

Chinese-English Bilingual Education in China: The Implication of Content-based
Instruction

by
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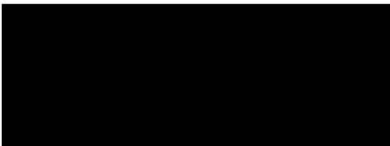
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We accept this thesis as conforming
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ABSTRACT

Bilingual education programs as an alternative approach to teaching foreign languages have only recently been introduced in China. To date, no research has been done on this area of study from a Chinese perspective. This evaluation study is the first to investigate the effectiveness of bilingual programs in China.

This study was conducted in a school in China. The author collected data from three different grade levels of bilingual and matching non-bilingual classes by using three vocabulary tests designed by the author, midterms and final exams provided by the school, and two questionnaires.

Both the statistical analyses of the quantitative data and the students' opinions derived from the qualitative data indicate that the program was highly effective. Based on these results, I conclude that a well-designed bilingual program like the one in this evaluation study is a worthwhile replacement to a regular EFL programs and should be encouraged within the Chinese school system.

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CHAPTER I INTRODUCTION

1.1. Research background

Since the late 1970s, English has become the most important foreign language in China and is the most commonly taught foreign language in Chinese schools. The most widespread teaching method has been the traditional method, which involves grammatical instruction and extensive translation. This method enables Chinese students to acquire the necessary skills to excel in written drills, most of which are aimed at testing the students' knowledge of grammar. As a result, reading and writing skills are well developed while listening and speaking, the other two basic language skills, receive comparatively little attention. Teaching methodology at the school level is one of the main factors affecting the outcome of learning. The traditional method of foreign language teaching is not unique to China; it is common in other parts of the world as well, such as Europe (Freudenstein, 1996).

That Chinese students usually develop unbalanced levels in the four language skills had made Chinese educators question the traditional teaching method and seek innovative teaching approaches. This situation can be compared with the French language situation in Canada in the 1960's, when an increasing number of educators and parents acknowledged the limitations of teaching French-as-a-second-language (henceforth FSL) only. The dissatisfaction with the program led them to seek a new approach. With help from linguists, many FSL programs in elementary schools were recast as intermediate or late immersion programs, a form of bilingual education (Genesee, 1981; for detailed

information on the development of French immersion, see Chapter II). As their Canadian counterparts did three decades ago, Chinese educators have now also turned to bilingual education. The inspiration comes mainly from some of our neighbouring countries and areas, such as Singapore, Hong Kong, India, and Malaysia, where bilingual education has been practised for decades and the students' second language proficiency is very high as a result. For the last two years, there has been a trend in China to implement bilingual education in the schools with the purpose of compensating for the shortcomings of the traditional method and enhancing students' foreign language competence. However, there is a heated debate on the feasibility and effectiveness of bilingual education in China. The concerns are mainly whether bilingual education interferes with students' cognitive development, whether bilingual education has a negative impact on students' first language learning, and whether the students in bilingual programs develop the same level of ability in learning subject matter as their peers in regular EFL programs in which the subject matter is taught in Chinese. We may find the answers to some of these questions by examining the research on French immersion programs. Since the initiation of French immersion in the 1960s, there have been many research studies on various aspects of these programs. These studies have consistently provided the evidence that French immersion, in which the model of content-based instruction is embedded, has facilitated French language learning for English-speaking students and does not negatively impact the acquisition of their first language, their academic achievements or their cognitive development. Lambert (1990) offers a comprehensive conclusion about the outcomes of French immersion from these longitudinal studies:

- (1) Immersion pupils are taken along by monolingual teachers to a level of functional bilingualism that could not be duplicated in any other fashion

short of living and being schooled in a foreign setting.

- (2) Pupils arrive at that level of competence without detriment to home language skill development.
- (3) Pupils do not fall behind in the important content areas of the curriculum, indicating that the incidental acquisition of French does not distract the students from learning new and complex ideas through French.
- (4) Immersion pupils do not experience any form of mental confusion or loss of normal cognitive growth.
- (5) They do not experience a loss of identity or appreciation for their own ethnic background.
- (6) Most important of all in the present context, they also become informed about and develop a deeper appreciation for French Canadians by having learned about them and their culture through their teachers, through their developing skill with the language, and through familiarity with the literature and values of French Canadians (see Lambert and Tucker, 1972; Swain, 1974; Cummins, 1986; Genesee, 1987). (Lambert, 1990, A New and Promising Form of Two-Language Education for Both SL and FL users section, ¶ 13)

The fact that French immersion has been a successful and effective foreign language teaching model in Canada is encouraging for Chinese educators. However, research must be done from the Chinese perspective in order for the French-immersion results to be meaningful in a Chinese context. This is what leads us to conduct the current experimental and evaluation study, focusing on the issue of the integration of language and content in bilingual education.

Even though “bilingual education” is now a popular topic in the field of foreign language teaching in China, the term “bilingual education” has not been well defined there. Furthermore, until now, no research has been done on bilingual education in China. Consequently, the implementation of bilingual education in China is not based on solid theoretical and scientific research results. Instead, it is simply perceived to be an issue of using a foreign language as a substitute medium of instruction in subject matter. There are, however, many questions which need to be answered in this particular context.

In view of the above observations, the topics covered in the literature review range from the definition of bilingual education, the means for having bilingual education and the types of bilingual education, to the influence of bilingual education on learning outcomes and its development. I begin the literature review by looking at publications in the West, primarily in North America, the reason being that North America, especially the United States, is the origin of modern bilingual education and, therefore, a huge reservoir of literature is available.

1.2. The present evaluation study

The evaluation part of this study was carried out at the New Century School (henceforth NCS) in Dongguan, China (for detailed information, see Chapter IV). Dr. Hua Lin, a linguist from the University of Victoria, Canada, was asked by NCS to design a bilingual program. The program, referred to as the China-Canada Bilingual Program (henceforth CCBP), was implemented at the high school level of NCS in September of 2001.

The present study is intended to investigate and evaluate the effectiveness of this

bilingual program, focusing on the development of the students' vocabulary. The method primarily used involves collection and analysis of quantitative data, supplemented with those of qualitative data. The research questions asked are as follows:

1. What are the students' language learning outcomes? Specifically, do the students in the bilingual program show better improvement in vocabulary expansion than their counterparts in the regular English-as-a-foreign-language program over four-month and eight-month periods?
2. How is the students' overall English proficiency? Specifically, do the students in the bilingual program perform better than their counterparts in the regular EFL program on midterm and final exams?
3. What are the students' attitudes towards and comments on the China-Canada Bilingual Program?

1.3. The organization of this thesis

Chapter One gives an introduction to the research background and to the evaluation study. It also summarizes the topics to be covered in the later chapters. The purpose of Chapter Two is to clarify the term bilingual education. The information contained in this chapter is based on what has been done in North America. Readers are asked to note the differences and similarities between bilingual education in North America and bilingual education in China, which is discussed in the following chapter. In addition, various issues of integrating content and language in bilingual education will be discussed in depth in this chapter. Chapter Three provides information on the situation of bilingual education in China and, in addition describes the evaluation study in detail. Chapter Four

outlines the research methodology and research procedures. Chapter Five presents both the quantitative and qualitative results of the study, followed by a discussion of the results. Through this chapter, we can see what effects bilingual education has on the students' English learning outcomes over the period of bilingual instruction. Chapter Six draws conclusions on the basis of the quantitative and qualitative analysis, summarizes the implications of the research, and puts forward suggestions for future studies.

