

Developing E-Learning based English Reading Materials for the Tenth Year Multimedia Students of SMK N 3 Singaraja

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Abstract

This study was a research and development (R&D), which aimed at (1) developing types of reading materials that are needed by the tenth year multimedia students of SMK N 3 Singaraja; finding out (2) the content validity of the developed material; (3) the quality of the developed material based on the criteria of good ESP material and good e-learning; and (4) whether or not the developed material could improve the reading comprehension of the tenth year multimedia students of SMK N 3 Singaraja. This study followed the R&D design by Lee and Owens. This design involves: need analysis, design, development, implementation, and evaluation. This study was conducted at SMK N 3 Singaraja, the subjects of the study being the students of class X MM 2. The data were collected through questionnaire, interview, expert judgment sheet, scoring rubric, and tests. The data from the result of observation, interview and questionnaire during the need analysis process were analyzed using Interactive Data Analysis Model. The result of the expert judgment in validating the content validity of the developed material was analyzed using Interrater Agreement Model. While the result of the scoring rubrics in measuring the quality of the developed material based on the criteria of good ESP material and good e-learning material were analyzed using Theoretic Ideal Reference. The result of this study shows that: (1) the tenth year multimedia students of SMK N 3 Singaraja need specific English materials that are related to their future job or study. The existing syllabus and material did not cover their needs since the syllabus and the material were designed to be used for all departments in SMKN 3 Singaraja, namely: Electricity Installation, Multimedia, Audio Video, Computer and Networking, Light Vehicle, Motor Cycle, Building Construction, and Engineering Departments; (2) based on the validation process that was conducted through expert judgment, it was confirmed that the developed material had a very high validity; (3) from the result of the expert judgment based on the criteria of good ESP material and good e-learning material, the developed material was categorized into very good material; and (4) the result of the field study shows that the developed material could improve the students' reading comprehension. It can be seen from the result of pre-test, post-test I, and post-test II that measured the students' reading comprehension. The students' mean score for those tests, which reflect the students' reading comprehension, increased from 40.9 in pre-test, to 66.3 in post-test I, and 79.1 in post-test II. Based on the result of the questionnaire, the students had strongly positive attitude toward the developed material; and (5) from the observation in developing and implementing the developed material, the problems that were found can be classified into technical and financial problems.

Keywords: need analysis, e-learning, English reading material, R&D

A. Introduction

Based on the SMK curriculum, English, as one of the subjects that should be taken by the SMK students, is taught to support the competency of the students' expertise program. It means that the students of SMK learn English for a specific purpose (ESP) that is related to their targeted job in the future. As what is stated on the content standard of the national education standard board or *Badan Standar Nasional Pendidikan* (2006), the purposes of English subject in SMK are: (1) mastering the basic knowledge and skill of English to support the students in achieving the competency of their expertise program; (2) applying the mastery of the ability and skill in English to communicate both spoken and written communication on the intermediate level.

Learning material is one of the important aspects in learning a foreign language. It is because learning material is the source of learning for the students. In accordance to the special needs of the SMK students, it is important that the students of SMK are provided with special English material that concentrates on their expertise program. If they are provided with the general English material as what the common senior high schools have, that kind of material does not support their expertise program. Therefore, it does not help them when they go to the real work field. The worst part is that, if the students cannot feel the importance of English with their targeted job or feel the relationship between English and their expertise program, there is a tendency that they are unmotivated in studying it.

The English reading material was developed in the form of e-learning based material since the multimedia students mostly work on their computer. In addition, e-learning material offers some benefits that the students may not have from the hard copy material. According to Urdan and Wegen (2000), by having e-learning material, the students can take several benefits, including: (1) e-learning material makes learning activity as a continual process; (2) it makes learning activity can be done anytime and anywhere, as long as there are computers and internet connection; (3) it helps the teacher to up date the material easily; and (4) it improves the students' self assisted learning.

