The International Journal of Social Sciences World
TIJOSSW is Available Online at:
https://www.growingscholar.org/journal/index.php/TIJOSSW
Vol. 7 No. 1, January- June 2025, Pages: 384~393
DOI: https://doi.org/10.5281/zenodo.16308920
ISSN 2690-5167
Growingscholar Publisher

An ESP Needs Analysis for the Civil Engineering Study Program: Case of Kupang State Polytechnic

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Article history:
Received: April 13, 2025; Accepted: June 26, 2025; Displayed Online: June 30, 2025; Published: June 30, 2025

Keywords

Needs analysis;

English for Specific Purpose;

Civil Engineering;

English Skills;

Abstract

This study is aimed at conducting a needs analysis intended for the development of an English for Specific Purposes (ESP) course tailored specifically for students in civil engineering study program in Politeknik Negeri Kupang. It utilizes a qualitative approach with goals to: (1) ascertain the overall English proficiency level of the students, (2) identify the skills (listening, speaking, reading, or writing) that is most anticipated or required for academic and professional objectives, and (3) investigate the topics or content areas that most appropriate to be incorporated into an ESP curriculum pertinent to civil engineering. Three tools were utilized to collect data: a standardized English test, structured questionnaire and semi-structured interviews. The participants of this study are 93 civil engineering students, five alumni and ten lecturers. The results of the study show that 95% students' English proficiency is at basic level while only 5% is at intermediate level. The most required English skills by students are speaking and listening while most required by alumni and lecturers are reading and writing. Lastly, the topics most appropriate are basic mathematics, Health Safety Environment (HSE), progress reports, tender documents such as permits to work, method statements, and handover documents.

1. Introduction

English was historically designated as Indonesia's first foreign language following its independence in 1950 (Lauder, 2008). It was selected because of its worldwide recognition, which was granted for a number of reasons (Crystal, 2003). First, nations where English is a second or foreign language acknowledge its significance. More than seventy countries, including Ghana, Nigeria,

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India, and Singapore, have made English their official language. In these nations, the government, legal system, media, and educational system all use English as a communication medium. Second, nations that speak English have economic, military, and political clout in preserving and advancing their language as a universal one. United Kingdom's growth toward the end of the nineteenth century and the advent of the United States as a world economic superpower are examples of reasons many people in the world are utilizing English.

English remains Indonesia's top foreign language to this day. English is the only foreign language that is required from school to university, in contrast to other languages that are offered as elective courses. English is important at the university level since it is the language used for the majority of research publications. To stay current on new science and technology pertaining to engineering, an engineer might read English-language studies or references. In addition, proficiency in English is a need for employment in Indonesia. To support his or her job, a civil engineer must possess a particular level of English language proficiency. A job seeker benefits from having a strong command of English since it increases their chances of working for national or multinational companies. Consequently, the instruction of English for civil engineering students is a critical requirement for both scholarly and vocational objectives.

It is clear that students studying civil engineering need a thorough, context-specific English education because the field emphasizes accuracy and clarity in communication. In technical reports, project proposals, safety instructions, and cooperative discussions with interdisciplinary teams, engineers frequently communicate both orally and in writing. However, ESP courses in many universities are too general and do not cater to the unique language requirements of students studying civil engineering. In order to determine the specific language needs of civil engineering students and to guide the development of an ESP course that would enable them to satisfy the expectations of both their academic and professional careers, a targeted needs analysis is therefore desperately needed.

This study is to perform a thorough needs analysis for the development of an ESP course specifically for civil engineering students in Politeknik Negeri Kupang. This study will identify students' English overall level, students' English skill level, expected skills, and preferred topic. The results of this research will contribute to the development of ESP course that not only satisfies the academic standards of civil engineering programs but also gives students the tools they need for effective professional practice in the globalized construction and infrastructure sectors.

2. Previous Researches

Research on ESP in Indonesia has been done focusing on different aspects such as obstacles faced by teachers and students, students' English needs analysis, and approaches to teaching ESP at the tertiary level. In Indonesia, research regarding ESP can also focus on either non-English major students or English major students.