CHAPTER II REVIEW OF THE LITERATURE

This chapter outlines a number of issues regarding bilingual education. I begin by providing a definition of bilingual education, and I then look at various types of bilingual education. As pointed out in the introduction, there has not, to date, been any research done on bilingual education in China. As a result, this review of the literature is entirely based on research in North America, where bilingual education has been widely practised since the 1960's. One of the characteristics of bilingual education is teaching the subject matter in students' second or foreign language, which is termed content-based instruction in the literature. In this chapter, a definition of content-based instruction is first introduced, I then discuss the drawbacks that have been noted for content-based instruction and outline the possible pedagogical solutions that have been put forward. Finally, based on suggestions throughout the literature, I propose a framework for preparing content-based lesson plans so as to maximally facilitate both language and content learning.

2.1 Bilingual education

With the development of trade and commerce, increased communication among different parts of the world, and the need to be competent in languages used for global communication, an increasing number of people need to know more than one language in order to work, study, and live. As a result, there is a growing need for individual bilingualism, "bilingualism as an individual possession" (Baker, 2001, p2). Individual bilingualism is a different phenomenon from bilingualism in society, or social

bilingualism as defined by Siguan and Mackey (1987) and by Baker (2001). Social bilingualism is a common phenomenon across the world. It results from many factors, such as immigration, colonization, trade and communication. The United States, India, Hong Kong and a great number of other geographical areas are good examples of social bilingualism. Thus, on the one hand, individual bilingualism can be the product of social bilingualism; on the other hand, it can be promoted by schooling, as with the case being examined in the present study.

2.1.1 Bilingual education: definition

Bilingual education has been defined as “schooling provided fully or partly in a second language with the object in view of making students proficient in the second language while, at the same time, maintaining and developing their proficiency in the first language and fully guaranteeing their educational development” (Stern, 1972). The above definition captures the features of bilingual education from two aspects. First, only educational systems embracing two languages as the media of instruction are perceived to be bilingual. Second, a bilingual education system is one whose curriculum includes subjects taught in the second language (Siguan and Mackey, 1987; Cummins and Corson, 1997). The second language could be used to teach such subjects as mathematics, social studies or any other courses other than language arts. Any program in which the second language is taught as a language subject only is not bilingual. That is to say, in bilingual education programs, students’ academic learning is accomplished through two languages. A bilingual education system should provide students with the necessary tools to reach proficiency in both languages while, at the same time, maintaining academic standards

and achievements.

Bilingual education, however, is by no means a recent educational innovation; it may date back to as early as 3000 B.C (Tucker, 1991). Modern bilingual education did, however, proliferate in the 20th century with the creation of various bilingual language-teaching programs in the United States in the 1960's, French immersion in Canada since the late 1960's, and other models in Europe, Southeast Asia, and other parts of the world. Bilingual education is practised in these different areas for various purposes ranging from facilitating the second or foreign language learning of the minority and majority language speakers, establishing a "lingua franca", or helping immigrants merge smoothly into mainstream society (Tucker, 1991).

What is embraced under bilingual education is, however, not as clear as its name suggests. As noted by Cazden and Snow (1990a) and Baker and Jones (1998, p. 464), it is "a simple label for a complex phenomenon". Given the aims that different programs hold, the language groups that various programs are intended to serve, the functions of the two languages in the programs, and students' variation in language skills, it turns out that defining "bilingual education" is a difficult task (Baker and Jones, 1998).

The term of bilingual education is often used to refer to different types of programs involving two or more languages (Cummins, 1988), leading to confusion. In view of this, it is necessary to clarify the aims of various educational systems in order to eliminate any potential confusion.

2.1.2 Distinctions among types of bilingual education

There are various ways to classify bilingual education and there are different

2.3.2 Maximally developing content-based instruction

Content-based instruction, in effect, has two goals with the same priority: second language learning AND subject matter learning through the second language. Briefly, the task of implementing content-based instruction is to achieve higher second language proficiency without costs in academic achievement. Swain (1996b) claims that “we need to be doing a lot more fundamental planning about how to integrate language and content teaching” (p. 544) if the two goals are to be achieved at the same time.

2.3.2.1 Highlighting content

From the above discussion, one thing we must be aware of is that subject-matter instruction on its own does not provide adequate language teaching. Much research has shown that a totally message-based approach is inadequate on its own for the development of an accurate knowledge of language (Swain, 1988; Lyster, 1998). However, when done correctly, students can systematically develop second language skills while they deepen and expand their understanding of the subject matter (Short, 1999).

Of primary concern is how to highlight content in second language instruction, increasing its salience to students and drawing their attention to the embedded language forms they are expected to learn. Many researchers (see, for example, Harley, 1998) have concluded that a number of instructional experiments in French immersion and intensive English programs in Canada led to the conclusion that some kind of “input enhancement” can have a positive effect on L2 proficiency. Input enhancement, then, can be used to

and Swain determines that L1 plays a positive role in developing students' cognitive skills, facilitating language skills rather than hindering L2 development. She concludes that "this is why bilingual education programs that allow for the development and maintenance of the L1 while the L2 is being learned are successful in achieving their goals: students learn the L2 and acquire the cognitively challenging academic content presented to them" (p. 269).

2.1.3 Baker's (2001) education typology

As discussed above, bilingual programs can be categorized by taking into consideration different factors such as program goals, status of the student group, proportion of instructional time spent in each language, and the sociolinguistic and sociopolitical situation in the immediate community and wider society (Cummins and Corson, 1997). If the distinctions are made based on the above factors, a clear categorization of bilingual can be achieved.

Baker's (2001) typology of bilingual education is more internationally applicable than that of August and Garcia's (1988). Ten types of bilingual education are identified according to the aims of the programs. These types can be viewed as prototypes within which considerable variations and combinations can occur.

Table 2. 1 Baker's Educational Typology (2001)

(Adopted from Baker (2001), p194)

WEAK BILINGUAL EDUCATION			
Types of bilingual education	Typical type of child	Definition	Educational Aim
Submersion/Structured Immersion in the US	Language minority	Children from language minority families are taught immediately through the majority language.	Monolingualism
Submersion with Withdrawal Classes/Sheltered English	Language minority	In order to keep language minority students in mainstream schooling, they are pulled out to learn the majority language for a certain period of time.	Monolingualism
Segregationist	Language minority	A form of minority language only program.	Monolingualism
Transitional Bilingual Education	Language minority	Language minority students are allowed to use the home language for a period of time. After being evaluated to be sufficiently proficient in the majority language, they are expected to make the transition to majority language content classes.	Relative Monolingualism
Mainstream Education with Foreign Language Teaching	Language majority	A second or foreign language is taught as a subject in the curriculum for most language majority students.	Limited Bilingualism
Separatist	Language minority	Similar to segregationist education in that both are intended to promote monolingualism in the minority language. Nevertheless, it goes to an extreme to separate the minority language from the language majority to pursue an independent existence.	Monolingualism

STRONG BILINGUAL EDUCATION

Immersion	Language majority	Very often is referred to as Canadian French Immersion, in which students are taught partially or totally in French with their subject matter learning.	Bilingualism and Biliteracy
Maintenance/Heritage	Language minority	Language minority students use their native ethnic, home or heritage language in the school as a major medium of instruction.	Bilingualism and Biliteracy
Two-Way/Dual Language Bilingual Education	Mixed language minority and majority	Almost equal number of language minority and language majority students are in the same classroom to be instructed in both languages.	Bilingualism and Biliteracy
Mainstream Bilingual	Language majority	Two majority languages are jointly used in a school. Usually, a majority regional language and an international language coexist as teaching media in a school.	Bilingualism and Biliteracy

In this typology, Baker distinguishes between the roles of the two languages in the curriculum and the anticipated proficiency in either L1 or L2. He categorizes these programs as either “weak” or “strong” bilingual education. For educational programs having a weak bilingual feature, the goal is for the students to be monolingual in either a majority or minority language. In contrast, the students in strong bilingual educational programs are expected to be proficient in both languages. Baker’s typology gives a clear picture of the various types of bilingual programs and eliminates the ambiguous use of the term ‘bilingual education’.

