

CHAPTER II

THEORETICAL REVIEW

A. English Language Teaching

The existences of English language as a mean of international communication cannot be denied anymore. Globalization era also proves that English language as media that is more needed to get communication. Thus, mastery of English is very important, particularly as medium of instruction for science and modern technology.

The successful of learning depends on how teacher transfer the knowledge to the students. According to Brown (2007: 8) “Teaching is showing or helping someone to learn how to do something, giving instruction, guiding in the study of something, providing with knowledge, causing to know or understand.” Teaching is how the teacher’s facilitating and guiding learning process, motivating the learner to learn, giving instruction and be a good example, and paying attention for their understanding, even setting the condition for comfortable learning. It means that the teaching process is not only about transferring knowledge from someone (teacher) to the students, but also it handing all of the process to understanding.

The main purpose of teaching is indeed, to make the learners know or understand how to do something which is expected to learn. The goal of the teaching and learning process will be achieved by some factors. It will be from the teacher’s approach, method, strategy, class room management, even the condition of the students. In Indonesia, the focus of national education reform requires

change to education policies and strategies. The poor achievement of students can be attributed the poor quality of teachers (Jalal et al., 2009: 7). It indicates the role of the teacher in English language teaching is very important. Whether the goal achieves or not, it depends on how the teacher manages the students, material, and class.

English is learnt and taught in many different contexts, and in many different class arrangements. Supported by Harmer (2007:12) for many years, we have made a distinction between people who study English as foreign language and those who study it as a second or other language. It has been suggested that students of EFL (English as a foreign language) tend to be learning so that they can use English when traveling or to communicate with other people, from whatever country, who also speak English. ESL (English as Second Language) students, on the other hand are usually are living in the target language community.

Harmer (2007: 22) explains that around the world English is taught in a bewildering variety of situation. In many countries it first appears in the primary curriculum, but many universities in those and other countries continue to find that their entrants are insufficiently competent in English use, even if, Graddol (2006:122) point out, god English is an entry requirement for much tertiary education in a global market where English gives the user a competitive advantage.

English is taught in private language schools and institutes all over the world, and even in specialized “English village” in countries such as Korea and

japan, where pupils live in English only environments in specially constructed theme-park-like environment (CLIL), where, in secondary school, a subject is taught through the medium of English. In other world, the students learn the language for mathematics at the same time as they learn the mathematic they are talking about English. Rather than just teach math in English, the language and the subject are taught side by side. In such situation student might well study another foreign language, too, since there will be no lessons which deal with English only has a foreign language. In Indonesia, these systems are ever conducted, such in the international school.

It is clear from this short summary that old world of English language teaching is in transition, especially in terms of the language school which have traditionally taught general English, and for whom many of the teacher exams, such as the CELTA and DELTA schemes run by local examinations syndicate of Cambridge university, were developed (Harmer, 2007: 23).

According to Harmer (2007 : 19) on his book English teaching, like many other professions and diciplines, is almost overwhelmed by acronyms and initials. For many years, scholar and teachers have made a distinction between *EFL* (English as a Foreign Language) and *ESL* (English as a Second Language).

Although *ESL* (English as Second Language) and *EFL* (English as Foreign Language) are often used interchangeably, there are unique differences between the two. *ESL* countries are nations where the medium of instruction in education and government is in English, although English may not be the native language. On the other hand, *EFL* countries do not use English as a medium of instruction

but English is taught in schools. The methods and approaches of teaching English as a second language and foreign language do differ greatly (Fernandez, 2012).

The distinction between second language and foreign language is not, however, a sharp one, and there are cases, like Indonesia, where classification is disputable. Moreover, there is a considerable amount of variation in the roles played by second languages, for example in education, in the fields of discourse used, and in the giving of prestige or power. In India, the medium of instruction in schools was changed from English to the regional languages after Independence, and subsequently there has been a gradual process of Indianization of the universities, which at one time were all English-medium (Barber, 2000).

The movement towards English as a foreign language began at independence, and English is now the main foreign language being learned in Indonesia. English is taught for eight or nine years from primary school (from Grade 4 or 5) through high school (Renandya, 2000 : 10). The main objective is to provide reading skills to enable Indonesians to read science-related materials in English (Bautista and Gonzalez, 2006 : 8).

