

The Needs Analysis of English Materials on Computer and Network Engineering Students

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Abstrak

Penelitian ini bertujuan untuk mendapatkan informasi mengenai kebutuhan siswa SMK Jurusan Teknik Komputer dan Jaringan di Padang terhadap materi Bahasa Inggris. Sumber data dari penelitian ini adalah siswa SMK Program Studi Teknik Komputer dan Jaringan di Padang, Guru Bahasa Inggris, dan juga *Stakeholders* atau pemakai tenaga kerja dari siswa SMK ini nantinya. Instrumen yang dipakai dalam penelitian ini adalah angket. Hasil dari penelitian menunjukkan bahwa terdapat beberapa materi dilihat dari segi *input*, *content*, *language* dan juga *task* yang merupakan kebutuhan siswa. Selain itu, informasi mengenai materi yang dianggap sulit dan penting oleh siswa, guru, dan stakeholders juga diperoleh.

Keywords: needs analysis, materials, necessities, lacks, wants, computer and network engineering, vocational school

A. Introduction

Appropriate materials will serve effective English language learning. It is because material is important in order to reach the goal of learning in a course. Materials contain a sort of knowledge that is transferred by teacher in teaching learning process. However before selecting appropriate materials teacher should learn the goal of learning itself and discover students' ability and background in order to match it with the content of materials.

In vocational school or *Sekolah Menengah Kejuruan* (SMK) English is taught to give students the communicative use of English needed for their future job field (Kurikulum tingkat satuan pendidikan, 2006). As stated above, before designing an English class teachers or curriculum designers have to be aware of students' needs especially for the materials used in order to meet the goals and the objectives. It is because in SMK, students are majored in many different fields of study which deal with different needs of English.

The fact is that many teachers found it is hard to find English materials that support students' needs and relate to students field of study at school. It can be seen from materials which are available in students' work book (LKS) are the same for engineering students and non-engineering students. It will create a gap between what students really need of English in their programs and what they get

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at school. As a result teacher will fail to raise the goals and the objectives of the classes.

Furthermore, many materials provided in the English textbooks for SMK are not available for all the abilities and background presented by students in their study program. These will cause language proficiency received by students will be different with cases that they will find at work if teacher still use the materials. In addition, the skills that they got might dissatisfy the stakeholders who are going to hire them after they graduate. Thus it can be said that English skills that they learn will not be useful because it does not agree with students' preferences.

To overcome this problem teachers try to get their own materials based on their students' programs. For example a teacher that teaches English for computer and network engineering students provides students with text related to computer software. It obviously helps students in getting materials that they need. Unfortunately, not all the teachers do this, because it requires teachers to understand and have the knowledge about almost all the fields of study at school.

For that reason, needs analysis or needs assessment is important to be conducted by teachers before designing materials. It is done to discover what students really need exactly in studying English. Besides, it will lead to effective learning process and avoids students from not getting what they need the most. It is because by analyzing students' needs, teachers are able to prepare the materials based on students' needs and wants.

There are several reasons why need analysis is necessary. Grabowsky in Seel and Dijkistra (2004) stated that the purpose of analysis phase is to gather enough information so that the designers can make informative and responsive decisions, first about whether an instructional intervention is needed and, if so, what type of content should be learned, its sequence, media delivery, and instructional strategies and tactic that would be appropriate for particular audience in a given text. From the statement it can be concluded that needs analysis is essential in deciding the most appropriate materials for students before the class start.

In the same year Dudley-Evans and St John in their book *Developments in English for Specific Purposes* (2008), emphasized that the process in curriculum development, both needs analysis and materials selection are stages included. The two processes are linearly-related processes which mean that they cannot be separated; rather they represent phases which overlap and are interdependent. It is clear enough that need analysis is nothing without the process of selecting materials. Both of them are related each other in developing a curriculum.

