Analyzing Students' Needs for Syllabus Design of English For Science

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Abstract

This article reports the findings of a study analyzing the needs of Physics Education students to inform the syllabus design of the English for Science course. The study employed a descriptive quantitative method. For the data collection, it administered questionnaires to sixty-four students, two lecturers, and three graduates and carried out classroom observations. Percentage systems and rating scales were used to analyze the present situation, target situation, and learning situation. The analyses revealed some significant findings related to the students' needs. Overall, the students need the fours language skills and vocabulary in the general area of science. However, the course should prioritize reading skills and vocabulary acquisition, followed by speaking and writing skills. In addition, the students require several common-core abilities, most of which are related to reading and writing skills. The students want to learn those skills through the general science content. Therefore, the study recommends a combination of skills-based syllabus and content-based syllabus.

Keywords

Needs analysis
Students' needs
English for Science
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Introduction

English is commonly studied as a compulsory subject at the tertiary level by students majoring in areas other than English. The teaching of English in such a setting is known as English for General Purposes (EGP), which is usually referred to as *MKU Bahasa Inggris*. It teaches students the four language skills (listening, speaking, reading, and writing), vocabulary, and grammar of basic through intermediate English levels. Its content is general regardless of the discipline or subject matter the students are involved. To illustrate, the material taught to economic education students can be similar or even identical to that delivered to civil engineering students.

Additionally, English is incorporated in the tertiary education curriculum with particular objectives. It aims to teach students English in their particular field, usually known as English for Specific Purposes or ESP in short. ESP refers to an instruction by which students are taught to use English as a second language or international language in specific fields (Paltridge & Starfield, 2013). Basturkmen (2010) described it as follows:

> …ESP views learners in terms of their work or study roles and that ESP courses focus on work- or study-related needs, not personal needs or general interests. A number of specific work and study roles were mentioned including an air traffic controller, an engineering student, a science student and a businessperson. … ESP involves analysis of texts and language use learners will encounter in their work and study situations. (p.3)

Meanwhile, Hutchinson and Water (1987) defined ESP as "an approach to language teaching in which all decisions as to content and method are based on the learner's reasons for learning" (p.19). In ESP, linguistic aspects, language skills, and genres are learned or taught according to the specific roles that have been or will be performed by learning participants (Paltridge & Starfield, 2013) both in work and study.

As the name suggests, English for Science (also known as Scientific English) constitutes a type of ESP. Its emergence can be tied to the early adoption of English as an international language after the second world war. In today's context, English is increasingly becoming a worldwide academic language facilitating the mobility of young scholars (Graddol, 2006). The fact that 75 percent of scientific articles in the world are written in English, and the growing number of scientists with non-English mother tongue backgrounds turning to English for publication (Hamel, 2007) have given rise to the inclusion of English for Science in the curriculum. Articles and books of science, both printed and digital, are presented in texts with language features and genres of science and technology that are rarely found in General English in terms of register, grammar, and context. Halliday argued that an English text is considered scientific for the combined influence of various features and the interrelationship between these features in the text (as cited in Paltridge & Starfield, 2013). By mastering the features and genres of science and technology, students can effectively study science and technology texts.

Gaining entry into a scientific community primarily through texts (e.g., written articles) is of great value for a researcher as it allows his/her research findings to be read, referenced, and/or argued by fellow researchers. On the other hand, he/she can respond to the written works of other researchers. Paltridge (2012) describes this community as a discourse community and argues for understanding the language features and the community's genres (text functions) to gain acceptance in such a community. Thus, English for Science is essential for students of science-related fields who may later become science teachers or researchers. Language skills and knowledge in this particular type of ESP will make it easier to communicate and interact with fellow science researchers from other countries in the same field either through written texts or attendance at various international scientific meetings.

Physics Education is one of the departments at Halu Oleo University that includes English for Science in its curriculum, and it has been running as a compulsory course for quite a while. Nevertheless, an initial study using survey techniques and interviews with students and study program management indicates the lack of ESP principles in the course implementation. While a needs analysis participated by students as the learning

participants is the core of ESP (Dudley-Evans & St John, 1998), it has never been conducted by the Physics Education Department. As a result, there is no syllabus for the English for Science course in the department.

