

## **CHAPTER II**

### **LITERATURE REVIEW**

#### **2.1. Content Based Instruction (CBI)**

The integration of language and content instruction has become a phenomenon in the language field since the early 1980s. Programs, models, and approaches have spread in all levels of instruction, from elementary schools till university level, where language and content are integrated. The term CBI has concepts emphasizing the aspect of mainstream subjects teaching that are taught in English. The followings are brief explanation about the integration of language and content instruction in the United States. The terms emerged from different authors referred to the same context with CBI.

(Ovando, Combs & Collier, 2006) state there are some programs in America that are given name differently based on the purpose, place, and or technical implementation for newly arriving immigrant students in order to follow mainstream subjects in some school districts in United States. The programs are English as a Second Language (ESL) Content or Content ESL, Sheltered Instruction, and ESL Pullout. They are categorized as the old programs that emphasize the aspect of English teaching as second language used to teach content subjects.

Over the last several years, they have developed newcomer programs. These programs combine teaching ESL/ EFL with content instruction, as well as some L1 academic support when feasible, and they provide social service information to

assist families with adaptation to this country. The programs are Structured Immersion, Transitional or Early-Exit Bilingual Education, and Maintenance or Late-Exit or Developmental Bilingual Education and another form of Developmental Bilingual Education is Bilingual Immersion, Two-way Bilingual or Dual-Language Education. They are categorized as the new programs that emphasize the aspect of content subjects teaching are taught in English or the students' first language. The content subjects are integrated with English teaching principle and are conveyed in English subject. From those new programs, Maintenance or Late-Exit or Developmental Bilingual Education has same concepts with CBI. For immigrant students in United States English takes part as a second language, while for Indonesian students English takes part as a foreign language.

As originally designed, "structured immersion" did not prove to be an effective program model because the materials did not match the natural second-language acquisition process, which is not sequential and is very complex. The transitional model has also many problems. As with ESL pullout, transitional bilingual classes are generally perceived as a remedial program, a lower track for slow students, not an enrichment program with intellectuality challenging, interdisciplinary, discovery learning that respects and values students' linguistic and cultural life experiences as an important resource for the classroom. (Chiang, 1994; Clair, 1994; McKay & Wong, 1988).

The maintenance model, now generally referred to as developmental bilingual education, places less emphasis on exiting students from the bilingual program as

soon as possible (Ovando, Combs & Collier, 2006). In both languages, students in bilingual classes receive content-area instruction throughout their schooling, or for as many grades as the school system can provide. In a longitudinal study comparing structured immersion, early-exit bilingual education, and late –exit bilingual education, Ramirez found that students in the late-exit bilingual classes were the only ones getting the equality with native speakers on standardized tests in English (Ramirez, Yuen, Ramey, & Pasta, 1991). Other studies of maintenance or late-exit or developmental bilingual education have shown that high academic achievement can be demonstrated on tests in the second language after four to six years of bilingual schooling (Collier, 1992c; Cummins, 1996b; Thomas & Collier, 1997).

Another form of developmental bilingual education is dual-language program that works well is the 50-50 model, in which half of the instructional time is in English and half of the instructional time is in the minority language for grades K through 12. In the second language, lessons are not repeated or translated but concepts taught in one language are reinforced across the two languages in a changeable curriculum. Teachers might alternate the language of instruction by theme or subject area, by time of day, by day of the week, or by the next week.

In the United States of America, the term that has the same concepts with CBI named CALLA (Cognitive Academic Language Learning Approach). Researchers A. U. Chamot and J. M. O'Malley (227-47) have developed it as a new program which tries to achieve the development of a linguistic capacity in English as a teaching of mainstream subjects such as Social Sciences,

Mathematics, and Sciences, in a foreign language. The program is followed by students of limited language proficiency who attend special English classes.