The first aspect that has been the focus of some researches is the English needs of non-English students. In order to develop an ESP course, need analysis needs to be done. Akmal et.al. (2020) conducted research on the English needs for Mechanical Engineering students. It was found out in their study that listening skill was the most important skill followed by speaking, reading and writing. Sine et.al. (2021) also conducted an English needs analysis for students of STAKN Kupang. In finding the students' needs they found about student English level, learning English experience, views on textbook, teaching English approach, and English as a language. The second aspect usually being researched is on issues/problems and solutions in teaching ESP. Kusni wrote the current issues and

future prospects of ESP in our country. His research focused on ESP course design, teachers, objectives, and materials as well as assessment (2013). Kusumaningputri (2014) studied about problem and alternative solutions for ESP in Jember University. Problems found were teachers, materials, learners, and policy of the institution, hamper the significance of the course to the learners, institutions, and also stakeholders. Similar research was also done by Fitria (2020). She highlighted the obstacles teachers faced in teaching ESP such as the quality of lecturers and textbooks, qualifications and teaching methods of teachers, and lack of a theoretical framework to support ESP teaching. Moreover, she also discussed the difficulties related to students and to the environment. The third aspect is the approach to teaching ESP such as Nur (2018) conducted research on ESP application in non-English majors of higher education through the CBT approach. It was found that the CBT approach was not used in any study program in eight universities where the research was conducted.

Even though many researches regarding ESP in Indonesia have been done, there is still lack of research on ESP in Kupang, East Nusa Tenggara, especially for civil engineering students. Thus, comprehensive research on ESP at the tertiary level must be conducted in order to improve ESP courses which finally will provide appropriate English for students during their study at university level and after they graduated.

3. Literature Review

English for Specific Purpose

One area of English language teaching called English for Specific Purposes (ESP) focuses on addressing the unique language needs of learners in particular academic or professional fields. Hutchinson and Waters (1987) describe ESP as a teaching approach where all decisions about content and methods are based on why the learners need to learn the language. By focusing on what is relevant to the learners' future studies or careers, ESP is often seen as different from general English courses.

ESP has grown to include several subfields, such as English for Academic Purposes (EAP) and English for Occupational Purposes (EOP), along with specialized areas like English for Medical Purposes, English for Law, and English for Engineering. A key part of creating an ESP course is conducting a needs analysis, which helps ensure the teaching fits the students' academic or work-related goals.

Language Learning Motivation

According to Dörnyei (2009), motivation to learn a foreign language is greatly influenced by a person's self-concept in relation to the target language. There are three main components in learning motivation, namely the ideal L2 self, the ought-to L2 self, and the L2 learning experience. The ideal L2 self refers to the future self-image one wishes to have, such as being a well-qualified civil engineer. Motivation comes from the desire to become the ideal version of oneself and is related to intrinsic and integrative motivation. The second component, the ought-to L2 self, refers to the self-image that reflects what one should possess due to external pressures such as the expectations of parents, teachers, or society. Its source is extrinsic motivation and is related to obligations and a sense of responsibility. The last component is the L2 learning experience, which refers to actual learning experiences such as the classroom environment, teacher quality, teaching methods, and learning successes or failures. These factors influence daily motivation in learning a foreign language.

Noel et. al. (2000) also researched intrinsic and extrinsic motivation in the context of second language learning. Someone is said to have intrinsic motivation when they learn because they enjoy the learning process, not for grades, work, or recognition. Intrinsic motivation consists of three sub-types, namely IM-knowledge, IM-accomplishment, and IM-stimulation. Intrinsic motivation knowledge means that a person is motivated to learn because they are curious, enjoy understanding new things, and want to broaden their horizons. Intrinsic Motivation accomplishment means that a person is motivated because they want to challenge themselves and feel satisfaction after completing a task or mastering something. Intrinsic Motivation Stimulation means that someone is motivated because the learning process provides enjoyable sensations or emotional stimulation such as excitement, challenge, or pleasure.

