Abstract— Needs analysis was conducted in Polytechnic of Energy and Mineral with the aim of identifying the students’ English needs. This was conducted by analysing the present English learning and teaching material and the needs of the material the students expect in order to perform effectively in the target situation. In conducting the analysis, a mixed method design was used in which it integrates the quantitative method and qualitative method. The questionnaires were used as the instruments for collecting the data from the alumni who had already worked in the petroleum industry and from the students who were still studying at Polytechnic of Energy and Mineral. The qualitative data from the alumni showed that English listening, speaking, reading, and writing skills were really needed in the petroleum industry. Then, the quantitative data and the qualitative data from the students showed that the present English learning and teaching material had already guided them in obtaining the English skills required in the petroleum industry. However, the qualitative data also showed that the listening, speaking, reading, and writing activities in the material still needed to be improved in terms of the quantity, variety, and levels of difficulty. These findings were going to be followed up by the development of the English learning and teaching material as the improvement of the present material.

Keywords— Needs analysis; quantity; variety; levels of difficulties.

I. INTRODUCTION

In the fast-changing world nowadays, the changes take place in almost every sector of life, including the life in the petroleum industry. Hence, Polytechnic of Energy and Mineral, as the educational institution that has the main function of preparing human resources for the jobs in the petroleum industry, has to make sure that all the academic activities conducted are directed to the achievement of the academic goal which is in line with the latest development and innovation of the science and technology, especially in the petroleum industry.

One way to do it is by doing a regular review of the learning and teaching materials. It is because the materials are used as the guidance for the achievement of the academic goal. The English learning and teaching material, for sure, becomes one of the materials to be reviewed in order to determine whether or not it matches the present use in the petroleum industry.

The review was conducted in the form of needs analysis based on Hutchinson’s and Waters’ theory (1987). In this case, needs referred to what the students needed to do in the target situation which was the workplace in the petroleum industry. These needs could be identified in more details by analysing the students’ necessities, lacks, and wants. Necessities referred to what the students had to know in order to be able to use English effectively in the workplace. Lacks referred to the gap between the students’ background knowledge of English and the English used in the workplace. Then, wants referred to what the students felt they needed in learning English. Hence, this needs analysis aimed at the identification of the English use in the workplace (necessities), the one the students had not known
yet (lacks), and the one the students wanted to have (wants).

The data of those three types of English needs resulted from the analysis were going to be used as the basis for the improvement of the present English learning and teaching material with the hope that there would be a better guidance for the students to obtain the English proficiency as required in the workplace.

II. METHOD

This needs analysis was conducted in mixed-method design which integrated the quantitative and qualitative methods (Cresswell, 2012). Both types of data, quantitative and qualitative, were collected, had the same values, and supported each other to be interpreted.

A. Subjects

The subjects of the needs analysis were 4 alumni and 67 students. The 4 alumni worked in four different petroleum companies, and the 67 students were from the 5 study programs conducted in Polytechnic of Energy and Mineral; namely: production engineering, process engineering, mechanical engineering, instrumentation engineering, and logistics.

B. Data Collection Instruments

Questionnaires were used as the instruments of this needs analysis. There were 2 types of questionnaires distributed to the subjects, that was the questionnaires that resulted in the quantitative data and those that resulted in the qualitative ones.

C. Data Collection Procedure

The questionnaires were distributed to the alumni and resulted in the qualitative data showing the use of English in the workplace and the suggestions for the improvement of the present material. Then the questionnaires were also distributed to the students which resulted in both the quantitative and qualitative data. The quantitative data showed that the present material had guided the students to have the skills as required in the workplace, whereas their qualitative data showed the extent to which the present material had fulfilled this need. The data also gave the suggestions for the improvement of the present material. All the data collected, either the quantitative data or the qualitative one, were used to support each other and interpreted.

III. RESULTS AND DISCUSSION

A. Data from Alumni

These data were the qualitative data from the 4 alumni who worked in the 4 different petroleum companies. These data especially gave information about the English skills required in the companies. They also gave information about the English proficiency of the alumni and some suggestions to improve the present English material.

1) English Skills Required:

In terms of the listening and speaking skills, the alumnus who worked in the first company gave information that these skills were used in the meeting and presentation. Then the alumnus working in the second company showed that these skills were used in the peer conversation, net conference, presentation, and public speaking. Next, the alumnus working in the third company gave information that these skills were mostly used by the staff and supervisors who were in charge of the business with foreign companies.