The absence of a syllabus, as stated above, is a critical issue given its role as the primary learning tool in a course that determines learning objectives (instructional goals), choice of material (content), learning activities, processes, and methods. The syllabus contains knowledge about what will be achieved and how to help participants learn best to meet their learning expectations (Tokatli & Kesli, 2009). Without a syllabus, a course may not have clear aims and achievable objectives. In addition, the teaching of English for Science in Physics Education Study Programs, as described above, to some extent, has not kept up with the latest approach to teaching ESP which is a learning-centered approach. It is this approach that should be applied. The main reason for this is that the whole process of ESP (English for Science is no exception) is concerned with "learning" rather than "knowing" or "doing" (Hutchinson & Water, 1987) and ignoring this can deleteriously affect students' motivation and learning interest.

So far, studies on needs analysis for English for Science syllabus involving related parties, primarily students, are still very few in the literature, especially in the Indonesian context. Similarly, very little is known to what extent the instruction of this type of ESP has met the needs of its students. A study by Indrasari (2016), which analyzed the learning needs and barriers experienced by students in learning English for Physics at IAIN Raden Intan Lampung, seems to be the only existing research related to scientific English in Indonesia tertiary education. It revealed that the participants needed reading skills for English numeric symbols and exposure to certain grammatical aspects. In addition, they voiced their need to learn vocabulary related to mechanics and relativity, while in terms of learning methods, they preferred pair activities.

Although the study has revealed students' needs, its findings are not necessarily applicable to English for Science instruction elsewhere, nor are to the Physics Education Study Program of Halu Oleo University. This is particularly true since the study participants may have different learning needs, preferences, background knowledge, and level of language proficiency. Likewise, the curriculum, learning outcomes, and graduate profiles of the study program in which the study was conducted may differ. In other words, it cannot accurately describe or represent the needs of UHO Physics Education students. Besides, the previous study only focused on linguistic needs (language items). It failed to consider how students should learn these language items at their best (learning preferences and styles). In a nutshell, from the perspective of ESP, the previous study only addressed the target needs and did not capture another type of need, which is learning needs. Ideally, the latter is given more attention than the former or treated equally important (Tahir, 2011).

Therefore, the present study aims to fill the gap in the literature related to English for Science by conducting a needs analysis involving stakeholders: students, lecturers, and graduates. Findings from the analysis will become a basis for preparing a syllabus. As an ESP genre subject, English for Science should theoretically be built on the needs of the learner (Dudley-Evans & St John,1998; Hutchinson & Waters, 1987), and therefore, needs analysis is required. The absence of students' needs analysis has been found to cause the English courses at the college level to provide little influence on students' communicative competence (Alwasilah, 2007; Kaharudin as cited in Yassi, 2018). Needs analysis identifies the language and skills used to determine and devise ESP materials (Basturkmen, 2010). In short, needs analysis is a procedure for determining the specific needs of learning participants (Ellis, as cited in Huhta, Vogt, Johnson, & Tulkki, 2013). Indeed, needs analysis is a systematic step in obtaining information about students' needs as to what content is perceived as necessary and how it should be learned.

We argue that the study participants have expectations regarding material, including micro and macro language skills required to comprehend science content, which can help them perform their future specific roles (for example, physics researcher or postgraduate student). Furthermore, we assume that they may lack knowledge and skills that need to be improved from the pedagogical side. Last but not least, we believe that individually, they possess learning preferences that need to be paid attention to by the course instructors.

Method

This study describes the real needs of the students of UHO Physics Education for their English for Science class, including but not limited to skills/abilities and content to focus on in the course (what a learner has to do in the target situation) and the effective ways of learning it (what a learner needs to do in order to learn). It involved collecting information about the participants' perceptions, opinions, and suggestions over a particular aspect of needs for their ESP course, and no hypothesis testing was involved. For this reason, a descriptive quantitative method was employed (e.g., Arikunto, 2009).

