CHAPTER 6

Summary and Conclusions

6.0 Introduction

This chapter presents a brief summary of the present study on the development of CBI language materials for IT students at the Diploma level in Vocational Education. Discussion on the results of the study, practical implications for CBI materials developments as well as suggestions for further research is presented. The summary of the present study is given first.

6.1 The summary of the present study

In this section, four major aspects of the present study are summarized: significance of the study, objectives, methodology and results of the study.

6.1.1 Significance of the study

A growing interest to prepare students to effectively cope with the changing world has shaped the content conceptualization for the second language classroom. There has been the transition from the use of language for daily communication to that for academic content relevant to the students. The language syllabus for Information Technology students, the target group of the present study, yields a clear picture of the dual goals of language learning, that is, to acquire language competence and to be able to use language competence to learn more content knowledge. This two syllabus goals are situated within the CBI theoretical framework, that is, the concurrence of language and content learning.

The desire to be responsive to the IT students’ real world needs and the dual goals of the language syllabus for the IT programme raise the demand of the language materials relevant to those students. A review of coursebooks currently used with IT students does not reflect a favourable picture. The language content is confined to the development of only daily English communication. Apparently, this cannot fulfill the two language goals of the syllabus. Absence of the relevant materials, therefore, necessitates the development of English language materials for IT students.
6.1.2 The objective of the study

The primary objective of the study was to develop a sample of content-based language materials for Information Technology students at the Diploma level in Vocational Education. This involved two major processes: materials construction and evaluation. In order to validate the effectiveness of the developed materials, the following aspects were sought.

1. Can the tasks foster students’ high order thinking skills?
2. Do the tasks enhance content learning?
3. Do the tasks enhance language learning?
4. How do the students feel about constructed materials in terms of difficulty and interest?

6.1.3 Methodology

To achieve the objective of the study, two majors processes of materials development: materials construction and evaluation were carried out.

A) The process of materials construction

Language materials for IT students were constructed within the CBI theoretical framework. The process of CBI materials construction in the present study involved three major steps.

i) It was concerned with collecting data from different sources. At this stage, it entailed the researcher to study the 2003 curriculum for Diploma of Vocational Education (IT programme) in relation to language course objectives or course content to have an overall idea about the language skills and functions the students had to successfully achieve. Subsequently, a language proficiency test and a questionnaire for needs and interests assessment were administered to the students. An interview was also organized to gain a deeper understanding of the students’ background. Additionally, consultation with IT specialists was also required to identify the thematic topics for the developed materials.

ii) It involved data analysis. Data derived from (1) the 2003 curriculum for Diploma of Vocational Education (IT programme), (2) a questionnaire for needs and interests assessment, (3) language proficiency test and (4) discussions with IT specialists were analyzed quantitatively and qualitatively.
iii) It dealt with the actual construction of content-based language materials. At this step, three units of thirteen tasks with a total of 20 learning hours were constructed. They consisted of both 60- and 120-minute tasks.

**B) The process of materials evaluation**

At this stage, effectiveness of the constructed materials was sought by means of predictive evaluation and retrospective evaluation.

i) Predictive evaluation: It aimed to seek a comprehensive view of the effectiveness of the newly constructed materials in terms of their objectives, methodology, content authenticity, content as a source of language learning, task sequencing and coherence of tasks prior to the task trialling in the actual classroom. Three external evaluators evaluated the constructed materials by responding to the tasks on a three-point rating scale: 3, 2 and 1 representing ‘very effective’, ‘effective’ and ‘not effective’. The evaluators were also asked to indicate the strengths of the developed materials and provide suggestions for further modification. Moreover, interviews with each evaluator were conducted to obtain deeper information.

ii) Retrospective evaluation: After some modification was made according to the evaluators’ suggestions, the materials’ effectiveness in the actual classroom was sought. Two phases of retrospective evaluation: pilot study and main study were conducted.

- **Phase I: Pilot study**

  It involved piloting two tasks, ‘Network topology’ and ‘Surfing the Net’. They were selected for the trialling in the actual classroom because they were the main inputs of Units 1 and 2 while the remaining tasks of respective units served as warm-up and follow-up activities. The trialling took place in a language class of 29 first-year IT students at the Diploma level, Chiangmai Technical College, Thailand during the second semester of 2009. This pilot study aimed to obtain information regarding how well the constructed tasks worked in class, how students felt about the tasks in terms of their difficulty and interest and what modifications they were needed. Data on learning process gathered by means of video recording,
classroom observation, teacher’s field notes, teacher-observer conference and students’ reflection were analyzed quantitatively and qualitatively.