B. Techniques in Language Teaching

1. Definition of Technique

Murcia (2001: 5) stated that in language teaching, there are three terms approach, method, and technique. An approach to language teaching is something that reflects a model, a research paradigm or a theory. A method is a set of procedures. It is more specific than an approach but less specific than a technique.

Richards and Rogers (2002: 19) stated that method is the level at which theory is put into practice and at which choices are made about the particular skill to be taught, the content to be taught, and the order in which the content will be presented. The definition shows that method is the way how teacher practices the strategy about the skill and content of learning in the classroom. All describe how important method to know and to be used by teacher while teaching and learning process.

In the method of language teaching, teacher also uses some techniques for supporting the implementation of teaching. Technique is a classroom device or activity and thus represents the narrowest of three concepts. Some techniques are widely used and found in many methods (Murcia, 2001).

Based on Richards and Rogers (2002: 19) “Technique is the level at which classroom procedures are described, it is a particular trick, stratagem, or contrivance used to accomplish an immediate objective. Technique must be consistent with a method, and therefore in harmony with an approach as well”. It means that method can not be separated from techniques because technique shows the teacher’s trick, strategy, and tactics in how foreign language must be transferred to the learners well. There are some the functions of techniques based on Rivers (1981: 25) in his book, as follows:

1. Teacher applies the techniques for some sections of the work and for some levels of instructions.
2. Technique will help teacher to know their own personality, and to what they feel is appropriate for the particular classes they are teaching.
3. By using techniques, teacher will know the interest and enthusiasm of the learner, and at what level of instruction.

4. By using technique, teacher also can consider whether the techniques are appropriate for all types of students and whether they can be easily adapted.

From all the functions of techniques above, teachers should be able to know what technique which is available to use in the classroom. Besides, teachers also can consider what their technique is appropriate in the class and can be acceptable for the students.

2. Kinds of Methods and Techniques in English Language Teaching

In language teaching, method and technique have an important role to achieve the aim of learning process. According to Freeman (2002) in their book “Techniques and principles in Language Teaching”, in language teaching there are many methods that are used by teacher, they are:

1. Grammar translation method

GTM is explanation of grammar rules and translation text from and to the target language. It focuses on the written form of the language and more formals registers (Ur. 2012: 7). Finally, it does not include very much oral of communicative work between the students and the teacher. The instruction in this method often focuses on the form or grammar and inflection of words (Brown, 2007: 19). Below is an expanded description of some techniques of Grammar Translation Method.

a. Translation of Literary Passage

The characteristic of grammar translation method is using native language. Classes are taught in mother tongue, with little active use the target language (Brown, 2007: 19). Students translate a reading passage from the target language

into their native language. The reading passage then provides the focus for several classes; vocabulary and grammatical structures. Students should not translate idioms and the like literally, but rather in a way that shows that they understand their meaning (Freeman, 2002 : 19). Whyte stated that the translation is to be written or read aloud. Literal translation is not necessary as long as the meaning is accurate. The passage is to include some specific vocabulary and grammatical structures that are to be studied afterwards.

b. Reading Comprehension Questions

Students answer questions in the target language based on their understanding of the reading passage. Often the questions are sequenced so that the first group of questions asks for information contained within the reading passage in order to answer the second group of question, students will have to make inferences based on their understanding of the passage. This means they will have to answer questions about the passage even though the answers are not contained in the passage itself. The third group of questions requires students to relate the passage to their own experience (Freeman, 2002: 19).

c. Antonyms/Synonyms

Students are given one set of words and are asked to find antonyms in the reading passage. A similar exercise could be done by asking students to find synonyms for particular set of words. Students might be asked to define a set of words based on their understanding. Other exercises that ask students to work with the vocabulary of the passage are also possible (Freeman, 2000).

d. Fill in The Blanks

Students are given a series of sentences with word missing. They fill in the blanks with new vocabulary items it with items of a particular grammar type, such as prepositions or verbs with different tenses (Freeman, 2000).

e. Memorization

The teacher used repetition drill which was aimed to emphasize the students' memorization. Memorization is from "memorize" word, means learn something well enough to remember it (Oxford Dictionary, 2011: 276). Students are given lists of target language vocabulary words and their native language equivalents and are asked to memorize grammatical rules and grammatical paradigms such as verb conjugations (Freeman, 2000: 20).