### **2.1.1. Definition of CBI**

Content based instruction (CBI) is a teaching method of combining language and content learning. Some writers have defined the definition of content and content-based instruction (CBI). Chaput (1993) defines content as “any topic of intellectual substance which contributes to the understanding of language in general, and the target language in particular.” In this view, the goal of using content in a classroom is for learning the language. Crandall and Tucker (1990) describe content as “academic subject matter” while Torras (1991) expresses Content-Based Instruction as “an integration of language learning materials (language subject) and other subject matter (content subjects), which generally are math or science (IPA), and IPS. Two subject matters that have been integrated then are taught through the introductory foreign language.”

According to Cloud, Genesee, & Hamayan (2000):

“language learning in school is often most effective when students focus on one language for an extended period of time. Dividing students’ time and attention between two languages can interfere with learning. Translated into program design, it is often best to devote instruction to one language for an extended period of time, rather than switching between the languages, so that skills in the language of concentration develop fully”.

Basically, CBI is an English teaching with certain content. In this technique, the students learn the language in order to understand language and how it works and understand how people do with it (Halliday:1985,p 44). For that purpose,

meaningful class interaction is created and it is expected to be the right way of teaching method of combining language and content learning.

### **2.1.2. Rationale of CBI**

Grabe and Stoller (1997) suggest seven rationales for CBI that can be summarized in the following points:

1. In content-based classrooms, students are exposed to a considerable amount of language while learning content. This incidental language should be comprehensible, linked to their immediate prior learning, and relevant to their needs—all important criteria for successful language learning. Such a setting for learning makes second language learning consistent with most other academic learning contexts as well; that is, most classrooms involve the teaching of some type of content information, and, in those classrooms, language learning also occurs—at least incidentally. In content-based classrooms, teachers and students explore interesting content while students are engaged in appropriate language-dependent activities, reflecting the learning that students carry out in other content-area classes. The resultant language learning activities, therefore, are not artificial or meaningless exercises.
2. CBI supports contextualized learning; students are taught useful language that is embedded within relevant discourse contexts rather than as isolated language fragments. In content-based classrooms, students have many opportunities to attend to language, to use language, and to negotiate

content through language in natural discourse contexts. Thus, CBI allows for explicit language instruction, integrated with content instruction, in a relevant and purposeful context.

3. Students in CBI classes have increased opportunities to use the content knowledge and expertise that they bring to class. The use of coherently developed content resources allows students to call on their own prior knowledge to learn additional language and content material.
4. CBI itself promises to generate increased motivation among students; in content-based classrooms, students are exposed to complex information and are involved in demanding activities which can lead to intrinsic motivation. Motivation and interest arise partly from the recognition that learning is occurring and that it is worth the effort, and partly from the appropriate matching of increasing student knowledge of a topic with increasing task (or learning) challenges.
5. CBI supports, in a natural way, such learning approaches as -cooperative learning, apprenticeship learning, experiential learning, and project-based learning. It also lends itself well to strategy instruction and practice, as theme units naturally require and recycle important strategies across varying content and learning tasks.
6. CBI allows greater flexibility and adaptability to be built into the curriculum and activity sequences. Because additional subtopics and issues can be incorporated into the course, teachers have many

opportunities to adjust the class to complement the interests and needs of both teacher and student.

7. CBI lends itself to student-centered classroom activities; in content-based classrooms, students have opportunities to exercise choices and preferences in terms of specific content and learning activities. Because there are many avenues for exploring themes and topics in content-based classes, student involvement in topic and activity selection is increased.

Grabe and Stoller 1997, 19-20

The rationale of the content-based instruction, as claimed by Krashen in Allwright, (1991), is that second language acquisition occurs when the learner receives comprehensible input, not when learner is memorizing vocabulary or completing grammar exercises. Therefore, the methods that provide students with more comprehensible input will be more successful. He further suggests that comprehensible subject-matter teaching is language teaching, since learners acquire language when they understand messages in that language.

