

DEVELOPING CTL-BASED AUTHENTIC READING MATERIALS FOR STUDENTS OF MINING ENGINEERING STUDY PROGRAM AT POLITEKNIK NEGERI KETAPANG

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Abstract: This study aimed to design authentic reading materials mining engineering study program students of a Polytechnic in West Kalimantan, Indonesia. The design of the product was written by referring to the instructional objectives mentioned in the syllabus. The content of the product was based on the instructional objective mentioned on the syllabus. Each unit of the learning materials discusses different topics and was developed by following the components of Contextual Teaching and Learning (CTL). The components of Contextual Teaching and Learning were divided into three main activities, namely: warm-up (pre-activity), whilst activity, and post activity. The participants of the research were the second semester students of Mining Engineering study program, consist of 43 students. The result of this study was described qualitatively. The results indicated that the reading materials covered the students' target language learning needs and the scope of the study program's curriculum. Besides, the students found them understandable and interesting. And both the lecturers and students could use the reading material with ease. We concluded that the reading materials increased the students' interests (practicalities). The material design provided new learning content, and reflected clear learning targets (effectiveness).

Keywords: authentic material, ctl, material development, mining engineering, reading material

INTRODUCTION

Teaching material has a big role in controlling the teaching-learning process. It gives a stimulus, support, and reference to the learners to reach their goals in learning. The researcher did an observation in Politeknik Negeri Ketapang and found some complicated problems related to textbook or course book used and students' reading skill. There were two main factors that interfere the reading skill, they are internal and external problems. The internal problem relates to the students' reading skill, students' curiosity, and intention into reading. The external problem relates to the students and the reading materials. The students need some support such as related English learning materials to enhance their competence in reading skill. The students need reading materials that present vocabulary and examples with the aim to activate their prior knowledge so that they may easily construct new knowledge about the topic being learned. The considered learning materials have to deal with the students' needs and intentions. The students, indeed, have to focus on the learning activities and integrate them with other subjects. In other words, the teaching-learning materials should be ESP-based since it enables the students to learn related vocabulary to their major.

Prior knowledge is considered one of several important factors that influencing students' learning and achievements. Prior knowledge gives students a chance to connect their own perceptions to the topic provided in the class. Moreover, it gives them a stimulus to develop their perceptions toward the learning materials. Once the students connect their prior knowledge to the topic given in the class, they simultaneously learn to construct the concept in a teaching-learning activity. It is also the reason for the importance of using authentic reading materials in the classroom. Hasan et al. (2018), in their research, stated that prior knowledge leads students in comprehending the reading text. In addition to this, Hailikari (2008) stated that students' prior knowledge is important to be assessed since it may support their learning. She also conveyed that students' achievement is significantly influenced by the prior knowledge from the previous course. In an attempt to promote the students to use their prior knowledge in the class, the lecturer has to employ authentic materials in the class. This lies in the reason that authentic material may lead the students to get the real example of their target language as well as awaken their motivation during the teaching-learning process as it gives them a learning experience of the subject, thus, they get encouraged to further read.

Authentic reading material helps to gain more experience in real-life situations. It supports students to learn intensively to their target language. There were several studies in line with authentic material and students' reading improvement. Firstly, the study of Aryanti and Anggaira (2016) attempted to compare the results of the implementation of two different measurements. Analyzing its condition, they found an improvement in students' reading interest after the utilization of authentic materials in the classroom. Secondly, Marzban and Davaji (2015), in their study, they found that the students became more motivated to read about their own favorite topics or new things after reading authentic texts. This study has presented evidence of a strong relationship between authentic texts and reading comprehension. Moreover, authentic reading can increase not only students' comprehension but also promote other aspects of language learning such as vocabulary and knowledge about grammar.

In addition, it is important for presenting the students with some proper reading materials to increase their interest in reading activities. Harmer (2001) stated that students have to be presented a program that includes appropriate materials, guidance, tasks, and facilities. Authentic reading material is important to be developed for mining engineering students in order to lead them to real-world situations, thus, they may gain better knowledge for their future. Contextual Teaching and Learning (CTL) is appropriate to keep the students engaged to the real-life situation in learning. CTL leads students to involve in meaningful activities that help them relate academic studies to their real-life situations. According to Johnson (2002), CTL is based on the philosophy the process of learning is valuable when the students find the meaning in academic material also

find the valuable purpose in school work when they can relate new information with their prior knowledge and the experience they have before. Satriani et.al (2012) revealed that CTL promotes and encourages the way to connect the real-life situation of learning to the CTL facilitates students in learning by bringing the knowledge that students are familiar with. It presents and utilizes the real context that familiar to the students' prior knowledge and background of knowledge.

