

ARTIKEL

**DEVELOPING ENGLISH READING MATERIALS BASED ON PROBLEM BASED  
LEARNING FOR VOCATIONAL STUDENTS OF COMPUTER NETWORK  
ENGINEERING IN SMK CINTA RAKYAT PEMATANG SIANTAR**

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**DEVELOPING ENGLISH READING MATERIALS BASED  
ON PROBLEM BASED LEARNING FOR VACATIONAL  
STUDENTS OF COMPUTER NETWORK ENGINEERING AT  
SMK CINTA RAKYAT PEMATANG SIANTAR**

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**DEVELOPING ENGLISH READING MATERIALS BASED ON PROBLEM BASED  
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**ABSTRACT**

**Saragih, Benny, Registration Number: 2133121015, Developing English Reading Materials Based on Problem Based Learning for Vocational Students of Computer Network Engineering in SMK Cinta Rakyat Pematang Siantar. A Thesis. English Education Program, State University of Medan, 2020.**

This research was aimed to develop appropriate reading materials based on Problem Based Learning for the eleventh-grade students of Computer Network Engineering program in SMK Cinta Rakyat Pematang Siantar. This study was conducted by using the Research and Development design through five phases, such as; a. gathering information and data, b; analyzing data, c. designing new materials, d. validating by experts, and e. developing the final product. The subject of this study was the eleventh-grade computer network engineering students of SMK Cinta Rakyat Pematang Siantar. The data were collected from the existing textbook, syllabus, interview with English teacher and distributing questionnaires for 25 students. Based on the need analysis, it was concluded that the students were in need of appropriate reading materials which are related to computer science, particularly in form of procedure texts. In response to this information, some relevant and appropriate reading materials were developed, namely; a. How to start Windows PowerShell, b. Installing Avast Antivirus, c. How to Create Ad-hoc Connection, and d. Troubleshooting Computer Problems. These developed procedure text have been revised and validated by a team of experts which consisted of an English lecturer and an English teacher before acquiring the final product. The first expert evaluated the final product with a score of 4.12 from the total of 5 points. The second expert evaluated the final product with a score of 4.03 from

the total of 5 points. Based on the Likert scale, the final product is categorized as suitable with students' need. Therefore, the developed reading materials are considered appropriate for the eleventh-grade students of Computer Network Engineering program in SMK Cinta Rakyat Pematang Siantar.

**Keywords:** Research and Development, Vocational School, English for Specific Purposes, Computer Network Engineering

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## **I. INTRODUCTION**

### *Background of the Study*

Appropriate reading materials are necessary in obtaining rich information and increasing students' mastery of vocabulary since they are more likely to encounter new words by reading text. This theory is supported by Hammer (1998), who elaborated that reading materials provide many opportunities in broadening students' language mastery such as; vocabulary, grammar, punctuations as well as how students construct sentences, paragraph and texts.

Most schools are not using a proper textbook as their main sources for teaching their students. It makes the students get difficult to understand their textbook. It makes the students are not interest with the existing textbook. According to Paulston & Brader in Nanda (2016), reading materials which are appropriate to the needs of learners would be easier for them to achieve the learning purposes. It is also supported by Hutchinson and Waters (2010), "ESP is an approach to language teaching in which all decisions as to content and method are based on the learner's reason for learning." The reading materials should proper with the needs of student to make them more interest and understand with the material.

Sadly, most of the reading materials being taught at Vocational High Schools in Indonesia are not suitable with the students' major. Even though there are no statistical data published by the government about this subject matter, we are more likely to encounter non-suitable materials in vocational schools. As the result, SMK graduates are not equipped with the knowledge and competencies which are relevant to their specific

field of occupation. This does surely impact national economic growth since these graduates will not be able to compete both in the national and international job seeking as most of them do not fulfill the requirement of the rapidly growing technological advancement which is inseparable from daily use of English language.

In SMK Cinta Rakyat Pematang Siantar, the researcher found that the current teaching-learning process was utilizing the textbook “*Buku Bahasa Inggris*” published by *Kemendikbud* (Kementerian Pendidikan dan Kebudayaan Republik Indonesia) in 2017. As previously mentioned above, vocational high schools should focus on specific materials since regular senior high schools already implement general materials. The English reading material of computer network engineering should rivet on English language’s viewpoint of computer science.