2.1.4 The impacts of bilingual education on second language education

Traditionally, in language classrooms language plays the role of “object” – something that is acted upon, analyzed and broken into small components. The lexicon, syntax, morphology, and phonology of a language are worked on simultaneously to organize the language curricula. In such a context, grammar instruction has always been the focus of instruction and has been perceived to be the key to success in foreign language learning. This practice is quite prevalent in many countries and regions, and China is no exception.

Since the upsurge in bilingual education started in the 1960's, more and more educators are aware of the significance of teaching language through content. This is evidenced in the fact that various bilingual programs teaching subject matter in a second language are more successful in facilitating students' second language learning than teaching a second language in isolation. The success of bilingual education has inspired the field of second language education during the last three decades and, consequently, there has been a shift in second language education from teaching language in isolation towards integrating language and content. The popularity and applicability of bilingual education have increased dramatically since the 1980's. For example, Sheppard (1997) conducted a survey of the integration of language and content in the language context of ESL teaching in the United States and found that more than half of the programs surveyed have some form of content-ESL instruction.

The teaching language through content approach is termed content-based instruction, which is defined as a teaching approach with the aim of integrating the learning of some specific subject matter with the learning of the second language (Brinton et al., 1989; Crandall and Tucker, 1990; Stryker and Leaver, 1997). In Mohan's (1986) seminal work

Language and Content, he points out that language and content are two closely associated components of second language education and they are inseparable in achieving successful second language learning (see also Grabe and Stoller, 1997). In content-based instruction, a second or foreign language is used as the medium of instruction to convey the meaning of the subject matter and, in turn, the subject matter provides the contextualized content for language to develop. Content-based instruction clearly represents a departure from traditional language instruction based on teaching isolated grammar rules. Brinton et al. (1989) identified at least five rationales for introducing content-based instruction:

1. From the experience of ESP (English for specific purposes), it is indicated that successful language learning is determined by whether the learner will eventually use the target language. Content teaching achieves this goal in that the focus is on the language forms as well as functions which will best serve the learner.
2. The use of content that is salient to the students will enhance their motivation in language learning and thus promote learning effectiveness.
3. Content-based approaches include both students' existing subject matter knowledge and their second language knowledge.
4. Language teaching should go beyond the focus of correct sentence-level usage to that of contextualized use. Through content-based instruction, students are able to be aware of larger discourse level features and the social interaction pattern.
5. Krashen's (1981, 1982, 1985) input hypothesis is the last and probably the strongest rationale. According to him, the theory of SLA denotes that the successful language acquisition is determined by understanding language input containing structures that are a bit beyond the acquirer's current level. Other researchers (Grabe and Stoller,

1997; Snow, 1991; Brinton et al., 1989; Snow et al., 1989) also advocated that comprehensible input is important for second language acquisition and argued that language is best acquired incidentally through extensive exposure to comprehensible second language input. It is believed that the second or foreign language is learned most effectively when used as the medium to convey content of interest and relevance to the learner and when it is learned for communication in meaningful and significant social situations. The success of immersion education and other forms of bilingual education in facilitating students' second language proficiency has already provided enormous evidence that teaching subject matter in a second language is one of the most effective options to improve second language learning.

2.2 Bilingual education in North America

In North America, bilingual education comprises the United States' bilingual programs for language minority groups, especially for Spanish-speaking groups, and French immersion in Canada. According to Baker's typology (2001), many bilingual programs in the United States can be categorized as weak bilingual education in that they are mainly intended to allow minority students to gain a good command of English and consequently be assimilated into mainstream classes. The bilingual program in Canada, specifically French immersion, however, is a type of strong bilingual education because it is intended to allow majority students to develop proficiency in both English and French.

2.2.1 Bilingual education in the United States

The development of bilingual education in the United States is widely summarized in a number of works, such as Cummins and Corson, 1997; Padilla, et al., 1990; Siguan and Mackey, 1987; Genesee, 1987; and Baker, 2001. Based on the above publications, in this section I give a brief introduction to the development of modern bilingual education in the United States.

With a great portion of its people coming from different parts of the world, the United States, a multilingual country with English as the dominant language, is highly focused on facilitating English education for its immigrants, who are regarded as minority groups. In order to facilitate the merging of non-English speakers into mainstream society, both government and minority groups themselves wanted a type of educational system that assists language minority groups in learning English, and thus facilitates normal education. In the 1960s, however, it was largely recognized that public schools could not provide minority students with sufficient access to successful English language learning. As a result, bilingual education was promoted as a solution.

Bilingual education in the United States was officially recognized in 1968 with the American Bilingual Education Act (BEA). However, bilingual education was not mandatory until the 1974 Supreme Court ruling in *Lau v. Nichols*, a class action suit brought by the Chinese community against the school system in San Francisco. For the first time in United States' history, a definition of what constituted bilingual education was provided. Three important points were addressed in the definition: 1) instruction should be given in both English and the native language of the children of limited English-speaking ability; 2) the culture of these children should be appreciated; and 3)

such bilingual instruction should be provided for all courses or subjects of study until the children have progressed effectively through the educational system.

The bilingual programs were initially intended to provide non-English-speaking language minority groups with sufficient access to education equal to that of their English-speaking peers. The promotion of students' English proficiency was one of the primary aims of these programs. Since the 1990's, however, the focus has gradually shifted to promoting minority groups' native languages in addition to developing English proficiency. For example, the two-way bilingual program, in which both majority language students and minority language students are in the same classroom, is a model meeting this need. The aim is for students to appreciate each other's language and culture, and at the same time to be proficient in both languages without the sacrifice of academic achievement.

Since the implementation of bilingual education in the United States, there have been a great number of research studies on its effectiveness. The results and conclusions of these studies, however, are quite controversial. Some program evaluations have been conducted to examine the overall effectiveness of bilingual education, with Rossell and Baker's (1996) and Greene's (1997, 1998) reviews being representations of opponents and advocates of bilingual education respectively. Such reviews debated whether using the students' mother tongue would facilitate students' language development and academic achievement more than using only English. Rossell and Baker claimed that they had examined "methodologically acceptable" studies, and found that there was no evidence that bilingual programs were superior to English-only options for limited English-proficient children. Greene reached the opposite conclusion; that is, bilingual education has a positive effect on language minority students' language development, and

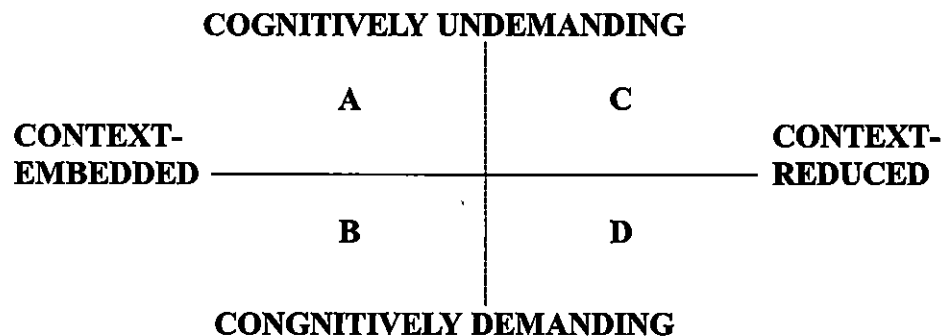
children whose English proficiency is limited will benefit more from the use of at least some native language instruction rather than being taught only in English.

