EVALUATING AND ADAPTING READING MATERIALS TO DEVELOP VOCABULARY AND READING SKILLS OF ENGINEERING STUDENTS AT POLITEKNIK NEGERI BANDUNG

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Abstract: The English curriculum for the first year students of engineering departments at Politeknik Negeri Bandung encourages the students to develop academic reading skills. However, the results of the questionnaire shows that these students like to improve speaking skills although they perceive that they have problems in reading English references due to their limited English vocabulary and grammar. This study is conducted in an engineering class to obtain the appropriate reading materials so that they may not only develop the students’ vocabulary and reading skills but also match well to the students’ levels and interests. This inductive qualitative classroom action research starts from the students’ perceived weaknesses and ends at achieving the institutional and the students’ goals. The data are collected from questionnaires, interviews, observations and students’ journals. The text evaluation and adaptation are based on the students’ interests, language level, problems, and the goals of the program. The text evaluation is also conducted by investigating the students’ journals and oral reports. The results indicate that the adapted texts are capable of developing students’ vocabulary, grammar, reading skills, and thinking skills. This paper will discuss the processes of evaluating and adapting reading materials which can be practised by teachers at all levels.

Keywords: evaluating, adapting, reading materials, reading skills

One of various problems that English teachers should encounter is the mismatches or gaps between the students’ expectations and the institution’s responsibilities. The teachers are expected to bridge these gaps so that these various expectations can be achieved. Teachers should think of the learners because these learners will play important roles in teaching and learning. How good the teacher is, if the learners are not willing to learn, then both the teacher and students will not be successful. Learners will learn effectively when they have willingness and ability (Littlewood, 1996). Generally, the English reading classes in tertiary education apply teacher-centered teaching styles and make use of teachers’ selected texts for practising reading skills (Alwasilah, 2000; Djiwandonono, 2008). As a result, the class is monotonous, the students get bored, and the materials are not useful for the students because these reading texts do not have any relation with the accomplishment of their study (Alwasilah, 2000).

Based on the results of the questionnaire, the first year engineering students at Politeknik Negeri Bandung (Polban) also experienced this learning situation, even from the very beginning of the first semester. When they were requested to give their learning priority among the four language skills, they selected ‘learning English to develop speaking skills’ as their first priority, and ‘learning English to develop reading skills’ was selected as the fourth one. In addition, when they were requested to write their problems in using English for communication either orally or in written, they stated that their problems were their limited vocabulary and grammar.

However, the teachers are supposed to carry out the institutional curriculum focusing on academic reading and writing skills to help the students catch up with the development of science and technology and to develop learners’ autonomy. In addition, in Indonesia where English is regarded as a foreign language, students will have lots of English exposures from reading so by developing their reading skills, they can always develop their English.

Teaching and learning theories and the willingness of the students encourage the teachers to apply various strategies to make the students learn and acquire English. However, to have learner-centered classroom, teachers are encouraged to develop course materials that help learning (Nation, 2010). This paper attempts to solve reading class problems in a first-year engineering class at Polban by making use of the modified reading materials. The focus is on the process of developing reading materials namely evaluating and modifying authentic materials based on the students’ interests and needs so that these materials can match well with the various expectations of the students, teachers and institutions.

Theoretical concept

One of Indonesian education goals is to develop learners’ autonomy (UU RI No 12 Thn 2012). To achieve this goal, teachers have to think of the two main components of learning autonomy, namely willingness and ability (Littlewood, 1996). One characteristic of autonomous learners is that they are able to identify their problems of the target language knowledge and take steps to overcome their problems (Ridley, 1997). Learners
will learn a subject actively if it is useful and ‘comprehensible input’ for the learners as suggested by Krashen (in Krashen & Terrell, 2000). Thinking of these principles, when evaluating reading texts, teachers have to consider learners’ perceived problems, willingness, and ability.

As mention before, the engineering students perceive that they have limited English vocabulary and grammar. However, to understand written texts, readers need sufficient knowledge of vocabulary, grammar and discourse of texts (Nation, 2002) and they need to apply various strategies and skills to guess the intended meaning of the writers. They guess the written message in the texts by applying rapid decoding, large vocabularies, phonemic awareness, knowledge about text features, and a variety of strategies (Paris et al, 1991). They look at the text forward and backward to make causal and temporal chains of events and integrate information across sentences to identify main ideas, and making inferences. In addition, readers construct meanings maturely from texts, always monitor their comprehension, and refine and revise and evaluate their ideas.