In terms of reading and writing skills, the alumnus in the first company showed that both skills were used in the coordination by email inside and outside the company. The alumnus working in the second company had similar information as the one in the first company, yet he added that both skills were also used in the reports. Then the alumnus in the third company mentioned that the two skills were used in understanding and writing the work permits and standard operating procedure. Finally, the alumnus in the fourth companies gave information that the reading skill, especially, was used in understanding the manuals.

Based on the data given by the alumni, it could be said that all the English skills; namely: listening, speaking, reading, and writing were used in the petroleum companies.

2) Alumni’s English Proficiency:

The data from the alumni also showed that the employees in their companies had quite varied levels of proficiency, starting from fair, good, and up to very good. Yet, the alumni mentioned that their levels of proficiency were only good, fair,
and even, they said, below the average levels required.

3) Alumni’s Suggestions:

Based on the self-evaluation on their levels of proficiency mentioned in 2), the alumni gave suggestions that the English material had to consist of more activities that enabled them to get more English exposures and to practice more English skills so that their English proficiency could be improved.

B. Data from Students

There were two types of data collected from 67 students, namely: descriptive quantitative data and the qualitative data. The quantitative data gave the information about the present English material. These data were supported or more elaborated by the students’ qualitative data.

1) Present English Material:

Most of the students’ quantitative data showed that the present English material was in line with their needs, in which it was in accordance with their study programs (55% of the students), beneficial for them (85%), motivating (72%), and included listening, speaking, reading, and writing skills (76%). The last opinion indicated that the present English material had been in accordance with the requirement in the workplace (see III.A.1) in a way that the material had guided the students to develop their listening, speaking, reading, and writing skills.

The students’ opinion above was supported by their opinions about those four English skills. In terms of the listening material, 57% of the students mentioned that it was ‘quite’ interesting, ‘quite’ challenging (55%), ‘quite’ varied (67%), and ‘quite’ easy to understand (72%). These opinions were more elaborated by their descriptions, some of which were as follows:

- The listening material is ‘quite’ interesting and it is also challenging so that we have to focus on the context of what is being said.
- The listening material is ‘quite’ interesting and it is challenging too since it requires us to focus or concentrate on what is being said. However, it is only delivered in the form of audio material. It will be much better if it is also delivered in the audio-video material.
- The listening material is ‘quite’ interesting since it trains me to understand what is being said in English. However, it is still difficult for me to understand because I am not familiar with the English expressions being said.

In terms of the reading material, 61% of the students mentioned that the reading material was ‘quite’ interesting, ‘quite’ challenging (61%), ‘quite’ varied (67%), and ‘quite’ easy to understand (75%). These were supported by their descriptions, some of which were as follows:

- The reading material is ‘quite’ interesting and in line with the subject of study of petroleum industry.
- The reading material enriches my vocabulary and widens my insight of the petroleum industry. Yet, it still needs to be enhanced.
- Sometimes, the reading material is not quite interesting nor challenging anymore if it lacks of variation. Hence, it is necessary to give more variation to the reading material.

Then, in terms of the speaking material, 58% of the students mentioned that it was ‘very’ interesting. Besides, 58% of them also said that the speaking material was ‘very’ challenging. Next, 57% of them said that the speaking material was ‘quite’ varied, and 72% said that it was ‘quite’ easy to do. These opinions were supported by the students’ descriptions, some of which were as follows:

- The speaking material is ‘quite’ interesting. Besides, it is also beneficial in the era of global competition. Hence, it is ‘a must’ to use English, not only during the English class but also for the other subjects.
- The reading material gives challenges in which it encourages us to speak fluently and correctly.
- The reading material lacks of creativity. There must be more varieties of the speaking activities such as debates, pros and cons, or selling products.
- Sometimes I don’t quite understand what I have to speak. Then, when I speak, it is not quite fluent and is influenced by my Javanese mother tongue.

Finally, for the writing material, 66% of the students mentioned that it was ‘quite’ interesting, 57% said that it was ‘quite’ challenging, 78% said that it was ‘quite’ varied’, and 72% mentioned that it was ‘quite’ easy to understand. As their previous opinions about three other skills, these opinions were also more elaborated in their description, some of which were as follows:

- The writing material is ‘quite’ interesting. It helps us in improving our writing ability in English.
- The writing material is ‘quite’ challenging since it encourages us to write in English correctly.
- The writing material needs to include activities that are related to the jobs such as writing curriculum vitae, or summarizing oil and gas documents.
The writing material is quite interesting and challenging. Yet, sometimes, it is quite difficult to do since we lack of vocabulary and grammar.