The population in this study was all the students of cohort 2020 enrolling in English for Science class in the odd semester of the academic year 2021/2022. Since the number of students was below a hundred, they were all invited to participate, and as such, it was a population study. Two lecturers teaching the course and three graduates were recruited to participate. The recruitment of both lecturers and graduates served as cross-validation and, at the same time, it allowed various perspectives concerning students' needs. The instruments used for data collection were questionnaires consisting of 25 items adapted from Abuklaish (2014), and classroom observation sheets. Written questionnaires are valuable for analyzing the students' needs in foreign and second language educational settings (Long, 2005). They were administered to 64 students to find out the information regarding their present situation analysis, learning situation analysis, and target situation analysis (see Results for details). The classroom observation examined how lecturers run the class, how students learn, and what resources are utilized. The information on these supplemented the one collected from the questionnaires.

For data analyses, the analysts went through several steps. First, the responses obtained from the questionnaires were reduced and categorized in tables, charts, and graphs with the help of Microsoft excel. Next, the categorization results were described and interpreted from various aspects. Data of each category were linked to/cross-checked with data from other categories to provide a thorough interpretation of the data. The scale and percentage systems were used as analysis techniques. While the former was applied to measure the opinions and perceptions of the respondents about a particular aspect of their learning (i.e., target needs and learning needs), the latter was used to sort the respondents based on the level of the lowest/unimportant to the highest/essential according to certain attributes regarding their needs. Furthermore, since certain questionnaire items asked for information from more than one source (students, lecturers, graduates), to see the strength of the respondents' answers (such as the level of priority or importance), some pieces of data were processed using the procedure of Riduwan (2009) by which the data grouped into five categories of strength ranging from very weak through very strong.

Results

Present Situation Analysis

Present situation analysis (PSA) involved establishing what the students are like at the outset of their language course. It comprised students' attitude to English, their perception of the difficulties in learning English, self-assessed English ability, mastery of vocabulary, and their perception of course content and how lecturers deal with them.

1. Students' attitude to English

The very first question asked to students was whether or not they like English. The main reason for asking the question was to find out their attitude and motivation to learn English. From Figure 1, it can be seen that the vast majority of students liked English, and only around two percent said otherwise. This means that almost every student has a positive attitude to English, which is critical to their learning success as it can positively influence their learning interest and motivation.

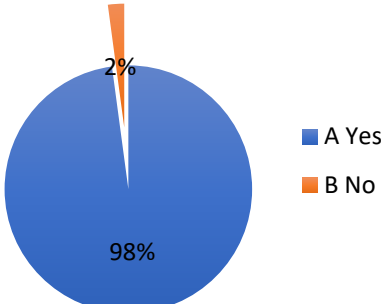

Figure 1. Students' attitude to English

2. *Students' perception of the difficulties of learning English*

The participants' perception of the difficulty of learning English was also asked in the questionnaire. Majority of the students considered learning English difficult, indicated by the percentages of those choosing *agree* and *strongly agree*. Meanwhile, some students did not see English as a difficult language to learn.

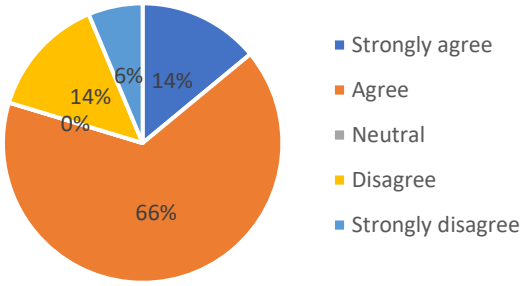

Figure 2. Students' perception of difficulties of learning English

3. *Students' self-assessed level of English ability*

One of the questionnaire items required the students to self-rate their current English ability. The data showed that most students considered themselves at the beginner level. The remaining felt that their level of English ability was intermediate, and not anyone felt that they were advanced nor were they native.

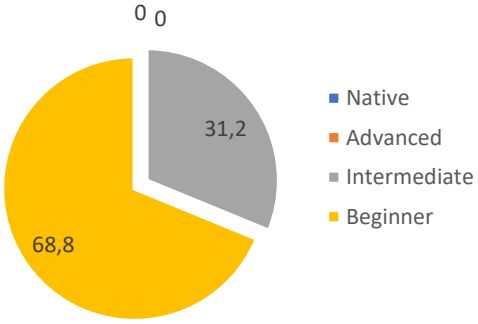

Figure 3. Students subjective English ability

4. *Students' recognition of vocabulary*

How well the participants mastered the vocabulary was also asked in the questionnaire. The data revealed that scientific words were poorly recognized by most of them, while the general ones were claimed to be well

mastered by more than half of the participants. Nevertheless, many students had poor vocabulary knowledge (Figure 4).