The main characteristic of CBI is that content is the point of organizing principle of the course. For that purpose, CBI uses authentic (i.e., material not originally produced for language teaching purposes) tasks and materials, which often require much adaptation and supplementation for language-teaching purposes. CBI also emphasizes accommodation to language learners' needs through increased redundancy and exemplification and the use of advance

organizers, frequent comprehension checks, and frequent, straightforward assignments and assessment procedures. (Peter Master:1997)

### **2.1.3. Models of CBI**

Content-based instruction is conducted in some different models. As proposed by Met (in Celce-Murcia:2001:305-309), this instruction varies from Content-driven model at one end of the continuum, to Language-driven model at the other side of the continuum with 3 others lies in between. Met explains that from Content-Driven to Language-Driven, they lie Total Immersion, Partial Immersion, Sheltered Courses, Adjunct Model, Theme-Based Courses, Language Classes with Frequent Use of Content for Language Practices.

According to Brinton, Snow, & Wesche (1989), the most common models for CBI are theme-based, sheltered, and adjunct courses. In line with them, some teaching models of CBI types according to Stephen Davies (2003) are also the sheltered model, the adjunct model, and the theme based model. The sheltered of CBI is a model which learners are given special assistance to help them understand regular classes. It has been used successfully at the bilingual University of Ottawa, where classes are taught in English and French, (Briton, 1989). Two teachers, one as a content specialist and the other as an ESL specialist, can work together to give instruction in a specific subject in a classroom activities. They may teach the class together or the class time may be divided between the two of them. This kind of team teaching needs teachers to work together to plan and evaluate classes.



Adjunct classes are purposed to prepare students for "mainstream" classes where they will join English L1 learners. These classes are usually taught by ESL teachers. Adjunct classes may similar with EPA or ESP classes where the emphasis is placed on acquiring specific target vocabulary. Theme based CBI is usually found in EFL contexts. Theme based CBI can be taught by an EFL teacher or team taught with a content specialist. The teacher(s) can create a course of study designed to open and create on students' interests and the content can be chosen from a wide number of different topics.

Stoller & Grabe (in press) argue that "practically all instruction is theme-based" (p. 7). They argue that sheltered and adjunct instruction are "not alternatives to theme-based instruction [but] rather...two methods for carrying out theme-based instruction. For this reason, [they] see the two terms, content-based instruction and theme-based instruction, as interchangeable" (p. 7).

## **2.2. Teaching Mathematics (as a content) in English Subject**

Teaching Mathematics and Sciences by using English can be found in the earlier practice of content-based and Immersion Models for Second and Foreign Language Teaching. (Snow in Celce-Murcia.2001:303). It is the integration of language teaching with subject matter instruction. In this study, the subject material which is integrated with English is Mathematics as a content subject.

Mathematics and Sciences are dominated by scientific terms and concepts, therefore the acquisition of the content subject concepts must take the sociocultural theory of learning. Related to that theory, Vygotsky (in Celce-

Murcia, 2001) points out that speaking and thinking are ways of acting on the material and social world.

In Halliday's concept of Development of a register of mathematics (Halliday:1994), he explains that the development of a new register of mathematics involves the introduction of new "thing-names": ways of referring to new objects or new processes, properties, functions and relations. It can be done by (1) interpreting existing words, (2) creating new words out of native word stock, (3) borrowing words from another language. This method also applies in Sciences, Technology, and Biology. In interpreting existing words of Sciences, for example, we can have *set, point, field, row, column, weight, stand for, sum, even (number) and random*. CBI will further enlarge the students acquisition on new technical terms as those words that are mentioned before, that will be needed in understanding subject matter texts in university.

Research in the mathematics achievement of a whole student population suggests a connection between math and language that there is a somewhat positive relation between mathematics achievement and verbal proficiency.

### **2.2.1. Theme Based Models for Teaching Mathematics as a Content Subject**

The theme-based model is a content-based instruction type in which selected topics or themes provide the content from which teachers extract language learning activities (María Dueñas). Those learning activities consist of theme, topics, texts, threads, tasks and transition.

