Need Analysis in Learning English for Preservice Biology Teacher

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Abstract. The English language is increasingly important for the teaching profession in the globalization era. Remarkably rapid development in science and technology needs teachers to catch up with development for their science teaching materials. All standard science books and publications are in English. In contrast, many preservice Biology teacher students have difficulties in learning English. This present study was qualitative research aimed to describe students' needs and expectations in learning English for academic purposes (EAP). The sample consists of 111 students in the second semester of the Biology Education Study Program. Google-form questionnaires were applied to collect data via a social networking group. The results of the study revealed that there was a mismatch between students' objective and EAP. Most students (67.57%) want to improve their speaking skills. The study also found that very few students (<3%) think they need to learn reading skills, despite most of them (52.52%) have low level of vocabulary and grammar mastery. Reading materials and videos are learning resources that are as important as the lecturer. Assignments and quizzes are both among the most beneficial learning activities for the students. Students' expectations to learn speaking skill can be used to achieve other EAP objectives, such as reading and writing skills.

Keywords: Speaking · Proficiency · Reading · Education · English

1   Introduction

Learning English is essentially important for university students to catch up with the remarkable rapid development of sciences and technology. Preservice science students, therefore, need to improve their English proficiency level to read textbooks and journal articles, to have basic skills in written and oral communications [1]. Students who have good English skills will be able to easily access information from various sources, as the dominant scientific information in English [2]. In facilitating students in English acquisition, lecturers need to design the syllabus and learning materials that are appropriate to the needs of students. By conducting a needs analysis of a learning program, students and curriculum designers can decide better on what kind of learning program students need [3].

It has been perceived students have low motivation in learning English, particularly in the Biology Education Study Program. The preservice Biology teachers have obligation to take two English subjects, i.e. English for Biology 1 and English for Biology 2. As the name implies, the two subjects are designed for English for academic purposes (EAP). The first subject is designed to improve reading capacity, while the second one is to develop students writing skills. Speaking is not specifically addressed in the meetings, as 100 min meetings per week are not sufficient to add development of other language skills. Generally, few students are willing to speak English in the English classroom. When the student union introduces an extracurricular English Speaking Program, they do not register for the extracurricular program. Some students stated that they had difficulty understanding English because they lacked vocabulary, did not dare to express English, always thought they were afraid of being wrong in English, etc. In this case, preservice Biology teacher students need to learn English as part of these biological activities or natural phenomena. For example, they learn a lot of biology vocabulary in English and must know the meaning of all these words to understand the subject matter.

The present study is part of a study on students' needs in learning English. Needs analysis is a way to determine the difference or gap between what students already know and what they want to know [4]. Analysis of student needs is often described as the first step that curriculum designers must conduct to determine students' skills, competencies, knowledge, conditions, and goals in learning English. This step is to help find out whether the course content is relevant to the student's needs or not. In many cases, students' needs may be relatively easy to determine, especially if students need to learn a language for specific purposes, such as jobs in education, tourism, nursing, engineering, or other industries. For example, to find out what language skills students need to perform a particular role, such as a science teacher or tour guide.

Need analysis for preservice Biology teachers has been reported on a number of studies in Indonesia [2, 3]. Both of them come up with the same conclusion that students need reading materials on biological topics. Needs analysis in education helps students identify their position in terms of knowledge, skills, competencies, and learning objectives. Adults students will learn better when they know the reasons for joining a program of study and find the relevance between their goals in learning and the content of the studies they have to study [5]. Therefore, when getting an appropriate needs analysis, the teaching strategy can be adapted in a way that is suitable for students' needs. In the case of students in Bali and South Sulawesi, lecturers can easily adopt the students' needs by providing reading materials from scientific textbooks and journals in Biology.

The present study aimed to describe students' needs and expectations in learning English for Biology. This study then further explored and elaborated the findings from previous studies [2, 3]. This study has a very important contribution to ensure that the English language teaching material delivered (in the students' handbook) compromises with the needs of students. The study of needs analysis will also help students to identify their position in terms of knowledge, skills and competencies. Such positioning will increase their motivation in learning English. There were five questions addressed in the present study. 1) What are students' objectives in learning English? 2) What English components do they need most to improve? 3) What difficulties do they most frequently

cope with in learning English? 4) What was the most useful learning resource? 5) What was the most advantageous learning activity?

