DEVELOPING E-LEARNING-BASED ESP MATERIAL FOR ARCHITECTURE ENGINEERING DEPARTMENT STUDENTS

P-ISSN: 0854 - 9125 E-ISSN: 2599 - 2678

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Abstract

This study aimed at finding out kinds of supplementary materials, design, and quality of English materials that are required for teaching the tenth grade of Architecture Engineering Department students at SMKN Bali Mandara. The developed material was designed under the Research and Development (R&D) model (Richey & Klein, 2007) that involved three processes, namely Design, Development, and Evaluation. The developed materials were identified based on syllabus analysis of five English learning topics; announcement, transactional interaction texts, recount text, narrative text, and song lyrics. According to the result of material design identification, every chapter should be completed with the title of the chapter, students' competency, learning indicators, learning objectives, learning material, and assessment part. The developed material was assessed by three expert judges. The expert judges' assessment criteria used were based on eight principles in developing good material for English for Specific Purposes (ESP) (Widodo & Pusporini, 2010). Those principles are clear goals, learning tasks, students' interest-based tasks, communicationbased tasks, integrated language skills materials, original learning materials, impactful learning materials, and a good role model to be used outside classrooms. The result of the expert judges' assessment showed that the product was categorized as "Excellent" with a total score of 206. It indicates that this product is applicable for the teacher to improve the teaching-learning process for the tenth grade of Architecture Engineering Department students of SMKN Bali Mandara.

Keywords: e-learning materials, need analysis, ESP, Architecture Engineering Department

Received: 19 October 2020 Revised: 17 Mei 2021
Accepted: 20 July 2021 Published: 30 December 2021

INTRODUCTION

English is a significant subject for students as in this globalization era students are required to master English well. All students learn English since they are in elementary to high school level. Particularly, in the vocational high school curriculum, English is appointed as one of the significant subjects

that can support the students' insight to be more well-informed in their expertise program. It indicates that the students required specific English materials (listening, speaking, reading, and writing) which will help them to cope with their future workplace. However, vocational students are given general English that is similar to the senior high school students.

Learning materials are an essential aspect of teaching and learning a foreign language since it is the main source of students' learning. Particular English materials that concentrate on vocational high school students' skill programs are necessary for them. Once they are given general English materials that are similar to Senior High School, then the materials are not supported by their major or department. Afterward, it does not bring any valuable impact when they go to their real workplace.

Considering the importance of specific learning material for English subject in SMKN Bali Mandara, based on the syllabus used by the teacher, it was found that all the materials were in general English. As a result, the researcher developed supplementary learning materials for the tenth grade of Architecture Engineering Department students with some topics that connected with their expertise program. To generate a supplementary materials design, it needed research about the students' needs and analyses about the existing material. The outcome of the need analysis was utilized as guidance in developing the supplementary material.

According to Kemendikbud (2012), Information and Communication Technology (ICT) becomes a medium of learning and it is integrated into all subjects. Hence, all teachers including English teachers need to integrate ICT in their learning process. The integration of using ICT in the learning process is applied by using mobile devices as teaching aids. Nowadays, ICT has become a part of human life in the digital world. It has affected all aspects of human life including education. It is supported by the result of the observation conducted in SMKN Bali Mandara that 95% of the students have already gotten their electronic devices such as mobile phones, tablets, or laptops. The existence of ICT is believed to give a great contribution to assist students' learning. Therefore, ESP materials for vocational high school students in the form of e-learning can accommodate the students' learning needs.

According to Srivastava and Agarwa (2013), e-learning pertains to the utilization of media, information, electronic communication technologies (ICT) in education or the internship field. Besides, elearning means describing the learning process with electronic devices on the internet (Condruz-Bacescu, 2014). By using e-learning, any materials which are needed by the students are prepared by the teacher virtually. Consequently, the learning materials that are prepared by the teacher are available on the internet called e-learning platform. Henceforth, e-learning helps learners to reach personal objectives by using a device or electronic technology.