In addition to intrinsic motivation, there is also extrinsic motivation where someone learns for external reasons rather than because the activity is enjoyable or inherently satisfying (Noel et al., 2000). Extrinsic motivation is categorized into three types: first, external regulation, which is motivation derived from external rewards or punishments, such as learning because parents insist. The second type of extrinsic motivation is introjected regulation, which is internal pressure (guilt), such as learning to avoid feeling guilty. The last type is identified regulation, which is motivation derived from internal personal values, such as learning because one believes education is important for the future.

Needs Analysis

Needs analysis (NA) is important to the ESP framework and entails determining learners' linguistic and communicative needs in certain domains. According to Dudley-Evans and St John (1998), needs analysis is critical for defining not just what learners need to learn, but also how they should learn it. Richterich and Chancerel (1980) separate needs into objective and subjective categories. Objective needs are based on factual information regarding learners' histories, tasks, and professions, whereas subjective needs refer to learners' desires, expectations, and attitudes. In the context of ESP for technical fields such as civil engineering, both types of demands are critical: students must grasp technical vocabulary and communication skills for site management, report writing, and collaboration with overseas specialists.

Several studies have shown that a thorough needs analysis results in more effective course design. Hutchinson and Waters (1987) argued that recognizing target situation needs led to more targeted and relevant language education. Similar to Hutchinson and Waters, Long (2005) emphasized the importance of using task-based needs analysis to create authentic ESP curriculum that mirror workplace realities, hence boosting language skill transferability. Basturkmen (2010) showed that needs analysis leads to more efficient ESP courses by aligning instruction with real-world tasks and communicative demands in specific professions. Lastly, Liton, who investigated Saudi University students, demonstrated that courses designed through comprehensive needs analysis significantly improved learners' motivation and performance (2015). These studies affirm that a thorough requirements analysis is an important stage in ESP course construction, increasing the relevance, engagement, and practical effects of education. Without it, course content may be overly general or misaligned with learners' actual needs.

The significance of ESP courses for civil engineering students has grown as the engineering professions have become more worldwide. Civil engineering students frequently need to possess a strong command of technical English to understand specifications, create project reports, communicate in meetings, and interact with foreign teams.

Research by Ahmed (2014) and Khan and Khan (2016) shows many civil engineering students lack sufficient exposure to the specific English skills needed in professional contexts, such as understanding technical documents, listening to lectures or presentations, and writing engineering reports. A study by Ibrahim and Nambiar (2011) at a Malaysian university found that civil engineering students prioritized learning how to write technical reports and interpret diagrams and charts in English. The study also noted that traditional English courses often fail to meet these specific needs.

Conceptual Framework of Needs Analysis

This study uses conceptual framework of needs analysis based on initial concepts of Hutchinson and Waters (1987). It is then adapted by Arroyyani & Nurhayati (2019) in their research on the needs of ICT-based English for nursing students.