Rossell and Baker's (1996) review has been criticized by some researchers (Greene, 1998; Cummins, 1998a; 1998b; 2000) for being unreliable in its labeling of bilingual programs, and for inaccurately interpreting results. However, an overwhelming number of researchers have indicated that "bilingual education" involving both English and the students' native tongue can, at least, facilitate minority students' English learning. An important review conducted by August and Hakuta (1997) concludes that the results of the relevant studies have indicated that bilingual groups are superior on a variety of measures of cognitive skills, in particular metalinguistic abilities.

Cummins's (1981) model of language proficiency development builds a sound theoretical foundation for integrating minority students' mother tongues into the process of developing English proficiency (see Figure 2.1). His theoretical framework distinguishes two continua. The horizontal continuum consists of context-embedded communication that involves less explicit linguistic elaborations and is more typical of the daily language usage outside the classroom; context-reduced communication, on the other hand, needs explicit and detailed linguistic support in order to be conveyed to the students. The vertical continuum deals with the degree of active cognitive involvement in the activity. Cognitive language skills are associated with language development; with the increase of language proficiency and more involvement in language tasks and practices, language skills become more cognitively demanding and, in turn, cognitively demanding language skills stimulate the development of language proficiency. An all-English curriculum is very context-reduced and cognitively demanding for language minority students, and thus very often results in failure if they have not developed adequate

competence in their second language. Based on the above, Cummins argues that, compared with whole-English instruction, adding some native language instruction to language minority students will aid in promoting students' language skills so that they can successfully manipulate and interpret context-reduced cognitively demanding texts (quadrant D), ultimately the goal of bilingual education for minority students.

Figure 2.1 Range of Contextual Support and Degree of Cognitive Involvement in Communicative Activities (Cummins, 1981, p12)



Having realized the complicated facts regarding bilingual education in the United States, many researchers (for example Padilla, 1990) have suggested that there should be a shift in focus from *whether* bilingual education works to *how* to improve the effectiveness of bilingual education. The debate over whether or not bilingual education is effective has been brought to a halt, and many upcoming research studies have started to focus on pinpointing features of effective programs for language minority students, mainly concerning students' successful schooling within the framework of bilingual education in addition to students' language development.

2.2.2 Immersion

As pointed out in an earlier section, immersion is a type of strong bilingual education model. Immersion in general is defined as a program in which a second or foreign language is used as the medium of instruction and which aims for additive bilingualism as designed for a language majority group (Genesee, 1987). This is sometimes referred to as “foreign/second language immersion” (Genesee, 1999). Within the immersion curriculum, courses such as mathematics, science and geography are taught as content subjects using the second or foreign language. The students’ L1 is taught as a subject at some stage and is used as a medium of instruction as well. As a result, a high level of proficiency in L2 is achieved while maintaining the proficiency in L1. In this form of language instruction, the foreign language is the vehicle for content instruction as opposed to being merely a subject of instruction.

In addition to having L2 as a medium of instruction, a number of other features also contribute to this type of immersion (as summarized by Swain and Johnson, 1997, p.6-8):

1. The immersion curriculum parallels the local L1 curriculum.
2. Overt support exists for L1.
3. The program aims for additive bilingualism.
4. Exposure to L2 is largely confined to the classroom.
5. Students enter with similar (and limited) levels of L2 proficiency.
6. The teachers are bilingual.
7. The classroom culture is that of the local L1 community.

Most immersion programs will not have all of the above features to the same extent.

Nevertheless, these core features in a sense define the characteristics of immersion

programs, and they are all definitely present in prototypical immersion programs to a greater or lesser degree.

The term “immersion education” originated from the L2 French medium programs developed in Canada in the late 1960s. (The detailed development of French immersion is described in the following section.) Since its implementation, much research has been done to examine the outcome for both French and English proficiency as well as academic achievement. These studies have consistently demonstrated that it is very successful in facilitating students’ French proficiency. The insights from this immersion education have contributed to second language education programs across the world, especially in Europe. It has been developed in various models depending on the types of language teaching contexts in which it is embedded (see Bjorklund, 1997; Baker, 2001). Some of the sociolinguistic contexts in which immersion models are realized and distinguished are as the follows (as discussed in Swain and Johnson, 1997).

- (1) immersion in a foreign language, in which the majority language students are instructed in their own cultural context while promoting proficiency in another language (e.g., French immersion programs in Australia). This model is exactly what I am concerned with in my research since it parallels most existing bilingual program models in China.
- (2) immersion for majority-language students in a minority language to enhance second language learning (e.g., French immersion for Anglophone students in English-speaking Canada);
- (3) immersion for the purposes of language support and language revival, for example supporting and developing an extinct or banned language (e.g., to promote Catalan among Spanish-speaking children in Spain);

(4) immersion in a language of power (e.g., for Cantonese speakers studying English in Hong Kong). The target language in such a program plays an important role as the lingua franca and, thus, enables students to communicate across linguistic and cultural boundaries. Many bilingual programs in China are also comparable to this type.

We have to be aware that these immersion program models are not independent of one another. Some of them overlap as they can fall within more than one category. For example, English immersion in Hungary, as examined in Duff (1997) can be equally placed in both categories of “immersion in a foreign language” and “immersion in a language of power”. Even though immersion programs have different formats across the world, they do share similar goals. The general goals of immersion programs are summarized by Genesee (1999) as follows “notwithstanding their diverse overarching goals, all immersion programs aim for functional proficiency in second language reading, writing, speaking, and listening; age-appropriate levels of first language competence; grade-level achievement in academic subject matter; and understanding and appreciation of the second language culture along with an appreciation for and identification with the home culture (p.30).”

Many research studies have demonstrated that students in immersion programs across the world have, on the whole, demonstrated higher levels of second language proficiency than their counterparts in monolingual programs with the second language taught as a single subject. These studies have also indicated that students’ content learning does not fall behind as a result of the instruction medium being in a second language, and they have observed that first language development generally was not sacrificed (Swain and Johnson, 1997). From years of successful pedagogical experience and with systematic evidence from these research studies, it is widely believed that one of the lessons learned

from immersion programs is that the approach in which language is integrated with academic or content instruction is a more effective way to teach language skills than the approach in which the second language is taught in isolation. The use of L2 as a medium is a means for maximizing the quantity of comprehensible input and purposeful use of the target language in a classroom (Genesee, 1991, 1994).

2.2.3 Canadian French immersion

2.2.3.1 The historical development

As previously discussed, the origins of immersion are usually related to French immersion in Canada, even though using a second language as the medium of instruction has been the rule rather than the exception (Cummins, 1998c). French immersion grew up at almost the same time as bilingual education in the United States. French immersion, however, as a primarily additive bilingual education system for majority students, is different from bilingual education in the United States in many respects.