2) Suggestions for the Present English Material:

The students also gave some suggestions to support their answers and descriptions above. Their suggestions were especially for the improvement of the listening, speaking, reading, and writing activities in the present material.

• Suggestions for the listening material:

As described previously, most of the students mentioned that the listening material was ‘quite’ interesting, ‘quite’ challenging, ‘quite’ varied, and ‘quite’ easy to understand. The opinion of ‘quite’ indicated that there were still some things that needed to be improved. Here were the things that needed to be done as the students suggest:
- Adding games, movies, poems, or songs that can make the listening activities more interesting, challenging, and varied.
- Increasing the level of difficulty that can make the listening material more challenging too.
- Extending the time allotment so that the students have more time to listen and understand the material
- Doing the listening activity in the language laboratory since the instruments in it can help the students to understand the listening material much more easily.
- Having TOEIC / TOEFL listening materials to prepare the students for the scores and skills required by the workplaces.

• Suggestions for the speaking material:

In terms of the speaking material, the majority of the students also stated that the speaking material was ‘quite’ interesting, ‘very’ challenging, quite varied, and ‘quite’ easy to understand. The students had also given some suggestions as follows:
- Adding some activities such as debate, games, news reading, public speaking, and story-telling to make the speaking material more interesting, challenging, and varied.
- Increasing the level of difficulty that can also make the speaking activity more challenging.
- Extending the time allotment so that the students have more time to practice and improve their speaking skill.
- Having the speaking activity with English speaking native speakers, if possible, so that the students get more English exposures.
- Having TOEIC speaking materials to prepare the students for the scores and skills required by the workplaces.
- Having the agenda of ‘All English Days’.

• Suggestions for the reading material:

In terms of the reading material, most of the students had mentioned that the reading material was ‘quite’ interesting, challenging, varied, and easy to understand. Hence, there were also some things to be done in order to improve the reading material as suggested by the students, as follows:
- Adding some materials such as scientific articles, handbooks, standards (e.g. American Society of Mechanical Engineers; American Standard Testing and Material) to make the material more interesting, challenging, and varied.
- Increasing the level of difficulty that can make the reading material more challenging too.
- Extending the time allotment so that the students have more time to understand the material they read.
- Having more questions to help the students understand the reading texts they read.
- Having TOEIC / TOEFL reading materials to prepare the students for the scores and skills required by the workplaces.

• Suggestions for the writing material:

For the writing material, the majority of the students had also mentioned that the writing material was ‘quite’ interesting, challenging, varied, and easy to understand. Therefore, there were also some things that needed to be improved by:
- Adding some more writing materials such as application letters, essay, curriculum vitae that can make the writing material more interesting, challenging, and varied.
- Developing a learning and teaching method that can also make the writing material more interesting.
- Increasing the level of difficulty that can make the writing material more challenging too.
- Extending the time allotment so that the students have more time to practice writing
- Having more writing materials with the emphasis on the grammar.
- Having more writing materials especially about the ways to write scientific articles.

IV. CONCLUSION

As mentioned previously, this needs analysis was conducted with the aim of identifying the necessities, lacks, and wants of the students in learning English. The information about necessities had been given by the alumni as shown in III.A.1. This was in line with the one from the students as shown in III.B.1, in which it also reflected that there were still some weaknesses or lacks of the present material that made most of the students gave the level of ‘quite’ to it. Because of the lacks of the present materials, the alumni (see III.A.3) and the students (see III.B.2) had shown their wants as expressed in their suggestions.

Regarding the information about the necessities, lacks, and wants that had been identified, it could be concluded that:

- In general, the present English material had consisted of four English skills; namely: listening, speaking, reading, and writing skills. The material had been used to guide the students in developing those 4 skills. Hence, it could be said that the material was in line with the English needs in the workplace (necessities), in which those 4 English skills are really used in the petroleum industry.

- Specifically, the levels of those 4 English skills given by the students were mostly ‘quite’. It indicated that there were still some weaknesses or lacks in the material. Hence, there was a need to improve the present English material by considering the alumni’s and the students’ wants which were expressed in their suggestions.

In line with the situation above, there are two important things to be done in the near future; namely:

- The revision of the present English material or the development of the English material based on the alumni’s and the students’ suggestions.
- If the time allotment for the English lesson is still limited (1 SKS), the revised or the newly developed English material can be used as the supplementary material.

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REFERENCES