E-learning materials offer several benefits for the students namely; they possibly access the material for free instead of spending a lot of money to buy books or to print out the hard copy of materials. Besides, Condruz-Bacescu (2014) conveyed the benefits of elearning materials that the students become more excited about the lesson as it becomes more attractive. The combination of sound, image, and movement can attract students' attention, the use of e-learning can save cost spent by the students because the cost of educational software and e-learning are affordable as students can access it freely from the internet, e-learning can help students to learn individually as each student has different and assimilation different background knowledge. By using e-learning, it offers students mobility because they can get the elearning in more flexible time and place depends on their availability as long as the devices are connected to the internet.

Based on the pre-observation result, it can be concluded that SMA Bali Mandara needs supplementary English material by using e-learning, especially for the Architecture Engineering Department as one of the departments in SMKN Bali Mandara. The students are prepared to do a training session overseas which means that the students need to master English to be able to speak fluently. The students should be prepared with good communication skill, especially communicate with the English language to face ASEAN Economic Community (AEC), because they have to face the real workplace and become the member of a global citizen.

By considering the needs of Architecture Engineering Department students in SMKN Bali Mandara toward English materials which can support them to be competent in their English learning process, suitable materials were developed to support their learning process. This study conducted to develop supplementary e-learning-based English materials for teaching the tenth grade of Architecture Engineering Department students of SMKN Bali Mandara in the form of electronic materials as 95% of the students have already gotten their mobile devices. By having some supplementary e-learning-based English material, it is expected that the **Architecture Engineering Department students** of SMKN Bali Mandara have suitable learning materials which are concentrated on the four English language skills (listening, speaking, writing, as well as reading). It is thoroughly useful for them when they have their training session or face the real work field in the future.

The tenth-grade students were selected as the subject of the research because the earlier students learn the language the better. Furthermore, the students of SMKN Bali Mandara would have their training program, especially for the eleventh grade.

Before starting the training program, the Architecture Engineering Department students should be ready with adequate English skills to help them go through the training program. Nevertheless, the twelfth-grade students would be hectic with the preparation of the national exam. Therefore, they would concentrate their learning on the material that was prepared by the teachers and assessed in the national examination.

SMKN Bali Mandara was selected because it was one of the reputable vocational high schools in Singaraja. Based on the preresearch that had been conducted, it is compulsory for SMKN Bali Mandara students to use English in their daily conversation at school. Therefore, English has an important role in students' daily life at school. In SMKN Bali Mandara, English is not merely a learning subject that ought to be taken by the students, yet it is used as a medium of directions or instructions given at school. Hence, the school needs to master English higher than other senior high schools in Singaraja. In addition, according to the syllabus of the English subject that is implemented at school, the teacher does not provide the students with suitable learning material based on the students' expertise program. However, since the students mostly master general English, the researcher has designed supplementary materials with some topics related to the architectural engineering department in the form of e-learning. Additionally, SMKN Bali Mandara is capable to facilitate the students with e-learning as they are provided language laboratory with computers and wifiat school.

LITERATURE REVIEW

Some researchers conducted a study related to the current study. Dewi (2016) conducted a study about Developing Differentiated Electronic Supplementary Reading Exercises for the Slow Learners of

Seventh Year Students at SMP N 2 Singaraja. Dewi used research and development designed by Sugiono (2011). The data of the collected through questionnaire, interview, observation, expert judge, and field study. Further, she analyzed the result of the data using descriptive analysis and interrater agreement. The result of the study showed that; the supplementary reading exercise for the seven-year students at SMP N 2 Singaraja was integrated with ICT, the design of the electronic supplementary reading exercises for the slow learners was developed based on the needs, the electronic supplementary reading exercise for the slow learners was categorized as high-quality exercises based on content validity, empirical validity, quality of the media and field test.