According to Hutchinson and Waters (1987:55) there are three targets of needs that should be described in information collected from students. The first one is necessities. It is what the students have to know in order to function effectively in the target situation, in example, a tour guide that might need to speak English fluently to give best service for tourists. Second, wants are students' point of views about their preferences in learning a language. Finally, lacks is the gap between existing proficiency with the target proficiency.

Since the need analysis is very important in teaching learning aspects, this research is conducted to get information about the needs of computer and network

engineering students at SMK toward English materials that was seen from three indicators of need analysis. The first indicator is students lack related to English materials viewed from the elements of materials, they are input, content, language, and task. The second indicator is students wants related to English materials also viewed from input, content, language, and task. And students' needs related to English materials as the last indicator were also viewed from input, content, language, and tasks.

Computer and network engineering program is chosen in this study because there were no research before related to this field of study. Besides, it is much related to technological process which always has improvements in the use of helping human work and enables rapid exchange of information and research of common global problems. Thus, looking at this fact it cannot be denied that English as international language will be an important source to support students of this program.

B. Research Method

The design of this research was a survey research. According to Crasswel (2002:388) survey research designs is the procedure in quantitative research in which investigators administer a survey to a sample or to entire population of people to describe the attitudes, opinions, behaviors, or characteristics of the population. Likewise, Gay (2009:175) stated that survey research involves collecting data to test hypothesis or to answer questions about people's opinion on some topics or issue. Based on the opinion above the survey research is suitable applied in this research since the researcher tried to collect the data about students, teachers, and the stakeholders' opinions about the needs of second grade computer and network engineering students at SMK in Padang.

The participants in this research were all the third grade students who take computer and network engineering field of study at SMK in Padang, English teachers who teach the second grade computer and network engineering students and the stakeholders whom the students do their apprentice program. The students and teachers were taken from SMK 2 and SMK 6 Padang.

C. Discussion

After describing and analyzing the data, there are several findings obtained about necessities, lacks, and wants of the students related to English learning materials that includes input, content (topics), language components, and tasks.

1. Necessities

Necessities of the students are gathered by looking at curriculum, lessons plans from teachers, and the stakeholders' opinions. In SMK, English is described as a course that is aimed to enable students to master basic knowledge and skills of English in order to support the program competencies in their field of study and then to apply it to communicate orally and in written language. So, in English course for SMK, students are supposed to master some competencies that help

them to achieve the aim. In addition, based on stakeholders opinions students' demands in learning English related to operating computer, repairing computer damages, writing letters, pictures and charts related to computer, basic English for computer and IT, administration, and marketing.

2. Lacks
a. Input

Students' lacks related to input were compared from data from students and data from teachers. After a further analysis, it can be concluded that there are top ten most difficult materials delivered by using input below:

- 1) Listening to a daily activities of a programmer
- 2) Listening to a conversation of a technician who is explaining about computer damages
- 3) Chart about the comparison of computer, laptop, notebook, and Ipad selling
- 4) Chart about costumer preferences in choosing new technology
- 5) Explanation about fact and figure in data presentation
- 6) A text about the comparison of new technology products
- 7) Picture of fact and figure examples
- 8) Media of a manual of how something works
- 9) Explanation about the use of auxiliary verb in expression of certainty
- 10) Explanation about the expression in giving argumentation

Those ten materials are the most difficult ones if delivered by pictures, audio, chart, media, explanation, and text. It means that students face many problems in understanding these topics when teachers deliver them through these kinds of input. All of the materials are provided in the actual English classroom as can be seen from teachers' lesson plan. Therefore, teachers only need to find other ways to deliver them in order to make it easy for students to understand the materials.

b. Contents

There are two topics that were considered difficult by both teachers and students. Topic about data presentation appears in both teacher and students' opinion. However, all the data mentioned by teachers and students are automatically included in the most difficult topics.