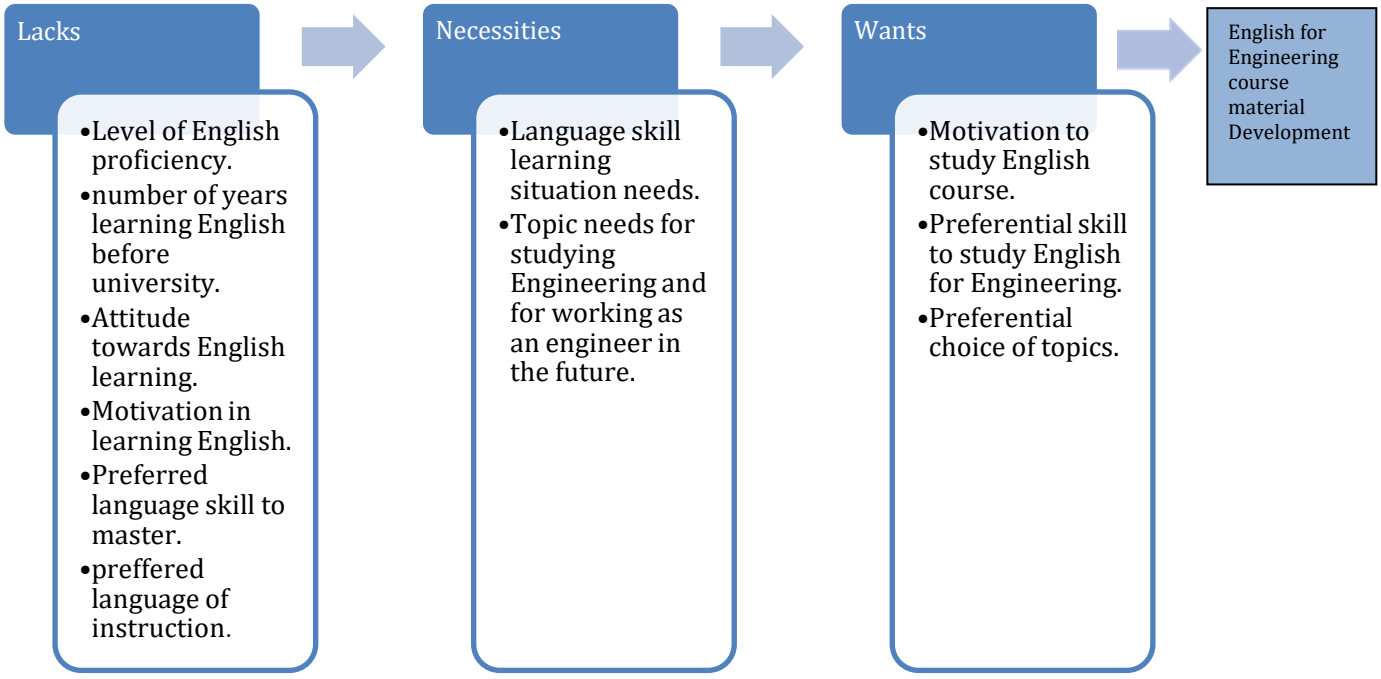


Figure 1. Hutchinson and Waters (1987) Needs Analysis Model, Adapted from English for nursing students (Arroyyani & Nurhayati, 2019).

The framework consists of lack, necessities and wants. Lacks refer to the disparities between the knowledge that learners have already obtained and what they still lack but require to attain the desired level of functional competence. Necessities on the other hand pertain to the essential knowledge that engineering students must possess to operate effectively within the target language and educational context. Lastly, wants as the third element, encompass the subjective views of learners, including alumni and instructors, concerning their needs in English for engineering courses.

4. Research Design

This research utilizes a qualitative approach to perform a needs analysis aimed at designing an English for Specific Purposes (ESP) course specifically for civil engineering students. The primary goals of the study are to: (1) ascertain the overall English proficiency level of the students, (2) identify

the skills (listening, speaking, reading, or writing) that is most anticipated or required for academic and professional objectives, and (3) investigate the topics or content areas that most appropriate to be incorporated into an ESP curriculum pertinent to civil engineering. In order to collect extensive data that corresponds with these objectives, three tools were utilized: a standardized English test, structured questionnaire and semi-structured interviews. A paper-based TOEFL test derived from a TOEFL test book is intended to be administered under conditions that closely resemble those of an official paper-based TOEFL examination in order to evaluate the students' proficiency level. Questionnaire as well as semi-structured interview were crafted to gather data from alumni and lecturers.

Participants

This study included students in their first and third years of study, alumni and lecturers. There are 93 students from five ESP classes of civil engineering, five alumni and ten lecturers of the study program. The students are taking English for Engineering classes in the running semester while the alumni are graduated Civil Engineering students who are working abroad as well as in the process of applying scholarship abroad.

5. Instrumentation and Data collection

This research utilized formal questionnaires alongside a semi-structured interview method to achieve triangulation, thereby ensuring the collection of precise data regarding the needs assessment of students studying English for Engineering. Another instrument is TOEFL paper- based test conducted in order to get information on students' English level.