• Phase II: Main study

This phase was concerned with validating the effectiveness of the materials after some modifications were made in the previous phase. The trialling took place in the following year, the second semester of 2010 with a new batch of 33 first-year IT students at the Diploma level, Chiangmai Technical College. This was because the IT topics used in the language materials would only be taught at the beginning of the second semester. It was also found that the allotted time for task trialling was the first half of the semester (9 weeks or 18 hours). It was thus possible to implement only two units containing ten tasks (15 hours). However, only two tasks (Tasks 4 ‘Network topology’ and 7 ‘Surfing the Net’) were critically analyzed. This was because they were considered the main inputs of the respective unit while the remaining tasks were regarded as warm-up or follow-up activities. It was expected that the insights/experience gained from the trialling of the two tasks would illuminate other tasks. The data derived from video recordings, classroom observation, teacher’s notes, teacher-observer conference and students’ reflection were analyzed quantitatively and qualitatively to address the following issues the four research questions.

6.1.4 Results of the study

The results of the study are summarized below.

A) A sample of English language materials for IT students at the Diploma level in Vocational Education was developed within the CBI framework. It consisted of three units of thirteen tasks lasting twenty hours. All three units of CBI materials were found very effective in terms of objectives, methodology, content authenticity, content as a source of language learning, task sequencing as well as coherence of tasks. The methodology adopted was found effective.

B) The results of task trialling showed that the use of questions and learning activities in Task 1 provided strong evidence to support that the task could facilitate higher order thinking skills by cognitively engaging. For Task 2, it appeared that the focus of the task was to practise specific skills: giving and
following IT instructions. The task thus involved the students at lower order thinking skills, namely, ‘Understanding’ and ‘Applying’ levels.

C) There was concrete evidence to show that the trialling tasks provided opportunities for content knowledge and language learning. The study, given its limited timeframe, could only demonstrate some indicators of on-the-way achievement, rather than evidence of actual learning. A long-term study is required to establish how these indicators can be claimed to be evidence of learning. This is beyond the scope of the study. Trialling tasks could only draw evidence of how students are on track.

D) Majority of the students agreed that Tasks 1 and 2 were not too difficult to deal with and unanimously indicated that they were interesting.

6.2 Discussion of the results of the study

The way students perceive learning content and learning conditions potentially affects the degree of learning investment they make. This subsequently results in their learning achievement. In the CBI classroom, task difficulty and interest tend to be two major concerns. Drawing thematic topics from students’ field of study raised the issue of interest while integrating those academic topics made the language tasks quite challenging to the students. The present study made every attempt to capture students’ interest in the learning tasks and yet, keep the task difficulty low.

It was realized that to make the lessons interesting to the students, it was important for the researcher to be aware of the students’ needs and interests. Hutchinson and Waters (2001: 54) note that the notion of needs can be classified as target needs and learning needs. Target needs are something that the learners need to do in the target situation while the learning needs are what the learners need to do in order to learn. Preferred learning situations thus have to be created. The framework for analyzing learning needs is not only the identification of language items, skills or subject knowledge that the learners need to know, but the learning conditions.

The desire to cater for students’ needs and interests entailed carrying out need analysis as one of the starting points of CBI materials construction. Some of the ideas for topic selection and language tasks were derived from after consultation with the IT specialist. It was suggested that topics could be taken from the
coursebooks of the IT introductory course viz. evolution of Internet, the Internet basic terms, types of Internet connection, web browser-a software application, computer security, malicious programmes, or cryptography etc. Similarly, some kinds of task that could potentially support content learning were also suggested. This included reading comprehension, understanding IT guidebooks, making academic presentations or writing technical reports. The thematic topics derived from the IT specialist’s suggestion ensured the relevance of content and task authenticity. In other words, CBI materials developed were able to accommodate students’ real world requirement.

Subsequently, the suggested topics and task types were included in the students’ needs and interest assessment to find out whether the students were interested in the proposed topics and tasks. Moreover, they were also allowed to suggest topics of their interest. In this way, it was ensured that developed materials could cater to the students’ objective and subjective needs.

Another concern of CBI materials was task difficulty. Though developed materials were responsive to students’ needs and interests through the integration of subject matter, use of authentic content itself might cause frustration. The content materials might be linguistically demanding. The concepts themselves could be too complex for students as well. To cope with the linguistic demand and concept complexity, some steps were undertaken.