- 1) Data presentation
- 2) Job's rule
- 3) Future technology

c. Language components

After comparing data from students and teachers, there are top 10 most difficult components of language that have to be mastered by students:

- 1) Ability in identifying modal auxiliary verb to express certainty
- 2) Ability in identifying the use of conjunction in cause and effect relationship
- 3) Ability in identifying auxiliary verb to express necessity and obligation
- 4) Ability in identifying modal auxiliary verb in giving advice
- 5) Ability to recognize vocabulary used in conversational topic
- 6) Ability to detect key word
- 7) Ability to identify words in stressed and unstressed situation
- 8) Ability to spell English words correctly
- 9) Ability to guess meaning from context
- 10) Ability to find general and specific information from texts

It can be seen that most of students have difficulties in understanding grammar. It is unsurprising because most of English learners always have difficulties in understanding that language component that is caused by many pattern that should be memorized and demand a skill to use it properly. Then, for the pronunciation skill many of students face the difficulties in understanding words in stressed and unstressed situation. It might because students rarely practice their English and listen or watch anything that involves conversations in English. In addition, some of reading skills are categorized as difficult by students. It is mostly because lack of vocabularies and strategy in reading.

d. Tasks

In language learning, task serves as a final way to discover whether students have already achieved in their study. This is the importance of a task. In addition lacks in task mean, it is harder to solve the difficulties in accomplishing task than in input and content. It is because accomplishing task is more complicated than understanding input or content. However, it is important to be solved in order to increase English learning materials.

A further analysis to rank the task reveals the arrangement of the top 10 most difficult tasks from both students' and teachers' side as follow:

- 1) Students are asked to describe a job in some sentences
- 2) Students are asked to describe a chart or a table
- 3) Students are asked to do error analysis
- 4) Students are asked to answer questions based on a text
- 5) Students are asked to rearrange a step in how something works
- 6) Students are asked to describe some kinds of jobs
- 7) Students are asked to fill some blanks in a text with available answer
- 8) Students are asked to fill in the blank with available answer
- 9) Students are asked to answer questions related to a news
- 10) Students are asked to write personal letter

3. Wants
a. Input

Students wants related to input were collected by comparing data from stakeholders, students, and teachers. After ranking process, it turned out that the input in which the students, teachers, and the stakeholders think the same way to be included in students' wants. They are:

- 1) Picture of fact and figure examples
- 2) A manual of how something works
- 3) Explanation about the form of curriculum vitae
- 4) Listening to a conversation of someone who is bargaining printer price in a shop
- 5) Listening to someone who is explaining about how something works
- 6) Chart about the comparison of computer, laptop, notebook, and Ipad selling
- 7) Chart about costumer preferences in choosing new technology
- 8) Job vacancy in news paper
- 9) Explanation about the expression in giving argumentation
- 10) A text about manual of how something works

The list above shows what materials students wish to learn through picture, audio, chart, media, explanation, dialogue, and text. Students think that those materials will be easier to be understood when picture, audio, chart, media, dialogue, or text are used in delivering them. However, the condition of the inputs have to be changed to ensure that students get what they want and motivate them to study because the input is still limited.

b. Contents

Content or topics is a key of learning materials. Input and task are given to make students understand the topics. So, finding students wants related to content is very important to maintain a good learning material.

After a further analysis to rank the topics, it can be concluded that the top 10 most important content from students, teachers, and stakeholders point of view are:

- 1) How a computer tool works
- 2) Kinds of job
- 3) Telling daily activities
- 4) Shopping computer tools
- 5) Data presentation
- 6) Technology impacts
- 7) Future technology
- 8) News from mass media
- 9) Life experience
- 10) Job's rule

It is not a surprise that the most important content for students is how a computer tool works. Computer is students' background in their field of study. So, there is no wonder that they are curious to learn more about it in English language context.

c. Language components

Language component is the third elements of a good material. It provides the students with the knowledge of a language included grammar, vocabulary, pronunciation, and language skills. After analyzing the data, it can be seen that there are some components and skills in English that are regarded as the most important ones by students, teachers, and stakeholders.

