfill the school's aims and goals. Since students at vocational schools are engaged

in diverse subjects that encompass various English language demands, instructors must conduct a needs analysis specific to vocational education Mahbub (2018) emphasized the importance of this approach.

Extensive research has probed English for Specific Purposes (ESP) requisites in computer and network engineering. However, a noticeable gap exists in recognizing ESP's importance in Indonesian vocational schools' computer and network engineering programs. Vocational schools are vital for hands-on skills, yet tailored ESP integration for computer and network engineering here remains unexplored. Current research largely focuses on higher education, bypassing vocational school nuances

This study examines ESP in Computer and network engineering major in one vocational high school in Riau. There are six study programs or majors at the chosen Vocational High School: Automation of office governance, Hospitality, Computer and network engineering, Online business and marketing, Accounting and financial institutions, and Visual communication design. With six study programs, there should be six distinct varieties of English teaching materials. Each one is tailored to a specific academic track. However, in practice, students in a vocational school study English as a Foreign Language classes, although the English they learned is not intended for their need, to make themselves stand out to possible employers (Apriliana & Basikin, 2021). Teachers are also forced to make do with a single textbook for all courses (Ahmed, 2014).

The free textbooks used by teachers at the chosen Vocational High School are produced by the Center for Curriculum and Books (Balitbang) under the Ministry of Education and Culture. This book has eighteen chapters, but they are all focused on English-only content and exercises that are inappropriate for students in the Computer and Network Engineering major. Despite the wide variety of learning styles among the students in these classes, they all utilize the same textbook. Students may be hampered in their efforts to acquire situationally relevant English language abilities if they suffer from this issue (Nurtanto et al., 2021). For this purpose, the author proposes a need analysis of students' requirements based on (ESP).

Drawing from the aforementioned points, the writer opts to conduct a need analysis within the Computer and Network Engineering programs offered in vocational schools. This choice stems from the significant requirement for English proficiency within the field of Computer and Network Engineering. Consequently, the writer seeks to delve into the encountered obstacles during the teaching and learning journey of the English subject in vocational schools. The primary objective of this study was to scrutinize the realm of English for Specific Purposes (ESP) within the context of computer and network engineering programs at vocational high schools, leveraging the conducted need analysis as a foundational framework for this exploration.

METHOD

This study employed a case study research design, utilizing a qualitative content analysis method to assess the degree to which the teaching and learning of English for Specific Purposes (ESP) meet the present and future needs of computer and network engineering

students. To achieve this goal, a combination of research instruments, including needs analysis questionnaires, interview analysis, and textbook analysis, was utilized.

The central instrument in this study was the needs analysis questionnaire, structured with 12 questions aimed at revealing students' specific objectives and learning requirements. In addition, qualitative insights were gathered through interviews and document analysis. These three methodologies were harmoniously employed to validate data through triangulation, ensuring that the outcomes derived from the questionnaire were supported by a diverse range of sources. The qualitative information gathered underwent qualitative descriptive analysis, a technique utilized by the writer to systematically categorize textual data related to the subject. This approach facilitated the synthesis of a comprehensive conclusion based on the collected data.

The administration of the 12-question questionnaire was efficiently conducted via Google Forms, a user-friendly digital platform (Anggini & Rodliyah, 2020). This technologically adept approach enabled the comprehensive collection of data pertaining to students' motivations, proficiency, challenges, and expectations in learning English, ultimately leading to a holistic understanding of their relationship with the language.

To gather further insights, the writer employed four open-ended interviews to engage students in discussions about their grasp of ESP. Similarly, six open-ended interview questions were presented to the teacher, encompassing her understanding of ESP, teaching challenges, available resources, and teaching aspirations. Commencing with the teacher, the interview process aimed to explore and document perspectives comprehensively. In turn, the teacher conducted interviews with students to gain deeper insights, selecting six participants through random sampling.

The study encompassed 44 grade XI students (20 males and 24 females) majoring in computer and network engineering, with a year of English learning exposure. Additionally, an English teacher instructing in the same program was part of the research. The students completed the needs analysis questionnaires, while the teacher's viewpoints and teaching methods were gathered through interviews. Furthermore, a subset of six students were randomly selected for more in-depth interviews.

