

ESP Needs Analysis of Undergraduate Students of the Environmental Health Department

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ABSTRACT

Abstract: English for Specific Purposes (ESP) draws attention to a learning-centered approach in which all decisions are based on the learner's reason for learning, hence needs analysis prior to syllabus designing of ESP program for Undergraduate Students of the Environmental Health Department is needed. This study attempts to investigate the students' target situation and learning needs through a survey method using questionnaire and interview. The study involved 117 participants consisting of students, alumni, English teachers, content teachers and practitioners. The results indicate that speaking, reading and vocabulary are the English skills and components that should be emphasized in the teaching and learning.

Abstrak: *English for Specific Purposes (ESP)* menekankan pada pendekatan yang berpusat pada pembelajaran dimana semua keputusan didasarkan pada alasan belajar siswa, oleh karena itu analisa kebutuhan (*needs analysis*) perlu dilakukan sebelum mendesain silabus program ESP bagi mahasiswa S1 jurusan Kesehatan Lingkungan. Penelitian ini bertujuan mengetahui situasi target dan kebutuhan pembelajaran para mahasiswa melalui metode survey dengan menggunakan kuesioner dan interview. Penelitian ini melibatkan 117 partisipan yang terdiri dari mahasiswa, alumni, dosen Bahasa Inggris, dosen bidang ilmu dan praktisi. Hasil penelitian menunjukkan bahwa berbicara, membaca, dan kosakata adalah keterampilan dan komponen bahasa Inggris yang harus ditekankan dalam belajar mengajar.

Undergraduate Program of Environmental Health is one of the programs that generates health practitioner in the environmental, sanitary and public health sciences whose jobs are directed on the evaluation and management of factors and mechanism in our environment which impact upon the reduction of risk of disease and injury as well as the improvement in the quality of life (Powitz, n.d.). The graduates of this department have specific skills and competences in Environmental Health so that the teaching of English should be English for Specific Purposes (ESP) that is intended to prepare the students for English used in specific disciplines to accomplish specific purposes (Anshori, 2015). ESP is needed to prepare the learners to use English in academic (students across different fields), professional (people of the different profession) or workplace (technician for instance) settings (Saragih, 2014; Plesca, 2016). For university faculties, designing practical ESP curriculums for learners to get ready for their career requirements is critical (Kuo, 2016). In order to deliver ESP effectively, syllabus should be developed. Syllabus plays an important role in defining and interpreting the curriculum into detailed elements of teaching and learning and it is a plan of what to be achieved, identifying aspects that will work to reach the overall goals of the course and providing a basis for evaluation (Chanie, 2013; Jeczelewski, 2016). One of the most prominent steps in developing the syllabus is conducting needs analysis because the key issues in the teaching of ESP are how to identify learner needs and the nature of the genres that learners need to be able to produce (Isani, 2013). Furthermore, some experts states that needs analysis is also the fundamental element to design a set of pedagogy framework for ESP program (Ali & Salih, 2013; Rahman, 2015; Mohammed, 2016; Wu, 2012). Since ESP courses are based on needs analysis, the learning objectives are more specific than those in general ESL courses and it can be assumed that students will be more highly motivated in learning about topics and texts which are related to their study or work areas (Otilia, 2015).

In language teaching and language program design, needs analysis is considered as the process of gathering information (Boroujeni & Fard, 2013; Nimasari, 2018). Particularly, it is the process of determining the needs for which a learner or group of learners requires a language and arranging the needs according to priorities (Razika, 2017). Furthermore, calls needs analysis as a diagnosis of behavior that is conducted before implementing and improving the teaching plan (Hui, 2017). Hence, the results of needs analysis will be drawn into a set of curriculum framework including syllabus, teaching materials, classroom methodology

and assessment (Boakye & Mai, 2016; Eslami, 2010; Guiyu & Yang, 2016; Rahman, 2015; Zhu & Liu, 2014). As an important part of syllabus development, especially in the context of ESP, needs analysis gains much attention from kinds of information, the procedure, and the process of transforming the result of the analysis to the syllabus. The main point of conducting needs analysis for ESP is first to define the situation in which the learners will use English and practice their profession, and then relevant instruction is aligned accordingly (Lee, 2016). It also includes all the activities used to collect information about the students needs, wants, and etc (Susandi & Krishnawati, 2016; Moiiinvaziri, 2014). Briefly, the needs analysis should be to find out the aspects of language the learners need to study, what degree they need to study and why they need to study the language (Pourshahian et al., 2012).