METHOD

Research Design and Procedures

The method used in this research is development research. The aim of this research was to develop reading materials. The resulting product of this research is in the form of a module of English reading material for the students of the Mining Engineering Study Program at Politeknik Negeri Ketapang. This research used the model of ADDIE by Branch which consists of five steps, they are analysis, design, development, implementation, and evaluation. In the analysis step, the researcher distributed questionnaires that focused on students' needs, lecturer's needs, curriculum, syllabus, lesson plan, and academic calendar. In the design phase, it is important to consider the arrangement of the tasks, the determination of the performance or the activity that students have to perform, and steps of using the designed material. In the development phase, the reading material was developed using the data from two previous steps to create and test the material design's outcomes. The aspects that have been considered in this phase were the suitability of material design to the time arrangement in the class, the appropriateness of the material design to the students' intention, and the students' engagement and involvement in the lesson. In the implementation phase, the researcher considered the feedback from the lecturer and the students to reflex on for the next modifications to obtain optimum practicality and positive result. The evaluation step is intended to assess the quality and effectiveness of the whole instructional design process.

Research Setting

This research was conducted in Mining Engineering Department, Politeknik Negeri Ketapang. Politeknik Negeri Ketapang consists of eight study programs, such as mining engineering, agricultural cultivation engineering, agricultural process engineering, mechanical engineering, agro-industry, electrical engineering, civil engineering, and information and communication. The research participants in this study were the second-semester students of Politeknik Negeri Ketapang. The students came from various backgrounds in education. Some of them were in the natural science class and some others were in the social science class. Other than that, they also had different backgrounds in economy and culture.

Data Analysis

This research used qualitative data analysis. The data obtained from the need analysis, experts' judgment, and students' questionnaire. The data from the need analysis analyzed by using frequency and percentage and the data from experts' judgment and students' questionnaire were analyzed by using likert-scale after that all of the data were described qualitatively.

FINDING AND DISCUSSION

The Result of the Need Analysis

The need analysis was conducted at the first stage of the research to obtain the description of the students' needs. The questions were in form of multiple choice, and some of them allowed the students to choose more than one option There were two considered aspects in investigating the students' needs, There were four aspects investigated in target needs, such as goals, necessities, lacks, and wants. There were three aspects were investigated in learning needs, they are input, procedure, and setting.

Concerning the students' goal, their expected improvement in learning English is to read well and properly, which was shown in the data that 32.55% of the students expected to read well and properly, 27.90% expected to improve their vocabulary, 25.58% expected to use the language in the text in real-life communication, 13.95% expected to understand the text well and answer the questions based on the text given. In the aspect of necessities (the students are permitted to choose the options more than one) 72.09% of students stated that they needed short story/functional text as reading material in the class, 65.11% of the students stated that they needed long text as reading material in the class, 20.9% stated that they needed news/article as reading material in the class, 6.97% stated that they needed documentation story as reading material in the class. Concerning the students' reading skill in the class, 60.46 of the students stated that their reading skill is not good, 23.25 of them stated their reading skill is poor, 13.95 of them stated their reading skill is good, and 2.32 of them stated their reading skill is very good. Besides 53.08% of them stated the obstacle in learning English is understanding the structure, 51.16% stated the obstacle is learning English is understanding the vocabulary, 34.99% stated the obstacle in learning English is understanding the text function and text structure.

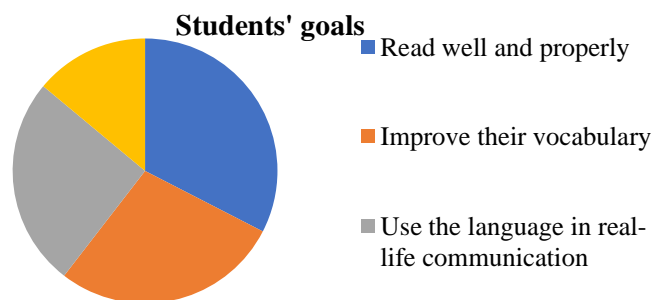


Chart 1. Students' Goals

Concerning wants aspects, 62.79% of the students stated reading ability is very important in learning English. Concerning input aspects, there was 55.81% total of the students stated they need some articles from the internet. For the text they want in the reading activity, 41.86% of the students stated they wanted the texts that consist of 200-300 words. For the aspect of the procedure, 30.23% of the students need the activity such as identifying and correcting the incorrect sentence structure for improving their sentence structure. For the activity to improve their vocabulary, 34.88% of the students chose using a dictionary to find the meaning of the new words. For the aspect of the setting, 41.6% of total students choose to study in groups during the teaching-learning activity.