The research was carried out in a vocational high school situated within a distinct district in the Riau province. This specific choice was purposeful, driven by the school's specialized program in computer and network engineering that incorporated English instruction. The selection aimed to explore the interconnectedness between technical education and language learning in the context of vocational school.

FINDING AND DISCUSSION

1. ESP Teaching and Learning in Computer and Network Engineering

English for Specific Purposes (ESP) refers to a specialized form of the English language that involves distinct teaching methodologies and learning settings compared to General English instruction (Basturkmen, 2022). The creation of an ESP curriculum is rooted in a careful evaluation of specific objectives and requirements, considering the practical situations where English usage is essential. In ESP, the emphasis is placed on using language within

real-world contexts rather than solely concentrating on teaching grammatical rules and language structures (Sunubi, 2020). A pivotal aspect of ESP lies in its approach of not isolating English as an independent subject but rather integrating it into subject areas that hold significance for the learners, thereby aligning with their actual experiences and interests. According to Chang (2017), problems with ESP programs are clearly related to three main factors: the teacher, the teaching methods, and the textbook

1.2 Confusion between English for Specific Purposes (ESP) and General English.

Questionnaire, interviews and document analysis are the data collection needed for this analysis. The questionnaire was delivered to the students via online. Some of the question items was asking about English teaching process at the school.

Figure 1. The level of students' proficiency in English.

The diagram in figure 1 (which is taken from Google form) was the result of the question of how good the students' English proficiency in general. From the diagram, it can be seen that most of the students answered they were good in writing, listening and reading. While for grammar, vocabulary, and speaking, mostly answered with moderate level.

Table 1. The level of students' proficiency in English

	Grammar	Vocabulary	Speaking	Reading	Listening	Writing
Very Good	1	1	0	1	2	3
Good	13	16	19	28	28	27
Weak	18	14	17	11	12	11
Slightly weak	11	13	7	3	2	5
Very weak	2	0	1	1	0	0

As shown in table 1, The result revealed that students' main problem is grammar which showed that 18 (40.9%) out of 44 students voted weak in grammar. In vocabulary section, 16

(36.4%) out of 44 students chosen good as their options. In speaking, 19 (43.2%) out of 44 students selected good as their answer. Surprisingly, more than 50 % students have voted to have good skills in reading 28 (63,6%), listening 28 (63,6%), and writing 27 (61.4%) out of 44 students. It showed that these students have good confident in their English.

Another question items in the questionnaire was asking about the relevance of the material for their major. Surprisingly, more than 60% students answered they are relevant with their major. While in fact, when this result was compare with the interviews, some students do not understand the ESP for vocational school.
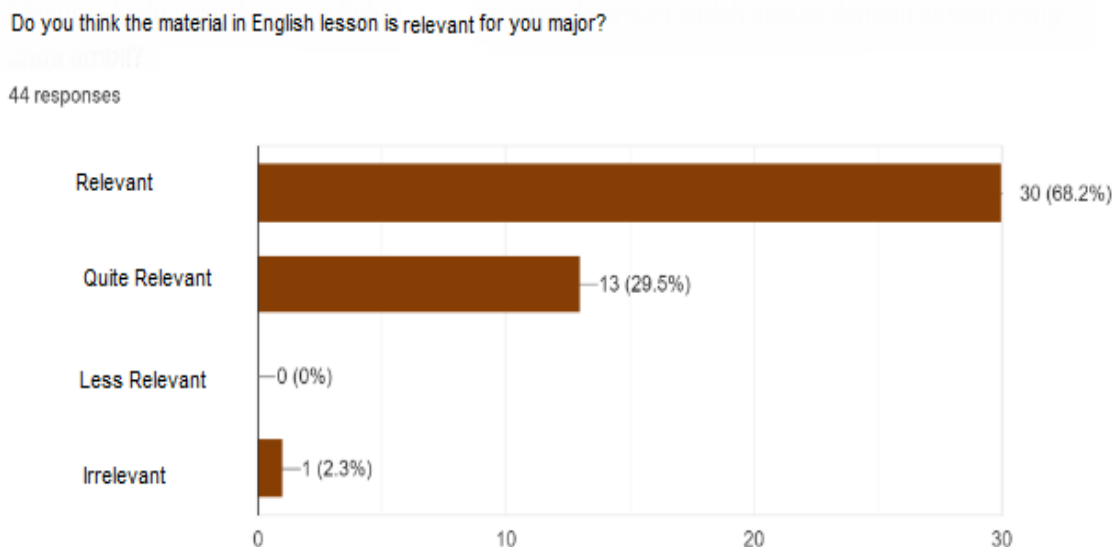

