

## ENGLISH NEEDS ANALYSIS FOR STUDENTS OF POLYTECHNIC RADIO DIAGNOSTIC ENGINEERING AND RADIOTHERAPY

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### Abstract

*This study aims to identify and analyze the need for English for Specific Purposes (ESP) learning materials for students in the Department of Radio Diagnostic Engineering and Radiotherapy (ATRO) at Muhammadiyah Makassar. A needs analysis was conducted to ensure students receive materials that support their learning and career development, using a qualitative approach and descriptive strategy. The research subjects were second-semester students in class B21 and their experienced ESP lecturer, selected through purposive random sampling. Data collection involved observation, recording, questionnaires, and interviews. Key findings from the questionnaire included: 83.3% satisfaction with current ESP materials, 77.8% of students needing English related to Radiology, 55.6% with intermediate English proficiency, and 66.7% aiming to improve their English for professional purposes. Skills priorities were speaking (66.7%), listening (61.1%), reading (33.3%), and writing (33.3%). Effective speaking skills instruction is achieved by dividing the large class into three groups. These findings suggest ESP lecturers and stakeholders should develop lesson plans and teaching media aligned with these needs. Additionally, the ESP lecturer identified Merrill's Atlas of Radiographic Positions and Radiological Procedures as a key resource for material development.*

**Keywords:** *English for Specific Purposes (ESP), Needs Analysis, English Materials*

### INTRODUCTION

English is a global language used in many different fields. It starts with economics, politics, and technology. In the era of globalization, the world is developing more and more dynamically. From free trade to the rise of foreign companies established in Indonesia. As a result, mastering an international language such as English is becoming more important among students. However, many students currently still lack mastery of English (Amda, F; Syamsuddin, S ; Erna, 2022). Some are reluctant to learn English. Many of them are too lazy to study and even embarrassed if asked to speak in English in front of other students. This happens because of environmental factors and the lack of a place for students to hone and develop their English language skills. Lecturers should provide the learning English process not only through theory but also takes hands-on practice to become accustomed to students and more fluent in pronouncing words in English.

All Radio diagnostic Engineering and Radiotherapy (Radiology) students are required to take the English course. This course focuses on building abilities in understanding information adapted to the context of a specific career. Thus, the necessity for a master of English learners is an occasion for a college to provide its

graduates with appropriate English proficiency to compete in the 4.0 Industrial Revolution period (Al-Hamlan & Baniabdelrahman, 2015).

Through neglecting observations, it was discovered that ATRO students did not know the terms or expressions commonly used in interacting with patients, for example how to confirm patients' data, convey the purpose of the examination, position the patient in the examination room and so on. Moreover, it was found the fact that Radiology-specific English contains more difficult terms than common English because it is related to medical language that not many common people know and it is related to the previous research by (Zambrano Chaves et al., 2023). Furthermore, the variety and meaning of English terms in the Radiology field are very complex and general, requiring special understanding because they are related to applications in the world of work. Meanwhile general, educational materials cannot be used to meet the standards set by ESP learners because their contents do not match the students' characteristics, conditions, or needs. Related to the previous research, research specifically for the English language needs of Radiology students has never been researched before. In previous research entitled *Need Analysis of ESP for Non-English Study Program*, Rini Ekayati, Imelda Darmayanti Manurung, Elvita Yenni, researched the ESP for non-English study programs using a qualitative approach and descriptive methods in mapping learning objectives. However, the results of this research are only oriented toward student data being studied to be used as a reference in determining learning needs. Apart from that, the answers to student needs vary greatly from one student to another, making it difficult to determine learning needs. In other words, ESP learning depends on this research depending on the characteristics of the student and the study program. Meanwhile, in the research that we were carrying out, apart from focusing on the results of the analysis of the students being researched, alumni were also the main reference which was also the main consideration in compiling the material which is then made into a list of questions which ultimately results in significant answers that show that the students support the related material with the world of work according to their field later.

As a result, learning in line with Radiology competencies is essential for development. The development is expected to serve as a reference or foundation for the creation or compilation of teaching materials or textbooks for 3-year Diploma Radiology students at ATRO Muhammadiyah Makassar in particular, as well as Radiology students throughout Indonesia. In response to the problem's results, it is critical to research the needs analysis of learning English for a specific purpose at ATRO Muhammadiyah Makassar's 3-year Diploma in Radiology program. The outcomes of this study will eventually constitute a reference for the next research stage, which is the formulation of the syllabus and the production of the ESP teaching materials.

## METHODOLOGY

This study's data analysis technique was descriptive analysis using numbers and percentages. Student questionnaires were used as the data collection tool; they were adapted from (Khan, 2007). The purpose of the students' questionnaire was to collect data regarding the following topics: the reasons behind studying English and the current and future domains in which it is used; the way in which students view English's position and function within the curriculum; learning preferences in regard to linguistic abilities; the significance of specific language abilities; preferred methods and styles of learning; patterns of interaction between students; the role relationship; Preference for instructional tasks. Where the evaluation of attitude and beliefs was necessary, a small number of scaled questions were added to the multi-option question format of the students' questionnaire to accomplish this goal. The number of questions was 10.