Thus, Grammar Translation Method aims to help students to read and appreciate foreign language literature. In this method, vocabulary and grammar are important points. There are six techniques that can be applied from the Grammar Translation Method (GTM).

2. Direct method

The direct method has one very basic rule: no translation is allowed. In fact, it is simulating the natural way in which children learn first language (Brown, 2007: 21). Audio classes concentrated on long repetition-drill stages, in which the teacher hoped that the students would acquire good language habits (Harmer, 1998: 42). According to Freeman (2002: 19) there are five commonly techniques

that are used in direct method. The following expanded review of techniques of direct method.

a. Reading aloud

Students take turns reading sections of passage, play, or dialog out loud. At the end of each student's turn, the teachers use gestures, pictures, realities, examples, or other means to make the meaning of the section clear (Freeman, 2000: 30). Mehjabin (2007: 8) stated that students are required to read aloud a text, passage or dialog one by one, the teacher explain the content of the text by using gestures, pictures, or regalia and other means.

According to Beltchenko (2011) reading aloud is a technique in which a teacher sets aside time to read orally to students on a consistent basis from texts above their independent reading level but at their listening level. It aims to familiarize students with text structures and genres such as, speech students authored writing, short stories, etc.

b. Question and answer exercise

This exercise is conducted only in the target language. Students are asked questions and answer in full sentences so that they practice new words and grammatical structures. They have the opportunity to ask questions as well as answer them (Freeman, 2000: 30). Oral communication skills were built up in a carefully traded progression organized around question and answer exchanges between teacher and students in small, intensive classes (Brown, 2007: 21).

c. Conversation practice

The teacher asks students a number of questions in the target language, which the students have to understand to be able to answer correctly (Freeman, 2000: 31).

d. Dictation

The teacher reads the passage three times. The first time teacher reads it at a normal speed, while the students just listen. The second time the teacher reads the passage phrase by phrase, pausing long enough to allow students to write down that they have heard. The last time the teacher again reads at a normal speed, and students check their work (Freeman, 2000: 31).

e. Paragraph Writing

The teacher asked the students to write a paragraph in their own depend on the theme that the teacher has given. They could have done this from memory, or they could have used the reading passage in the lesson as a model (Freeman, 2000: 32).

Freeman (2000, cited in Dewi, 2014: 9) states that the things which could be done by the teacher, such as teacher will give specific topic to the students, the teacher can give some questions for students and they have to response it orally in target language, students are intended to think in target language, the teacher can use picture, demonstration, visual, and reality to make students understand and able to associate between form and meaning of the words or sentences. After that, the teacher will ask the students to write down their own paragraph based on the

topic that has given. Students can write a paragraph based on their memory or use reading passage as the model.

From the explanation above, it can be concluded that the direct method is the method which is used to deliver material directly (direct) with the aid of visuals without using first language (native language). There are five techniques that can be applied form this method.

3. The audio-Lingual method

In this method was concentrated on long repetition-drill stages, in which the teacher hoped that the students would acquire good language habits (Harmer : 1998). Learners could overcome the habits of their native language and form the new habits required to be target language speakers. According to freeman (2000: 47) here the techniques those are able to use in Audio Lingual Method:

a. Dialog memorization

Freeman (2000: 47) states that dialogs or short conversation between two people are often using to begin a new lesson. Students memorize the dialog through mimicry; students usually take the role of one person's line, they switch roles and memorize the other person's part. Certain sentence patterns and grammar points are included within the dialog. These patterns and points are later practiced in drills based on the lines of the dialog.

b. Repetition Drill

Students are asked to repeat the teacher's model as accurately and as quickly as possible. This drill is often used to teach the lines of the dialog. Correct

pronunciation and grammar were emphasized (Brown, 2007: 21). The student repeats an utterance aloud as soon as he has heard it. He does this without looking at a printed text. The utterance must be brief enough to be retained by the ear. Sound is as important as form and order. For example:

-This is the seventh month. - This is the seventh month.