2   Methods

This study is a qualitative descriptive one based on the research questions and objectives. The study was performed during the Covid-19 pandemic that all lectures were delivered online using university moodle. In this online learning system, lecturer provides students with reading materials, videos, and schedules. The videos were provided as links to the YouTube in biological topics. They are about 5–10 min in length. The reading materials are mostly made by lecturer from several sources, also in biological topics.

The study was carried out in the Biology Education Study Program of a state university in Central Indonesia. Students of the study program are preservice Biology teachers for high school. The preservice Biology teacher students involved in the study were in the second semester of the Class of 2020. The sample was selected conveniently that only students were willing to answer the questionnaires become the sample. There were 111 students to be the sample of the study, most are women ($>90\%$). Data were collected using questionnaires in the Google Form distributed through a social network group.

The questionnaires have closed answers, but the first question. Question #1 on students' objective in learning English has open answers. Students freely describe their objectives. The open-type question was to ensure that students' answers is not affected by the researcher's opinion. Their answers were then classified into one of three categories: communication, work, or study.

3   Results

Results of the study is described based on the order of questions in the questionnaire. The important finding of this need analysis is that students want to learn more on speaking than on reading skills, despite they have low level of vocabulary and grammar mastery.

3.1   What Are Students' Objectives in Learning English?

Students' objective in learning English is mostly for communication (55.59%). This result implies that students have lack awareness of the importance of English for their future works or studies. Students having objective in learning English for their future studies and works is considerably lower, 27.03% and 17.17% respectively (Fig. 1). This result may also indicate that despite the availability of full scholarship from the government to study on the master program, not many students (27.03%) have the courage or intention to compete for the scholarship. Unfortunately, students also perceive that English is not much related to their future work as science teachers in Biology.
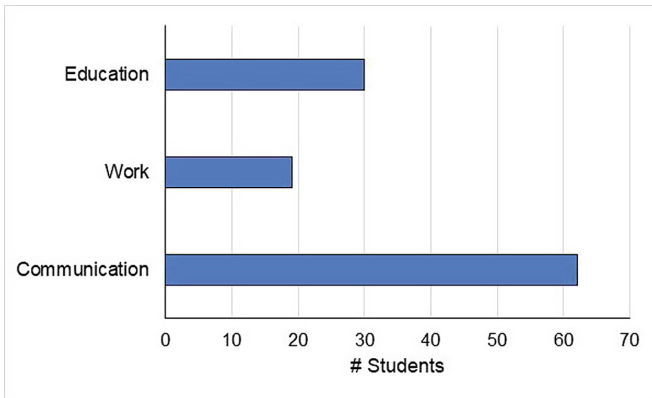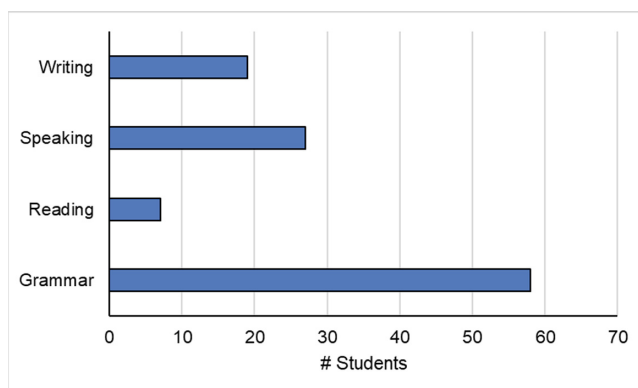
Fig. 1. Students' purposes in learning English
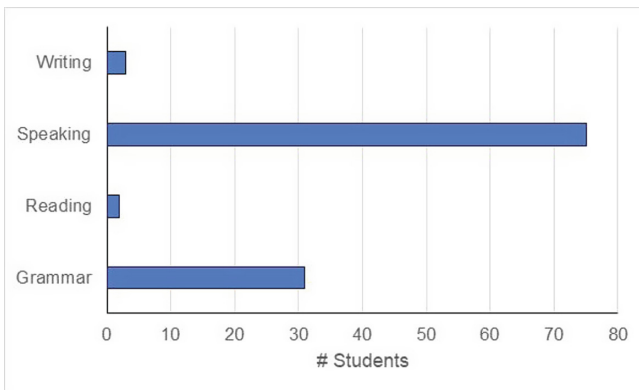
Fig. 2. Students' needs in learning English