1. The topics were selected from their grade-level coursebook suggested by the IT specialist to ensure that the IT concepts were not too easy or demanding.

2. A language proficiency test was administered to the students to diagnose their language ability. Information derived from the test helped the researcher to select the materials linguistically appropriate to the students’ language proficiency.

3. It was found that students had limited grammatical and communicative competence. Though they had clear concepts of some IT knowledge, they could not convey those concepts in English verbally or in written forms. The language tasks in the developed materials were thus sequenced from non-overt to extended responses (non-verbal to verbal responses) viz. matching, filling grid, or true or false exercise. However, those tasks needed to be cognitively appropriate to the students’ grade level.
4. Pair work or group work was another strategy employed to keep task difficulty in the developed materials at an appropriate level of the students. Pair and group works could increase the amount of students’ participation in the class; they gave students a more active role in learning and reduced teacher’s dominance over the class. Moreover, this could also provide a nonthreatening learning situation.

In conclusion, the strategies used to attract the students’ interests and to facilitate their learning positively resulted in students’ learning with the help of the developed materials.

6.3 Practical implications for CBI materials development

The development of language materials seems to be a challenging task for the language teacher as a materials developer. Particularly, to develop CBI language materials, it involves some issues beyond the process of materials writing. Discussed below are some issues emerging from the study that CBI materials writers need to take into account.

i) As already discussed in Chapter 2, CBI approach consists of three teaching prototypes: adjunct, theme-based and sheltered models. It is essential to clearly specify the approach adopted for materials development. This will immensely affect the primary focus of developed materials. Materials developed for the language class can adopt either the adjunct or the theme-based model. In the theme-based model, the focus of language materials is on developing language skills and functions through the medium of course content. The language teacher alone is responsible for content selection and second language development. As regards the adjunct model, it may be difficult for the language teacher to propose the learning topics because students have to follow the grade-level curriculum. However, s/he has to work collaboratively with the content teacher to plan learning objectives, language skills and functions necessary for a successful completion of content tasks as well as when and how to assess the students’ learning progress.

ii) Utilization of course content in the language materials should not force one to infer that the grade-level course contents are replicated in the language class. To avoid this situation, the language teacher would have to work on the introductory part of the thematic concepts introduced in the content class. Students will be
exposed to some terminologies and key words in contexts as well as to genuine spoken/written discourse. Doing this helps to prepare students to cope with linguistic demands when engaged in the understanding of deeper concepts. Alternatively, the content that the teacher assigns to students, such as some self-study concepts can also be incorporated into the language materials. Additionally, it is very useful if the language teacher can help students work on any additional IT sub-skills relevant to their interest. Subsequently, those sub-skills may greatly support their individual project work.

iii) For EFL students, there tends to be a wide gap between their cognitive level and language abilities. Their ability to conceptualize what they are exposed to is far advanced than that they can express in a foreign/second language. Helping EFL students to comprehend course content does not mean compromising content. It is important to exploit the materials they use at their grade level to ensure that the concepts are neither too easy nor far beyond their existing knowledge. If modification is to be made, it is more favorable that inputs are elaborated rather than simplified. Some techniques of input elaboration may include viz. providing diagrams, pictures, definitions or synonym in the brackets after difficult words.

iv) For assessment, all models of CBI have a dual purpose- learning of a second language and content knowledge. Recognizing this duality tends to suggest what to be included in the assessment process. In the CBI classroom, course content is an essential component for language learning process. Students make considerable efforts to comprehend content knowledge. More importantly, they aim not only to improve their language ability, but also to learn to use the ability to perform tasks in academic settings. Content knowledge and language competence thus cannot be ignored in the assessment process.

v) It is important that the language teacher develops an effective working relationship with the content teacher. The language teacher alone cannot meet all the language and content needs of their students. The content teacher can provide valuable information on what is to be incorporated into the CBI language materials. This can be achieved by either holding content and language teachers’ conference or administering a questionnaire focusing on topic selection and types of academic/language skills that can facilitate students’ content learning. The proposed
topics and academic skills can be utilized in the students’ needs and interests assessment questionnaire so that they can prioritize the preferred topics. Doing this will enable one to accommodate learning preferences of students.

vi) The role of the CBI language teacher needs to be clearly defined. The language teacher is to provide instruction that will promote English language development. Since this is done through the medium of the content materials, the language teacher should also be familiar with the materials. It may not be easy to develop CBI language tasks/activities without a clear concept of the thematic topics. To the least extent, the language teacher should have some basic terminology of the course content. This may necessitate the provision of a teacher-training program to help the language teacher conceptualize course concepts.