French immersion in Canada was implemented and developed in response to sociolinguistic-political events in the province of Quebec. Being dissatisfied with the FFL (French as a Foreign Language) instruction given to English-speaking students at that time, a group of concerned parents in St. Lambert, a small suburban community outside of Montreal, started to seek an alternative program with the goal of improving English-speaking students' French learning. Dr. Wallace Lambert of McGill University's Psychology Department was consulted to work out a better education system to facilitate French language education. As a result of joint efforts by both parents and scholars, the

first experimental kindergarten immersion class was set up in September of 1965 (Stern, 1972; Tucker and d'Anglejan, 1972; Genesee, 1987; Baker, 2001). The aims were for pupils "(1) to become competent to speak, read and write in French; (2) to reach normal achievement levels throughout the curriculum including the English language; (3) to appreciate the traditions and culture of French speaking Canadians as well as English-speaking Canadians" (Baker, 2001, p. 204).

French immersion has been proven to be efficient in helping English-speaking students have a better command of French than their peers in the monolingual education system. Because of its success, this innovative second language program spread to other parts of Canada, and is now offered in every province across Canada. In fact, in 1997, about 7% of the school-going population in Canada was enrolled in one form or another of French immersion education (Swain and Johnson, 1997). Nowadays, French immersion in Canada has at least three forms: programs for students who are learning French as a minority language, as, for example, in Toronto; programs for English-speaking students who are in French-speaking communities, like Montreal; and programs for students who are in French-English bilingual communities, like the Ottawa area (Kowal and Swain, 1997). No matter what the format of Canadian French immersion, it is designed for the English-speaking majority with additive bilingualism as the goal. And, in contrast to the United States' bilingual programs which aim for transitional bilingualism, Canadian immersion programs have the goal of facilitating students' proficiency in both English and French (Genesee, 1987).

With respect to students' first contact with immersion, there are three major variants of French immersion: (i) early immersion starting in kindergarten or grade 1; (ii) mid-immersion starting from grades 4 or 5; and (iii) late immersion starting from grade 7

(Baetens Beardsmore, 1993a; Swain and Johnson, 1997; Swain, 1996a; Cummins, 1998c).

In terms of the extent of immersion, immersion programs vary in format from “partial” to “total”. In partial immersion, reading and language arts are always taught in the students’ first language; beyond that, the choice of subjects taught in each language is a local decision. In total immersion, however, instruction in all subjects involves 100% French usage.

2.2.3.2. *Outcomes of French immersion*

The effects of French immersion have been a focus of concern since its inception in the 1960s. English-speaking students’ French proficiency, one of the primary aims of French immersion programs, has been the primary concern. The students’ English development and academic achievements are additional concerns. In an effort to address such concerns by parents and scholars, a number of research and evaluation studies have been undertaken across Canada (Genesee, 1987; Swain and Lapkin, 1982; Swain, 1984). While research findings on bilingual education in the United States have always been controversial, the Canadian research findings on French immersion are entirely consistent (Cummins, 1988). Such studies consistently demonstrate that students in French immersion generally perform as well as, or even better than, their counterparts in monolingual programs where French is taught as a foreign language several hours per week (Swain and Johnson, 1997; Lyster, 1998). In the long term, participation in immersion programs does not interfere with students’ first language development or academic achievement.

There are, however, some not-so-successful outcomes of immersion programs. First, it

has been found that immersion students often reach native-like receptive language skills (listening and reading) in French, while their productive language skills (speaking and writing) continue to remain non-native-like (see Genesee, 1991, 1994). Second, when being evaluated against native speakers of French, immersion students' proficiency is evaluated as nonstandard in terms of grammar and pronunciation and limited in the range of communicative functions (Swain and Johnson, 1997).

French immersion students' gaps in language skills have usually been attributed to the factors such as:

1. lacking opportunity to produce language in the classroom;
2. lacking interaction with native francophone students;
3. the information about the target language provided by teachers is very often inconsistent and random;
4. teachers' input is not rich linguistically and is functionally restricted;
5. no systematic and consistent feedback about students' use of target language forms in meaningful contexts (Swain, 1988; Swain, 1996b).

Being aware of these gaps in the immersion programs, researchers are left to ponder the possible causes of immersion students' strengths and weaknesses, and to postulate pedagogical solutions.

2.3 Pedagogical modification of immersion education

Immersion education stresses the strategy of learning a second language within the context of content learning. However, a focus solely on content may result in an unsystematic development of language skills, something alluded to in the discussion of

Canadian French immersion in the preceding section. With regard to French immersion's weaknesses, pedagogical modifications have been suggested so as to make French immersion more efficient in facilitating students' French learning. These suggestions are not only valid for French immersion; they can also be applicable to any foreign language immersion situation.

2.3.1 Challenging Krashen: Swain's Output Hypothesis

Even though comprehensible input is essential to successful second language acquisition, and many researchers have argued that while exposure to a meaningful and naturalistic language environment definitely facilitates L2 learning, it does not necessarily lead to high levels of accuracy or high levels of development of L2. Obviously, second language learning does not necessarily happen automatically (White et al, 1991; Swain, 1996b; Snow et al., 1989).

We have already seen this phenomenon in much research on French immersion, where students are demonstrated to have stronger receptive skills than productive ones and language performance is very often non-native-like. It can be concluded that "comprehensible second language input is necessary, but not sufficient" (Long, 2000, p.184).

In French immersion, students actually have few opportunities to engage in meaningful exchange in the classroom. Essentially, teachers talk and students listen. The Canadian students in French immersion, when compared with their counterparts in Brussels where extensive exposure to the target language outside the classroom is available (see Baetons Beardsmore and Swain, 1985), required approximately twice the

amount of time to achieve a level of L2 French proficiency equivalent to that of the students in Brussels. In two of his articles, Baetons Beardsmore (1993a, 1993b) indicated that the French proficiency differences between Canadian immersion students and students in European models of multilingual education could be accounted for by the fact that in Canadian cases there is a lack of second language interaction either out of the school or among peers, which are extensively and readily available in European models.

Such findings impel scholars like Swain (1985, 1993) to propose an “output hypothesis” to challenge Krashen’s “comprehensible input” hypothesis. It proposes that immersion students’ lack of native-like competence is not because there is limited comprehensible input; instead, it is due to limited comprehensible output. Students should be encouraged to produce their linguistic resources via different means. The essence of the output hypothesis is that “through producing language, either spoken or written, language acquisition and learning may occur” (Swain, 1993, p.159). Many other researchers also argue that comprehensible input is not the sole key to second language learning and advocate Swain’s proposal of embedding comprehensible output (Lyster and Ranta, 1997).

The function of the output hypothesis is four-fold. First, output provides opportunities to practice meaningful use of what has been learned. In the process of producing, then, learners are pushed to move to a higher level of processing so as to make the message come across more precisely, coherently and appropriately. Third, production is a means to test if what has been learned actually works. The last role it plays is that production may generate responses from native speakers so that the learners are provided with opportunities to be aware of the degree of comprehensibility and whether utterances are well formed.

2.3.2 Maximally developing content-based instruction

Content-based instruction, in effect, has two goals with the same priority: second language learning AND subject matter learning through the second language. Briefly, the task of implementing content-based instruction is to achieve higher second language proficiency without costs in academic achievement. Swain (1996b) claims that “we need to be doing a lot more fundamental planning about how to integrate language and content teaching” (p. 544) if the two goals are to be achieved at the same time.

2.3.2.1 Highlighting content

From the above discussion, one thing we must be aware of is that subject-matter instruction on its own does not provide adequate language teaching. Much research has shown that a totally message-based approach is inadequate on its own for the development of an accurate knowledge of language (Swain, 1988; Lyster, 1998). However, when done correctly, students can systematically develop second language skills while they deepen and expand their understanding of the subject matter (Short, 1999).

