

DEVELOPING COMMUNICATIVE SKILLS-BASED READING MATERIALS FOR TECHNICAL ENGLISH COURSE OF CIVIL ENGINEERING STUDY PROGRAM STATE POLYTECHNIC OF MALANG

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ABSTRACT

Reading is the most suitable skill in English for Specific Purposes (ESP) teaching and learning process. However, other skills should be accommodated in it. This study aims at developing appropriate communicative skills-based reading materials for Technical English 1 (TE 1) Course at Civil Engineering Study Program (CESP) State Polytechnic of Malang. The proposed materials had to go through expert verifications and revisions. Then the revised materials experienced field try-outs and revisions to be validated as a final product. A recycle was done to strengthen the validation. There are 7 units of reading developed based on Contextual Teaching and Learning (CTL) method, completed with appropriate learning activities and assessment techniques. The implementation of CTL approach has brought about betterment in the teaching and learning process of TE 1 Course for CESP students State Polytechnic of Malang.

Key-words: skills-based, CTL, recycle, betterment

So far the teaching of TE 1 Course at CESP was not optimum as the method was teacher-centered with presenting a reading text, doing the exercises, and doing homework. The achievement of TE 1 Course of 2006 Academic Year was 52.80% dominated by grade C and the grade class average was from 2.39 to 2.58. Gebhard (2000:49) also states that some English as a Foreign Language (EFL) classes are taught in a fairly teacher-centered fashion.

In his unpublished paper Baradja (2004) states that the purpose of teaching ESP is to help students read and understand books, manuals, journals, etc. on their field of study. The time allotment of once a week for ESP teaching at the university is not sufficient. In such conditions he suggests the teaching be emphasized on reading and comprehension.

In Indonesia where English is taught as a foreign language, the learning-teaching of reading is of particular importance (Baradja, 1999:1). Learners are expected to read a lot if they are really serious in their effort to master English well. This is the cheapest, easiest, and most effective way to acquaint them-selves with the language, the customs, the political adherence, the kinship system, the educational system, the beliefs, etc. of the English speaking people.

Hutchinson and Waters (1987) say for some reasons, there is already an established tradition of ESP teachers producing in-house materials. It is teacher's awareness of knowing much about the situational condition of his/her class, students' type,

students' needs, and students' ability that makes in-house materials developed.

As the teaching of English in Indonesia has been considered ineffective (Baradja, 2004; Latief, 2002), a radical revolutionary change in the educational paradigm has been done from Behavioristic to Constructivistic (Contextual) paradigm. Audiolingual method is not suggested, it must be replaced with communicative techniques in which Contextual Teaching and Learning (CTL) is included.

ESP teaching at CESP is best based on CTL. It can be defined as a learning concept which helps the teacher to connect the teaching materials with the students' real world and supports the students to connect their knowledge with the application in their daily lives.

ENGLISH FOR SPECIFIC PURPOSES

The scope and diversity of human thought and experience place great demands on language (O'Grady, 1989:1). Widdowson in Nunan (1993:24) says " ... ESP is essentially a training operation which seeks to provide learners with a restricted competence to enable them to cope with certain clearly defined tasks".

According to Suryawinata (1993:4) teaching ESP is an activity which should involve the students, their minds, and their emotions. It should interest them and make them enjoy. In this way they will be motivated to use ESP to express their own ideas, and this induces their creativity, which in turn results in

real communication and learning.

Different interests and needs contribute to the rise of ESP and result in the development of relevant courses to the needs. The standard way of achieving relevance was to take texts from the learners' specialist area (Hutchinson and Waters, 1987).

Related to the needs, Algadrie (2002:106) states needs analysis is most often needed where the learners in need of specific situation face very similar difficulties. The purpose of the analysis is not only to identify elements but also to find relative importance: what is the most desired. For example Herbolics in Hutchinson and Waters gives five reasons for choosing an object of the project: "The mechanism should be (1) relatively new to the students; (2) related to a field of engineering; (3) a device which allowed the attainment of new lexis; (4) a device which actually would operate; and (5) enjoyable to construct and test".

In conclusion, to develop ESP materials needs analysis must be taken into account, and the concept of learning must be the root of the activities. Teaching aims at making the students learn.

CONTEXTUAL TEACHING AND LEARNING

"Contextual Teaching and Learning (CTL) is a holistic system that helps students see meaning in the academic material they are studying by connecting academic subjects with the context of their daily lives" (Johnson, 2002:25).

Johnson describes CTL as a teaching and learning process based on the philosophy that students will learn something when they find meaning in the instructional materials and be able to link new information with their prior knowledge and experiences. Contextual approach is a teaching method that emphasizes learning by doing.