After a student has repeated an utterance, he may repeat it again and add few words, and repeat the whole utterance and add more words (Richards & Rodgers, 2002: 44).

c. Use of Minimal Pairs

Freeman (2000: 49) states that “the teacher works with pairs of words which is differ in only one sound, for example, “ship/sheep”. Students are first asked to perceive the difference between the two words and later to be able to say the two words.”

d. Complete the dialog

Selected words are erased from a dialog students have learned. Students complete the dialog by filling the blanks with the missing words (Freeman, 2000: 49).

e. Transformation Drill

The teacher gives students a certain kind of sentence pattern, an affirmative sentence for example. Students are asked to transform this sentence in to a negative sentence. Other examples of transformations to ask student are changing a statement into a question, an active sentence into a passive voice, or direct speech into reported speech (Freeman, 2000: 49).

So, Audio-Lingual Method enables students to listen and understand what the other people say in natural situations. A student can be able to express or communicate using English words through acceptable grammar. Students can also understand a printed material or books well and write with good grammar standards. There are five techniques in audion lingual method that can be applied in teaching languages.

4. Silent way

This method is facilitated the learners discovering or creating rather than remembering and repeating what is to be learned. Learning is facilitated by mediating physical objects. Learning is facilitated by problem solving involving the material to be learned (Richards & Rogers, 2001: 81). This method believes that to teach means to serve the learning process rather than to dominate it. Below are kind of techniques for Silent Way (Freeman, 2002: 68).

a. Sound-color chart

The chart contains blocks of color. Each one is representing a sound in the target language. The teacher, and later the students, point to blocks of color on the chart to form syllables, words, and even sentences. In this way the teacher can introduce the stress pattern for the word. The chart allows students to produce sound combinations in the target language without doing so through repetition. Finally, since the sound-color chart presents all of the sounds of the target language at once, students know what they have learned and what they need to learn (Freeman, 2000: 69).

b. Teacher's silence

The teacher gives just as much help as it necessary and then is silent. The teacher sets up an unambiguous situation, puts a language structure into circulation, and then is silent. Even in error correction, the teacher will only supply a verbal answer as a last resort (Freeman, 2000 : 68).

c. Peer correction

Students are encouraged to help another when he or she is experiencing difficulty. It is important that any help be offered in a cooperative manner, not a competitive one. The teacher monitors the aid so that it is helpful, not interfering (Freeman, 2000: 68).

d. Word chart

The teacher, later the students point to words on the wall charts in a sequence so that they can read aloud the sentences they have spoken. The way the letters are colored helps the students with their pronunciation. Students also work with silent way wall pictures and books to further expand their vocabularies and facility with the language. The charts are hung on the wall and serve to aid in remembering pronunciation and building new words by sounding out sequences of symbols as they are pointed to by the teacher or student (Richards & Rodgers, 2002: 129).

e. Fidel charts

Freeman (2000: 70) stated that the teacher, later the students, point to the color-coded fidel charts in order that students associate the sounds of the language with their spelling. The fidel is a set of charts presenting all the possible spelling

of each sound of the language. It was originally created for teaching native speakers to read with words in color.

This method is a learning activity in search of new things that are creative and problem-solving activity, in which the learner is the main actor. This method is used for increasing the intellectual potential and helps memory function. In this method there are five techniques that can also be used in teaching.

5. Suggestopedia

This application of study of suggestion to pedagogy, has been developed to help students eliminate the feeling that they cannot be successful or the negative association they may have toward studying and thus to help students' mental reserves are stimulated. A most conspicuous feature of suggestopedia is the centrality of music and musical rhythm to learn (Richards & Rodgers : 2001). According to Freeman (2000), below are some elements that could usefully adapt for teaching style.

a. Classroom set-up

The challenge for the teacher is to create a classroom environment which is bright and cheerful. However, the teacher should try to provide as positive an environment as possible. The environment comprises the appearance of the classroom (bright and cheery), the furniture (reclining chairs arranged in a circle), and the music (Richards & Rodgers : 2001).