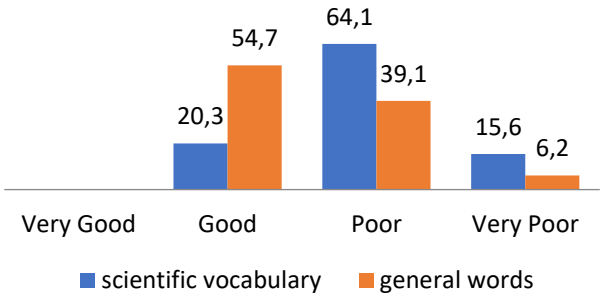

Figure 4. Students' recognition of vocabulary

5. Students' perception of course content

The questionnaire also sought the students' perception of whether or not the current ESP course was relevant to their needs in terms of special needs, content, and teaching methods. Figure 5 shows that just over half of the target respondents felt that the material offered in the current ESP course was already appropriate. However, many remained unsure about the suitability of the topics covered in the course. Similarly, the respondents doubted that the course's activities have been relevant to their professional needs.

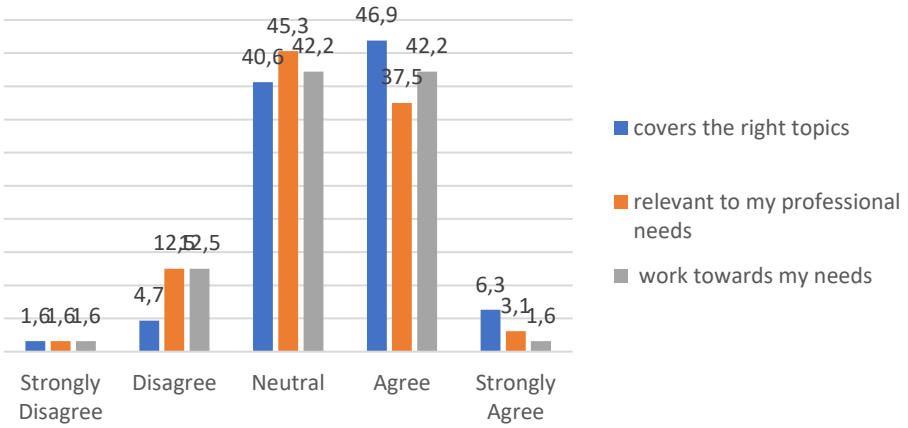

Figure 5. Students' perception of course content

6. Students' perception of some teaching methods

The questionnaire further asked the students' views concerning how the lecturers handled the class in terms of classroom atmosphere and the opportunities to express their ideas, and use their own words. Their perception regarding the clarity of lecturers' questions and whether or not feedback was given was also requested. Table 1 shows that almost half of the respondents considered that their teachers offered a welcoming learning atmosphere. However, the other students with a similar percentage appeared uncertain about such an atmosphere. Most of the participants felt that their lecturers allowed them chances to talk using their own words. When questioning, the lecturers asked the question clearly and understandably, as confirmed by the vast majority of the students. Table 1 also shows that feedback was provided during the class.

Table 1. Students' perception of lecturers' teaching methods

Elements	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Total
a. Welcoming atmosphere		4,7%	46,9%	43,8%	4,7%	
b. Time to speak is given		3,1%	25%	60,9%	10,9%	
c. Opportunity to use one's own words	1,6%	12,5%	26,6%	48,4%	10,9%	64
d. Questions asked are clear		31,1%	26,6%	50%	20,3%	
e. Feedback is given		31,1%	23,4%	42,2%	31,3%	

Target Situation Analysis

Target situation analysis examined the participants' needs after the course is finished. It included objective, perceived, and product-oriented needs (Dudley-Evans & St John, 1998), such as types of English skills, specific abilities, and knowledge the participants may require, especially in an academic context (for instance, as a postgraduate student).