In theme-based model, a language teacher is responsible for teaching content, not a subject specialist. The foreign language syllabus in theme-based courses is organized either around different topics within a particular discipline, or including a number of individual topics associated with a relevant general theme or content area. In both cases, themes have to be chosen to be appropriate for students because they are the central ideas that organize major curricular units. A course have several topics normally, therefore a typical theme-based course consists of a number of subunits focused on different topics which explore specific aspects or different perspectives of the general theme. María Dueñas also explains that in general terms, topics should be organized to provide maximum coherence for theme unit, and to create a range of opportunities to explore content and language. In short, each course is a sequence of topics linked together by the assumption of a coherent overall theme.

TB (Theme-based) courses constitute an excellent tool for the integration of language and content providing that curriculum planners, course designers and teachers make all possible efforts to keep language and content exploration in balance, not to lose sight of content and language learning objectives, and not to overwhelm students with excessive amounts of content that may lead to overlooking the language exploitation aspects of instruction. (María Dueñas)

The use of theme based CBI helps students and Mathematics teachers with ease because the term is already learnt in English subject. Mathematics teachers in a certain level do not have to teach their content materials in English. Therefore, CBI can be used to support bilingual teaching in Mathematics or even other

subjects. This interest has now spread to EFL classrooms around the world where teachers find out that students like CBI and are excited to learn English this way.

A theme based CBI course should have both content and language goals. Student progress can be assessed when classes are underway. Direct oral feedback during the classes can be useful as long as we are mindful of the proficiency level of the students. For example, daily quizzes can be used to check that content information is getting through the students.

### **2.3 Evaluation**

Evaluation is a process in testing students' understanding on material and to see the final result on their study. Teacher must know who is ready to move on and who will benefit from additional instruction and support. This determination is at the heart of effective assessment and instruction, and it is essential for English language learners' success.

The term evaluation and assessment among educators sometimes blurred. But generally teachers' role in evaluation was primarily as judge. To convey a value on completion of a given task. Today however many educators distinguish between assessment and evaluation (Ferrara and McTigue, 1992. Assessment is defined as “the gathering and synthesizing of information concerning students' learning” while evaluation is defined as “making judgement about students' learning”. So the process of assessment and evaluation can be viewed as progressive: first, assessment; then evaluation.

### **2.3.1 World-Class Instruction, Design and Assessment (WIDA)**

WIDA is a consortium members that has a purpose to support academic language development and academic achievement for linguistically diverse students through high quality standards, assessments, research, professional development, and enable consortium members to meet federal government accountability requirements.

The WIDA English language proficiency standards and an accompanying assessment system had been developed to monitor students' progress in acquiring academic English. This work was based on the theory of academic language proficiency being the basis for academic achievement (Boals, Lundberg and Spalter, 2010). The assessment system, Assessing Comprehension and Communication in English State-to-State for English Language Learners (ACCESS for ELLs), is a secure large-scale English language proficiency assessment given to kindergarten through 12th graders who have been identified as ELs.

### **2.3.2 Instrument of Evaluation**

Instrument is a set of techniques, procedures, or items that requires performance on the part of test taker. Instrument related to the test itself. To qualify as a test the method must be explicit and structured, measure general ability and knowledge and performance. The instrument includes the techniques and procedures on how a test are being tested to student. For example, multiple-

choice question with prescribe correct answer, writing prompt with a scoring rubrics, and an oral interview based on question script.

A test or other measuring device used to determine achievement (go and no-go) or the relative standing of an individual or group or a test objective (i.e., attitude, behavior, performance objective, and other attributes). Evaluation instruments include tests, rating forms, inventories, and standard interviews.