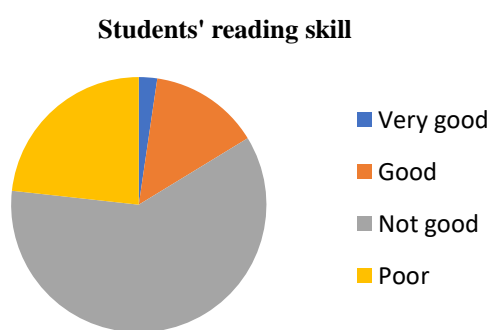


Chart 2. Students' Reading Skill

Expert Judgment

There were four experts involved in this research. After developing the material design, it was validated to the experts. There were five aspects of validation, such as the syllabus and curriculum, methodology, suitability to learners, physical and utilitarian attributes, and learning-teaching content, with the aim to know whether or not the product is in line with those aspects.

Table 1. Experts' Judgment

No.	Aspects	Mean
1	It matches the specifications of the syllabus (it matches the instructional objectives)	3.75
2	The module is appropriate to the subject matter	4
3	Activities are suitable for to the semester 2 students of Teknik Pertambangan	3.5
4	Activities can work well in most classroom situation	3
5	The learning material is arranged systematically based on Contextual Teaching and Learning (constructivism,	3.25

	questioning, inquiry, learning community, modelling, reflection, authentic assessment)	
6	It is compatible with the background and knowledge and level of students	3.5
7	It is compatible to the age of semester 2 students of Mining Engineering study program	3.75
8	It supports and can give motivation to the students to learn English	3.25
9	Its cover is inviting	3.75
10	Its layout is attractive	3.75
11	The font size, font style and the colour are appropriate	3.25
12	The pictures support the students to understand the material easier	3.5
13	Task are varied	3.25
14	The material contains the thing in students environment (West Kalimantan)	3.5
15	It supports the learning of other subjects, such as Kristal dan mineral, mekanika teknik, mekanika batuan, etc.	3.75

There were five criteria considered on the experts' questionnaire and it was heading into fifteen aspects. The criteria were about the book in relation to syllabus and curriculum, methodology, suitability to learners, physical and utilitarian attributes, and learning-teaching content. The experts' validation result in table 1 shows that the reading material has reached a good score. 1.00-1.74 means "poor", 1.75-2.49 means "fair", 2.50-3.24 means "good", and 3.25-4.00 means "very good".

Students' Evaluation

There were four components being evaluated by the students, they are the appropriateness of the content, language, presentation, and graphic.

Table 2. Students' Evaluation

No.	Component	Scale				
		1	2	3	4	5
The appropriateness of the content						
1	Appropriate to the instructor's goal			2	11	30
2	Appropriate to the students' need			3	8	32
3	Appropriate to the need of teaching material			5	8	30
4	Content validity			2	3	38
5	The advantages of improving students' knowledge			4	6	33
6	The suitability to the other subjects			3	6	34
Language						
7	Legibility			8	5	30
8	Content clarity			6	8	29
9	The suitability of the language to the students' level			8	8	27

10	The effectiveness and efficiency of the language used			8	11	24
Presentation						
11	The clarity of the purpose			7	12	24
12	The sequence of presentation			7	14	22
13	Motivation			5	8	30
14	activity			7	14	22
15	Comprehensiveness of information			4	10	29
Graphic						
16	Font (type and size)			8	14	21
17	Lay out			6	9	28
18	Illustration, picture, and graphic			7	16	20
19	Display design			3	12	28

The data in table 2 shows that the students have good evaluations to the reading material. 3 means good enough, 4 means good, and 5 means very good. The questionnaire was given after the implementation to get scores about the students' evaluation of the reading material.

The Learning material developed by the researcher and the collaborators was a reading material that contains various kinds of texts. As stated by Dowd and Pisani (2013) about the importance of reading material for the students, the development of reading skill is influenced by the availability of reading material. The appropriate type of text for polytechnic students is authentic text. The students of the Mining Engineering Study Program at Politeknik Negeri Ketapang are demanded to be able to read the literature about mining that is written in English as well as to write and use English in the context of mining engineering. To support the students' achievement, they have to be provided with texts that are related to their target language. By using authentic material, the lecturer can bring the students the factual and genuine language used in the real-world context into the classroom. As stated by Hwang (2005), although authentic reading material is integrated into the classroom, it helps EFL students who are studying English to experience the language that is used there. Furthermore, it also helps the learners to be close to the real language.