In sum, the above discussion suggests some practical implications for materials development. This includes clear specification of approach adopted, avoidance of topic replication and compromising contents, what to be included in the assessment process, developing strong working relationship with the content teacher as well as a provision for teacher-training programmes to provide the language teacher some basic concepts of the course content and appropriate methodology.

6.4 Suggestions for further research

The present study aimed to specially develop a sample of CBI language materials for IT students. The positive results of the study are to be taken as suggestive rather than definitive for further materials development. It is necessary that more research be conducted to validate the effectiveness and usefulness of CBI language materials. Some of the possible research studies in this area are listed below.

i) Firstly, a study focusing on further development of CBI language materials for the entire course should be conducted.

ii) A study can also examine the effect of CBI materials specifically on the students’ reading comprehension ability.
iii) A study can seek the strategies more and less competent learners use to cope with the CBI materials. It can focus on either cognitive and/or metacognitive strategies.

iv) Use of CBI language materials tends to be linguistically and cognitively demanding. It is important to explore their effect on students’ psychological aspects like learning motivation, attitude, confidence or anxiety. Those aspects greatly affect the quality of learning involvement.

v) CBI materials deal with many terminologies in contexts and genuine discourse in different areas of study. Students who repeatedly work with the materials may use the gained knowledge to learn more information of their own interest. It is interesting to investigate how the materials affect students’ self-directed learning.

vi) Suggestive results of the study may encourage the materials writers to develop CBI materials for a new area of engineering-Mechatronics, a combination of Electronics, Electricity and Machine tool technology.

The above list of suggested studies can probably yield comprehensive results to determine whether CBI language materials lend themselves to the Thai teaching contexts, how the materials can improve students’ learning and whether it is worth investing time and budget to develop materials within a CBI framework.

6.5 Personal reflections

As I began the study, while it was clear that I needed to work on a combination of language and content objectives and the corresponding methodologies, what was not clear was what the study actually entailed and what it would result in. Now at the end of the research study, I understand more clearly what the study has to offer to teachers and researchers in the area.

An important feature of the study was the concretization of the notion of teacher-as-researcher: since I was both the teacher and researcher on the study. It afforded innumerable opportunities not only to understand the nuances and complexities of the process but also to use the insights gained from the two roles effectively. What resulted therefore was a very meaningful and challenging combination of ‘theory’ and ‘practice’, each informing the other. Stenhouse (1975)
conceived this as *research-based teaching*. He argued: ‘It is difficult to see how teaching can be improved or how curricular proposals can be evaluated without self-monitoring on the part of teachers. A research tradition which is accessible to teachers and which feeds teaching must be created if education must be significantly improved’ (p.165).

What emerges from this dual involvement is that in the CBI approach, since language objectives, appropriate materials and methodologies need to be constantly ‘adjusted’ to the given situation, the teacher would have to adopt a teacher-as-researcher approach to curriculum and implementation. This study has tried to demonstrate a version of this approach. There could be other variants to this approach; what makes it challenging and meaningful is that when the teacher is sensitive to the needs of the situation, s/he can begin to respond to the situation in an appropriate manner. What I recommend therefore is not just a needs analysis at the beginning of curriculum development but a research-based approach to teaching.

Another point that clearly emerged in the course of the study was that of collaboration. While it is a well-established notion in language curriculum construction, given the demands of the CBI approach, the idea assumes a more crucial role. To achieve a confluence of language objectives and content objectives in practice requires continuing dialogue with the content expert while not losing sight of learners’ language needs. Although this demands teachers’ time and effort, the resultant benefits for the learner are enormous. This also helps to take care of the problem of ‘isolation’ teachers often suffer from.

Another important benefit is the opportunity such a collaboration offers for teacher’s professional development. While ‘learning’ about another content area seems difficult and even unfair given heavy work schedules of teachers, it is only when English teachers put themselves in the role of dealing with ‘content’ that they can begin to be effective language teachers, for language is a medium that one needs to learn to wield in different situations for different purposes. CBI, in this sense, offers a very good challenge and an opportunity.

In conclusion, it may be the end of the thesis, but only the beginning of a research-journey that I have undertaken with this research study. I feel strongly that every language teacher, especially the CBI teacher, needs to undertake such a journey.