Structured Questionnaire

Two questionnaires were made to get information from students, alumni, and lecturers. The first one was made for students and had 20 questions. These questions covered important topics. The first part asked about students' experience with learning English, like how long they studied it, why they wanted to learn it, how they felt about it, and what they thought about the importance of learning English. The second part asked about which language students preferred to use in class and which language skills they wanted to focus on while learning English.

The second questionnaire was made to gather information from alumni and lecturers. It had four different parts. The first part was for getting basic information about the people taking part. The second part was about checking how good students are at English right now. The third part was to find out which skills students think they need most during their studies, after they graduate, and when they are working. The last part was about subjects in Engineering that students and graduates should know well.

Semi-structured Interview Protocol

The second instrument comprised a semi-structured interview protocol designed for alumni and lecturers. This interview was employed to enhance and/or clarify the findings derived from the questionnaire. The open-ended questions posed during the interview inquired about the current proficiency and skills of students, as well as the content that should be included in the English for engineering curriculum to ensure their success in the workplace.

6. Results and Discussions

English Proficiency

Student participants in this study comprise 93 students, both male and female, enrolled in the Civil Engineering study program, with ages ranging from 19 to 21 years. According to the TOEFL test results, only five of these 93 students have achieved a B1 or intermediate level of proficiency, while the remaining students are classified at the basic level. This foundational level of English proficiency significantly impacts the process of learning English. Ideally, at the university level, the English proficiency expected should surpass that which is typically acquired in high school. However, this transition proves to be challenging, as not all participants are adequately prepared to advance to a higher level.

According to the findings, 31% of students have been studying English for over 10 years, while 22% have been learning the language for a duration of 5 to 10 years, and the remaining students fall within the 1 to 5-year range. Following validation through interviews, it can be inferred that, on average, students in urban areas begin their English education in elementary school, whereas those in more remote locations typically commence their English studies in middle school.

Starting English lessons at a young age, like in elementary or middle school, doesn't automatically make someone fluent. But it can help when learning English at university. In class, some students do not understand the subject well, which shows they lack basic knowledge. However, some students studied English from a young age and can speak it fluently, allowing them to talk easily in everyday situations.

Learning Motivation

The results from the questionnaire showed that 60% of students want to learn English to become fluent, while 40% are mainly focused on getting good grades instead of becoming fluent. This was also seen in the interviews. Students who want to be fluent said that English is not used much in their community, so they do not feel the need to be fluent. They also mentioned that they have trouble learning English, which makes it hard for them to reach fluency.

The reason students want to learn English is mostly based on how they see the language. From the survey results, 11% of the students said they do not like learning English. They found it hard and do not enjoy the subject. On the other hand, 88% had a positive view towards learning English. The main reason they gave was that English is a global language, which helps communicate with people from different countries. Others mentioned that being good at English can help with professional connections. Some also said they want to learn English to get better jobs and to apply for scholarships for further studies. A few participants added that English is important, interesting, challenging, and even easy to learn.

In addition to the points already mentioned, the role of English in the higher education curriculum greatly influences how students view their studies. English is the only foreign language that students are required to study throughout their education, from primary school up to university. At the university level, English courses are treated as general subjects. Because of this, English is often seen as less important than the main subjects in a student's program. This attitude can affect how well students do in their studies. For example, they might not study enough for exams or might even skip English classes entirely, choosing instead to focus on their main subjects, especially if those subjects have exams on the same day as English tests.

The participants' motivation to learn is also influenced by their self-concept, particularly the ideal L2 self, where they learn English for further studies or work. As many as 30% of participants

stated plans to continue their studies at a higher level abroad, 54% plan to continue their studies domestically, and the remaining participants do not plan to continue their studies. As is known, English proficiency is not only a requirement for admission to universities both abroad and domestically but also a prerequisite for receiving scholarships.

Participants also learn English to prepare themselves for work. Currently, most jobs require English language skills. This is confirmed by the participants, with the majority of them, 87 people, stating that English is important for communicating with foreigners at work.