Figure 2. The level of relevance of the English material and the students major

One of the questions of the students' interview was asking about their level of understanding in ESP. Even though most everyone is familiar with the word ESP, most students are clueless about the existence of ESP specifically designed for vocational education. In general, they believe that ESP is something only college students can have. A different student, however, claimed familiarity with ESP for vocational school after claiming to have seen the English for vocational school textbook in the Gramedia bookstore. When pressed for an explanation as to why she thought vocational school ESP wasn't being taught, the student said something about not having as much time as in high school. She explained that students will be taught the same material in two hours a week as they would in four hours at the senior high school.

Excerpt from the students' interview:

Teacher Isa Maryam (IM): "What do you know about ESP?"

Selvi Anggraini (SA):" I know what ESP is. Only I didn't know that ESP could be taught to SMK. I saw the book was on sale at Gramedia. I guess it's just an addition not mandatory. Just for those who want to just buy. I don't think that there will be enough time to learn that.. besides we already learn general English."

This becomes the proof that the result of the questionnaire asking about the relevance of English material to the students' major is invalid. What the students have in mind about the relevance of the English material is not the same with the writer expectation for the answer of the relevance of the English material. The students only answer based on their understanding about English in general not in ESP.

When compare to the result of the teacher's interview, we can clearly understand of why students do not familiarize with ESP. There were a total of seven questions posed to the teacher, ranging from more general inquiries about her educational background to more specific inquiries about the methods she employs when introducing ESP to her students. The teacher provided a fascinating response when asked about how she introduces ESP to her students. As a result of a lack of resources, she claims she has never properly introduced ESP to her class. As an English teacher, she only uses the same Senior high school-required curriculum with her students.

The teacher was pressed further on the topic of why she does not create an ESP module for her students, and she responded that she is under no compulsion from the institution to do so. She went on to say that it would be very challenging for her to make an ESP module on her own without any help from school or colleagues. She originally wanted the MGMP to develop the SMK module, but after receiving unsatisfactory service, she changed her mind. This is in line with Muliyah and Aminatun (2020) that points out the Course designers and teachers encounter problems related to the design of the ESP course, the tasks, assignments and the teaching methods. This result is correlated with the result of why the students have little understanding about ESP.

Another question items from the questionnaire was asking about how well the teacher teach.
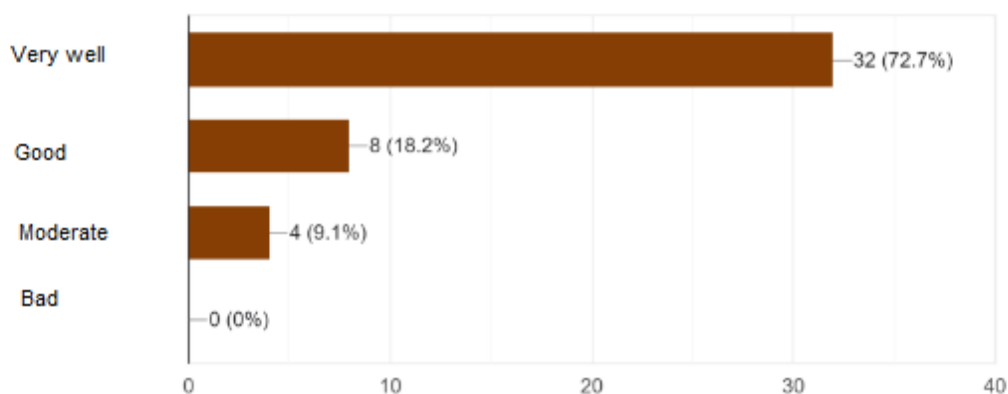
How well did the teacher teach?