Further she quotes that teaching should be offered in context. 'Learning in order to know' should not be separated from 'learning in order to do' (*US Department of Labor* in Nurhadi, 2003). "Contextual" is derived from 'context' which replaces 'applied'. Contextual also directs thinking toward experiences. When ideas are experienced, used in context, they have meaning.

In conclusion CTL is a learning concept which helps the teacher to connect his teaching materials with the students' real world and supports the students to connect their knowledge with the application in their daily lives.

Latief (2002:254) sums up seven components of effective learning which characterize CTL. They are (1) constructivism, (2) questioning, (3) inquiry, (4) modeling, (5) learning community, (6) authentic assessment, and (7) reflection.

Constructivism

Constructivism is a philosophical basis believes that knowledge is constructed by humans degree by degree whose result is expanded through a limited context. It does not occur in a sudden. Latief says that the characteristics of constructivistic teaching paradigm is the active involvement of the students in learning process in accordance with one's ability, prior knowledge, and learning style with the teacher's help as a facilitator who helps them when they find difficulties in learning.

Questioning

Constructivistic paradigm is a specific characteristic of contextual-based learning in which the students raise some questions in the teaching and learning process (Latief, 2002:256). Such process able to build students' eagerness for quest is said to be a successful one. Questioning is a fundamental for the teacher and the students in an inquiry-based teaching and learning.

In other words, questioning is an essential strategy for both the teacher and the students. For the teacher it is a teaching activity able to encourage, guide, and assess the students' understanding skill; for the students it is an important means to obtain information, to bring information to their knowledge, and to nurture the vivid ideas. To question well is to teach well (Cooper in Nurhadi, 2003:45).

Inquiry

Inquiry is a scientist strategy in which the students are encouraged to do observing, questioning, answering, gathering information, and concluding (Latief, 2002:257). Beginning with observation, questioning which require answers follow. To answer the question, the students have to gather information through analyses to produce rational conclusions.

Inquiry learning gives active and concrete experiences to the students to take the initiative, to solve problems, to make decisions, and to conduct researches which lead them to life-long education. Hence, the students learn to use their critical and creative thinking.

Learning Community

Learning community is created based on the concept of collaborating. CTL encourage students to engage in a mutual learning activity to help each other by sharing one's different knowledge, experiences or skills to enlarge others'. In this case, everyone in the group is expected to be able to ask question and concern other's opinion. They have none of competition or domination. All of them are responsible to succeed their group instead (Latief, 2002:259). A student in collaboration with his/her

peers will gain better achievement than individual learning.

Modeling

Modeling refers to the existence of a model to imitate in the teaching and learning process (Nurhadi, 2003:49). Both the teacher and the students can be the model of the teaching and learning activities. At first the teacher should demonstrate or ask a student to demonstrate how to do something to the class so the others can imitate it. Besides, modeling can be given when finding difficulties or getting stuck. However, the teacher should let the students creatively find the most suitable way of learning for themselves.

Authentic Assessment

The right alternative to conventional technique of evaluating is authentic assessment (Latief, 2002:261). It is a process of evaluating the contextual-based teaching and learning process which does not only assess the students based on the standardized test but also on the inquiry learning process.

The term authentic assessment is to describe the multiple forms of assessment that reflect students learning, achievement, motivation, and attitudes on instructionally-relevant classroom activities (O'Malley, 1996:4).

Latief also mentions some characteristics of authentic assessment: (1) assessment is not separated from teaching and learning process, (2) the result of the assessment can be used to improve the teaching and learning process, (3) task is not too different from the real world.

Reflection

According to Latief (2002:262) reflection is a self-evaluation of the effectiveness of the teaching by the teacher and the effectiveness of the learning strategies by the students. By doing so, the teacher is able to see what activities are not appropriate and the student is able to see his/her own mistakes. These inputs are required to improve the teaching and learning process.

RESEARCH METHOD

Qualitative research is employed as the developer wants to nurture a specific style (Bogdan, 1998: 235). This study is a Research and Development which employs a series of activities to develop and validate reading materials.

Respondent and Sampling

There were 3 different groups of respondents consisting of about 90 CESP students each. The first was of the first year going to take the course called

the prospective subjects; the second was of the second year taking the course called the present subjects; and the last was of the third year having got the course called the past subjects.

Ninety sets of questionnaires were returned by the present subjects. Random sampling is employed and the writer took 50 samples which represents more than 50% of the entire population to generalize findings.