SMK N 3 Singaraja was selected because it is one of vocational high schools in Singaraja and this school is a candidate of international standard school

or *Rintisan Sekolah Berstandar Internasional* (RSBI). As an RSBI, English is very important in this school. In this school English is not only a learning subject that should be taken by the students, but it is also used as the medium of instruction. It means that this school needs English more than the other vocational schools in Singaraja. In addition, if it is seen from the syllabus of the tenth year students in SMK N 3 Singaraja, the English teachers provide the students with teaching material which was taken from a tourism book. Obviously, that material did not fit with the needs of multimedia students. Besides, SMK N 3 Singaraja has the facilities that are required to run e-learning, computer lab with internet connection.

Considering the need of the multimedia students of SMK N 3 Singaraja towards English reading material that support their expertise program, this study was conducted to develop that kind of English reading material. Since this school has the facilities to support the e-learning, the English reading material was developed in the form of e-learning material. By having the e-learning based material it was expected that the multimedia students of SMK N 3 Singaraja would have appropriate learning material that support their future job.

B. Research Method

This study was in the form of research and development (R&D) that followed the R&D design that is proposed by Lee and Owens (2004), which consists of five steps, namely need analysis, design, development, implementation, and evaluation (see Figure 1). The subjects of the study were the English teachers and the tenth year students of Multimedia department in SMK N 3 Singaraja. The data of this study were collected through questionnaire, expert judgment sheet, observation sheet, scoring rubrics and tests. The data from the questionnaire and observation were analyzed using interactive data analysis model by Miles and Hubberman (1987). The data from the expert judgment sheet were analyzed using interrater agreement model by Gregory (2000). While the data from the results of scoring rubrics were analyzed using ideal theoretic reference method by Nurkencana and Sunartana (as cited in Winasari, 2011).