3.2   What English Competency Do They Need Most to Improve?

In line with students' answers to the first question, students think that they need to improve their language skills in speaking. Students need speaking skills is 67.57%, while students need reading and writing skills is less than 3% (Fig. 2). This result does not mean that students do not need reading and writing skills. During the English course, many students do not have sufficient competence in reading comprehension. It is more likely that students do not aware that they will not able to speak when they do not have enough vocabulary to compose a sentence to express their opinion. This inference is supported by the fact that 27.07% of students need to learn grammar/vocabulary. Learning grammar should be more related to reading and writing skills than to speaking skills.

Fig. 3. Students' difficulties in learning English

### 3.3 What Difficulties Do They Most Frequently to Cope with in Learning English?

Students' answers to the third question have to be interpreted carefully. They feel that many of them have difficulties in grammar (52.52%), but not many have difficulties in reading (6.01%) (Fig. 3). How can they understand a reading material when they have difficulties in grammar? The most likely interpretation is that the students have very basic problems in English, they do not understand grammar and lack vocabulary. These failures make them think that reading and writing are beyond their expected competencies. Speaking and writing skills are never been properly taught in high schools. The results imply that students do have very basic problems in language acquisition. They are lack vocabulary and poor in grammar usage.

### 3.4 What Was the Most Useful Learning Resource?

All provided learning resources in the university learning moodle system (LMS) are considered useful learning resources. Lectures, reading materials, and videos are the most useful learning resources for 37.84%, 30.63%, and 27.93% of students respectively (Fig. 4). Lectures were delivered synchronously that students can have direct interaction with lecturers. Despite students' higher demands for lecturer attendance, reading materials and videos are also important learning resources to improve student's language acquisition. The two last learning resources have considerable advantages for more than 57% of students.

3.5 What Was the Most Advantageous Learning Activity?

During the synchronous online meeting, the three most advantageous learning activities are assignments, lectures, and quizzes. Students got the most benefit in learning English from assignments, lectures, and quizzes are respectively 34.23%, 31.53%, and 21.62% (Fig. 5). Few students (<10%) had the most advantage in learning English from group
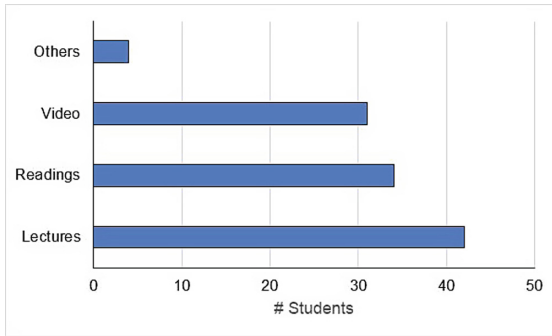
Fig. 4. The most useful resources in learning English
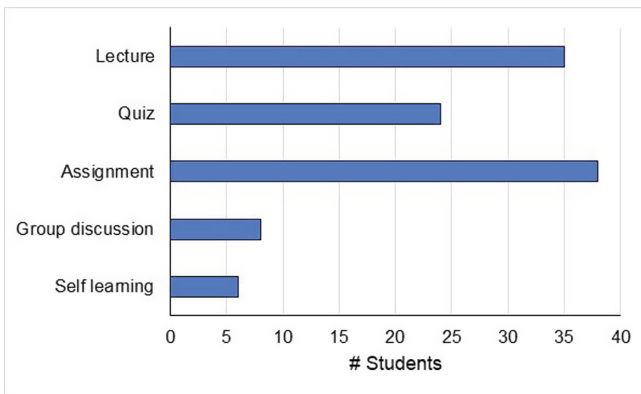
Fig. 5. The most advantageous learning activity

discussion and self-learning. These results suggest that the lecturer should actively inter-act with students during lectures and provide assignments and quizzes to let students practice their English in working on assignments and quizzes.