Instruments

There were three different questionnaires. The first was given to the prospective subjects to reveal their needs of English materials and expectation of English teaching at CESP. The second was given to the present subjects to give feedback from the developed materials. The third was given to the past subjects to see the result of the developed materials.

Interviews about the marks, the background, the attitude, the motivation, the level of difficulty, the significance of English acquisition, and the preference of learning English style were given to the present subjects.

Data Collection

Try-out was employed to evaluate the effectiveness and efficiency of the revised materials. This was to obtain data of material validity including the appropriateness of the materials, strengths, and weaknesses. The first try-out was when experts reviewed the materials. The second was field tryout in which the reviewed materials were implemented. On-going observations were conducted to validate the materials, and the results were used to revise the materials again.

The try-out design was first applied for opinions, comments, suggestions, or even criticisms from the experts to revise the proposed materials. The second was applied for feedback from the class who used the revised materials. Based on the feedback, the revised materials were revised again and implemented in the next class teaching. Observation was carried out to see whether the materials needed revising or not.

First of all, a survey was conducted to get the data of needs assessment. Based on the result of the needs survey, a set of reading materials completed with some techniques of delivery, learning activities, and assessment techniques were developed through selecting and sequencing.

The proposed materials were verified by experts who are a master in teaching ESP and a master in teaching material development. Then the result of the verifications was used to revise the materials and the revised materials were tried out in the classroom teaching to validate. In order to produce appropriate product for the designated

students, some revisions were made based on expert and empirical validations.

The first questionnaires addressed to the prospective subjects contributed crucial data to the materials development since they represented the students' needs.

The second questionnaires given to the present subjects were intended to see the attainment of each topic, the teaching technique, the level of difficulty, and the applicability.

The third questionnaires addressed to the past subjects also contributed important data to see whether the developed materials meet the needs or not. The questionnaires comprise the appropriateness, level of difficulty, interest, and the inclusion of the seven components of CTL.

Interviews were conducted to get some supporting information of the present subjects like the background, the attitude, the motivation, the preference of learning English style, etc.

Further, interviews and discussions were also carried out to the verifiers (experts) to gather information concerning the suggestions, comments, and opinions of the developed materials.

The first verification data presented the analyses of instructional objectives, material sequence, teaching and learning activities, and the presentation of the material.

Validation was done by discussing the data collected through questionnaires, observations, and interviews with the experts to revise the material.

Verification was done by revising the materials based on the feedbacks from both the experts and the subjects.

FINDINGS AND DISCUSSIONS

The findings cover results of: (1) needs analysis, (2) expert verifications, (3) field try-outs, (4) interviews, (5) validations, and (6) product of communicative skills-based reading materials.

Result of Needs Analysis

The findings of the needs are based on the data of the needs survey covering questionnaires for prospective subjects, interviews and questionnaires for present subjects, and questionnaires for past subjects.

Table 1 Priority of the Four Skills

Skill	Respondents	Percentage
Listening	6	12%
Speaking	36	72%
Reading	6	12%
Writing	2	4%

The finding shows that Speaking is the top priority and it is in line with the emphasized skill to acquire according to *Buku Pedoman Politeknik*

Negeri Malang. It implies that students realize the learning needs that will direct them from lacks to necessities. The ability of speaking can be used to measure one's language acquisition. That is why most job recruitments require the applicants' English speaking ability.

Table 2 Significance of Listening

Significance	Respondents	Percentage
TOEIC	13	26%
Songs/films	4	8%
Instructions	24	48%
Miscellany	9	18%

Students' needs for Listening mostly are for understanding instructions. Almost half of the respondents agree to acquire listening in order to understand instructions which reveal an idea of students' awareness of learning English. This is in line with the objective of teaching ESP that is to understand written or oral instructions. It means that the students already know the purpose of learning English.

Table 3 Significance of Speaking

Significance	Respondents	Percentage
Job interview	12	24%
Presentation/ Discussion	15	30%
Conversation	17	34%
Miscellany	6	12%

Conversation takes priority over presentation or discussion and job interview though the difference is slight. It is understood as most of the students are familiar with conversation.

The result pictures students as learners who consciously know the importance of speaking. Knowing the importance is a trigger for the students to speak. What the writer has to do is providing a conducive atmosphere (Murdibjono, 2001) in which the students are eager to share their knowledge and experience in a presentation or discussion.

Table 4 Significance of Reading

Significance	Respondents	Percentage
Test question	8	16%
Manual	16	32%
Textbook	22	44%
Miscellany	4	8%

Reading textbook is significant. It implies that students deal with some books in English. Compared to answering test question, reading manual is more important. It stands to reason as CESP students read a lot of manuals/instructions. Both evidence students' definite purpose of reading which is in line with the purpose of ESP teaching stated by Baradja (2004) and Suryawinata (1993).