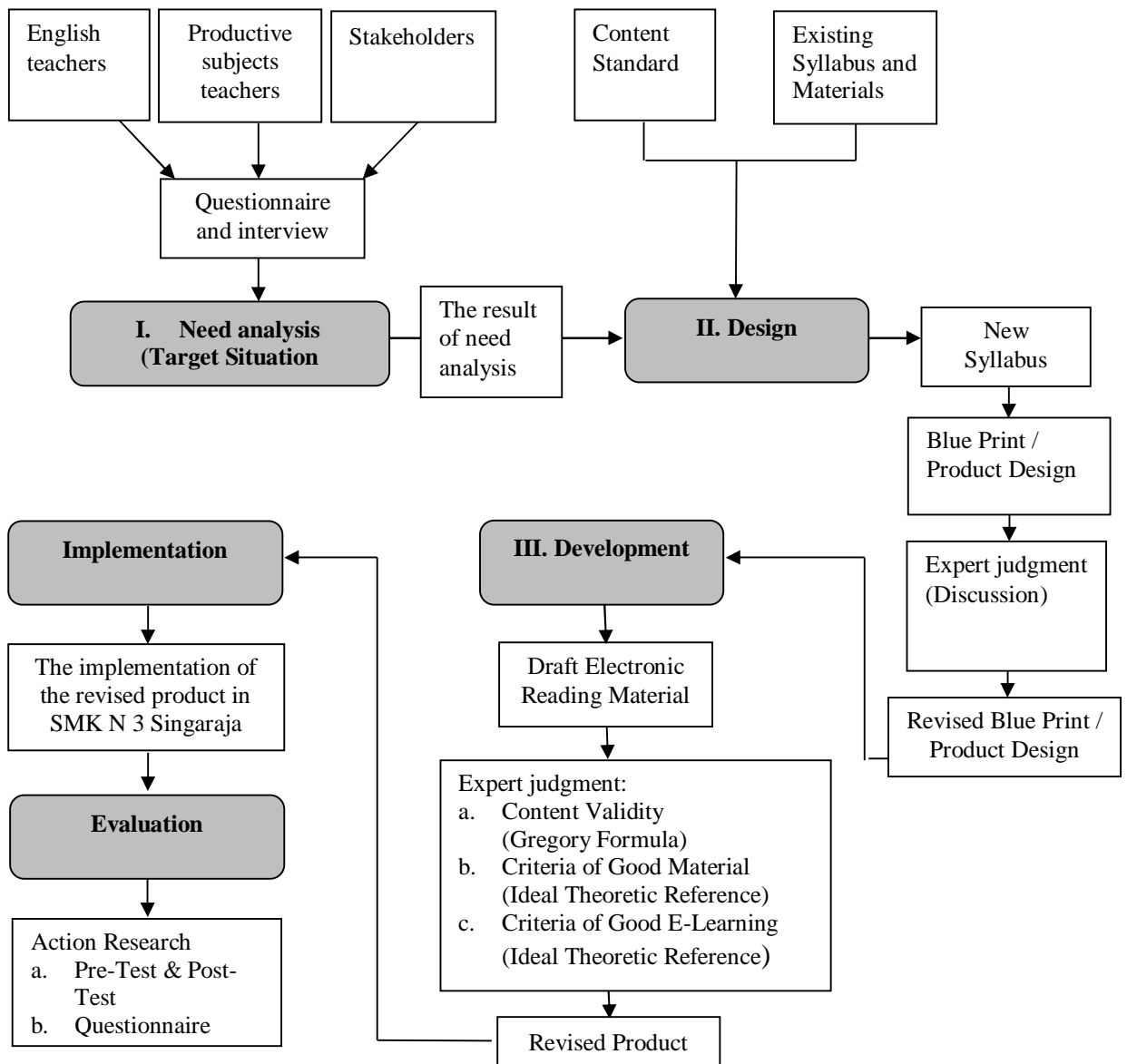


Figure 1 The Flow Chart of The Study (Adapted from Lee and Owens, 2004)

C. Discussion

1. The Result of Need Analysis (Target Situation Analysis)

The need analysis in this study was conducted based on the theory of target situation analysis by Hutchinson and Waters (2004). According to Hutchinson and Waters, in doing target situation analysis, there are six types of information should be collected, they are: (1) the reason for studying English, (2) the way in using the language, (3) the content areas, (4) the receiver, (5) the setting and context, and

(6) the frequency in using the language. The results of the target situation analysis are presented below.

a. The reason for studying English

Based on the result of the questionnaire and the interview that have been conducted it was found that the students of Multimedia Department of SMK N 3 Singaraja should study English for some reasons. The first reason is for continuing their study to a higher level of education or joining a special training that is still related to the major that they have taken in SMK N 3 Singaraja. It means that they will need English for learning computer programs that they can use to edit photograph, video, create graphic design, and web design. The second reason is for their future job which requires them to develop their knowledge about computer programs and how to serve the customer which includes: greeting the customer, explaining/reviewing/presenting product, handling complaint, and handling payment. In addition, they may also need to be able to speak English if they work in a company which is owned by a foreigner.

b. The way in using the language

From the result of the questionnaire and the interview, it was found that the students will read text in English frequently, especially text about computer program manual. Therefore, all of them believed that reading skill is very important to be taught for the students. The students will also use English to communicate orally because in the future the students may communicate in English with foreign customer. For that reason, the students must have speaking ability in English. Since speaking cannot be separated with listening, it means that listening is important too. Writing is important but the students will not write in English frequently in doing their job in the future.

From the channel aspect, the students will communicate in English through face to face communication, email, telephone, short message service, blackberry messenger, and yahoo messenger. In terms of the type of text or discourse, the students will use English for formal communication. From the result of the reason for studying English, it is obvious that the students will communicate in English

for business purpose or study purpose. Thus, they will use English more for formal situation.

c. The Content Areas

For the content areas or the topic that the students will discuss in English, the result of the questionnaire and the interview show that the topic will be about video shooting and editing, photography, graphic design and website design.

d. The Receiver

The students will use English with the native speakers of English and with foreign customers who are not the native speakers of English. It means that, the students have to prepare themselves not only communicating with the native speakers of English who are excellent in English, but they also have to anticipate the non native English speakers who may have low ability in English.

e. The Setting and Context

Based on the result of the interview and the questionnaire, it was found that the communication in English between the students and foreigners will take place at their work place and restaurant or hotel. In terms of its context, the students will use English for demonstrating or presenting their product or service, and meeting. This result indicates that the developed English reading material should be able to guide them in to communicate properly for those kinds of setting and context.

f. The Frequency in Using the Target Language

The students will use English frequently in the future. 7 of them stated that the students will fairly frequent use English in doing their job or continuing their study. This result confirms that English are needed by the students for their future job or their study to a higher level of education.