This research used a qualitative approach and descriptive methods in mapping the learning objectives. The Location and the Time of Research The research was carried out at Polytechnic Muhammadiyah Makassar which is located at Jl. Dr Ratulangi No 101, Mariso, Makassar, Sulawesi Selatan 90132. The time of research started in the even semester of 2021/2022 in March-July 2022. The population of this study was 300 Radiology students at Polytechnic Muhammadiyah Makassar. The researcher decided to use the Purposive Sampling technique only taking a sample of 50 students in the B21 class. Besides, the ESP English lecturer was also interviewed about the details of the learning materials used in the classroom.

## FINDINGS AND DISCUSSION

Researchers have provided questions in the questionnaire to get the results of the Investigation into student needs for learning English. The first focus is whether current English resources meet the standards of the Radiology study program.

*Table 1. The availability of ESP material*

Type	Percentages
Fulfilled	83.3%
Sufficient	16.7%
Insufficient	-
<b>Total</b>	<b>100%</b>

The table above, concludes that it is not necessary to carry out an investigation of English learning needs for Radiology students. The next question is what kind of needs should be owned by students.

*Table 2. Student needs to learn English*

Type	Percentages
Learn English and specific themes in Radiology.	77.8%
General topics related to daily conversation materials	16.6%
Specific topic in the field of Radiology	5.6%
<b>Total</b>	<b>100%</b>

The data above shows that out of 50 respondents/students, 77.8% think that students' primary requirement to learn English is for general and specific themes in Radiology. The least are general topics related to daily conversation materials which only get 5.6%.

*Table 3. Student' English Ability*

Type	Percentages
Beginner	44.4%
Intermediate	55.6%
Advanced	-
<b>Total</b>	<b>100%</b>

Table 3 is about the level of English proficiency students now. The data above shows that 55.6% of Respondents rate their English skills as intermediate, with 44.4% remaining at the beginner level.

The fourth question is about students' motivations for attending English classes aside from the fact that they are required to do so.

*Table 4. Student Goals to Learn English*

Type	Percentages
Dealing with the world of work	66.7%
Communicating and expressing ideas in written and spoken language	27.8%
Pass the TOEFL/IELTS Test	5.5%
<b>Total</b>	<b>100%</b>

In Table 4, the high-ranking percentage is to support them dealing with the world of work 66.7%, followed by the purpose of communicating and expressing ideas in written and spoken language only 27.8%. As described by Robinson in (Zahid Javid, 2015), ESP aims to give English learning specific to the learner's needs. If the material presented in this course is designed to the learner's needs, this will improve learning motivation and ensure that the targeted goals are met appropriately. The next question

is to find out what students need for each skill in English. In (Aryanti, 2017), Hutchinson and Waters describe learning needs as the information and abilities that students require to be successful in their goal situation. This indicates that students are expected to have the ability based on their specialty of competence, in this case as a radiographer as shown in the following table.

The table of questionnaire results was adopted from Khan (2007). One of the purposes of the students' questionnaire was to collect data regarding the learning preferences in regard to linguistic abilities and the significance of specific language abilities as shown below:

*Table 5. Questionnaire Results*

	Indicator	Results	Findings
1	Topic	66,7%	General and specific topics on Radiology
2	Listening	61,1%	Monologue or discussion system for Radiology activities and daily routines.
3	Reading	33,3%	The text includes a list of radiology-specific terms.
4	Writing	33,3%	Writing simple sentences/ paragraphs related to the field of Radiology.
5	Vocabulary	50%	Convenience of vocabulary that can explore the discipline of Radiology.
6	Speaking	66,7%	Radiographic positions and radiological procedures.

ESP refers to English learning that is designed to the specific needs of learners based on their discipline of study and employment. ESP's method considers the learner's target setting as well as the necessity to communicate in English. The first pie chart shows that the ESP material that students are currently studying has met their needs. This cannot be separated from the lecturers who teach and also the sourcebook that is used as a guide. From the results of the interview with this ESP English lecturer, she said that Merrill's Atlas of Radiographic Positions and Radiological Procedures was her guidebook for making materials. In addition, it started when an alumnus who

worked at the hospital as a Radiographer found a Caucasian patient who could only speak English and not speak Indonesian.

The Radiographer then panicked because he could not speak English and then she called the English lecturer who is also her friend to assist in making instructions for positioning the patient in the examination room. From that moment on, the lecturer made ESP material using the English application method like in the world of work. The lecturer teaches ESP material using a demonstration method or what is known as role play, where there are students who act as radiographers and others who act as patients. The required tools for this presentation have been prepared, including an x-ray bed, cassette, apron, hospital gown, etc. As a result, students will find it easy and enthusiastic to learn the theory and carry out the processes. Positive reactions to things in our environment are anticipated since they impact our day-to-day actions. (Masdianti, 2021).