Needs analysis is directed mainly at the goals and content of the course. It examines what the learners know already and what they need to know. It has to be sensitive to the requirements and requests of students, community, and academic institutions, which would contribute to successful learning (Martins, 2017). Good needs analysis asking the right questions and finding answers in the most effective way (Macalister et al., 2009). Needs are divided into target needs (what the learner needs to do in the target situation) and learning needs (what the learner needs to do in order to learn) (Hutchinson & Waters, 1987). It includes necessities (what the learners have to know in order to function effectively in the target situation), lacks (the gap between the existing proficiency and the target proficiency of the learners), and wants (what the learner feels they need).

In addition, there are eight aspects in today's concept of needs analysis: 1) the tasks and activities learners are/ will be using English for, 2) the learner's wants, means and subjective needs that affect the way they learn, 3) the learners' current skills and language use, 4) the learners' lacks, 5) effective ways of learning the skills and language, 6) knowledge of how language and skills are used in target situation, 7) what is wanted from the course, and 8) information about the environment in which the course will be run (Dudley-Evans et al., 1998). The importance of the needs analysis lies in the fact that the outcome is a list of objectives and skills needed based on information about the target situation and learning needs which would be the basis for developing the syllabus. In conducting needs analysis, this study aims at investigating the target situation and learning needs of Undergraduate students of the Environmental Health Department to be the basis of developing ESP syllabus.

METHOD

This study was conducted in the Environmental Health Department of STIKES Widyagama Husada Malang. However, in order to obtain rich data for the needs analysis, the subjects were not limited from STIKES Widyagama Husada. It involved some content teachers and environmental health practitioners from other institutions. Data for the needs analysis were gathered from interviews with 3 respondents: 1 respondent is the Head of Environmental Health Department and 2 respondents are English teachers of Environmental Health Department. Survey was also conducted using questionnaires that were developed using Google.form. The target subjects for the questionnaire were current students and alumni of the Environmental Health Department of STIKES Widyagama Husada, the content teachers from STIKES Widyagama Husada and other institutions, and practitioners in Environmental Health. At the end, there were 114 participants that responded to the questionnaire. The detailed number of subjects of the questionnaire is presented in table 1.

Table 1. The Subjects of Questionnaire

Subject	Number of Participant
Current Students	63
Alumni	27
Content Teachers	14
Practitioners	10
Total	114

The needs analysis consists of 3 steps: planning, collecting data and putting information into the analysis (Yana, 2016). Good needs analysis asking the right questions and finding answers in the most effective way. Thus, developing instruments for needs analysis to some extent is the key. For this study, questionnaire and interview guides were used to collect data for the needs analysis. The instruments were developed based on the theory and need to obtain desirable information that contributes to the development of the syllabus. After the questionnaires and interview guidelines were developed, they were validated by an expert in ESP and research instruments to see the suitability with the purpose of the needs analysis.

The questionnaires consisted of closed and open-ended questions. For closed questions, the participants were required to choose from a set of given alternatives/ answers, meanwhile, for open-ended questions, the participants were free to answer in their own content and style. The items were written in Indonesian to prevent misinterpretation and avoid problems in expressing the participants' idea. The number of items in the questionnaire were varied for different categories of subjects: students (40 items), alumni (50 items), content teachers (14 items) and practitioners (18 items). The items were in line with the blueprint and specification of the expected data collected. This specification was determined based on the needs and suitability with the subjects. Then the blueprint was developed based on this specification (See Table 2).

Table 2. Specification of Questionnaire Items

Subjects	Data Collected
Students	English proficiency Learning needs (Learning and topic preference)
Alumni	English proficiency Target situation Learning needs
Teachers of core subjects in Environmental Health Department	Target situation Learning needs (language skills need to be emphasized) Suggested topics
Practitioners	Target situation Learning needs (language skills need to be emphasized) Suggested topics.