Of primary concern is how to highlight content in second language instruction, increasing its salience to students and drawing their attention to the embedded language forms they are expected to learn. Many researchers (see, for example, Harley, 1998) have concluded that a number of instructional experiments in French immersion and intensive English programs in Canada led to the conclusion that some kind of “input enhancement” can have a positive effect on L2 proficiency. Input enhancement, then, can be used to

draw the learners' attention to properties of the input that might otherwise be missed.

Once the content conveyed through the second language is salient to students and draws their attention and interest, the likelihood of students effectively and successfully learning both language and content is thus increased.

The question raised is how to draw students' attention to target language forms embedded in the content. Many methods have been proposed. One of them is the issue of using explicit language instruction in a content-based approach. For example, the amount of formal language teaching has been increased in some French immersion programs for the purpose of compensating for inaccuracies in immersion students' production. It is hoped that through explicit language teaching, students will pay attention to language rules and forms rather than their failing to notice them. Rasanen (1994) argued that this method is of particular importance in language-learning contexts where native speakers are rarely available to provide real, authentic L2 input. Harley (1993) stressed that "the global issue to be explored is how L2 instruction in a communicative, content-oriented classroom setting can be tailored so as to optimize, or maximize, young students' language learning" (p. 245).

2.3.2.2 Explicit instruction in content-based instruction

There are two dimensions to second language instruction, the experiential and analytic teaching strategies identified by Harley (1993). The experiential strategy is the term used to refer to a message-oriented teaching strategy. The main emphasis is on using the language naturally as a vehicle for subject matter content. In contrast, analytic teaching strategy involves deliberate, linguistically focused instruction.

By nature, experiential teaching is implicit in the sense that there is no attempt to give generalizations about the language. Analytic teaching is explicit in that it provides students with explanations and rules about language forms. The experiential approach provides focus on meaning, and is likely to be more effective in promoting incidental learning. However, use of the language as a vehicle for subject matter does not guarantee that students will have much opportunity to observe or express specific form-function relationships, the reason being the lack of both input in the full range of functions and the opportunity to produce language, as mentioned earlier. In contrast, analytic teaching is designed to provide focused assistance in L2 development by making features of the L2 more salient for learners who might fail to notice them. Some researchers have argued that students would not learn any feature in a second language without noticing or becoming aware of it. However, the analytic approach alone will sometimes draw too much attention to isolated language forms, and thus does not help students relate form and meaning in context.

We can conclude that analytic and experiential approaches are not mutually exclusive. For successful second language development in the content-based classroom, it is necessary to design a curriculum to integrate analytic teaching into a mainly experiential classroom context. In order to provide optimal conditions for second language learning, key questions concerning immersion pedagogy should focus on ways in which, and the extent to which, analytic teaching strategies may be combined with more experiential ones (Lyster, 1998).

Overlapping with experiential and analytic strategies, form-focused instruction is another topic frequently discussed in recent years. Many researchers advocate a more form-focused approach to language teaching (Nassaji, 2000), arguing that activities which

focus solely on messages are inadequate to develop accurate knowledge of the language in question. To compensate for this inadequacy, some kind of activity needs to be incorporated into communicative classroom contexts. Two recent publications have provided a full-range profile of form-focused instruction from the perspectives of theory, practice, and research: *Focus on form in classroom second language acquisition* (Doughty and Williams, 1998a), and *Form-focused instruction and second language learning* (Ellis, 2001a).

Form-focused instruction is defined by Ellis (2001b) as “any planned or incidental instructional activity that is intended to induce language learners to pay attention to linguistic form” (p. 1). According to Long (2000), form-focused instruction encompasses three instructional options: *focus on forms*, *focus on meaning* and *focus on form*. Long (2000) defines *focus on forms* as traditional grammar teaching having to do with activities whose primary purpose is to teach language forms in isolation; *focus on meaning* is a natural approach and is a radical shift from *focus on forms*; *focus on form* is an attempt to draw the student’s attention to linguistic forms as they arise in activities in which the primary focus is on meaning, and involves the integration of both *focus on forms* and *focus on meaning*. Doughty and Williams (1998b, p.4) explain relationships among all three approaches as follows:

“... focus on forms and focus on form are not polar opposites in the way that “form” and “meaning” have often been considered to be. Rather, a focus on form *entails* a focus on formal elements of language; whereas focus on forms is *limited to* such a focus, and focus on meaning *excludes* it. Most important, it should be kept in mind that the fundamental assumption of focus-on-form instruction is that meaning and use must already be evident to the learner at the time that attention is drawn to the linguistic apparatus needed to get the meaning across.”

Recently, many research studies have been conducted to examine the effectiveness of various form-focused technologies in communicative content-based instruction and have provided positive evidence that the adoption of somewhat form-focused treatments will facilitate language learning in meaning-oriented contexts (Day and Shapson, 2001; Lyster, 2001; Williams, 2001; White, et al. 1991). Furthermore, Swain (2000) reviews the French Immersion studies and summarizes that “overall, the set of experiments conducted in FI classes suggests that there is value in focusing on language form through the use of pre-planned curriculum materials in the context of content-based language learning” (Swain, 2000, p. 205).

2.3.3 Planning a content-based lesson

At this point, I would like to summarize how to maximally integrate language and content teaching based on the literature. It is hoped that the framework proposed here would be of use to those who are going to implement this kind of instruction. One fact I want to stress is that there is no single formula for content-based instruction.

The first thing one must do is to decide the theme of the subject matter. A content-based course, following the six-T’s framework put forward by Stoller and Grade (1997), must initially be defined by specifying themes and then assembling appropriate texts which will support the themes.

After identifying the theme, one must decide what language knowledge the students are expected to learn. Snow, Met and Genesee (1989) put forward a conceptual framework containing two types of language objectives, specified as content-obligatory language objectives and content-compatible language objectives. Well-defined

content-obligatory and content-compatible language is intended to enrich the input that will serve as a native-like language model for the students. Content-obligatory language is the language necessary for meeting specific content objectives, and involves both structural and functional language components. For instance, a lesson on gravity in a fourth-grade science class would require that students know vocabulary such as *to rise*, *to pull*, and *force*. In contrast, content-compatible language supports the content of a lesson, as well as the linguistic and cultural objectives of the curriculum, but may be more difficult to identify. There are some sources, however, such as the observation of student language skills and their classroom needs.

After having prepared the curriculum, the next step is determining the style of classroom instruction. Teachers should plan and structure analytic activities so that the focus on form is incorporated into content teaching (Swain, 1996b). Teachers in a content-based classroom should use teaching strategies that 1) make sure students are aware of the target language forms; 2) provide students with feedback on their accuracy; 3) provide students with language in a more functional way; and 4) provide students with opportunities to practice language in its full range of functions. One thing to be aware of in the process of drawing students' attention to language, as Doughty and Varela (1998) point out, is that focus on form should be incorporated into a content-based class in such a way that the dynamics of the classroom interaction will remain centred on the learning of content, circumventing any shift to a traditional focus on forms.

2.4. Conclusion

In this chapter, I provided a general overview of bilingual education, within which a

definition and typology of bilingual education were discussed for the purpose of clarifying some of the confusion about bilingual education. Two typical bilingual education models in North America were outlined as well. The issue of integrating content and language in bilingual education was also discussed from the perspective of pedagogical solutions to the gaps in students' language skills. Finally, some considerations to be taken into account when planning an efficient content-based course were proposed.