One of reading skills called word attack-skills encourages learners to skip some unknown words and to guess the meanings of new words from context (Nation, 2002). When guessing, readers’ prior knowledge consisting of language, content and general knowledge, play important role. Then, to make the reading activity in line with the students’ perceived problems, it is focusing on developing guessing meanings from contexts.

Texts cannot be separated from reading activities. When selecting reading materials for intensive reading, teachers should think of the length, types and level of difficulty of texts depending on the settings, the students and the aims of the reading class. Intensive reading texts are short so that they can be handled within classroom periods and the level of difficulty depends on the length of sentences, vocabulary, grammatical complexity, organization, cohesion, abstractness, clarity and assumptions about prior knowledge (Nation, 2002).

In relation to ‘comprehensible input’ suggested by Krashen (in Krashen & Terrell, 2000), the vocabulary level of the texts used to practice guessing meanings from context must be slightly higher than the students’ levels or about 2% for non-assisted reading activities (Nation & Gu, 2010) or less than 5% for intensive reading class (Nation, 2002). For practicing the strategies of guessing meaning from context, teachers may use nonsense words so that these words becomes pure new words for the learners (Nation, 2002).

Based on the results of the questionnaire, the engineering students were interested in reading authentic texts dealing with their engineering subjects. Thinking of the learners’ perceived problems, interests, and the goals of the program, the authentic texts dealing with engineering were evaluated and adapted.

Methodology
This study was carried out by means of inductive qualitative classroom action research conducted for three cycles within twenty weeks (Wallace, 1998; Cohen, Manion, & Morrison, 2007). This study had three pairs of material evaluations, namely at the beginning and at the end of each cycle, and one material adaptation. The material evaluation for preparing Cycle 1 was based on the students’ interests and perceived problems. The results of the evaluation at the end of Cycle 1, especially the material weaknesses, were considered when evaluating and selecting the materials for Cycle 2. Then, the results of Cycle 1 and 2 were considered to evaluate and adapt the materials for Cycle 3. The data were collected from open and close questionnaires, interviews, observation, and students’ journals including the students’ self-observation written at the end of each cycle. This action research was an attempt to help the students solve their perceived problems and at the same help them achieve their needs.

Results and discussion
At the beginning of the reading program, students’ need analysis was conducted. The results indicated that there were mismatch expectations between the learning goals of most students and the institution. Almost all students (93%) wanted to improve their speaking skills; while the main objective of the English curriculum was to develop academic reading skills. When reading, they preferred to have engineering texts dealing with their majoring subjects. However, most students (66.7%) perceived that their main problem in reading was their limited vocabulary. These students were novice readers because of three reasons. First, based on vocabulary test developed by Nation (2002), the students acquired approximately 1750 words. Second, when reading, these students were focusing on word meaning. Third, to solve their perceived problems, they applied primitive strategies, namely asking someone and consulting a bilingual dictionary.

Considering the students’ weaknesses and good readers’ strategies, the reading texts were evaluated by applying these three steps; first, the students’ ability to identify the word parts and parts of speech of the new words in sentences. This was to evaluate whether the texts had appropriate grammar level for these students so that the students might acquire the English sentence structures and grammar and apply bottom-up reading process. The second was to evaluate the clues and the distances of the clues from the new words. This was to evaluate whether the texts were digestible so that the students could make use their knowledge or apply top-down process. Finally, the students’ guessing process was evaluated; this was to evaluate whether the adapted
texts encouraged them to acquire other reading skills such as skipping the unknown words, reading backwards and forwards, revising and refining ideas.

Cycle 1, authentic short texts taken from a children book ‘How Things Work’ were used for reading materials, because the students had limited vocabulary and were interested in reading engineering texts. Those texts were evaluated based on the topics, text length, and pictures. The text lengths were ranging from 42 to 103 words and consisting of one or two paragraphs; and each text had at least one picture completed with labels.