Merrill's Atlas, written in English for Radiographic Positioning & Procedures, has a long history of assisting students in learning and perfecting their positioning skills. In the first few chapters, we covered the fundamentals of radiography, radiation safety, and nomenclature. Merrill then covers anatomy and placement in distinct chapters for each bone group or organ system. Students learn how to pose a patient properly, and the resulting X-ray image gives doctors the information they need to diagnose the patient's problem. The Atlas provides this information for often-asked and less frequently requested forecasts, using the most complete texts and sources available (Long, B. W., Rollins, J. H., & Smith & Sciences., n.d.). Merrill's Atlas is not only the gold standard in imaging, but it also prepares you for the ARRT exam.

The results obtained show that ATRO Muhammadiyah Makassar Radiology students have intermediate English skills which was known from the results of class observations, the results of questionnaires and also the results of interviews with the teachers. This makes it easier for English teachers to provide appropriate content to students at the tertiary level, specifically the intermediate because students were taught basic English in the first semester as preparation for ESP English in the second semester. Students at this level are expected to be proficient in English and possess adequate communication skills in their field of study. Thus, (Febriyanti, 2021) believes that ESP has a unique quality, namely the ability to adjust or vary depending on the needs of the learner and the situation, thereby facilitating the learning of English.

Related to the skills possessed by students, some students said that they had difficulty in English pronunciation because they had to be able to memorize and recite the material and that was an appropriate research result by (Ekayati et al., 2020). The material is given before presenting it but they are interested in the speaking method applied by the lecturer because they can practice talking directly with patients, which leads to greater practice/application in the workplace, and also learn the meaning of spoken English.

Speaking is a useful ability that can occasionally be used to assess a person's level of English proficiency. According to Brown (Zahid Javid, 2015), the biggest hurdle experienced by foreign language learners is shyness, anxiety, or unwillingness to speak due to fear of making a mistake, being deemed foolish, or not being proficient because of limitations in language understanding. (Chen et al., 2016) emphasize the difficulty in implementing an ideal language program, particularly an ESP English lesson this is caused by the number of pupils who are too many at the same time, especially 50 or more. According to (Indrasari, 2016) in speaking skills, asking students to speak one by one actively is impossible. However, this is not the case with the speaking skill needs of Radiology ATRO Muhammadiyah Makassar students. According to the interviewed lecturers, speaking skills can be fulfilled well because this large class has been divided into three groups for English lessons so and each group has been handled by the teaching team. Therefore, teaching these skills in depth is not too difficult to do in English courses. It is in line with the result of the research done by (Pranoto & Suprayogi, 2020) stated writing, reading, and listening skills are not an obstacle for lecturers in providing training which consists of several stages, checking and giving sufficient feedback or improvement. Thus, skills other than speaking can get enough attention. As stated by (Boroujeni et al., 2013), writing, speaking, reading, and listening skills are all identically important language skills for the reason are incorporated into learning English. As a result, ESP teachers must be able to focus their lessons on abilities that demand more in-depth interaction and dialogue in the classroom. Each item in English Radiology has specific features and differs from another. For example, in Radiographic Positioning & Procedures content that involves greater verbal communication skills with patients, Speaking Skills is more important than others. ESP learning can focus on a certain English skill, depending on the needs of the learning environment (Chovancová, 2014).

Based on the facts presented here, the ESP English lecturer or stakeholders can select the next stage, which is to create Lesson Plans or use educational media. However, it is critical to provide students with English materials that can fit all learning objectives based on a needs assessment. The content presented must be relevant to students so that when they graduate and begin working, they can use English (Chovancová, 2014). According to (Trujeque-Moreno et al., 2021), the usage of authentic resources that reflect must be considered while developing educational materials.

## CONCLUSION

Based on the findings and the discussion in the previous part, the researcher concludes that: The English material that is currently obtained has been fulfilled and it is not necessary to carry out an analysis of English learning needs for Radiology students. Attention one of them, speaking skills, can be met effectively because this extensive class has been separated into three sections, with the teaching staff

monitoring each group properly. Therefore, teaching these skills in depth is not too difficult to do in English courses. According to the results of an interview with an ESP English lecturer, Merrill's Atlas of Radiographic Positions and Radiological Procedures served as her guidebook for creating materials. This is also under the request of an alumnus who is working in a hospital as a radiographer.

Students believe that the most important aspect of learning English is understanding basic and specialized themes in Radiology. The lecturer teaches ESP material using the demonstration method or what is known as role play, where there are students who act as radiographers and others who act as patients. In this demonstration, the necessary tools have also been prepared, such as an x-ray bed, cassette, apron, hospital gown, and so on. As a result, it will be easier for students to understand the theory while also applying the processes.

The level of English proficiency of students now considers being at the intermediate level while the rest are still at the beginner level. It is because students have also been taught basic English in the first semester as preparation for ESP English in this second semester. The highest percentage of the student's goals to learn English is to support them in facing the world of work.

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