44 responses

Figure 3. The level of the wellness of the teacher in teaching.

From the diagram of figure 3, it shows how well the teacher in teaching. Having a master degree in English education, it becomes the background of good quality of the teacher in teaching. Most of the students think that the teacher is very well in teaching them despite of

not ESP she was teaching. In regarding ESP teaching, the teacher does not have any background in it.

The analysis of the textbook is also the proof of why the students do not understand of ESP. Students in SMK, SMA, and MA all utilize the identical English Language Subject textbooks. SMK (Vocational School) does not have any required reading listed under the majors. Students' capacity to learn suffers when they utilize books that aren't intended for educational usage. English Text books that are widely used in the 2013 curriculum are books published by the Center for Curriculum and Books, Balitbang, Ministry of Education and Culture, Indonesian Language Center 2017 for SMA and SMK. The textbook is the only document material that the teacher uses to teach.
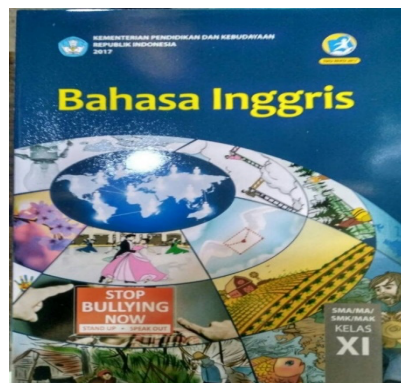

Figure 4. English textbook for SMA and SMK 2013 curriculum (google image).

The textbook which is being used by the teacher is the same with general senior high school. The textbook is not suitable for vocational school students. It only teaches about general English. This is correlated with the result in figure 3 about the moderate and even low the proficiency of students in vocabulary especially in ESP vocabulary. So, the teaching and learning ESP in vocational school can we summarize into three they are (1) A lack of quality teaching resources (2) Insufficiently qualified ESP teacher, and (3) Students lack of understanding in ESP.

2. Challenges faced by the students and the teacher in teaching and learning process of English subject in vocational school

Students' proficiency in the use of English for both general communication and the context of English within particular subjects is the primary goal of ESP learning in the vocational institution. Occasionally, issues arise during the teaching and learning process. Challenges that the students and teacher faced are identified based on the questionnaire, interviews, and document analysis.

2.1 Insufficient facilities and teaching resources affect students' English proficiency.

The result of the questionnaire with the students shows how students felt about the facilities provided by the school for teaching and learning process.

Do you think the facilities in the school are adequate for teaching and learning process?

44 responses

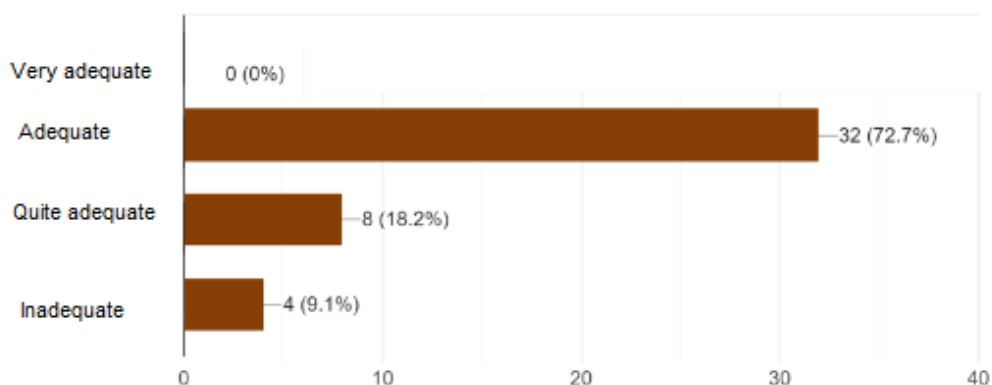| Category	Value
Very adequate	0 (0%)
Adequate	32 (72.7%)
Quite adequate	8 (18.2%)
Inadequate	4 (9.1%)

Figure 5. Opinion of the students about the school facilities

Most of the students think that the facilities provided by the school are adequate enough. But some of them still think that the facilities provided by the school for teaching and learning are not enough. These answers about the inadequate facilities are in line with the result of the teacher's interview. She said that even though there were some facilities, like an internet connection, a language lab, and a library, they weren't nearly enough for effective ESP teaching and learning. The library also does not have enough books that can be used to teach and learn ESP.