2. The Content Validity of the Product

The validity of the product was determined based on the result of the expert judgment. There were two experts were involve in evaluating the product. The

experts were Prof. Dr. Putu Kerti Nitiasih, M.A. and Prof. Dr. I Nyoman Adi Jaya Putra, M.A. This validation was done in order to find out whether or not the developed product was relevant with the blue print that has been developed previously. The collected data from the experts were quantified and analyzed using the Interrater Agreement Model by Gregory (2000). Table 1 shows that the content validity of the product was very high.

Table 1 The Result of Expert Judgment based on the Blue Print

Product	Coefficient	Category
Design 1	1.00	Very high validity
Design 2	1.00	Very high validity
Design 3	1.00	Very high validity
Design 4	1.00	Very high validity
Design 5	1.00	Very high validity
Design 6	1.00	Very high validity
Design 7	1.00	Very high validity

Note

Interval	Category
$0.76 \leq x \leq 1.00$	Very high validity
$0.59 \leq x < 0.76$	High validity
$0.42 \leq x < 0.59$	Average validity
$0.20 \leq x < 0.42$	Low validity
$0 \leq x < 0.20$	Poor validity

3. The Quality of the Product

The quality of the product was measured through expert judgment method which involved two experts, namely content expert and media expert. The content expert was Prof. Dr. Putu Kerti Nitiasih, M.A. The content quality of the product was evaluated using a scoring rubric based on the criteria of good ESP material proposed by Widodo and Pusporini (2010). The result of the expert judgment from the content expert shows that the developed product was categorized into a very good ESP material (see Table 2).

Table 2 The quality of the Product based on the Criteria of a Good ESP

Materia

No	Aspect	Score
1	Learning objective of the material is appropriate with the syllabus.	5
2	Learning objective of the material is mentioned clearly in each section of the material.	4
3	Learning tasks are able to activate the students' background knowledge which relates to the topic being discussed.	4
4	Teaching materials contain learning tasks which are in line with the material and the learning goal and objective.	4
5	Learning tasks allow students to explore their specialized needs and interests based on the result of the target situation analysis.	4
6	Learning tasks in the materials enable students to develop their reading skill for content competence.	4
7	Learning tasks integrate reading skill with other skills.	5
8	Learning tasks in the materials reflect real-life tasks that people do in daily interpersonal interactions.	4
9	Teaching materials make learners acquire skill(s) or sub-skill(s) through a set of learning tasks or activities.	4
10	Teaching materials inform what roles learners and teachers play in and out the classroom.	4
Total score		42

Note :

Interval	Category
$40 \leq x \leq 50$	Very good material
$33 \leq x < 40$	Good material
$27 \leq x < 33$	Average material
$20 \leq x < 27$	Below average material
$10 \leq x < 20$	Poor material

In terms of the quality of the e-learning system, the expert was Prof. Dr. I Made Candiasa, MI. Kom. The quality of the e-learning system was evaluated using a scoring rubric based on criteria of good e-learning by Bitter and Legacy (2009). The result of the expert judgment shows that the developed product was categorized into very good e-learning (see Table 3).

Table 3 The Quality of the Product based on the Criteria of Good E-Learning

No	Aspect	Score
1.	1a.Necessary technical documentation is included.	5
2.	1b. Objectives are clearly stated.	5