- 1) Ability in identifying modal auxiliary verb in bargaining
- 2) Ability to find general and specific information from texts
- 3) Ability in identifying modal auxiliary verb to express certainty
- 4) Ability in identifying modal auxiliary verb in inviting someone
- 5) Ability in recognizing the rule of degree of comparison
- 6) Ability to recognize vocabulary used in conversational topic
- 7) Ability to identify words in stressed and unstressed situation
- 8) Spelling English word correctly
- 9) Guessing meaning from context

d. Tasks

After further analysis to rank the topics, it can be concluded that the top 10 most important tasks to be included in task from stakeholders, students and teachers' point of view are:

- 1) Students are asked to rearrange a sentence into a good one
- 2) Students are asked to fill some blanks in a text with available answer
- 3) Students asked to rearrange some sentences into a good conversation
- 4) Students are asked to create a conversation based on given expressions
- 5) Students are asked to find the meaning of new vocabularies
- 6) Students are asked to create a sentence based on the structure given
- 7) Students are asked to describe a job in some sentences
- 8) Students are asked to write personal letter
- 9) Students are asked to find grammar errors
- 10) Students are asked to respond given statements

4. The comparison of necessities, lacks, and wants

After gathering data about students' necessities, lacks, and wants, it is important to find the real needs of the students. Therefore, all of the data above need to be compared and crosschecked with one another. The comparison is divided into input, content, language, and task to make it easier to understand.

a. Input

A further analysis in ranking materials were done in order to get the real needs of students related to materials that have to be delivered through some kinds of input provided in questionnaires. From the analysis, it can be concluded that the needs of students related to input from the highest point to the lowest point are:

- 1) Picture of fact and figure examples
- 2) A manual of how something works
- 3) Chart about costumer preferences in choosing new technology
- 4) Chart about the comparison of computer, laptop, notebook, and Ipad selling
- 5) Explanation about the form of curriculum vitae
- 6) Listening to a conversation of someone who is bargaining printer price in a shop
- 7) Listening to someone who is explaining about how something works
- 8) A text about manual of how something works
- 9) Explanation about the use of auxiliary verb in expression of certainty
- 10) A text about the comparison of new technology products

b. Content

After comparing the data from necessities, lacks and wants, the real need of students related to the materials that they want as the content of English learning materials can be listed as follow:

- 1) Data presentation
- 2) Future technology
- 3) Technology impacts
- 4) Job' rule
- 5) Kinds of jobs
- 6) News from mass media and internet
- 7) Technology impacts

c. Language components

From the analysis of necessities, lacks, and wants, it can be concluded that the needs of students related to language components from the highest point to the lowest are:

- 1) Ability to detect key word
 - 2) Ability to identify words in stressed and unstressed situation
 - 3) Ability in identifying modal auxiliary verb to express certainty
 - 4) Ability to find general and specific information from texts
 - 5) Ability in identifying modal auxiliary verb in bargaining
 - 6) Ability in identifying the use of conjunction in cause and effect relationship
 - 7) Ability in identifying modal auxiliary verb in giving advice
 - 8) Ability to recognize vocabulary used in conversational topic
 - 9) Ability to guess meaning from context
 - 10) Ability to spell English words correctly
- d. Tasks

As the result of ranking process, the real needs of students viewed from the tasks can be seen in the following list.

- 1) Students are asked to do error analysis
- 2) Students are asked to write personal letter
- 3) Students are asked to fill some blanks in a text with available answer
- 4) Students are asked to fill in the blank with available answer in sentences
- 5) Students are asked to answer questions based on a text
- 6) Students are asked to rearrange a sentence into a good one
- 7) Students asked to rearrange some sentences into a good conversation
- 8) Students are asked to create a conversation based on given expressions
- 9) Students are asked to describe a chart or a table
- 10) Students are asked to respond given statements

The materials found in each learning components above are clearly to be real needs of students in English learning materials. Thus, teachers have to give special attention toward them. However, it does not mean to omit other materials mentioned before, because all of those materials were found as necessities for the students.

D. Conclusion

The materials found in each learning components above are clearly to be real needs of students in English learning materials. Thus, teachers have to give special attention toward them. However, it does not meat to omit other materials mentioned before, because all of those materials were found as necessities for the students.

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