English Language Skills

One of the questions in the questionnaire asked student participants to choose the most important language skill for them to learn in class. 63% of the participants chose speaking skill as the most important skill, and 24% chose listening skill as the most crucial skill to master as students. The remaining 13% of participants chose writing and reading skills.

Speaking skill was chosen by the majority of participants because it is considered the most important skill compared to other language skills. Additionally, speaking ability is believed to help them master other skills. Speaking skill was also chosen because participants prefer this skill and because it is used to convey messages that are closely related to communication ability. Unlike speaking skills, which are considered essential for communication, listening skills were chosen by 24% of participants for several reasons. The first is to help them when watching foreign films in English. The second is to help them understand better when communicating with foreigners.

Reading and writing skills were chosen for several reasons. Reading skills were selected because the ability to read can help participants in reading Civil Engineering journals, which are mostly written in English. Meanwhile, writing skills, which were only chosen by 8% of participants, were selected because it is believed that if one can write well, they can also read and listen well. In addition, mastering writing skills is believed to help participants understand every sentence and its meaning.

For language skills, 60% of alumni chose reading, 20% chose writing, and the rest chose speaking. Reading is considered important because in Civil Engineering there are many English terms. This is also confirmed by the results of the lecturer questionnaire, where 40% of participants chose reading skills and 30% chose writing skills as the most important skills for D3 Civil Engineering students to master. In the working world, reading skills will help in reading SOPs/implementation methods, instructions, reading budgets, and formulas in English. For writing skills, such as emails or reports in English, especially if the supervisor is a foreigner. In addition, writing a thesis is one of the graduation requirements for students. Therefore, writing skills must be possessed by students, especially writing in English for the abstract or the entire thesis if it is to be published in journal form.

Speaking and listening skills will be necessary when students start working. Civil Engineering terms often use English, both in lab work and in the field. There are chances for students to work in foreign companies, so communication or speaking skills are important. In addition to communication skills, writing skills are also needed, for example, for the professions of consultant, developer, and lecturer.

Topic Preferences

From the results of the questionnaire and interviews with alumni and lecturers, topics were identified to be included in the English course material. These topics are divided into three groups: Civil Engineering English, general English, and everyday English conversation. In the Civil Engineering English group, participants suggested including basic mathematics where the use of

formula numbers employs English. In addition, vocabulary related to Civil Engineering that pertains to fieldwork, laboratory work, and also English terms in software. In addition to vocabulary, topics related to Health Safety Environment (HSE), progress reports, tender documents such as permits to work, method statements, and handover documents are also proposed. For general English topics and everyday conversational English topics, it is proposed to have a lighter weight compared to civil engineering English topics, while still prioritizing the improvement of the four language skills: speaking, listening, reading, and writing.

Language of Instruction

The majority of participants, 64 participants, chose the use of 50% English and 50% Indonesian in the classroom learning process. A small portion, 22 participants, chose the use of 80% English and 20% Indonesian in the classroom learning process, while 7 participants chose the use of 80% Indonesian and 20% English in the classroom learning process. Although most participants preferred a balanced use of English and Indonesian in the classroom, the reality is that 80% Indonesian and 20% English are used. This is greatly influenced by participants who have very limited ability to understand spoken English.

7. Conclusion

According to the results, most Civil Engineering students in this study have basic English skills. This basic level is the main challenge they face when learning English. Motivation is also important in how they learn. Many students want to improve their communication skills and increase their chances of getting a good job or continuing their education. Some learn English mainly to get good grades. Overall, students perceive English as important, but they find it hard to learn. They also think it is not used much in daily life and is often treated as a less important subject.

In terms of language skills, the students selected speaking and listening skills. This is supported by the results of questionnaires and interviews, where the majority of student participants preferred the use of 50% English and 50% Indonesian as the medium of instruction in class. However, in reality, the use of English in class is only around 20% or even less due to the students' low English proficiency. Unlike the student participants who mostly chose speaking and listening, the alumni and lecturer participants mostly selected reading and writing skills, as these are more relevant to work requirements in the field of Civil Engineering, such as understanding technical documents and preparing reports or final projects.