The interview was conducted to complete the data from the survey. It is suitable for questions that require probing to obtain adequate information (Walliman, 2017). In this study, the interview was in two formats: in-depth interview and semi-structured interview. In depth interview was conducted after the data from the questionnaire were collected. This was intended to confirm and clarify some of the respondents' responses to prevent ambiguity and misunderstanding in interpreting the responses. It was also intended to get deeper information that was not revealed in the questionnaire. The questions in this interview were based on the items in the questionnaire. The semi-structured interview was used to gain information from English teachers and the Head of Environmental Health Department.

Following the data collection, the data obtained from the needs analysis were coded and analyzed. To analyze the closed-questions, simple basic statistical techniques were used. Means (M) and percentage (%) were used to show the proportion. For open-ended questions, the analysis was begun by reading over all of the responses and highlighted the key ideas that were expressed. The data from the interview were analyzed qualitatively. They were examined and interpreted through three stages: organizing, summarizing and interpreting.

FINDINGS AND DISCUSSION

The result of the needs analysis that is presented in the following part is organized based on the ultimate purpose of the needs analysis that is to find information regarding students' target situation and learning needs.

Subjects' Personal Information and English Proficiency

The first section of the questionnaire asked about the profile of the participants. From 63 students, 60.3 % were women and 39.7% were men. Regarding the age, 98.4% were between 18-25 years old, and 1.6 % were between 26-35 years old. They experienced different periods of time of learning English formally at school. 15.9% of them had studied English for less than 5 years, 41.3% had studied for 5-10 years and 42.8% had studied English for 11-20 years.

The next section of the questionnaires for students and alumni was their self-assessment of their English proficiency. In this part, students showed various responses to the items. For English component, it was obtained that most of them stated that they master the English grammar (65.1%) and general vocabulary items used for daily communication (55.6%), however most of them thought that they did not master Environmental Health-related vocabulary items (58.7%) and pronunciation (54%). Pertaining to English speaking skill, the data revealed that most students realized that they were not able to speak for daily conversation (52.4%), express their opinion (63.5%) and deliver questions (52.4%), and present Environmental Health related paper (76.2%) for learning process in the classroom.

Students' responses for English listening skill proficiency were different from the speaking skill. Most of them answered that they were able to understand the main idea (69.8%) and detail information (50.8%) of English conversation or instruction. Regarding the reading skill, the data indicated that they were able to comprehend reading text in general topic (69.8%), manual (69.8%), procedural text in Environmental Health field (49,2%), and table, graphic and diagram (52.4%). However, most of them were not able to comprehend scientific articles with Environmental Health topics (54%). For writing skill, the data revealed that most students were able to write job application letters in English (49.2%) and manual (65.1%), but they were not able to write email for job purposes (52.6%) and essays in Environmental Health topic (65.1%).

From 27 alumni that responded to the questionnaire, 74.1% were women and 25.9% were men. Regarding the age, 92.6% were between 18-25 years old, 3.7% were between 26-35 years old and 3.7% were between 36-45years old. Regarding the English proficiency, data of alumni indicated that in general most of them master the English component: grammar (63%), general vocabulary items used for daily communication (81.5%), Environmental Health-related vocabulary items (70.4%) and pronunciation (66.7%). However, the responses for proficiency of English skill indicated various degrees of capability. In English speaking skill, the data showed that most alumni involved in this survey were able to speak for daily conversation (55.6%) and deliver questions (66.7%) in English. However, they were not able to express their opinion (51.9%) and explain material in Environmental Health topic (51.9 %).

In terms of listening, reading and writing skill, the data indicated that most of the alumni involved in the survey had good proficiency. For listening skills, they stated that they were able to understand the main idea (77.8%) and detail information (55.8%) of English conversation or instruction. For reading skill, the data indicated that they were able to comprehend reading text in general topic (81.5%), manual (81.5%), scientific article with Environmental Health topic (77.8%), procedural text in Environmental Health field (81.5%), and table, graphic and diagram (59.3%). For writing skill, it was indicated that they were able to write email for job purposes (70.4%), job application letter (66%), manual (65.1%), and essay in Environmental Health topic (59.3%).