Authentic reading material is appropriate for the students of the mining engineering study program because it leads them to the real-life communication and support their target needs. It is supported by a study conducted by Ahmed (2017) that states authentic materials convey the relevant messages that enrich and widen the students' use of the real-world language and it pay attention to the background, need, and expectation of various target group. This research finding was also in line with Fitriyah (2018) that believe the authentic material plays an important role in developing effective skill and motivate learners in learning language. And the effectiveness of authentic material is also revealed by Oguz et.al (2008) that states authentic materials can increase the quality of foreign language teaching.

The authentic reading materials are adopted and adapted from some sources such as books, the internet, and some articles. As stated by Khoshtakht et.al (2017) there are some examples of authentic texts, namely a newspaper article, a rock song, a novel, a radio interview, and traditionally fairy story. It is in line with the examples of authentic materials stated by Sukirland (2012) that refer to the use in the teaching of texts, photographs, video selections, newspapers, magazines, short stories, novels, and other teaching resources that were not specifically prepared for pedagogical purposes.

It is important to make it clear about what approach the researcher use in designing the learning materials to keep the information clear and the research is more consecutive and ordered. Johnson (2002) stated CTL give the students a more complete activity to do while engaging to the learning material. CTL activates the students' prior knowledge to construct their own meaning about the topic, and it gives a chance to the students to summarize the knowledge they have gained during the previous activities. It consists of seven components which every component is supporting each other. The seven components of contextual teaching and learning are divided under three main activities in the material design, they are pre-activity, whilst activity, and post activity. It is in line with the research that did by Prawisma (2012) that stated a good material design that using CTL is ordered into three phases, they are pre-activity consists of activity that activate students' knowledge, main/whilst activity that consists of several reading passages to develop students reading skill, and the last is post-activity that consists of review and reflection about anything that the students have learnt in the unit.

Regarding to the second research question, from the data obtained, it can be concluded that all of the students have a positive attitude toward the reading material design.. Especially for the aspect of the appropriateness to the instructional goal, both the students and experts stated that the reading material was appropriate to the syllabus. The authentic reading material gave a good effect on the students. Most of them stated that the reading material increases their interest in learning English. This result is in line with the research done by Aryanti and Anggaira (2016) who stated that the students' reading interest improved significantly after employing authentic materials in the classroom.

The lecturers have to realize that the students of mining engineering at Politeknik Negeri Ketapang need learning material that covered the target language. Effective learning material is the one that meets the students' needs as it may help them to reach an optimum result in learning English. As supported by Fauzi et.al (2019), designed material based on the students' needs and expectations may support the students improve their reading skill and it may assist them to obtain the basic knowledge for their future careers.

CONCLUSIONS AND SUGGESTIONS

Based on the discussion, the researcher concluded that all of the students of the mining engineering study program and the experts have a positive attitude toward the reading material design. Other than that, the students and the experts agreed that the appropriate reading material for the students of the mining engineering study program is a learning material set up with authentic texts. The authentic texts lead the students to learn the basic knowledge as well as support them to learn and use the language related to their target needs. Accordingly, communication in the class or outside the class will be more meaningful.

Furthermore, in the need analysis, most of the students stated that their weakness is in comprehending vocabulary. Whereas, in the observation, the students stated that they lack vocabulary in their target language. The undertaken solution in overcoming these issues was by giving the students the related text of their basic skills. The content of learning material should meet the students' needs because it takes part in supporting students' motivation in language learning. When the students are provided with learning materials that covering their needs and expectations, it may increase their motivation and interest in language learning. There are several aspects that the material developers should consider, such as the students' needs, background of knowledge and language proficiency, and layout. The first thing to consider before developing teaching material is students' needs. Since the teaching material is designed for ESP students, it should be in accordance to the students' program of expertise. Later, the material design could cover most of the students' needs and intentions.

The second aspect is the students' background of knowledge and language proficiency by knowing those aspects, the material developer may consider the extent of the difficulties of material design. It will not help the students if the material design is too difficult for the students. The appropriate learning material will help the students in the teaching learning process.

The last aspect is the layout, it should be interesting and eye-catching. A good layout will support and help the students to motivate themselves to learn and it would increase the students' interest in using the material design to learn English. One of several aspects of a good layout is the availability of pictures. The pictures should be relevant to the topics.

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