b. Positive suggestion

Freeman (2000: 84) stated that it is the teacher's responsibility to orchestrate the suggestive factors in a learning situation, thereby helping students break down the barriers to learn that they bring with them. Teachers can do this through direct and indirect means. Direct suggestion appeals to the students' consciousness: a teacher tells students they are going to be successful. But indirect suggestion, which appeals to students' subconscious, is actually the more powerful of the two. The teacher in a suggestopedic course not only radiates affective suggestive stimuli but also coordinates environmental suggestive stimuli in a positive way for students to learn (Lica, n.d).

c. Choose a new identity

The students choose a target language name and a new occupation. As the course continues, the students have an opportunity to develop a whole biography about their fictional selves. For instance, later on they may be asked to talk or write about their fictional hometown, childhood, and family (Freeman, 2000: 84).

d. Role play

Students are asked to pretend temporarily that they are someone else and to perform in the target languages if they were that person. They are often asked to create their own lines relevant to the situation (Freeman, 2000: 84).

e. Creative adaptation

The students engage in various activities designed to help them learn the new material and use it spontaneously. Activities particularly recommended for this phase include singing, dancing, dramatizations, and game. The Important

thing that the activities are varied and do not allow the students to focus on the form of the linguistic message, just the communicative learning (Freeman : 2000).

Suggestopedia is a method which uses specific media to make students become interested and motivated to learn. There are five techniques in this method that can be applied in teaching English.

6. Community language learning

This method advises the teacher to consider his/her students as “a whole person” means that teachers consider not only the students’ intellect, but also students’ feeling, and physical reaction. Teacher’s presence is not perceived as a threat, nor is the teacher’s purpose to impose limits and boundaries, but rather, as a true counselor, to center his or her attention on the clients (the students) and their needs (Brown, 2007: 25). According to Freeman (2000), here some techniques of Community Language Learning.

a. Tape Recording Student Conversation

This technique used to record student generated language as well as give the opportunity for community learning to come about. By giving students the choice about what to say and when to say it, students are in a good position to take responsibility for their own learning. Students are asked to have a conversation using their native language as the common language of the group (Freeman, 2000: 103).

b. Transcription

Freeman (2000) stated that each student is given the opportunity to translate their utterances and the teacher writes the native language equivalent beneath the target language words. Rodgers & Richards (2002) stated that students can copy the transcript after it has been completely written on the blackboard or on large, poster sized-paper, or the teacher may provide them with a copy. The students transcribe the utterances and conversation that they have recorded for practice and analysis of linguistic forms.

c. Reflection on experience

The teacher takes time during or after the various activities to give the students the opportunity to reflect on how they feel about the language learning experience, themselves as learners, and their relationship with another. As the students give their reactions, the teacher's understand them-show that the teacher has listened carefully by giving an appropriate understanding response to what the students has said (Freeman, 2000: 104). Richards and Rodgers (2002: 94) also stated that learners reflect and report on their experience of the class. These usually consist of expression of feeling, for example, sense of one another, reactions to silence, concern for something to say, and so on.

d. Human computer

A student chooses some parts of the transcript to practice pronouncing. She is 'in control' of the teacher when she tries to say the word or phrase. The teacher following the student's lead repeats the phrase as often as the student wants to practice it. The teacher does not correct the students' mispronunciation in any

way. It is through the teacher's consistent manner of repeating the word or phrase clearly that the students self-corrects as they try to imitate the teacher's model (Freeman, 2000: 104).

In Community Language Learning, the student is considered a 'whole persons' or an (individual) is intact. It means that teachers do not just pay attention to the feeling and understanding of students but also relationships with other students. Besides, teacher should be care the desire of students to learn. There are four techniques in this method that can be applied in teaching.

7. Total physical response

TPR is a language teaching method built around the coordination between speech and action (Richards & Rodgers, 2001: 73). The way teacher examines in detail in order to see how the principles of the comprehension approach are put into practice. The learners follow direction uttered by the instructor (without native language translation). According to Freeman (2000) here are some techniques of TPR.

a. Using commands to direct behavior

It should be clear that the use of commands is the major teaching technique of TPR. The commands are given to get students to perform an action; the action makes the leaning of the command clear (Freeman, 2000: 116).

b. Role reversal

Students command their children and classmates to perform some actions. Although some students may take longer to speak, students should not be

encouraged until they are ready (Freeman, 2000: 116). Students readily volunteered to utter commands that manipulated the behavior of the instructor or other students (Richard & Rodgers). The process which can be used, such as teacher repeats items from previous times, teacher gives new commands, repeat and vary them, the students command the teacher or their friend, and teacher writes new items on the blackboard (Asher, 2000 :9).

c. Action sequence

Teacher gives three connected commands. For example, the teacher told the students to point to the door, walk to the door, and touch the door. Brown (2007) states that in TPR, commands were easy ways to get learners to move about and to loosen up.