1. *Macro-skills of language needed*

Three groups of participants (students, lecturers, and graduates) were requested to rate language macro-skills they deemed essential to learn in the English for Science course. Generally, all macro-skills were valued as necessary but with varying degrees. Reading skill was of the highest importance rated by all the groups, followed by speaking and writing skills with relatively the same importance. Meanwhile, the listening skill was placed slightly lower than were the three previously mentioned skills, especially by the students and the lecturers. Nonetheless, if the percentage of listening skills were put into strength categories (e.g., Riduwan, 2009), it would fall within the category of highly strong. For this reason, listening skills remained a priority.

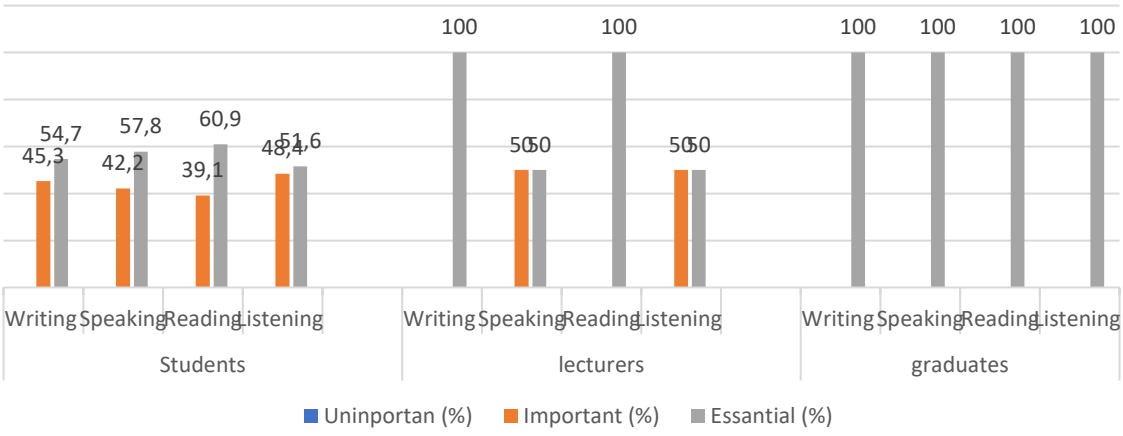

Figure 6. Students' value of macro skills

2. *Micro-skills of language needed*

As for micro-skills, item 19 of the questionnaire asked the target population their views about the micro-skills the lesson should offer. When converted into Riduwan's (2009) scale of strength, the results show that all micro-skills were considered necessary and highly necessary for the students.

Table 2. List of micro-skills needed in order of strength

No	Micro-skills	Total Score	Percentage	Category
a.	Reading scientific text	160	77,29	strong
b.	Reading general text	168	81,16	very strong
c.	Determining topic of a text	165	79,71	strong
d.	Identifying main idea	165	79,71	strong
e.	Skimming	160	77,29	strong
f.	Scanning	167	80,68	strong
g.	Making inference	174	84,06	very strong
h.	Identifying listening topics	171	82,61	very strong
i.	Mastering scientific vocabulary	169	81,64	very strong
j.	Writing summaries	158	76,33	strong
k.	Writing an experiment report	147	71,01	strong
l.	Practicing oral presentation	167	80,68	strong
m.	Listening to reports	150	72,46	strong
n.	Writing for journal article	157	75,85	strong

3. Course content to learn

With regard to course content, while most students voiced their preference for general English, many wished to learn General Scientific English. Other students wished for a combination of both. Some others wanted to learn English for Physics. The other, the least preferred the integration of General Scientific English and English for Physics. Meanwhile, the two lecturers had different preferences concerning material for English for Science. The first lecturer preferred General Scientific English, while the other wanted to teach students general scientific English and English for Physics. For graduates, two considered English for Science to use the materials related to the physics area, while the other wanted to teach students the combination of General Scientific English and English for Physics.