Before developing the suitable teaching material for students, the analysis of students’ needs of teaching materials is very important to do. The researcher began this study by acquiring information from students and teachers by doing interview and analyzing their course book as a preliminary data. This research also analyzed the existing syllabus and reading materials. Since the existing reading materials are not in accordance with syllabus and irrelevant toward the computer network engineering students’ needs, designing reading materials is crucially required. The development of reading materials is based on Educational Research and Development (E-R&D).

## **II. REVIEW OF LITERATURE**

### ***1. Learning Material***

There are ample terms of learning materials such as; instructional materials, teaching materials, or teaching and learning material but these terms actually have similar and the same essence.

Learning materials can be defined as any materials used by the teacher and students for teaching and learning process. In order achieve the objective of teaching and learning itself. Fathurahman and Sutikno (2007) states that learning material is medium to achieve the objective of teaching and learning which consumed by the students. Arikunto (1990) in Fathurahman and Sutikno (2007) says that learning material is the essence in the process of teaching and learning which must be mastered by the students. In accordance to the nature of learning material, Tomlinson (2003) states that Learning material refers to facilitate the learning of the language, the learning material can obviously be cassettes, video, CD-ROM, dictionaries, grammar books, reader's workbooks or photocopied exercises, newspaper, instruction given by the teachers, etc.

### **2. Material Development**

Tomlinson (1995) stated that material development refers to anything which is done by writers, teachers, or learners to provide sources of language input and to exploit those sources in ways which maximize the likelihood intake: in other words, supplying of information about and or experience of language in ways designed to promote language learning.

### **3. Reading Material**

Reading can be defined as understanding written texts to require comprehension in contents. Byrnes (2004) argued that reading is an interactive process that goes between the reader and the text resulting the comprehension. It means that in process, the reader interacts dynamically with the texts as tries to elicit the meaning and where various kinds of knowledge are being used in linguistic or system knowledge.

### **4. Reading Material for Computer Network Engineering**

Computer science is a discipline that is based on understanding topics such as computer design, computer programming, information processing, algorithmic solutions of a problem, and the algorithmic problems (Brookshear, 2012).

### **5. English For Specific Purposes**

By the term, English for Specific (or Special, Specified, Specifiable) Purposes is a type of language learning which has its focus on all aspects of language pertaining to particular field of human activity. In other words, it is a way of teaching/learning English for specialized subjects with some specific vocational and educational purposes in mind. In ESP syllabus, the teaching content is geared to the special language 'repertoire' pertaining to the specialized aims that are required of the learners.

#### **a. The nature of ESP**



Hutchinson and Waters (1987) define ESP as “an approach to language teaching learning English for particularly subjects with specific vocational and educational purposes. “By the 1980s, in many parts of the world a “needs-based philosophy” emerged in language teaching, particularly in relation to ESP and vocationally oriented program design” (Brindley, 1984 as cited in Richards, 2001). There are different needs for different purposes or learners of English, for example, English for Information Technology, English for Agriculture, English for Business, English for Secretary, and others.

#### **b. Need analysis**

We have known the definition of ESP as an approach to course design, it would be needs analysis, since it is the awareness of the target situation. Need is the thing which can guide English Specific Purpose (ESP) learner from learning English for General Purposes (EGP).

##### **1) Target needs**

‘Target needs’ is something which is considered as the points that the learners to achieve directly. It is more useful to look at the three terms of consideration, as follow:

#### **1. Necessities**

Necessities are the type of need determined by the demands of the target situation. The learners have to know in order to function effectively in the target situation as well as the constituent parts of them. Moreover, Rabiathul Adhabiyyah, Mahanum, Aliyatulmuna (2014:109) explained that Necessities is to look at what learners or students should know in order to be able to function well and communicate efficiently in the target situation

## **2. Lacks**

Lacks mean that you need to know what the learner know already, so that you can decide which of the necessity the learner lacks. Lacks are considered the target proficiency, needs to be matched against the existing proficiency of the learners.

## **3. Wants**

Wants as the point of view of the learners about what their needs are. Wants has a role important in teaching ESP because it is the key of the students' enthusiasm, motivation and which determine the success or the failure of one course.

## **2) Learning Needs**

Learning needs are the route from starting points (lacks) to the destination (necessity and wants) in target situation. It covers the conditions of the learning situation, existing knowledge, skills and strategies, and the learners' motivations.