Table 5 Significance of Writing

Significance	Respondents	Percentage
Test question	8	16%
Report	10	20%
Abstract	25	50%
Miscellany	7	14%

Abstract writing seems to dominate in the table as half of the respondents consider writing skill is significant to writing abstract. It is reasonable since at the end of the study CESP students to write abstract of their final project in English.

The second priority is for writing report. Students consider it is prior to answer test question due to their tasks of writing report after workshop or laboratory practice.

Table 6 Needs of English Material

English	Respondents	Percentage
General	9	18%
Technical	35	70%
Business	2	4%
Miscellany	4	8%

It is clearly shown in the table that most of the students agree to get technical English. When technical English is dominant, it means that the students already know what they need to support their study.

Table 7 Needs of English Teaching

Base	Respondents	Percentage
Grammar	7	14%
High school-like	4	8%
Competence	35	70%
Miscellany	4	8%

Having the same number of respondents with material needs, the choice of English teaching is competence-based. It implies that the students smartly think about the need of skill able to support their hard skill.

Twenty out of fifty respondents stated that English teaching in high school was pleasing, yet only five want to have high school-like teaching. It means that they need refreshment in learning English.

The materials were developed to provide the third semester CESP students of State Polytechnic of Malang models and exercises designed to enliven the students' English skills.

In developing the materials, first the developer got the learning objectives of each unit which cover cognitive strategy, motor skills, and attitude domain (Gagne, 1985). Secondly, she chose the texts as the models that were suitable for the learning objectives.

Each unit comprises four types of exercises as

the following: context analysis to assist students understand the text, language point to raise students' grammatical awareness of form and use, writing exercise to direct students to practice their knowledge in making a report, presentation to encourage the students to practice their English.

Data Analysis

The data obtained from the questionnaires were quantified, criticisms and suggestions were classified. Both the verification data from the questionnaires and suggestions from the experts were analyzed to revise the proposed materials. Revisions for the revised material were made when, of course, negative responses was greater than positive ones as the result of the questionnaires from the students and classroom observations. Respectively, the results of classroom observation were used to revise the teaching strategies.

Expert Verifications

With reference to the expert verifications, re-revisions were carried out before the revised materials were tried out in the classroom teaching.

Result of Field Try-outs

Having been revised based on the expert verifications, the materials had to be tried out to the students for empirical validation. The questionnaires were randomly given to five present subjects of each class after the implementation of a unit to evaluate the materials. The following is the result with 70 respondents.

Most respondents (71.4%) rated the attainment 'sufficient', 'a lot' was rated by 10% and 'not too much' to learn by 18.6%. According to 81.4% respondents the teaching was 'good', 18.6% stated 'moderate'. The complexity was judged 'sufficient' by 84.3% followed by 'too difficult' by 8.5% and 'easy' by 7.2%.

The developer had taken the texts and dialogue from the students' specialist area as suggested by Hutchinson and Waters, the materials were considered 'sufficient' by 64.3% respondents; 'interesting' by 34.3%; and 'not interesting' by 1.4%. According to them the teaching and learning process was not boring, but the comprehension must be cleared. The materials were understood, but the explanations were at a fast pace. Further, they suggested that the teacher should guide the students and be close to them.

They also stated the teaching method was good and interesting, so they were still enthusiastic to join the class in the last periods. Teacher was supposed to maintain the teaching style and give more vocabularies. In conclusion, the content and the method are already based on the student's reason for learning as stated by Hutchinson and Waters.

Result of Interviews

Interviews were also conducted to 30 present subjects from different classes to get the personal background. The interviews were about the English subject marks, the graduates, the attitude, the motivation, the acquisition, the difficulty, the significance, and the learning style. The following is the result.

Most (56.67%) of the students were good at English subject as they got 7- 9. It implies that they will be potential to get good marks in TE 1 Course.

Although vocational high school graduates are expected to enroll in Polytechnic, the numbers of senior high school have been dominant (60%). In such condition, the students' English achievement must be good too as it is noted that senior high school graduates achieve better than vocational high school graduates.

More than a half of the respondents (53.34%) acquire good attitude to English subject. Obviously, it is expected to be a trigger to learn TE 1 Course. While the poor (6.66%) contributes laziness as they were not sure of the benefit of English.

It seems that attitude and motivation are in line. When students acquire good attitude (53.34%) toward English subject, they are expected to be strong motivated to learn TE 1 Course. At the same time the low motivated (13.32%) contributes denial and tire-some as English is not a major subject.