Additionally, Ana (2011) researched Developing E-learning Based English Reading Materials for the Tenth Year Multimedia Students of SMK N 3 Singaraja. The researcher used R&D designed by Leen and Owen (2014). The design involved five steps namely; need analysis, design, development implementation, and implementation. The data of the study were gathered through questionnaires, interviews, field notes, expert judgment sheet, scoring rubric, pre-test, and post-test. The data were analyzed using interactive data analysis, interrater agreement models, and theoretical references. His research aimed at creating English reading materials for the tenth year students of SMKN 3 Singaraja. There were some research findings from this study. First, the tenth-year multimedia students of SMK N 3 Singaraja needed specific English materials that were related to their future job or study. Second, the result of the validation process that was conducted by having expert judgment showed that the developed material considered as high validity. Third, besides the result of validity, the expert judgment result was used to categorize

the ESP and e-learning material. The result showed that the developed material belonged to very good material. Fourth, the result of the field study showed that the developed material enabled to enhance the students' reading comprehension. It could be seen from the result of pre-test, post-test I, and post-test II that measured the students' reading comprehension. Fifth, from the observation in developing and implementing the developed material, the problems found were about technical and financial problems.

Another study was conducted by Ahmad and Al-Khanjari (2011). This study investigated the effect of Moodle on students learning process for the foundation program at Sultan Qaboos University, Sultanate of Oman. This study used digital course material. The results of the study revealed that the students found it hard to use Moodle at the beginning of the course. Nevertheless, at the end of the course, they could give value to the significance of using Moodle. The Moodle were accessible for any internet users accessed from any locations at any time. Students were comfortable using Moodle after all and experienced its importance. Moodle also assisted them in understanding comprehending better the course material through the revision of their course web contents, and especially students who preferred face to face approach, their learning was supported with online Moodle activities as a favorite mode of learning.

Furthermore, Rahayu (2014) researched Developing English Learning Materials for Grade XI Students of Fishery Study Program. This study aimed at describing the learning need, target needs, and developing English materials for grade XI students of the Fishery Study Program. The research procedure was adopted from the research procedure proposed by Borg and Gall

(1983) and material development procedure from Jolly and Balitho in Tomlinson (1998). The steps of this research were needs analysis, a course grid development, material design, expert judgment, and written final draft. There were two questionnaires used to collect the data. The first questionnaire was administered to collect data for need analysis and the second questionnaire was used to evaluate the appropriateness of the materials in the expert judgment sheet. The data were analyzed using descriptive statistics. Based on the result of the descriptive statistics, the mean value of the developed materials was 3.91. Therefore, the developed material was categorized as "very good".

Relatively, similarly findings were identified by Rachmani (2014). The study was to identify the learning and target needs as well as develop English learning materials which appropriate for eighth-grade students at MTsN Yogyakarta 1. The researcher used the system approach model from Garl and Borg (2003). The steps of developing the material were researching and collecting information, planning, developing the materials, reviewing the materials, and writing the final draft of the materials. The types of data were quantitative data and qualitative data. The quantitative data were collected using questionnaires and analyzed by descriptive statistics. The qualitative data were the expert's opinion about the content, the presentation, the language, and the graphic design units of the developed materials. The researcher developed three units of this study. Every unit consisted of language functions, grammar, and vocabulary. Based on the expert judgment, the content, the presentation, the language, and the graphic design of the developed materials were categorized as "good".

Finally, Ratminingsih, et. al (2018) researched descriptive qualitative research

entitled English for Tour Guide: A Need Analysis of a Contextual-Based Language Teaching. The objective of the study was to report the result of need analysis of English for Specific Purposes (ESP) for local tour guides in two villages in Buleleng Regency. The result of the study involved 56 tour guides, in which 30 were based on Ambengan village, and the rest 26 were posted in Sambangan village. The instruments used by the researchers to collect the data were observation sheet. questionnaire, and interview guide. It was found that the villages had some potency to attract foreign visitors, such as waterfalls and terraced rice fields. Based on the findings, both groups had the low speaking skill (56.05%), (43.95%) understood English, but could not speak English at all. Moreover, they all need oral English, (69%) speaking, and (24.5%) listening. Based on the learning need, they required (90.5%) as the most necessary learning material. as a tour guide, they need to describe the places and their history to foreign visitors.