3.	1c. Material for enrichment and remedial activities are provided.	4
4.	2a. Information is presented in a developmentally appropriate and logical way.	5
5.	2b. Illustrations and examples are relevant.	5
6.	2c. There is appropriate variety in screen display.	5
7.	2d. Text is clear and printed in type suitable for target audiences.	5
8.	3a. Students are able to recall/use information presented following program use.	4
9.	3b. Program prepares students for future real-world experiences.	5
10.	3c. This is an appropriate use of instructional software.	5
11.	4a. Program matches interest level of indicated audience.	5
12.	4b. Reading level is appropriate for indicated audience.	4
13.	5a. User can navigate through program without difficulty.	5
14.	5b. Title sequence is brief and can be bypassed.	4
15.	5c. User can control pace and sequence.	4
16.	5d. User can exit from any screen.	5
Total Score		75

Note:

Interval	Category
$64 \leq x \leq 80$	Very good e-learning
$53 \leq x < 64$	Good e-learning
$43 \leq x < 53$	Average e-learning
$32 \leq x < 42$	Below average e-learning
$16 \leq x < 32$	Poor e-learning

4. The Result of Field Test

A field test was conducted after the quality of the product had been evaluated by the expert. The aim of this field test was to find out whether or not the developed product can improve the students' reading comprehension. The field test was conducted in the form of classroom based action research that consisted of two cycles. The subjects of the field test were the tenth year multimedia students of class X MM2 SMK N 3 Singaraja. The students' reading comprehension was measured using reading comprehension tests in the form of objective tests, namely pre-test, post test I, and post test II. The result of the tests shows that the students' reading comprehension improved from 40.9 (Poor) in pre-test, increased into 66.3 (Sufficient) in post test I, and it increased again to 79.1 (Good) (see Chart 1). Therefore, it can be said that the developed product can improve the students' reading comprehension.

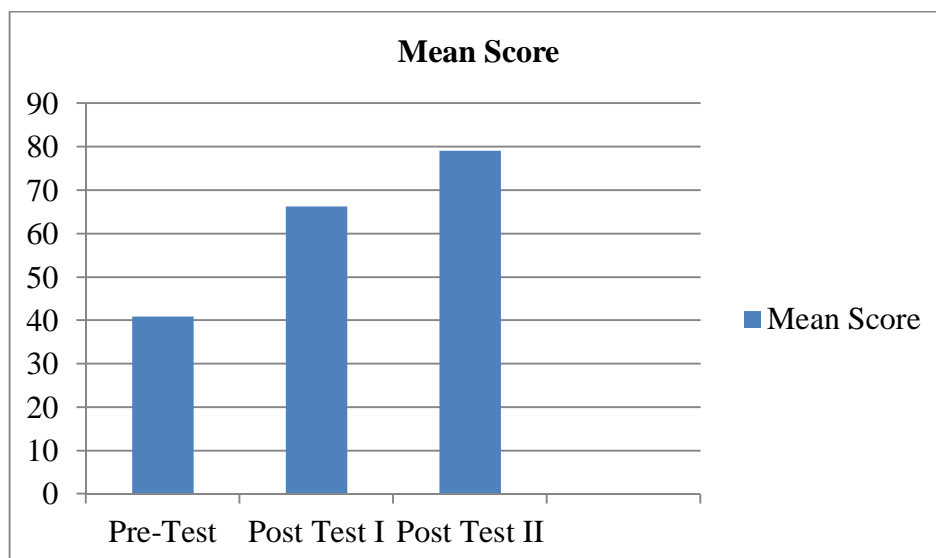


Chart 1 The Result of Field Test

5. The Problems and Benefits in Implementing the Product

During the implementation of the product, an observation to collect information about the problems and benefits in implementing the product were also conducted. The result of the observation shows that:

a. The Problems

1) Technical problem

Moodle is heavy software, the website that is developed using Moodle will be slower if it is compared to the website that is developed by using other software that requires smaller hosting and bandwidth. Therefore, during the application in SMK N 3 Singaraja the e-learning website was a bit slower if it is compared to other websites that were developed using other software. In addition, the user's password is case sensitive and very complex. Since the password was case sensitive, if the user mistype the password he/she cannot log in to the developed e-learning material.

2) Financial problem

Applying e-learning during teaching and learning process needs some facilities that include: computers and internet connection. The use of those facilities require more cost if it is compared to the use of the existing handbook. It

is obvious since using those facilities means spending some money for electricity, maintenance and internet connection. Considering that reality, it can be said that the implementation of e-learning is costly.

b. The Benefits

The benefits of implementing the developed e-learning material can be seen from the students' and teacher's perspectives. Those benefits are explained below.