After the students read those texts, the effectiveness of these texts were evaluated. the results of questionnaires showed that 90% of the students found that the texts were useful but too difficult to understand. The students’ journals contained lots of the difficult words. The texts had high density of low frequency words that were ranging from 17% to 23%. Therefore, the vocabulary levels of those texts were not suitable for the students. Short texts containing one or two paragraphs caused learners to focus on very local context and they could not find more clues and failed to construct meanings. As a result, when the students encountered unknown words, they directly consulted bilingual dictionaries instead of guessing.

Preparing Cycle 2 texts, some samples of texts were evaluated. This was to obtain the appropriate level of texts, especially the vocabulary level. The texts taken from a set of children encyclopedia, such as Young Geographers’ series published by Thomson Learning and Time-Life’s Illustrated World of Science, published by Time Life Asia, were evaluated using recognition test suggested by Nation (2002) i.e. students underlined the unknown words of a text. Then, the average unfamiliar words were calculated by counting all the underlined words divided by the total words of the text. The result showed that those books contained unknown words of approximately 0.7% - 2%.

At the end of Cycle 2, the effectiveness of these texts was evaluated from the guessing process of teacher’s selected words written in the students’ journals. Their journals showed that they did not identify the word parts and parts of speech of those words and they guessed deductively by identifying the meanings and then selecting the surrounding words to support those meanings. This process indicated that they had familiar with these selected words. It was similar to top-down reading process when the readers applied their knowledge to understand the texts (Aebersold, 1998).

In Cycle 3, to encourage the students to guess the meanings of unknown words so that they were able to always develop their vocabulary, grammar, and reading strategies, the evaluated authentic texts taken from those books were modified. The technical terms, content words (nouns, verbs, adjectives, or adverbs), or the key words were replaced with nonsense words (Nation, 2002), so that these words were purely unknown words. These words were selected because they had clear contexts, such as clear explanation of the words in the text or having signalling words i.e. ‘called’, ‘or’, ‘for example’, ‘such as’ etc. If the original words were derivative words, the affixes were still embedded on those nonsense words. If these words were repeated several times, all the stem words were replaced with the same nonsense stem, for example the word ‘drain’ was replaced by ‘kluin’, then the word ‘drainage’ was replaced by ‘kluinage’ and ‘drained’ became ‘kluined’, etc. This was to help the students to identify the parts of speech based on suffixes or word-part recognition. If two or three related texts were used at the same time, the selected words existing in those texts were all modified consistently including the picture labels and notes.

To have natural reading and to apply word-attack skills, the students were required to guess the meanings of the marked nonsense words which were not appeared at their first time in the texts. This was to provide an opportunity to skip the unknown words and then reread them when they encountered again and guessed them. The total modified words together with the other new words were approximately 5% of the total words in the text(s).

At the end of Cycle 3, the effectiveness of these materials were evaluated. The results of using those modified texts which were analyzed from the students’ journals and recorded oral reports explaining their guessing process indicated that these texts were able to satisfy the students’ and teacher’s expectations. The embedded affixes helped the students develop their language knowledge. Their morphemic awareness was improved by being more analytical with those affixes. They were able to apply their bottom-up approach by means of recognizing word parts and word positions in phrases and sentences to identify the parts of speech and to guess the meanings of those words. The repeated purely unknown words encouraged them to find more clues from larger contexts. They traced the web of these repeated words to wider scope and even to different pages. Pictures, diagrams, labels and notes were very useful to predict new words. Therefore, the quality of the pictures played an important role.

The students’ reading skills were developed. They skipped the unknown words and guessed the others. They read the text backward and forward. They tried to apply multiple standard of monitoring by having more clues and expanding their context, especially when they guessed repeated purely unknown words in different paragraphs. However, there was a drawback of substituting the real words with nonsense words. The deep thinking process made them learn these nonsense words instead of the real words. To eliminate this drawback,
the teacher provided the original words directly after the students made right guesses, and changed the all the nonsense words into the original ones.

Conclusion
Using authentic texts for reading class is enjoyable, and develop learners’ willingness to read and improve learners’ content knowledge. However, these texts need to be evaluated and adapted so that they are matched well with the language level of the learners and the purpose of the program. The guessing activities develop learners’ language knowledge - vocabulary and grammar - and reading strategies and skills. Learners also have language learning experience because they learn English by focusing on meaning, construct meaning maturely, and repeat these words several times. Requiring learners to write the guessing process and report it orally encourage them to focus on the use of the words and the language.

References
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