Writer (TN): "What do you think about the facilities provided by the school for teaching and learning ESP?"

Teacher (IM): "One of the most difficult aspects of teaching ESP was the fact that the school does not have sufficient resources available to help teachers and students with the process of teaching and learning. This is one of the most significant problems. Despite the fact that several amenities, such as an internet connection, language laboratory, and library, are already there, the conditions are in no way appropriate to support efficient ESP instruction and learning. The library is another area that needs significant expansion and renovation. It does not have a sufficient quantity of books that can be utilized for the teaching and study of ESP. Furthermore, the school's curriculum says that by the end of their studies, students should be able to use English in both general and specific ways. When students' English skills don't match up with what's expected by the curriculum, this is an urgent problem that needs to be fixed."

As stated previously, the result of the interview with the teacher also shows that the teacher has difficulties in designing module without the help form the school and other teachers. According to Claria and Warmadewi, (2020), teachers and students can only produce high-quality English learners if they have access to high-quality resources. So, when the teacher and the students have difficulties in accessing high quality resources, the teaching and learning process are also affected.

The teacher little bit complaint about the curriculum. She said that somehow the curriculum does not match with the reality. According to research by Prayoga et al. (2021), which was carried out in an Indonesian vocational higher education institution, the disparity between students' prior English language proficiency and curriculum expectations had a negative impact on the effectiveness of the ESP teaching.

Table 2. students' vocabulary skill

No	Required English Language Skills	Level of Difficulty				
		Strongly difficult	Difficult	Moderate	Easy	Very Easy
		(Number of students and percentage)				
1	I understand daily vocabulary	3	19	15	6	4
		6.8%	43.2%	34.1%	13.6%	9.1%
2	I understand specific vocabularies about my major.	5	14	21	2	3
		11.4%	31.8%	47.7%	4.5%	9.1%
3	I understand general English vocabularies.	5	16	16	5	2
		11.4%	36.4%	36.4%	11.4%	4.5%

Table 2 shows that students have difficulties in mastering everyday vocabulary 19 (43.2%). While vocabulary related to major and common vocabulary learning in English share same moderate answers with 21 (47.7%) and 16 (36.4%) out of 44 students. This result shows us that to students, vocabulary skills is considered hard topic for them.

Based on the document analysis, as stated before, it shows us that teacher only has one resources which is the textbook that is originally intended for senior high school students or EGP. This situation makes it important for teachers and schools to create a module to help students learn English according to their areas of expertise. Because if this continues to happen, the loss will certainly always be felt by students where they cannot optimize their English studies according to the majors they choose.

Another interview question items for the students concerned their feelings and obstacles faced on the topic of English classes. The overwhelming majority of students gave the same responses. For them, the English curriculum currently offered at their schools is adequate. Moreover, when asked what was making it so hard for them to learn English, most respondents again claimed that neither the textbook nor the teacher's competence played a role. But when asked where it came from, most students pointed the finger squarely at themselves. Because of their lack of motivation to learn English and their inability to concentrate for long periods of time, they are unable to improve their English proficiency. One student explained that he struggles to learn English in school because he would rather listen to music than read a book

3. Students' and Teacher' Expectations in ESP in Computer and Network Engineering Major

Students and Teacher have their expectations in ESP classroom. Students who enroll in vocational school and having ESP class typically have a good idea of what they need to know in order to become more knowledgeable and, in the long run, to improve their performance at work or advance their careers (Gashi & Jusufi, 2017).

Based on the result of the questionnaire which asked about their expectation in learning English at school, it showed some interesting answers among students. The diagram can be seen below.