To most students (66.66%) English is not too difficult to acquire. On the other hand, it is difficult to acquire by 16.67% of the respondents. After all it is still a good hint of good TE 1 Course achievement.

Further the difficulties vary from grammar (33.33%), vocabulary (30%), to speaking (20%). They become inputs to consider, especially the 16.67% who have difficulty in grammar, vocabulary, and speaking. The learning activities of the developed materials are expected to cover the difficulties.

According to 50% of the respondents English acquisition is significant, but not much for 13.32%. It seems that significance has a close relationship with attitude and motivation. Logically, when students know the significance, they will have good attitude and strong motivation.

Concerning the learning style, 63.34% of the respondents like to learn in group which is agreeable with a CTL component of learning community. However, 16.67% is still confident with teacher-centered style.

Result of Validations

The developed materials were verified by experts to get some feedback to revise the materials. Next, the revised materials were tried out in the classroom teaching, evaluated, and revised again when necessary to get expert and empirical validations.

Table 8 is the result of expert validations.

Table 8 Result of Aspects Validations

Aspect	Very good	Good	Poor
1.Instructional Objectives		vv	
2.Theory of Learning	v	v	
3.Theory of Language		v	v
4.Validity		vv	
5.Authenticity of Language		vv	
6.Appropriateness of Topics	v	v	
7.Currency of Topics		vv	
8.Proficiency Level		v	v
9.Variety from Control to Free		v	v
10.Clarity	v	v	

Having been discussed and revised, the validations result in good ranging of the tasks. The tasks provide authentic activities and contexts. In addition, they are challenging to think since the students have got some subjects dealing with the topics. As a result, students are able to link their learning with their daily lives. In other words, the learning activities are appropriate for the designated level.

Product of Developed Materials

Having been verified, revised, tried out, and recycled, the communicative skills-based materials were completed. Out of 50 respondents, 94% state the appropriateness is of high relevance as the reading materials supply topics relevant to civil engineering. The areas of good material criteria are indicated by 64% who agree that the complexity is moderate, 20% state that the materials are easy, and 16% state they are difficult. A material is said to be good when it is neither too difficult nor too easy for the learners (Baradja, 2004). It is supported by 54% who agree that the materials are applicable, 44% sufficient, and 1 respondent agrees they are less applicable.

Brain storming is sufficiently given in teaching and learning process according to 72% respondents and 20% say 'often'. It means that constructivism contained in the materials meets approval.

Question and answer of questioning component is said to be 'sufficient' by 52% and 'often' by 42%. Another CTL component of inquiry represented in problem solving is 'sufficient' according to 56% and 'often' according to 40%.

Group work and discussion—the representation of learning community—gets 58% for ‘sufficient’ and 22% for ‘often’. It implies that learning community has been sufficiently accommodated.

Concerning the instruction and example as modeling, ‘sufficient’ is in the first position with 50%, ‘clear’ with 44%. It means that modeling has been carried out well.

Following ‘often’ with 58%, ‘sufficient’ with 42% occupies the second position in authentic assessment which is represented in presentation. It means that authentic assessment has been conducted very well.

At the same time reflection—the last component of CTL represented in drawing conclusion—is more than enough. It is proved by 56% who state ‘sometimes’ and 32% state ‘often’.

CONCLUSION

The practical understanding of CTL components has met the purpose of the research to develop 7 units of communicative skills-based reading materials appropriate for TE 1 Course of CESP State Polytechnic of Malang. As quoted by Nunan, it is a training operation to meet the demands and relevance of teaching and learning process, so it is completed with appropriate learning activities and assessment techniques.

The materials were developed based on needs analysis which shows speaking as the first priority. This is in line with the institutional objective of State Polytechnic of Malang. Further, this priority was taken into account in the framework of developing communicative materials. Besides, the topics are developed and adapted based on the students’ specialist area and teacher’s field experiences to make the teaching and learning process interesting and enjoyable as a result of involving students’ minds and emotions as stated by Suryawinata.

The inclusion of writing and speaking skills enlivens meaningful learning activities which, in turn, will result in better understanding as they demand learning by doing. Based on the result of CESP judicial decision in the odd semester of 2007 Academic Year, grade B dominated TE 1 Course after the implementation of the developed materials. It shows betterment from C (52.8%) to B (59.1%) with Grade Class Achievement (GCA) of 2.45 to 3.13. the odd semester recycle to 2008 Academic Year

students also resulted better GCA of 2.74 to 3.33.

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