CHAPTER III BILINGUAL EDUCATION IN CHINA

3.1 English teaching in China

Since 1977, the importance of mastering a foreign language has been stressed in the Chinese national curriculum. Among the few popular foreign languages in China, English has been the primary choice of the national mandatory curriculum for a number of reasons. First and foremost, from a global perspective, English is recognized as the most important international language, being widely used in many areas around the world. That English is recognized in many areas and countries drives the Chinese people to pay special attention to it. Second, China had been isolated from the rest of the world for several decades before the late 1970s and had fallen behind in many areas. In order to catch up with the most advanced developments in science and technology, to make China known better to the world and in the meantime, to get to know the world better, English became one of the most powerful tools towards achieving these goals for China. This situation is similar to some Southeast Asia countries such as Singapore and Malaysia. In 1989, the then Prime Minister of Singapore stated that small young countries like Singapore “had no alternative but to plug into the established international network, through the use of English” (cited in Pakir, 1993a, p74).

English teaching in China has followed traditional methodologies which place emphasis on the acquisition of grammar. This kind of instruction more or less results in what has been called “dumb English” in China. The students have very good skills in dealing with different written drills and tests. Nowadays, Chinese students average higher

on English tests such as TOEFL, GRE and GMAT than their counterparts in other Asian countries where English is not an official language¹. This phenomenon provides evidence that Chinese students have a very good ability to pass different types of exams. However, the Chinese students usually have weak speaking and listening skills. Within China, there are the Band 4 and 6 national English tests at the tertiary level. Many university students who have passed the two tests continue to have low comprehension ability in listening and speaking.

With China's economic development, great achievements in many other areas such as technology, and increase in political status, more and more Chinese people need to use English in their careers and daily life. Nowadays, due to the extremely rapid increase of contact with other countries, the communication skills required in China are at a level that presupposes a high-level, active proficiency which, in turn, naturally places ever-increasing demands on language teaching. English education is one of the most important steps to take in addressing these demands. Coming into the new century, Chinese education faces a new task in developing an innovative system that aids people to be able to face the new challenges imposed by the rapid development of the world.

3.2 Bilingual education in China

One such solution, already implemented to some extent, is bilingual education. From the many approaches that fall within its scope, it is necessary for China to find the ones that would be most suitable for its particular learning and teaching context.

¹ See in TOEFL: Test and Score Data Summary, 2000-2001 Edition from [ftp://ftp.ets.org/pub/toefl/990611.pdf](http://ftp.ets.org/pub/toefl/990611.pdf) for TOEFL mean score between July 1999 and June 2000.

The proposal for having bilingual education in China is based on two factors. One of these is that students who are equipped with both the knowledge of some discipline and competence in a foreign language are in demand in China; traditional grammar-based instruction can hardly meet this rapidly increasing demand. Students from EFL programs will be lacking in what has been called Cognitive Academic Language Proficiency (Cummins, 1981). Since the development of good productive skills (speaking and writing) in a second or foreign language requires a considerable amount of time, effort and experience, and the number of hours available for formal language teaching is quite modest, it has become necessary to search for new solutions which could provide new opportunities for language learning. One of the goals of teaching non-language subjects in English in China is to develop students' academic language reservoir, their language proficiency for comprehending English articles in their area of the study, their skills in writing research reports, their communication abilities with overseas academic counterparts, etc.

The other factor is due to the gap resulting from traditional grammar-based instruction. The traditional language teaching method is thus being questioned and challenged. Inspired by the experiences of some neighbouring countries and areas, such as India, Singapore, Hong Kong, Malaysia and Indonesia, where bilingual education has been implemented and higher English proficiency has been achieved, many schools in China have started to look at the feasibility of bilingual education in China. Singapore's bilingual education policy was implemented in 1966 (Pakir, 1993b). The nature of the bilingualism situation in Singapore is termed by Pakir (1993a) "English-knowing bilingualism", which means having proficiency in one other official language and English as mandatory. The promotion of bilingualism in Singapore in the 1960's has served

Singapore as one of important channels to obtain its outstanding prosperity in economic development.

In terms of anticipated outcomes of bilingual education in China, it is expected to be very different from French immersion in Canada in that students in Chinese bilingual education would be expected to use their second language extensively at work, while not many French immersion students would be using French after they finish their program. This has been indicated by Harley (1994), “surveys of recent graduates of French immersion programs in Canada have found relatively few of them making substantial use of French in the years immediately following their schooling (p. 229)”.

These days, bilingual education in China is emerging with the major purpose to improve students’ second language proficiency at a greater rate. Bilingual education is now in its infancy in China, and its implementation has not yet been officially approved. Some secondary schools that have good English teaching conditions have implemented bilingual education on a trial-basis. In 2000, Shanghai Middle School started to experiment with bilingual education in some grades with some subject matter (<http://www.net.edu.cn/20010924/3002601.shtml>). The school’s goal is not simply to improve the students’ oral proficiency but also to develop students’ overall English abilities and to enable students to think in English. The textbooks adopted by schools comprise textbooks used in American middle schools, resources downloaded from the Internet and textbooks compiled by the schools themselves. Some universities and colleges have also launched bilingual education. For example, in Tianjin University, bilingual instruction is given in some graduate level courses (http://www.lib.szu.edu.cn/szulibhem/ad_xxfw/bd_bdwc/whjy/04021.html). The aim is for graduate students to have the ability to access the most advanced international

technological achievements and get their academic achievements published in foreign journals; making their work available to the world.

To be precise, the term bilingual education is used in China to refer to an instructional approach to teaching non-language subjects or “content” through a foreign language (mostly English) as the medium of instruction. The aims of bilingual education are varied at different levels of education. At the level of secondary or lower level, the main goal is to improve students’ English proficiency to a great degree. At the level of tertiary education, dual goals are to be achieved via bilingual education: in addition to developing students’ general English proficiency, the acquisition of academic English is another focus. Specifically, bilingual education at this level aims for the students to be able to read academic publications, write their research in English for publishing in overseas journals and subsequently, diminish the academic gap between China and the most advanced research in the world.

Although it has not become written law to have bilingual education at various levels, the Ministry of Education has recommended that bilingual education be taken into account in the curriculum. In September of 2001, the Ministry of Education stipulated that Chinese Universities promote the use of a foreign language, mainly English, to teach subjects, especially those like information technology, biology, finance, and law that are urgently in demand since China’s entry into the WTO. The goal is that in three years, 5% to 10% of university courses will be included in bilingual programs. (Ministry of Education, 2001).

In some metropolitan cities like Shanghai and Beijing, bilingual education has been implemented in a number of elementary and secondary schools, even in some

kindergartens. For example, in Shanghai, there were more than 30 schools conducting bilingual education as of January 2002 following the call given by the Shanghai Education Commission to strengthen English teaching and promote bilingual education in the city's primary and secondary schools (Xing, 2002).

From the different models of so-called bilingual education practised in China, we can draw the following conclusions:

1. Bilingual education in China is a foreign language teaching methodology using the students' second language to teach some subject matter. English is the most popular foreign language in the bilingual education model.
2. Teachers who use a foreign language to teach the subject matter are mostly Chinese teachers who are proficient in the foreign language. That is to say, this group of teachers can communicate with their students in both Chinese and the foreign language. Very often, at the primary and secondary education levels, bilingual teachers are originally language teachers. Whereas at the higher education level, bilingual teachers are content teachers who are very proficient in a foreign language.
3. There are no ready-made teaching materials for Chinese bilingual education. The school boards usually adopt authentic textbooks.
4. Students who are enrolled in the bilingual programs have the same level of proficiency in the foreign language.