From the previous researches above, it can be concluded that the researchers develop e-learning in the learning process. In this study, the researcher developed e-learning based English materials to help the English teacher and the students in the learning process, especially for teaching the tenth grade of Architecture Engineering Department students of SMKN Bali Mandara.

RESEARCH DESIGN

This research aimed at creating elearning based English material for Architecture Engineering Department students of SMKN Bali Mandara. The design of Research and Development (R&D) was used as the guidance to develop tailor-made ESP material. The Richey and Klein model were implemented to conduct the study. In implementing Richey and Klein model, there were three processes namely Design, Development, and Evaluation (Richey & Klein, 2014). In the design process, it found out the need for assessment practice (Richey & Klein, 2007). In the development process, the result of the needs assessment was utilized as a rule to create the developed materials. The researcher conducted an evaluation process to assess the quality of the product and to ensure that the developed product met the functionalities and requirements during the structure and improvement stage (Ellis & Levy, 2010). The process of conducting The Richey and Klein model can be seen in figure 1 below:



Figure 1. Richey & Klein Model

The study used the English teachers and the tenth-grade students of SMKN Bali Mandara as the subjects. The researcher chose the tenth-grade students of the architectural engineering department because it was found that the students used English in everyday conversation, based on the preobservation. The English teachers in SMKN Bali Mandara still taught general English for their students in the teaching and learning process, especially for Architecture Engineering Department students. Consequently, the researcher developed supplementary English materials with some topics related to the architectural engineering department.

There were three procedures namely design, development, and evaluation. In the design step, the need analysis was conducted.

In conducting the need analysis, the document analysis technique was used. The document analyzed was the syllabus of teaching English used in SMK Bali Mandara. In the development step, the result of need analysis was gathered and collected into learning material. The learning material then was put on in an online platform. In the evaluation step, three expert judges were asked to rate or to give scores related to the teaching material developed. The result of judgments was calculated to give the category of the material.

There were some methods used to collect data. Those methods were document analysis, interview, observation, and expert judge. The research instruments were a checklist, interview guide, and expert judgment. The data analysis was descriptive data analysis and interactive data analysis by Miles and Huberman (1984:23) model.

FINDING AND DISCUSSION

The result of the study showed that in developing the materials, the researcher connected the syllabus used at school to the materials being developed. From the syllabus, it was found that there were 5 (five) materials that should be developed, they were announcement text, Transactional interaction texts (simple past tense and present perfect tense), recount text, narrative text, and song lyrics.

The design of English materials was decided based on the units of the syllabus. There were nine units, but the researcher chose five units only in the second semester. There were five chapters in this developed material, in which each chapter should be completed with the following parts, such as, the title of the chapter, students' competency,

indicators, objectives of learning, learning materials, assessment part.

The quality of the product was determined based on the result of the expert judgment. There were three expert judges involved in evaluating the product. The score given by the judges were then transformed into five scale classifications by using a criterion-referenced test. Based on it, the total score was 206, and it categorized into excellent.

In the research and development study, there was a product as a result of the study. The developed materials were made as elearning based English material. It was specifically created for Architecture Engineering Department students because they need supplementary English material. The materials contained some topics related to their field. In the vocational high school curriculum, English is considered as an essential subject for the students because it supports their knowledge to be more wellinformed based on their mastery program. In other words, the students need specific English exercises (listening, speaking, reading writing) which are able to help them gain more knowledge about their future job. In fact, vocational students are given general English materials which are similar to senior high school students.