The final point is about the materials or topics proposed to be included in English language learning, which are divided into three categories: English for Civil Engineering, General English, and daily conversation. The primary emphasis in English for Civil Engineering includes basic mathematics, technical vocabulary, HSE (Health, Safety, and Environment), project reports, and tender documents. General English and daily conversation are still taught, but with a lighter portion with the objective of facilitating the enhancement of the four language skills.

Acknowledgements

This research was funded by DIPA 2024, Kupang State Polytechnic. Researchers would like to express gratitude to the Director of Kupang State Polytechnic as well as PPPM (*Pusat Penelitian dan Pengabdian Masyarakat*) for their support.

References

Akmal, Hidayanti, Farah. (2020). Exploring the English Needs of Mechanical Engineering Students in ESP Class: Indonesian University context. *English Learning Innovation*. Vol. 1, No. 1 August 2020: 17-23.

Arroyyani, Risa & Nurhayati, Lusi. (2019). Students' Necessities, Lacks and Wants on ICT-Based English for Nursing Students. *Anglo-Saxon Jurnal Ilmiah Program Studi Pendidikan Bahasa Inggris.* 10. 159+176.

Crystal, D. (2003). *English as a Global Language: Second edition*. Cambride: Cambridge University Press.

Dörnyei, Z. (2009). The L2 Motivational Self System. In Z. Dörnyei & E. Ushioda (Eds.), Motivation, Language Identity and the L2 Self (pp. 9–42). Multilingual Matters.

Fitria, Tira Nur. (2020). Teaching English for Specific Purposes to the students in English language teaching. *Journal of English Teaching Adi Buana*, Vol. 05 No. 01, April 2020: 55-66.

Kusni. (2013). Reformulating English for Specific Purposes (ESP) in Indonesia: Current Issues and Future Prospects. SELT 2013 Proceeding, ISBN: 978-602-17017-1-3

Kusumaningputri, R. (2010). English for Specific Purposes di Universitas Jember: Tantangan dan solusi. *Jurnal Pengembangan Pendidikan*, Vol. 7, No. 2, Desember 2010: 182-189.

Lauder, A. (2008). The status and function of English in indonesia: a review of key factors. *Makara, Sosial Humaniora*, Vol. 12, No. 1, Juli 2008: 9-20.

Nur, M. (2018). Penerapan ESP di Perguruan Tinggi Umum (non-English majors) melalui pendekatan content-based instruction-CBT. *Mabasan*, Vol. 12, No. 1, Januari--Juni 2018: 86-103.

Sine, J.S., Bekuliu, D.A., Loak, M. (2021). English as a Foreign Language for Students of STAKN Kupang: A Study of Learners' needs. *JOLLT Journal of Languages and Language Teaching.* July 2021. Vol. 9, No,3: 293-304**.**

Basturkmen, H. (2010). *Developing Courses in English for Specific Purposes*. Palgrave Macmillan.

Dudley-Evans, T., & St John, M. J. (1998). *Developments in English for Specific Purposes: A Multi-disciplinary Approach*. Cambridge University Press.

Hutchinson, T., & Waters, A. (1987). *English for Specific Purposes: A Learning-centred Approach*. Cambridge University Press.

Ahmed, M. K. (2014). Needs analysis: A study of the needs of English for Specific Purposes for students in civil engineering. *English Language Teaching*, 7(8), 47–55.

Khan, T. J., & Khan, N. (2016). Investigating ESP needs of engineering students with respect to their industry requirement. *Journal of Education and Practice*, 7(27), 54–63.

Noels, K. A., Pelletier, L. G., Clément, R., & Vallerand, R. J. (2000). Why are you learning a second language? Motivational orientations and self-determination theory. *Language Learning*, 50(1), 57–85. https://doi.org/10.1111/0023-8333.00111

Richterich, R., & Chancerel, J. L. (1980). *Identifying the Needs of Adults Learning a Foreign Language*. Pergamon Press.