Pertaining to English proficiency test, the data from students showed that most of them had not experienced such a test (88.9%), while most of the alumni had experienced TOEIC (Test of English for International Communication). The range of their TOEIC scores were between 150-625. It indicates that their English proficiency is heterogenous, starting from A1-B2 based on CEFR (Common European Framework of Reference for Languages). The result of the interview with the English teachers supported this fact. Both English teachers stated that the composition of students in one class is heterogenous. There are a small number of students that are able to communicate or respond to English instruction in English, but there are some lower performers which tend to keep silent and passive during classroom activity.

The rest participants involved in the survey were content teachers and practitioners. The content teachers involved in the survey were from different institutions: 8 from STIKES Widyagama Husada, the other 6 teachers were from 5 different institutions in Indonesia that have an Undergraduate Program of Environmental Health. The practitioners that responded to the questionnaire were mostly sanitarian. From 9 practitioners, 7 of them were sanitarians while the rest work in company as Environmental Health specialists/ staff.

Widyagama Husada. The Head of the department has been in the position for about 4 years and he is one of the content The subjects involved in the interview were the Head of Environmental Health Department and 2 English teachers of STIKES teachers that teach The Foundation of Environmental Health subject in the institution. One of the English teachers stated that he has been teaching English in the Environmental Health Department for about 6 years, while the other English teacher stated that she has been teaching English in this department for about 4 years. When the English teachers were asked about the concept of ESP teaching, both gave answers that were quite similar in the essence. Both stated that ESP is an approach to teach students with materials or topics that are related to the students' future profession to support their performance in the workplace later on.

Target Situation

This section covers information regarding the kinds of job that the graduates have, what and how those jobs are to see the content areas. It also covers when, where and how the English used by Environmental Health practitioners. According to the Head of Environmental Health Department of STIKES Widyagama Husada, the graduates' career choice should be in line with the department's graduate profiles: consultant, educator, researcher, manager, officer/ auditor and technician. In reality, the data from the department's tracer study indicated that most of the alumni work as sanitarians, only some of them work in industry or company as Environmental Health staff or Occupational Safety and Health staff, and a few of them become teachers of health vocational high school.

Regarding the content areas, it was stated that Environmental Health-related jobs are related to the 3 major areas: sanitary, controlling and safety pertaining to Environment Health. In Line with this result, in-depth interviews with 3 sanitarians revealed some of the major jobs they have in hospitals or clinics. Some examples of their job are monitoring facilities for clean water and food processing places, controlling pollution, managing waste, environmental sanitary, and community-based total sanitation. Regarding the need of English, all of the alumni (100%) and most of the practitioners (55.6%) involved in the survey agreed that they need English after they graduate or in their job. In detail, Table 3 shows the English need for alumni and practitioners.

Table 3. The English Need for Alumni and Practitioners

English Need	Alumni	Practitioners
Study	59.3%	77.8%
Work	77.8%	33.3%
Workshop/ seminar	44.4%	55.6%
Career Promotion	25.9%	11.1%
Interaction/ communication	70.4%	11.1%

Table 3 shows that alumni and practitioners need English mostly to study, work, join workshops or seminar and interact or communicate with other people. They do not really need English for their career promotion. In accordance with this result, the Head of Environmental Health Department also stated that in the process of studying, students need English since some literatures in this field are provided in English version. In addition, some content subjects demand the students to be able to comprehend English articles from international journals to finish their classroom activity or assignment.

The response for the item about the situation where English is needed indicated that communication or activity in hospital, clinic and public health center (51.9%) as well as online communication (51.9%) as the most commonly used opportunities in using English. Furthermore, a more specific situation in using English was revealed when it was related to English skill used. The Head of Environmental Health Department of STIKES Widyagama Husada stated that there was a time when practitioners should present a proposal or the result of an analysis regarding specific Environmental Health issues as specialists. In line with this statement, the result of the survey indicated that alumni and practitioners need English speaking and listening skills when they have to communicate with colleagues, auditors or vendors from other countries. They need these two skills to understand and respond in a conversation with them. Related to the situation when reading skill is needed, the data indicated the same proportion for alumni and practitioners. They need reading skills mostly to read articles on the internet. It was then followed by a book, report and then manual. Table 4 shows detail proportion.