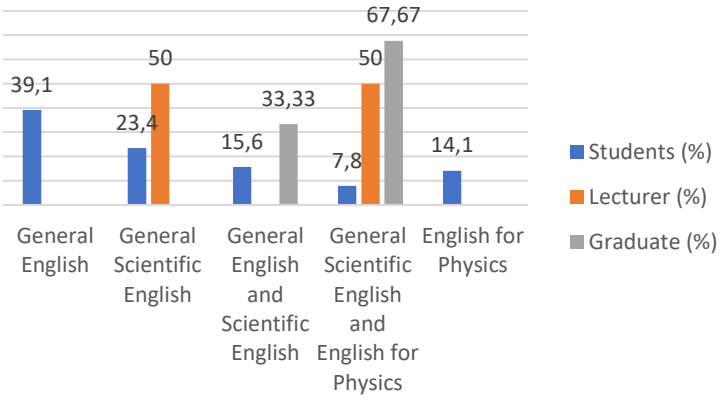

Figure 7. Course content to learn

Learning Situation Analysis

Analyzing the students' learning situation established *how* learners wish to learn rather than *what* they need to learn. This type of analysis gives information about "what the learner needs to do in order to learn" (Hutchinson and Waters, 1987). It involved a personal analysis of information about the learners' expectations of how learning should go such as their preference for the medium of instruction, views of effective ways of learning, and their voices over teachers' method of delivering materials that best suits them.

1. Students' English class preference

In the questionnaire, the students were asked to express their views concerning how the English for Science class should run (Table 3). In terms of the medium of instruction, the vast majority wished their lecturers to combine English and Indonesian language when teaching, and very few of them wanted to be taught merely in

one language, either English or Indonesian. Similarly, a majority of the participants felt no need to add credit hours. In other words, the existing credit hour has been sufficient for them. Meanwhile, concerning the best time to have the English for Science class, most of the participants preferred the morning to the afternoon.

Table 3. Students' class preference

Preferences		Responses		Total
Language of delivery	Indonesian	5	7,8%	64
	English	3	4,7%	
	Both	56	87,5%	
Time for offering English class	Morning	50	78,1%	64
	Afternoon	14	12,5%	
Addition of credit hours	Necessary	56	87,5%	64
	Unnecessary	8	12,5%	

2. Students' learning styles

Question 15 of the questionnaires asked about the student participants' styles of learning. The data revealed that most student wanted the lesson to include more discussions and be practical and detailed. In contrast, they were not interested in seeing diagrams during the class; not anyone chose to agree and strongly agree with the lesson where diagrams were offered. Concerning skills-based activities, learning through listening and speaking activities were preferable. Meanwhile, about one-third learn best through reading activities.

Table 4. Students' learning styles

	Element	Strongly Disagree %	Disagree %	Neutral %	Agree %	Strongly Agree %	No of cases
a.	Lesson offers discussion	12,5	3,1	15,6	29,7	39,1	64
b.	Lesson offers practical activities			21,9	23,4	54,7	64
c.	Lesson offers diagrams	31,3	39,1	29,7			64
d.	Prefer a teacher who explains everything	12,5	14,1	10,9	39,1	23,4	64
e.	Prefer to learn by reading	15,6	29,7	21,9	26,6	6,3	64
f.	Prefer to learn through grammar	7,8	23,4	31,3	45,3	7,8	64
g.	Prefer to talk to foreigner	14,1	10,9	23,4	31,3	20,3	64
h.	Prefer to listen to NS			23,4	31,3	45,3	64

3. Preference on classroom activities

The questionnaire also asked the respondents about the activities to focus on during class. In general, reading comprehension, language structure, fluent speaking, and pronunciation were considered the activities that the lesson should focus on. The lecturers should also facilitate the other classroom activities, such as the use of vocabulary and paragraph writing. Meanwhile, punctuation, matching, crossword, and multiple-choice (except filling the blanks) were the least preferred and not chosen either by the lecturer or the graduates. For these reasons, they were not displayed in Figure 8, but they are still necessary.