What is your expectation in learning English for your major?
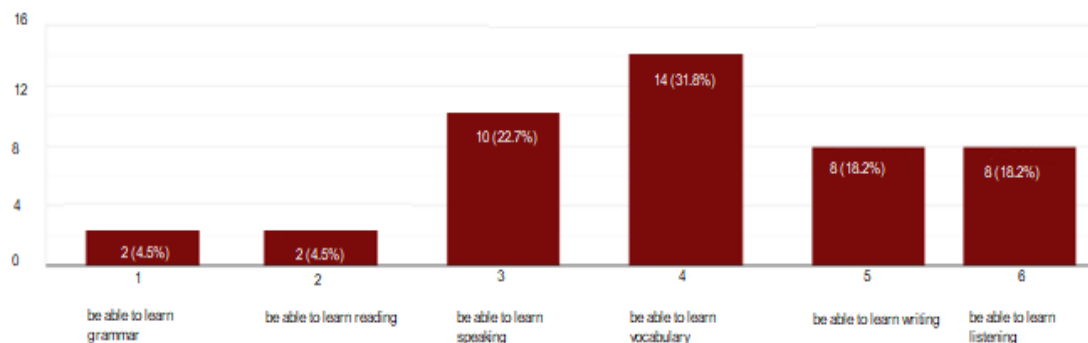44 responses

Figure 6. Students expectation in learning English

The results of the research showed that 31.8% of them expected to learn new vocabulary. Next, 22.7% choose to be able in speaking is their expectation in learning English at school. Then, 18.2% said they wanted to be able to learn writing and listening English. Finally, the most surprising finding in this part of the research was that only 4.5% of the students want to learn about grammar and reading.

Based on the findings, the most common expectation of these students was to be able in mastering vocabularies in computer and network engineering major. Unfortunately, based on the document analysis that have stated earlier, the school do not provide them the adequate resources related to their major. The teacher uses the same textbook that is intended for senior high school (EGP).

Form the interview with the six students also showed that their hopes in having to learn English in a vocational setting. They all felt that specialized English classes tailored to their field of study would be beneficial. They thought it would be very beneficial to their education. They wished the government would notice their plight and offer them with ESP textbooks.

From teacher points of view, based on the interview, the teacher also has expectation in teaching ESP. As stated previously, teacher hopes the school, MGMP, and those who have power in the making of the policy could help the ESP teachers in teaching ESP. One of the

most urgent thing is the adequate resources for them also the training in designing ESP materials (Fadlia et al., 2022).

> *Writer (TN): "What are your hopes in teaching and learning ESP?"*
> *Teacher (IM): "Many things actually, but the most urgent thing is that we need materials that suitable for ESP.. for every majors. We are not the same with general senior high school.. we need specific textbooks. And also, we are hoping that the government give ESP teachers much trainings in designing material and modules. It would be better if they also provide the funds for us in designing it."*

It is clear that the teacher and students hold distinct expectations in the realm of teaching and learning ESP. Summarizing the findings, it becomes evident that students encounter challenges in acquiring English skills tailored to their specific majors. Despite these challenges, both students and teachers maintain hopeful prospects for improved conditions in the teaching and learning of ESP.

CONCLUSIONS

ESP (English for Specific Purposes) need analysis is of utmost importance as it enables the customization of English language instruction to align with learners' precise needs, objectives, and contextual demands. Essentially, this analysis transforms the conventional, one-size-fits-all approach to language learning into a targeted and purpose-driven endeavour. By doing so, it ensures that language instruction is attuned to learners' genuine requirements and aspirations. Consequently, this approach not only elevates the overall learning journey but also equips learners with the essential language skills indispensable for excelling in their chosen fields.

From the finding, it showed that the process of triangulation underscores how students often misconstrue ESP as synonymous with general English. Despite yielding significant outcomes, the questionnaire results did not match the writer's expectations, indicating that students still approached the questionnaire with a general English perspective. Moreover, these findings unveiled a deficiency in students' English proficiency within their specific majors, owing to a lack of suitable materials, resources, and facilities. Furthermore, teacher inadequacies in delivering ESP instruction were also identified as contributing factors to this proficiency gap.

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