So, the method of TPR (Total Physical Response) is a method of language learning that arranged in coordination (command), speech (speech) and motion (action); and try to teach the language through physical activity (motor). In the method of TPR there are three techniques that can be used in teaching.

8. Communicative language teaching

CLT aims broadly to apply theoretical perspective of the communicative approach by making communicative competence the goal of language teaching. According to Freeman (2000: 121) below are techniques that apply in CLT.

a. Authentic materials

Teacher uses a real target language newspaper article. Teacher also assigns the students' homework, requiring that they listen to a live radio or television

broadcast. It is suggested only for high intermediate level of proficiency (Freeman, 2000: 132).

b. Scrambles sentences

The students are given a passage (a text) in which the sentences are in a scrambled order. They are told to unscramble the sentences so that the sentences are restored to their original order (Freeman, 2000: 133).

c. Language games

Games are used frequently in CLT. The students find them enjoyable and students get valuable communicative practice (Freeman, 2000: 133).

d. Picture strip story

One student in a small group was given a strip story. He showed the first picture of the story to the other members of her group and asked them to predict what the second picture would look like (Freeman, 2000: 134).

e. Role play

This technique is very important in CLT because it gives students an opportunity to practice communicating in different social contexts and in different social roles. The purposes of role play that applies to practical usage in communication demands the flexibility of participants' words, generally speaking, the more approximately the activity access to reality, the more interests' students will take in. so, the choice of roles and contexts become very important. When teachers design a role play, they must take students' ages and experience into consideration (Ding & Liu, 2009: 1).

Communicative Language Teaching (CLT) is an approach in foreign language teaching which emphasizes the concept of interaction and trying to make real events in the community can get into the classroom. Thus learners can see and practice the real situation that was intended. Based on the explanation above, there are five techniques in the CLT that we can use in classroom teaching to facilitate students understand the lesson.

Those are all descriptions of methods and techniques that the teacher can use in the classroom. Based on the explanation, it ought to be teachers know the ability of students before the teacher decides to apply them in practice.

C. English for Mathematics Department

English has been taught in many countries whether it is in EFL or ESL context to support living globally. As a global language, English uses to communicate in many specific terms among people around the world (Nunan, 2003 : 37). Preparing the condition, many English teachers teach English for specific purposes (ESP). ESP is developed intensively as the most prominent area in EFL context (Haicha, 2013 : 14).

ESP is developed because it brings advantages for many sub-branches such as law, technology, economy, mathematics, etc. Some of the advantages of teaching ESP are: as a way to increase student`s actualization in society knowledge (Popovska and Piršl, 2013: 43) and to facilitate students to access scientific and technical literature in a specific term (Brunton : 2009, 24). Among the sub-branches of

ESP, English for Mathematics is urgent to be developed. Nowadays, mathematics is more critical to school success than ever before (Giganti, 2011 : 3).

A first item on the list is a review of numbers as well as the English and Greek alphabets. Certain Mathematical terms and abbreviations of Latin origin also deserve some attention, there one can move on to teaching and practicing the verbalization of mathematical symbols and operations. Mathematical statements such as *definition, theorems, lemmas, corollaries, proofs, and remarks* show distinctive syntactic features in English which allow them to be treated as linguistic function which define, explain, and generalize (Master, 1995 : 181).

Teaching and learning mathematics depends on language. Mathematics is about relationships: relationships between numbers, between categories, between geometric forms, between variables and so on. In general, these relationships are abstract in nature and can only be brought into being through language. Even mathematical symbols must be interpreted linguistically. Thus, while mathematics is often seen as language free, in many ways learning mathematics fundamentally depends on language. Mathematics English has its own vocabulary; which can be thoroughly divided into three groups (Barwell, 2008 : 2) :

1. technical terms specific to mathematics (e.g., multiplicand, quadrilateral)
2. technical terms used in mathematics that also have unrelated everyday meanings (e.g., volume, product)
3. mathematical use of words adapted from similar everyday meanings (e.g., similar, face).