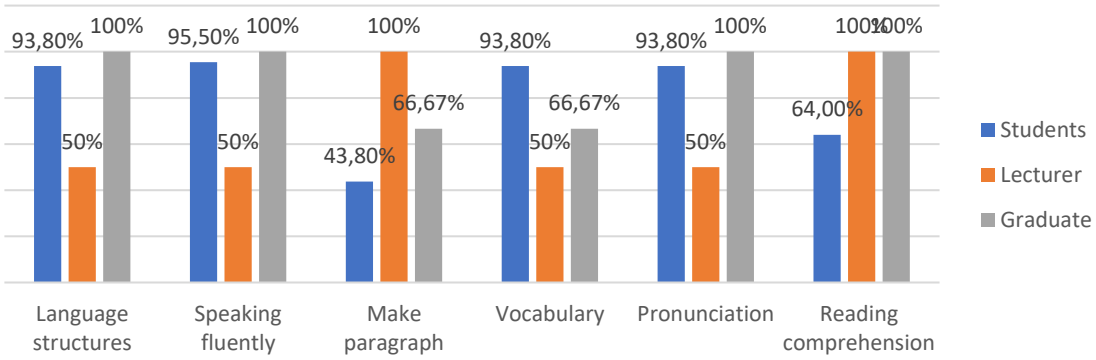

Figure 8. Preference on classroom activities

4. Students' preference on ways of learning

Item 22 of the questionnaire asked the student participants to note how they would prefer to study whether it was individually, in pairs, in small or large groups. Results (Figure 9) shows that most students enjoyed working in small groups. On the contrary, only ten participants felt that individual work was desirable in the classroom. Interestingly, large classroom groups and pair-work appeared to be unpopular with the majority of the applicants, only chosen by a few students.

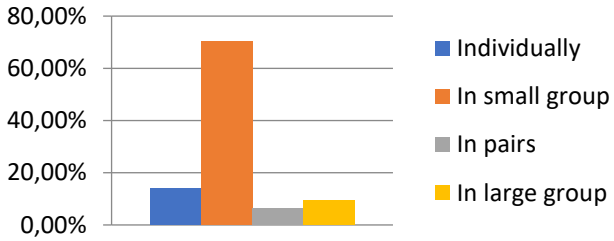

Figure 9. Preference on ways of learning

Discussion

Present Situation Analysis

This study analyzes the students' needs for their English for Science class by administering questionnaires to students, lecturers teaching the class, and graduates representatives. The present situation analysis has revealed students' background information related to English. It is found that the vast majority of the students like English which indicates their motivation to learn English, and therefore, as Hutchinson and Water (1987) suggest, such an attitude favors learning. In terms of language proficiency, they are mostly beginner learners. This information is pivotal as it exerts an influence on the selection and gradation of material. The data also revealed their poor knowledge of scientific vocabulary.

Regarding the course content, the students have a good perception of its suitability, relevance, and classroom activities involved. It is also easy to follow. Nevertheless, many of the students are doubtful whether or not the learning materials are understandable and over-presented. With this in mind, it could be interpreted that the course content satisfaction is moderate despite, to some extent, being hard to understand. This can be attributed to the proficiency level of most students, which is still low. This suggests a need for the course to lower the difficulty level of its content.

The present situation analysis has also considered how the participants perceive the lecturer's ESP course method. It is revealed that the lecturers give questions with clarity, provide the students with feedback, and at

the same time, the students are allowed the opportunity to practice using the target language. In other words, the lecturers apply interactive methods. These findings are consistent with the data gathered from the observation in which the classes observed were well-organized, and the material was well-presented. However, both the questionnaire and the observation agree that the lecturer still needs to create a learning atmosphere so that every student feels welcomed.

In a nutshell, the present situation analysis suggests two crucial findings concerning the students' needs, by implication, to consider in the course syllabus design. First, the students require the course content that is reduced in terms of difficulty level. This is especially important as most students belong to the beginner level. Second, students need to be facilitated with a more welcoming learning atmosphere, allowing them to enjoy the course.

Target Situation Analysis

The analysis of the target situation has captured the students' needs for their English for Science regarding language skills and content (what to learn) in order to be able to perform specific abilities and functions in occupational or academic context after the course is finished. In terms of macro-skills/knowledge, it is revealed that the participants need to learn all language skills, with reading and speaking being described as the most necessary and, therefore, should be prioritized. For micro-skills, students are strongly required to learn how to make inferences based on the information in a text/passage, master scientific words, identify a topic of listening, and understand the general text. In addition, the students want to be skilled at scanning and skimming, identifying the main idea, and reading scientific text. Using English to present orally is their need for speaking skills. The following priorities in the syllabus are concerned with writing skills such as making a summary, writing an article, and writing an experiment report. The last focus to include is listening skills, and these include the ability to identify the gist of lectures and understand the audio(visual) report.