Table 4. The Situation that Need Reading Skill

Situation	Alumni	Practitioners
Reading book	44.4%	66.7%
Reading article on internet	77.8%	88.9%
Reading report	48.1%	44.4%
Reading manual	37%	33.3%

Table 4 clearly shows the highest percentage is for reading articles on the internet. It is then followed by a reading book, report, and the last was reading manuals. In converse, in-depth interviews with the 3 sanitarians revealed that there is a situation when the skill of reading manuals is an important part of their job. Sanitarian kits that they use to test samples have manuals written in English. The Head of Environmental Health added that specifically for Undergraduate students of the Environmental Health Department, they need reading skills mostly to comprehend English literature including articles on the internet during the process of studying or finishing their Undergraduate thesis. This statement was in line with the data from the content teachers in which the students really need (66.7%) and need (33.3%) reading skill to accomplish the assignment given. In short, the students definitely need English reading skills to do the assignments from the content teachers.

In terms of writing skill, the Head of Environmental Health Department stated that the students have to produce English abstract to complete their Undergraduate thesis or English article to be published in a journal. It was added by the data from the content teacher that the students need English writing skill to complete assignments given to them (88.3%). For alumni, English writing skill is needed in situations when they want to apply for a job. They also need it to communicate online with peers or colleagues from other countries. For practitioners, they need writing skills when they have to write a report or essay pertaining to Environmental Health issues to complete their job.

The last point for the target situation was about the partners (interlocutors) to use English skill with. Based on the data from questionnaires from alumni and practitioners, it was obvious that colleagues are the most commonly appeared as the partner to use English. Other than that, they mentioned that company clients, including auditors and vendors from other countries can be the target partner of using English. The Head of the Environmental Health Department of Widyagama Husada was in line with the idea. He added that those who work in international companies would have more opportunity to use English with their colleagues, supervisor and company clients or partners. For consultants, researchers or sanitarians, they use English when they have clients or an auditor from another country.

Learning Needs

Learning needs deal with aspects that are needed by the learners. They include the most needed English skills and components, the topics that should be covered in English teaching and learning process, and learning activities preferred by the Undergraduate students of the Environmental Health Department.

English Skills Needed to be Emphasized in the Course

The first item of the learning needs section is about the most needed English skills for Environmental Health students. The participants' opinion upon this matter is presented in Figure 1

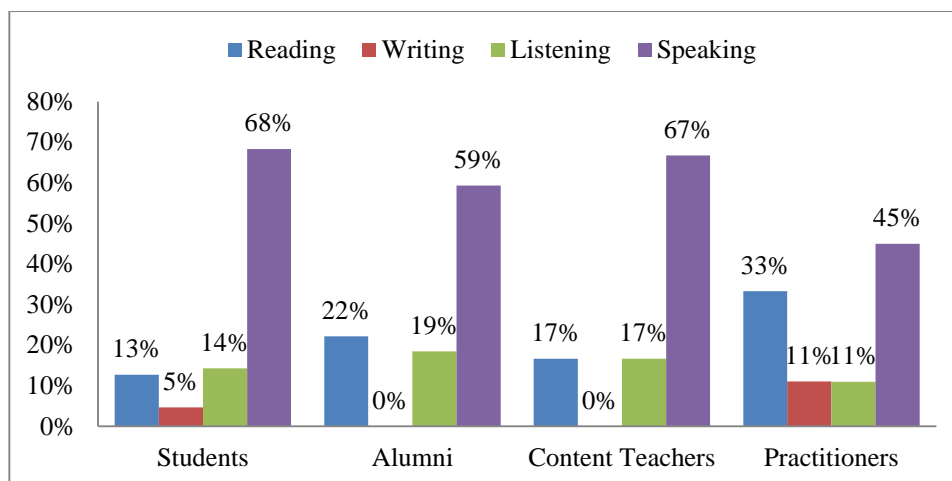


Figure 1. The Most Needed English Skill based on the Survey

Figure 1 shows the most needed English skill or the skill that should have a bigger portion in the process of English teaching and learning. From 114 subjects in the survey, it was obvious that the most needed English skill for Undergraduate students of the Environmental Health Department is speaking. Speaking skill has the highest percentage in all subject categories: students (68%), alumni (59%), content teachers (67%) and practitioners (45%). It is followed by reading in the second place and then listening. Writing skill is considered the least needed skill based on the survey, especially the data from alumni and content teachers shows 0% for this skill.