The researcher used document analysis, observation, interview, and expert judges as the methods of collecting the data. Firstly, the researcher collected the data through a need analysis. The document analysis was to analyze the existing material and exercises used by the tenth-grade of Architecture Engineering Department students at SMKN Bali Mandara. It was conducted by using a checklist that was developed based on e-learning-based English material in accordance with students' needs. It was found that the materials were based on

the syllabus. The English teacher did not use any guidebook. The teacher merely used the syllabus and developed the material by herself. The teacher used to find other references on the internet to support the learning materials. The learning process was not only done in the classroom, but also in the language laboratory. After discussing it with the teacher, she agreed that the supplementary e-learning English materials with some topics related to the Architecture Engineering Department in SMKN Bali Mandara were developed in the form, Moodle.

Secondly, the researcher interviewed the English teacher to collect the data about kinds of English materials in the form of elearning that were needed by the tenth grade of Architecture Engineering Department students at SMKN Bali Mandara. The result of this interview was used as the consideration in developing the content and design of the product. The researcher used Target Situation Analysis (TSA) frameworks by Hutchinson and Waters (1987) to guide the researcher in collecting data during the interview, the frameworks include, the importance of English for drafter, the function of English for drafter, the content area of English used for drafter, the participants affect the use of English, the usage of English according to setting and context, and the frequency of English used.

1. The importance of English for Drafter

The teacher stated that English is necessary for study, work, and training. The teacher mostly used English during the learning process that required the students to master basic English. When the students turned into XI grade, they would have training program. It could be done in Bali, outside Bali, or even overseas. Therefore, the students have to be ready to master basic English skills.

2. The function of English for Drafter

The teacher stated that the frequency of English used in reading, writing, speaking, and listening was different. In reading, the teacher used full English, if students had a new vocabulary or a question, they would ask the teacher directly. In reading, the teacher sometimes asked the students to write down some new vocabularies in their notebook, find the meaning in the dictionary, ask their friends, and discuss it together. In writing, English was fully used here. It was similar with reading, if students had a new vocabulary or a question, they would ask the teacher. In speaking, some students spoke English confidently with little errors, and some students still struggled. In this case, the teacher used grammar translation method. In listening, the teacher sometimes spoke or explained slowly because not all students were good at English. When it was listening section through audio or video, the teacher gave 3 chances to listen to the audio. Sometimes, the teacher gave a pause in several sentences in the audio or video.

The content area of English used for Drafter

The teacher stated that since the materials based on syllabus, it means that the English for Architecture Engineering Department students were similar with the other departments. The exercises were probably different because each teacher designed the material differently. Kinds of English used for the tenth grade of Architecture Engineering Department students were general English.

4. The participants affect the used of English

The teacher stated that there was not any differences language used to talk with native and non native speaker, since they used

general English. Nevertheless, the teacher stated that there was a difference when they talk to different level of knowledge of people. The teacher taught using grammar translation method sometimes. The teacher guided the students slowly and surely to ensure that the students received the new knowledge or information well.

5. The usage of English according to setting and context

The teacher stated that there were different uses of English in school, internship place or workplace. Those are, students used general English in school, meanwhile in internship place or workplace, they would use English based on their expertise. The teacher added students at least had to master the general English; it would make them easier to adjust in the internship place. The teacher also stated even though the school provided internship abroad, but the internship only had been done in own country so far.

6. The frequency of English used

The teacher stated that she often used English in the classroom and everyday conversation with students. For example, when the students walked past the teacher, they would use English. Moreover, when the students met the teacher at school canteen or dormitory, they would use English too.

Thirdly, the researcher conducted observation to provide the steps of the development of English materials in the form of e-learning for the tenth grade of Architecture Engineering Department students at SMKN Bali Mandara. There was a problem faced during the observation. The teaching and learning process were a continuance of the previous lesson and it continued to the next meeting. The teacher had many tasks to be done, as the result she could not teach

regularly. The teacher gave assignments to students to cover it.