### **2.3.3 Developing Instrument of Evaluation**

In developing evaluation, teachers need to notice some elements. They are goals of assessment, what should be of assess to get effective assessment, the cultural variable, and kinds of assessment. In goals of assessment teacher should monitor students' progress in order to plan appropriate instruction. To do so the teacher should understand student learning style, learning strategies, interest, attitudes, motivation and relevant background factors that may impinge on the classroom learning

Engage students in self-assessment is important, so that they take active responsibility for their own learning. The Effective assessment has to be linked to instructional method and objectives, the design is optimized students' performance, based on performance criteria that are clearly define and communicated to students, authentic, ongoing and planned.

### **2.3.4 Integrated Instrument of Evaluation**

Integrate is combining or coordinating separate elements (course of study) so as to provide a harmonious and interrelated whole. The combining course of study are Mathematics into English Subject. The steps to combine are:

- Selecting mathematics materials to be integrate from indicators
- Selecting English materials that can be combine with mathematics materials
- Developing syllabus
- Designing lesson plan
- Developing instrument of evaluation

### **2.4. Related Relevant Research**

There is no similar research as far as the writer found in the department library. But the writer found that there was one research about teaching English to Science Students via Theme-Based Model of Content Based Instruction by Recep Sahin ARSLAN, Asst. Prof. Dr. Pamukkale University, Faculty of Education, Dept. of English Language Teaching, Denizli-TURKEY and Cengiz Koray SAKA, English Instructor, Karadeniz Technical University, School of Foreign Languages, Trabzon-TURKEY. They investigated the effect of application of theme-based model of Content-Based Instruction (CBI) on a group of science students learning English at a preparatory program at the tertiary level in Turkey. In this study, course materials based upon the theme-based model of CBI were applied in order to teach academic English language skills. With a purpose to

determine the language needs in the program, questionnaires including structured interview questions were distributed to a number of 97 students of Physics, Chemistry and Biology departments and also 19 students who specifically studied thematic units completed a questionnaire as to the effect of such an application. The majority of students reported that they needed to learn English for academic reasons in order to pursue future courses taught in English. Those students who studied science related thematic units argued that their motivation to learn English increased as they were able to improve their academic language skills through content they received and the activities they were involved in. Data findings may also indicate that if the theme-based model of CBI is applied in the preparatory program widely, it can meet language needs since such a practice involves learners in science English, equipping them with necessary academic language skills.



## **CHAPTER V**

### **CONCLUSION AND RECOMMENDATION**

#### **5.1. Conclusion**

Based on the findings on the previous chapter, it is found that bilingual classes have some problems. The main problem is readiness of content subject teachers to teach in English. Because it is found that content teachers will have to learn about English to delivering the lesson in classroom while they also have to prepare their teaching materials. Also the students have some difficulties to understand the terminology of content subject in English. Mathematics is already one of difficult subject for students, but in bilingual class they also have to learn it in English. In result the bilingual program not well running and the result of the program not significance. In the field found that is the use of English in bilingual class not fully implemented because the portion of bahasa Indonesia still lot more dominant than English when delivering the lesson. In result, many schools hire some native English teacher to cover the problem. But this action also not cope the problems, because the content teacher still have to learn English by themselves.

Based on the result of interview English teacher agreed to integrate their class with content (Mathematics). But it has to be a team teaching between English and content teacher. This will help English teacher to know about terminology in the field of content subject. Later this terminology can be integrated for teaching material and kinds of assessment in English class.

Classroom observation.. instrument of evaluation the lesson of the day, based on topic.

Interview.. material frm

## **5.2. Recommendation**

Based on data, it can be seen that there will still many problem arise in bilingual teaching in SMP Labschool. The bilingual program might be not well applied. It seems that there are still some potentials for the school to improve its quality by integrating mainstreams subjects to be integrated into English subject. In CBI mainstreams subject teacher will be helped by the English teacher. There will be no extra time from English subject because the materials in English lesson keep running while integrate with content subject. Pair teaching in making the material and instrument of evaluation is expected to the successful of the program.