- 1) The students can do the exercises that available in the material every time and everywhere as long as there are computers and internet connection. It means that they can train themselves in order to achieve the learning objectives repeatedly.
- 2) The students can see their development from the result of the exercises since the results are recorded and can be seen by the students. In addition, they also can see in which point they have problems, because the system will show in which part of the exercise they make mistake.
- 3) The students may send message to the teacher if they have problems. The system provides a facility that enables the students to discuss their problems with the teacher by sending a message to the teacher's account.
- 4) Since these developed materials are available online, the students may use online dictionary if they have problem with the meaning of the words on the material.
- 5) The system of the developed e-learning material provides a facility that can help the teacher to score the exercise, especially for the objective test type, matching, and short answer. In other words the system makes the teacher's job becomes easier because teacher does not need to score the students exercise manually.
- 6) The teacher can monitor the students' development through the result of their study. The result of the students' exercise will be recorded by the system and can be seen by the teacher. Since, the result of the students' exercises also shows the mistakes that are made by the students, teacher may identify the students' problems and find the solution.

- 7) The teacher may randomize the answers and the number of the questions that available in the exercise. It is very important to minimize the chance for the students to cheat from their friends.

D. Conclusion

This study was a research and development (R&D) study which aimed at developing (1) types of reading materials that are needed by the tenth year multimedia students, finding out (2) the validity of the developed product, (3) the quality of the developed product, and (4) the ability of the developed product in improving the students' reading comprehension of the tenth year multimedia students in SMK N3 Singaraja. This study was conducted based on the research and development design of Lee and Owens. This design involves five steps namely; need analysis, design, development, implementation, and evaluation. From those five steps, the result of this study shows that:

- a. The tenth year multimedia students of SMK N 3 Singaraja need specific English reading material that related to their future job or study. The existing syllabus and material did not cover their needs since the syllabus and the material were designed to be used for all departments that available in SMKN 3 Singaraja, namely: Electricity Installation, Multimedia, Audio Video, Computer and Networking, Light Vehicle, Motor Cycle, Building Construction, and Engineering Departments. Thus, this study concerned with such development.
- b. Based on the validation process that was conducted during the development step through expert judgment method and analyzed by using interrater agreement model it was confirmed that the developed material has a very high content validity.
- c. From the result of the expert judgments through questionnaires that were conducted to find out the quality of the developed product based on the criteria of good ESP material and good e-learning material, the developed material was categorized into very good e-learning material.

- d. The result of field test shows that the developed material could improve the reading comprehension of the tenth year multimedia students in SMK N 3 Singaraja.
- e. In developing and implementing the developed e-learning material, there were some problems found, technical and financial problems. Technical problems during the development of the product were including, the need of special server that can provide large hosting memory and bandwidth that support Moodle as the CMS and the uploaded data that should not exceed the limit. While the financial problems were including the high cost for the hosting memory and bandwidth to develop the e-learning website. The financial problems in implementing the developed material were about the need of facilities that support the e-learning website, such as: electricity, computers, internet connection, and the need of large hosting memory and bandwidth that cost relatively a lot of money. However, from the technical aspect, the problems were including: the complexity of the password and the need of high speed internet connection.

While the benefits that the students and teacher can get from the developed materials are including: (1) Students can do the exercises that available in the material every time and everywhere as long as there are computers and internet connection; (2) Students can see their development from the result of the exercises since the results are recorded and can be seen by the students; (3) Students may send message to the teacher if they have problems; (4) Since these developed materials are available online, the students may use online dictionary if they have problem with the meaning of the words on the material; (5) The system of the developed e-learning material provides a facility that can help the teacher to score the exercise, especially for the objective test type, matching, and short answer; (6) Teacher can monitor the students' development through the result of their study; (7) Teacher may randomize the answers and the number of the questions that available in the exercise. It is very important to minimize the chance for the students to cheat from their friends.

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