## **6. Problem Based Learning**

Problem-based learning (PBL) is an instructional method aimed at preparing students for real-world settings. By requiring students to solve problems, PBL enhances students' learning outcomes by promoting their abilities and skills in

applying knowledge, solving problems, practicing higher order thinking, and self-directing their own learning (Jonassen and Hung, 2012).

## **7. Course Design**

Hutchinson and Waters (1986) defines course design as “the process by which the raw data about a learning need is interpreted in order to produce an integrated series of teaching-learning experiences, whose ultimately aim is to lead the learners to a particular state of knowledge”. The course design that the students of Information Technology school need is absolutely different with any other major. They need to master some information technology subjects about networking area, editing photo, IP, software operating, etc.

## **III. RESEARCH METHODOLOGY**

The research was conducted by research and development (R&D). The research methodology was adapted from Borg, Gall and Gall (2003) in fulfilling the students' need in reading material. There were 6 stages according to Lawrence in Borg, Gall and Gall (2003) to write the research in a smaller scope. All of the research stages could not be used because the limitation of duration and fund. So, the research was done with 6 modified stages:

1. Gathering The Data and Information
2. Analyzing The Data and Information
3. Designing New Reading Materials

4. Validating New Reading Materials
5. Revising New Reading Materials
6. Final Product

#### **IV. MATERIALS DEVELOPMENT**

##### *Research findings*

The reading materials which were being used by the students in the Grade XI of Computer Network Engineering program at SMK Cinta Rakyat Pematang Siantar were taken from the English book published by the Ministry of Education and Culture “*Bahasa Inggris – SMA/MA/SMK/MAK Kelas XII, Kurikulum 2013*”. The evaluation of the reading materials was conducted to find out whether the materials were relevant and met the students need or not. After summarizing the textbook, the researcher found that procedure text was available in Chapter 6. There were three procedure texts entitled “*How to Make Chocolate Dipped Strawberries*”, “*How to Make Crab Soup*”, and “*How to Breed Leopard Geckos*”. These texts are not suitable to the students of Computer Network Engineering because these texts didn’t meet the students need in their vocational major. Thus, a total of four procedure text were developed by the researcher, such as; How to start Windows PowerShell, Installing Avast Antivirus, How to Create Ad-Hoc Connection, and Trouble-shooting Computer Problems.

From the questionnaire analysis, the researcher was able to identify the necessities, lacks, and wants of the students in learning the English subject. Computer Network is a subject widely known to be associated with the English subject, so it is an important major to be mastered by these students. Procedure text also serve as a useful

guide for the young engineer in learning about computer science and how to finished computer networking tasks.

Before acquiring the final product, the researcher validated the designed reading materials with the help of two experts, which are English lecturer and English teacher.

The developed procedure text materials were revised based on the revision given by the lecturer and the teacher in order to improve the quality of the materials itself. Based on the revision given by the lecturer in which to arrange the materials and the task based on scientific approach, they were observing, questioning, exploring, associating, and communicating.

After revising the reading materials, the final product has been completed. The materials have been developed based on the experts' suggestion and it will be able to be implemented in the learning process of students Grade XI of Computer Network Engineering Program.

## **V. CONCLUSIONS AND SUGGESTIONS**

### *Conclusions*

It can be concluded that appropriate reading material plays an important role in the process of mastering English reading skill. Students, especially those majoring in vocational schools are supposed to be taught of English in specific context.

The researcher developed a total of 4 procedure text, namely; How to Start Windows PowerShell, Installing Avast Antivirus, How to Create Ad-Hoc Connection, and Troubleshooting Computer Problems along with several discussions and exercises.

The final product was validated by both experts and accumulated the average score of 4.07 out of 5 points. This result classified the developed reading materials as “Good” based on the Likert scale (1932). The developed reading materials are expected to be useful in the learning process of eleventh-grade students of Computer Network Engineering at SMK Cinta Rakyat

### *Suggestions*

In relation to the conclusion above, there are some suggestions proposed to the English teacher, vocational students as well as other researcher. Teachers, especially English teachers from vocational schools are required to be creative and open minded in providing better reading materials which are suitable with students’ specific field of study. Computer Network Engineering students must be willing to look into another source of information and courses on sharpening their English skills aside of their school lessons. The researcher also expects that this study can be useful for other researcher who are studying the same topic.

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