Fourthly, expert judgment was conducted. The researcher started to design the developed English materials for the tenthgrade Architecture Engineering Department students of SMKN Bali Mandara. Afterwards, the researcher made an expert judgment sheet. Expert judgment was conducted to validate the design of the product as well as to evaluate the quality of the product. The researcher used Widodo and Pusporini (2010) design to create the expert judgment. There were eight principles of ESP material design that are used as the criteria of validation on the expert judgments sheet.

There were three experts involved in the expert judgment process. Two experts were in developing e-learning-based English material and mobile devices for the product design validation process. The last expert was the English teacher of the tenth-grade Architecture Engineering Department. The instrument was used to conduct the validation of the product design and to evaluate the product in an expert judgment sheet which was created dependent on the result of the document analysis.

Then, the evaluation result given by the three expert judges was calculated to justify the quality of the material. The calculation process followed by the formula named five scale classifications with a criterion-referenced test. The result of the expert judges was 206 in total. It was categorized as 'Excellent' in the five scales of the quantitative level. It indicates that the product was scored excellently by the three judges. However, some comments were added to the judgment sheet. These comments were used as feedback for further revision of the product

Given the previous explanation, it can be concluded that the strengths of this research have supported by the previous researches that had been mentioned in an empirical review. First, this product quality was categorized into excellent based on the Criterion-Referenced test with five scales classifications. It is based on the evaluation result by the three expert judges with a total score of 206. The expert judges mostly gave 5 (very good) and 4 (good) score. Second, the developed materials were supplementary materials integrated with four language skills; reading, writing, listening, and speaking. Hence, the developed materials consisted of practice exercises to help the tenth-grade Architecture Engineering Department students to be more skillful in English. Third, the materials were designed for active learners that enable the student to solve the problems in each topic actively.

These developed materials could help the English teacher at SMK N Bali Mandara, especially the tenth-grade Architecture Engineering Department's teacher to support the learning process because the developed materials were supplementary material in the form of e-learning Moodle that could assist the teacher to facilitate the students' needs in achieving the learning goals. The developed materials were in general English with some topics related to the Architecture Engineering Department's materials.

CONCLUSION

Based on the analysis that had been done in chapter IV, the conclusion of this study could be stated as follows. Firstly, there were 5 (five) materials that were developed; announcement, transactional interaction texts, recount text, narrative text, and song lyrics. Secondly, the developed materials were designed into five chapters, in which each of Lingua Scientia | 66

them consisted of the title of the chapter, students' competency, learning indicators, learning objectives, learning material, and assessment part. Thirdly, the quality of the developed material was assessed by using expert judges. There were three expert judges who checked the quality of the product; one English teacher who taught the tenth grade of Architecture Engineering Department students, and two lecturers. Based on the expert judges, the product was categorized as 'Excellent' with a total score of 206.

In connection with the conclusion above, the researcher would like to propose several suggestions:

Due to the lack of time and Corona Virus Disease outbreak, the researcher used the design between Richey and Klein (2007) in developing the developed materials. They were Design, Development, and Evaluation. The processes of the developed materials were only up to expert judges from the three experts. For future research, the process of material development was expected until the massive product step because the final product in this research is only a prototype. There should be a field test for this product until it is ready for publication.

For other English teachers in SMKN Bali Mandara, hopefully, they would like to design their own material in the form of e-learning for the students. It could be more interesting for students because it can help students to learn something new, like technology, and can improve students' willingness in learning. In other words, the learning process will not be boring.

For SMKN Bali Mandara, hopefully, they would like to accommodate other researchers to design another material in various forms. It is important because the students of SMKN Bali Mandara are known as a vocational school that has many talented students in Bali. More learning materials and

support can highly support them in the learning process.

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