The student respondents do not favor a particular choice regarding the course content. Overall, the students' preferences for course content vary. Those who prefer General English are relatively higher than those who want General Scientific English, followed by a few who want a combination of both and the supporters of specialist content, English for Physics. On the other hand, the lecturers' and graduates' views of the course content are within General Scientific English and Physics English. These show a contradiction between students' voices and the lecturers' and graduates' views. Since the lecturers also act as the course developers, their views about language and language learning often determine the course content's decision (Basturkmen, 2012). The conflict as such is sometimes inevitable, but the students' aspirations cannot be just neglected (Arno-Macia, Aguilar-Pérez, & Tatzl, 2020). Considering these, in the analysts' view, General Scientific English should be an option. The first reason for this is that it may accommodate the objective suggestions of the lecturers from the curriculum side. Also, it incorporates the graduates' views who based their recommendations on their recent experiences with the language in the target situation. Moreover, the *generality* in General Scientific English implies that it continues to include common-core language and skills unrelated to a particular discipline or profession (e.g., Dudley-Evans & St John, 1998), but in the general science area, and therefore the students' voices, to some extent remain. This "reconciling" content falls within the umbrella of English for General Academic Purposes (EGAP), which is a "lower-level EAP course" that prepares the learners for future roles in their field (Carkin, 2005).

Given the above discussion, from the target situation analysis, the students' needs for their English for Science class in terms of language skills can be described, by rank, as reading, speaking, writing, and listening. This rank reflects how much the lesson's material should facilitate the instruction of each skill. Reading skill is prioritized, and a study by Boyle (1993) indicates that students have difficulties in dealing with the course due to their lack of reading comprehension. Therefore, the students in this study expressed their needs for reading skills, similar to Indrasari (2016), who also reported them as the most aspirated one.

Learning Situation Analysis

While the previous analysis speaks of the what, the learning situation analysis addresses the how. This analysis has unraveled the needs of the students as to how they want to learn the language material, skills, and knowledge. In the first place, these are concerned with language activities to focus on, through which students practice, exercise, and perform the skills needed during the class. It is revealed that all the students need to engage in language rule drills. In addition to that, they desire activities that enable them to speak English fluently,

gain vocabulary, and exercise their pronunciation accuracy. Also, they voice their need for answering comprehension questions of reading texts. They also want to get involved in paragraph writing, including the use of punctuation. In the second place, the analysis assesses their learning styles and the learning methods favored, plus considers how their learning is best approached. An interpersonal learning style is noticeable, evidenced by the participants' preference for discussion and oral interaction with classmates. Therefore, it is no surprise that studying in small groups is preferable as confirmed by another finding. Most participants also prefer learning by listening followed by individual learning of reading. Last but not least, the participants have preferences concerning the best time for classroom learning and the language of delivery. They want the class to run early in the day and expect their lecturers to code-switch between English and Indonesian language while teaching.

From the analysis of the learning situation, the students like classroom activities that activate their knowledge of language rules (grammar) and involve receptive skills (reading) and productive skills (speaking, writing, and pronunciation). Additionally, most students are social learners as they want to learn the skills and content by discussing/interacting, and therefore small groups are significantly preferred. They are also kinesthetic learners, evidenced by their preferences for doing practical activities and grammar drills. They belong to auditory learners, too, who prefer listening activities. Of particular note, none of the participants is likely to be visual learners. However, it is worth noting that the questionnaires did not request the students to choose which learning styles best suit them (see Method section). Instead, they were asked to what extent they agree or disagree with every statement representing a learning style should the instructional activities are approached through such a learning style. This is because we believe that learning styles are varied from student to student. The present study and Indrasari (2016) similarly voiced the students' needs for grammar-related activities. However, while the previous study desired pairing-up activities, this study prefers small groups.

Conclusion

The analyses of the present situation, target situation, and learning situation in this study have revealed important findings regarding the needs of the students for the syllabus design of their ESP course, English for Science. The findings conclude that the English for Science at the Physics Education Department of UHO should be directed toward improving the common core language skills and specific abilities in an academic context and vocabulary mastery in general science. In addition, the instructional content should be within the level of beginners to intermediate learners. This study suggests that the syllabus design for the English for Science course needs to integrate skills-based and content-based syllabi.

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