Mathematical English has several other dimensions, including (Barwell, 2008 :
2):

1. specialized syntax (e.g., the use of words like and, a, or if)
2. use of symbols (e.g., 3-D)
3. ways of talking and writing (e.g., word problems, writing a solution, giving an explanation)
4. social factors (e.g., the use of we to refer to people who do mathematics, as in “We call that a pentagon.”)

The material of English for Mathematics as follows (Pimentel and Wall, 2010: 6) :

1. graphic
2. number and algebra
3. sets logic and probability
4. functions
5. geometry and trigonometry
6. statistics
7. calculus
8. financial mathematics

The classroom can be turned into a place for literary debate. Who said that ESP implies teaching English only as a tool for success in the job market and not as a medium for providing more cultural knowledge? “Prelude,” a passage from Godel, *Escher and Bach: An Eternal Golden Braid* by Douglas Hopfstadter, combines mathematical knowledge, humor, and absurdity in a way that can be

enjoyed by both specialists and laymen with a bit of common sense. Michael Crichton's *Jurassic Park*, can be a sort of mirror for mathematicians as a way to grasp the currently popular chaos theory (Master, 1995 : 183).

Knowing the importance of mathematics for many people around the world, many mathematics books are published in English. To Support students to access mathematics books which are published in English is one of the important function of teaching English for mathematics.

D. Techniques in Teaching English in Mathematics Department

In Mathematics department has some techniques. The use of gestures, manipulatives, charts, and graphs, for example, helps students understand the math content when it is being taught in English. Other strategies and activities, such as the use of sentence frames (e.g., *This is a ____ . It is/has ____ .*) and allowing time for class discussion, provide students with the support and the opportunity to talk about their mathematical ideas in English and actively use the language of mathematics. According to Grades (2009: 8) that there are a variety of effective strategies and activities that teachers can use in a lesson that will help all students, understand the math content and develop English language skill.

Teaching Mathematics to English Language Learners can use many materials to make content comprehensible to students. The more variation you find, the better you will be able to connect with different students' learning styles and background experience. For example (Urschel, 2004 : 6):

1. Find pictures from books, magazines, photographs, and newspapers.

2. Use real objects when possible. For example, when students are studying geometric solids, have them find examples in their every days lives and from around their house.
3. Find clip art on your computer that goes with the unit.
4. Field trips and excursions help students create first-hand knowledge about a subject.
5. Bring in people from the community and experts to share collections and experiences.
6. Use videos or snippets of videos to give picture support.
7. Let student's create classroom materials.
8. Use various graphic organizers to help students visually organize and remember new information. Once they have organized information into a graphic organizer, simply seeing that visual cue will help students recall information.

Teaching Mathematics to English Language Learners can used vocabulary activities, such as (Urschel, 2004 : 9) :

- a. Visual Boxing
- b. Word Problems
- c. Vocabulary Notebook
- d. Vocabulary Cards

According to Freeman (2002) there are some techniques can used in teaching, like :

- a. Conversation practice

- b. Teacher's silence
- c. Role play
- d. Language games

First step when there is no time for planning is to follow the current trends in ESP and concentrate on the teaching of study skills for the overall comprehension of reading materials. In mathematics, ideal reading passages are those concerning the general and historical aspects of the subject, which make it possible to carry out activities involving anticipation and prediction, the recognition and recall of specific details, the identification of discourse markers that make relationships between ideas more explicit, and so on.

The second and more challenging stage in the ESP course, reading approach may no longer be useful at this point since ;

- 1) students can read the mathematics of most textbooks regardless of the language in which they were written
- 2) ideas respond to rules of logical inference and they cannot to be simply described as general, main, and supporting.

Based on explanation above, there are some techniques that can be used in teaching English in Mathematics Department. The techniques can be combined in every meeting so that the students will be more interested in learning English. Thus, teacher should not teach English monotonously.