4   Discussion

Students' objective in learning English is below expectation. It was expected that the students learn English for their future works or studies. The English course was therefore designed to fit with English for academic purposes (EAP). As students' objective does not well match with the course design. This mismatch objective may affect students' motivations and performances. On the lecturer's perception, if students cannot read the international textbooks, they might not be able to compete for the job or scholarship. In the students' perception, however, they may not need English for their future. Varying perceptions on the importance of English for preservice teachers were also found among preservice English teacher students [1, 6]. This mismatch should have been fixed at the introduction of the lecture. At the beginning of the course, the lecturer should clearly

explain to the students that the course is an EAP type, and provide a rational background to have the EAP type of English course.

Students' expectation to improve speaking skills is encouraging. The lecturer needs to exploit this internal motivation to achieve the EAP objectives. Students would be happy to have more exercises in speaking about scientific subjects than reading or writing exercises. Preservice Biology teachers may have some projects to orally introduce their favorite animals and plants or explain biological processes in the human body or other organisms. A role-play teaching method can be utilized to entertain students' learning and to achieve speaking skill skills. Students may also have a recorded-speaking assignment on biological topics of their interest. Such assignments may reduce time-consuming speaking practice in both online and offline classrooms. The most common problems in speaking are lack of vocabulary, poor grammar mastery, and lack of pronunciation [7]. A study on English preservice teachers in Indonesia revealed that many students have psychological problems speaking English in the classroom [8], such as feeling shy, lack of confidence, and fear of making mistakes. These problems may even more severe for preservice Biology teachers.

The best way to increase vocabulary is reading [9, 10]. When students read more topics in Biology textbooks written in English they will gain two competencies, English-book reading skills as well as biological concepts and principles. Poor students' reading habits have been reported on the preservice Biology teacher [11]. Students should therefore be encouraged to read more books or other reading materials in Biology [3]. As the students have a wide range of English proficiency, the lecturer should provide reading materials in various levels of English difficulties. In the present study, students showed less interest in improving reading skills. This finding is in contrast to previous findings in Makassar [2]. Videos in biological topics may help students with low reading habits to improve their English proficiencies. Video games have been reported to improve students' English vocabulary in a more relaxing situation [12, 13].

Videos can strengthen students' fluency in speaking [14] and listening comprehension skills [15, 16]. Communication needs both skills. Communication skill is the most expected competency to develop in preservice Biology teacher students. The lecturer may use short videos on biological topics to initiate class or group discussions. Reading in a loud voice can also improve students' pronunciation and their self-confidence in speaking [17].

Assignment and quizzes are as important as the presence of the lecturer in every lecture. A quiz could increase students' engagement in learning [18] and their performance in the test [19]. The lecturer should implement both quizzes and assignments to improve students' engagement and motivation in learning English. Video project assignments contribute to the language proficiency level of ESP students [20]. The video project may give more advantages to students, as students will learn information technology and collaboration. Both skills are in demand for the teaching profession in the next years. The video should be about 3–5 min to ease video sharing among students in the social media group.

Results of the study suggest that teaching English for Biology should provide weekly quizzes and monthly assignments. Weekly quiz is to ensure that students read the reading materials and practice speaking. At the beginning of each lecture, five students may

be selected systematically or randomly to perform their speaking practice based on the reading materials they had. The speaking should be short enough to let about five students speak in the first 10–15 min of the lecture. Time management would be easier if students' performance in speaking is already recorded in video format. Monthly assignments on short video projects will give more benefits to students.

5   Conclusion

Students' objectives in learning English were a mismatch with the EAP. Such a mismatch could be predetermined in the introduction of the course. Students' expectation to learn more on speaking skills can be used to encourage them to achieve EAP objectives. Implementation of findings of the present study recommends that: 1) Students should have a collective commitment to learning English for future studies and works. 2) To improve students' speaking skills, they need to have sufficient vocabulary. They need therefore to learn reading comprehension to enrich their vocabulary. 3) Lectures should be present in an online meeting and regularly update reading materials and instructional videos. 4) Assignments and quizzes are very important that they should be improved annually to enrich their variety and attractiveness.

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