In line with the survey result, the result of the interview indicated the same idea. The English teachers and Head of the department stated that the skill that should be emphasized in the teaching and learning process is speaking since the graduates would have situations that require them to present materials and communicate orally in English. They added that reading skill is also important since students and the graduates need to comprehend English articles to accomplish their task. However, different from the survey data, the Head of the Department considered writing skill in the third place since students have to produce English abstract for their undergraduate thesis.

English component Needed to be Emphasized in the Course

The next item is about the subjects’ opinion upon the English component that should be emphasized for Undergraduate students of Environmental Health (See Figure 2).

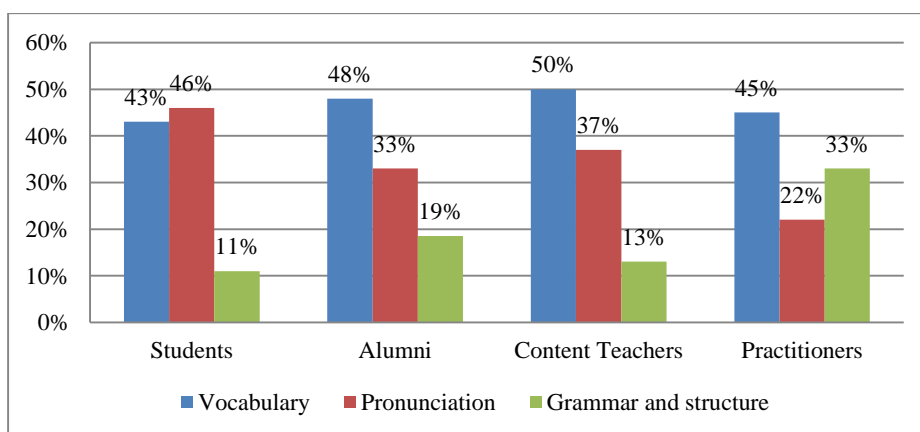


Figure 2. The English Component that Should be Emphasized

The data presented in Figure 2 about the English component that should be emphasized for Undergraduate students of the Environmental Health Department were obtained from all subjects involved in the survey. The figure indicates that vocabulary is the English component that should be emphasized in English teaching and learning in this department. It is in line with Suryati and Fadilah’ notion that vocabulary is critical for EFL university students in order to be efficient readers, hence it should be

incorporated into the syllabus (Suryati & Fadilah, 2019). The data show the highest proportion for vocabulary in three subject categories: alumni (48%), content teachers (50%) and practitioner (45%). They consider vocabulary as the most important English component to be mastered. The second position is pronunciation. Pronunciation is considered the most important English component by the students (46%), but it is in the second place in data from alumni (33%) and content teachers (37%) and it is considered the least important by practitioners (22%). The last position is grammar and structure. Three subject categories (students, alumni and content teachers) shows the lowest percentage for this component in which the percentage is less than 20%. In line with the result of the survey, the Head of the department stated that students need to have more focus on mastering English vocabulary items, especially related to Environmental Health.

Learning Activities Preferred by Learners

The data about the most desirable activities in English learning were obtained from surveys of students and alumni and interviews with the English teachers. Students and alumni suggested a variety of activities in which most of them focus more on oral production such as having conversation or dialogue, and group discussion. Some of them also suggested listening-related activities: watching video, and listening to a conversation or song. Beside that, they also suggested reading activity with Environmental Health topic and games activity.

The result of the interview with the English teachers indicates the same idea that students should be provided with a variety of activities to accommodate their heterogenous level of proficiency and maintain their motivation to learn English. Furthermore, both English teachers suggested to include activities that require collaboration and learner- centered. In addition, one of the teachers suggested adding presentation activity with Environmental Health topics since it is related to the students' future job.

Suggested Topics for the Course

The data were obtained from all subjects involved in the survey and interview with the Head of Environmental Health Department. For this item, the participants in the survey were required to choose five from ten proposed topics. The ten topics were the result of discussion between the writer and the content teachers during the process of developing the instrument for data collection. Those proposed topics are related to the core subject of the Environmental Health Department which is considered the most basic and up to date issues in Environmental Health discipline by the content teachers. the total responses of each topic from all subjects is presented in Figure 3 below.

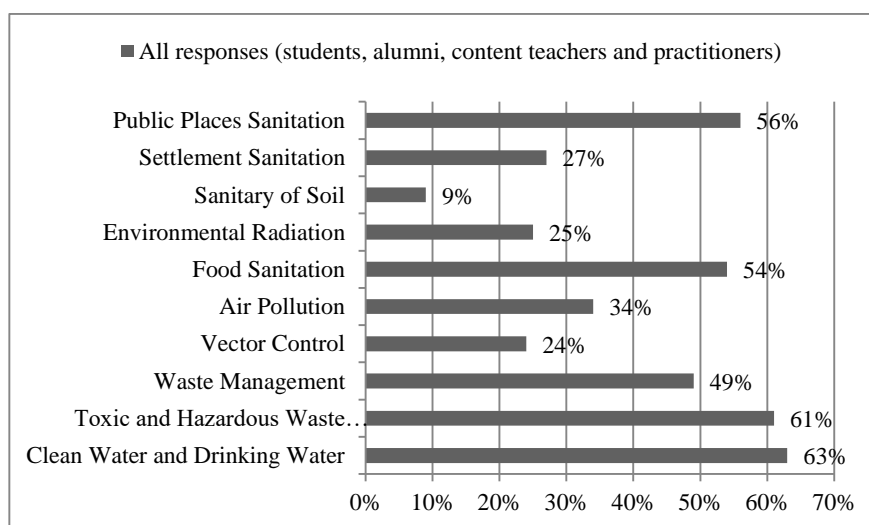


Figure 3. Topics Suggested to be Covered in English Class

Figure 3 indicates the total responses for each topic to show the order from the most to the least suggested topic. Based on the survey, the topics can be organized from the highest to the lowest percentage: 1) Clean Water and Drinking Water (63%), 2) Toxic and Hazardous Waste Management (61%), 3) Public Place Sanitation (56%), 4) Food Sanitation (54%), 5) Waste Management (49%), 6) Air Pollution (34%), 7) Settlement Sanitation (27%), 8) Environmental Radiation (25%), 9) Vector Control (24%) and 10) Sanitary of Soil (9%). When the Head of Environmental Health Department was asked about the topic that should be covered in English class, he suggested a topic about air pollution and global warming.

CONCLUSIONS

The result of the needs analysis indicated that Environmental Health students' problem in learning English was mostly about speaking skill. In addition, there is also a problem in comprehending scientific articles and writing essays in Environmental Health topics. Regarding English component, the students stated that they did not master Environmental Health-related vocabulary items and pronunciation.

Related to the target situation, it can be concluded that the graduates of the department will work in 3 major areas: sanitary, controlling and safety pertaining to Environment Health. They need English mostly to study, work, join workshops or seminars and interact or communicate with other people. They need English speaking and listening skills when they have to communicate with colleagues, auditors or vendors from other countries. They need these two skills to understand and respond in a conversation with them. Related to reading skill, there will be situations that require them to read English articles and write reports or essays pertaining to Environmental Health issues to complete their job.

Pertaining to learning needs, it can be concluded that the most needed English skill or the English skill that should have the bigger proportion in the process of teaching and learning is speaking and reading; while the English component that should be emphasized is vocabulary, especially Environmental Health-related vocabulary. For the learning activities, it was suggested to provide a variety of activities to accommodate students' heterogenous level ranging from discussion, watching video, presentation, games, reading Environmental Health articles and so on. Furthermore, the data also revealed suggested topics to be covered in English class: 1) Clean Water and Drinking Water, 2) Toxic and Hazardous Waste Management, 3) Public Place Sanitation, 4) Food Sanitation, 5) Waste Management and 6) Air Pollution.

The results of the needs analysis have illustrated a number of issues which need to be considered as they offer significant implications for introducing curricular change. It helps the teacher to identify students' target situation and learning needs as well as students' deficiencies in terms of language skills. This result is suggested to be the foundation and consideration in the process of developing the syllabus and material for the ESP Program for Environmental Health Department. Considering the needs analysis which implied the need to focus more on speaking and reading skill, and meaning rather than just form, it is suggested to develop syllabus that integrate skill-based and communicative syllabus. Although this study was conducted in STIKES Widyagama Husada, the result of the needs analysis is suggested to be used for wider scope for the Environmental Health Department in other institutions.

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