There are several severe problems facing China in the process of implementing bilingual education. First and foremost, there is a lack of eligible teachers who are good at the core subject and at the same time highly proficient in English. A qualified English teacher should, in the first place, be competent in all four language skills. But out of 550,000 middle school teachers in China, only 89.4% of junior middle school teachers

and 55.0% of senior middle school teachers are professionally qualified (Liu & Gong, 2000, quoted in Yu, 2001). The university professors' ability to teach in English is also questionable. Some universities that have been experimenting with foreign textbooks have indicated that the caliber of teaching is not good enough. For example, a university provost admitted that after using two IT foreign textbooks, it was felt that the professors' teaching abilities needed improvement. One of the solutions proposed by the Ministry of Education was to send more Chinese teachers to receive training overseas.

A second problem is the lack of appropriate textbooks specifically designed for Chinese bilingual education. No textbooks suitable for Chinese bilingual education have been compiled. That some secondary schools have to refer to textbooks for English-native speakers makes many parents worried that these foreign books are not in accordance with the city's examination outline. Thus, their kids may be at a disadvantage when writing exams. The issue of adopting instruction material has also been raised at the tertiary level. One of the means of bilingual education at this level is to employ textbooks used by native-speakers. For example, out of 1440 courses offered in Qinghua University, 54 of them have employed foreign textbooks. In three years, all of the 500 core courses in Qinghua will be using foreign textbooks. 20% of the main courses at Peking University are currently using foreign textbooks. Some other universities in Beijing are going to import foreign textbooks as well. Using foreign textbooks, however, creates challenges for universities. One of the obvious challenges is that most of the students cannot afford the high price of foreign textbooks. A foreign textbook costs about 700-800 Yuan, which is almost equivalent to the total of one year's textbook fees. Xi'an Transportation University solves this problem by allowing students to pay 50 Yuan (less than 6 U.S. dollars) per school year to rent the book. However, as it turns out, many students are keen

on the books and fail to return them.

A third problem is that some parents complain that their children cannot understand what teachers are saying. Some parents are worried that although bilingual education is good for students' English, it may damage students' development in other subjects due to their low comprehension in English.

A fourth problem is that students' limited proficiency in English makes them lose confidence and interest in catching up with bilingual education. As cited in Xing, 2002, a survey was conducted by Shanghai Middle School on their attitudes towards bilingual education. 30% of students surveyed believed that they benefited from bilingual education; 50% thought bilingual education was useful, but felt tired when learning; 20% found it very hard to learn if the teacher spoke English. In 2000, a mandatory Physics course in English was offered in four departments in Qinghua. In two weeks, the number of students attending the class dropped from more than 130 to 102. The same thing happened at Xi'an Transportation University. About 200 students registered for a bilingual math course at the beginning of the semester. It turned out that only 53 students wrote the exam.

3.3 New Century School – A case study

3.3.1 Background to the school setting

The present research was conducted at New Century School (henceforth NCS) in the city of Dong Guan of Guangdong province in the People's Republic of China. Guangdong province is one of the well-developed provinces in China. Geographically, it is next to

Hong Kong. Established in 1994, the school is a private boarding school with a current student population of about 2,500. The school has three beautiful campuses housing, respectively, a kindergarten for ages 3-5, a primary school for grades 1-6 and a junior and high school for grades 7-12.

Since the very beginning, the New Century school administration has had a strong focus on English education. The entry of China into the World Trade Organization and the Chinese government's urgent call for schools to produce graduates with solid English skills have made English all the more important at the New Century School, leading to the creation of the China-Canada Bilingual Program (henceforth CCBP) and its subsequent implementation at the New Century School.

The China-Canada Bilingual Program was designed by Dr. Hua Lin from the Linguistics Department of the University of Victoria and was implemented in September of 2001 (Lin: p.c.). The practising model is a product of both her theory about bilingual education and the valuable findings in this area of research. Taking into account students' needs and the feasibility of English instruction, she put forward a content-based bilingual model for the school to use. Since the subject is taught in a language other than Chinese, the content conveyed in English poses a great challenge to students in that they have to comprehend both content and language. If students cannot comprehend, both academic achievements and language learning will suffer as a consequence. As language plays a role in facilitating content learning, it is important to make language salient to students. Based on valuable research results from previous studies in the area of bilingual education, Dr. Lin designed her unique bilingual instruction model. The model consists of three stages with respect to the amount covered in both language and content teaching. Given students' low English proficiency and difficulty with the subject, language

components are the main focus in the first stage. Content teachers are expected to draw students' attention to difficult language items, which may impede students from comprehending the content. As the program progresses, language instruction gradually plays a less crucial role and is reduced to a degree. At this point, content becomes the focus of instruction. Finally, language and content have the same status with respect to instruction. Students are thus immersed in an English-speaking environment to learn both language and content. (Lin, p.c.)

3.3.2 The working schedule of the program

Subjects selected to be taught in English are social studies, including interesting culture issues, and general science, including some basic knowledge like topics on the universe, animals and plants. Referring to a series of books published in North America, Dr. Hua Lin compiled two sets of teaching materials for two bilingual courses respectively. Since September of 2001, two native English-speakers have been employed to teach these subjects. They are both experienced ESL teachers and are thus good language models. Neither of them understands Chinese.

The designed bilingual instruction has been undertaken in grades 7, 8 and 10. The reason for not engaging the students from grade 9 is that they are supposed to have a provincial entrance exam to senior high school by the end of the school year according to the national educational curriculum. After consulting with students themselves, parents of the students and the school board (especially the grade-level teachers), it was decided that grade 9 would be left out so that they could continue with their regular curriculum and thus avoid possible negative impacts on their provincial exams.

3.3.3 The evaluation study

In order to understand the CCBP's effectiveness on students' English language skills as well as students' mastery of the content taught through English, long-term evaluation research needs to be conducted. The evaluation study is aimed at assessing the effectiveness of the CCBP at the New Century School in terms of students' English proficiency and academic achievement. The results of the evaluation will be essential to the continued improvement of the CCBP.

The evaluation study in this thesis is the start of this long-term evaluation research. This study evaluates the results of the first academic term of the CCBP. This study also establishes a preliminary framework on which further evaluation can be conducted.

3.3.4 Evaluation questions

Whatever form bilingual education takes, students' first language development, academic achievement, and second language proficiency are all of primary concern. This evaluation research focuses on the CCBP students' English language achievements. It addresses questions such as how well students would learn English when it is being used as a medium of communication to teach curriculum content areas. Specifically, students' English proficiency is examined in terms of vocabulary size and overall proficiency. Students' attitudes towards the bilingual program are included in qualitative data collection. Thus, three general evaluation questions provide the primary focus for the current research:

1. Do the CCBP students show a bigger improvement in English vocabulary recognition

- than other students of the same grade after four months and eight months of bilingual content-based instruction?
2. Do the CCBP students show a bigger improvement in two regular EFL exams than their counterparts after two months and four months of bilingual content-based instruction?
 3. What are the CCBP students' attitudes towards the CCBP after four months and eight months of bilingual content-based instruction? Are there any changes in their attitudes between two surveys?

3.3.5 Limitations

A program evaluation is believed to be sound only when it is carried out on a long-term basis. In this sense, the present evaluation will be limited in that it has actually been conducted for a short period of time. However, it will serve as a necessary start for long-term evaluation research. It is hoped that the results of this evaluation research will significantly enhance our understanding of the nature of bilingual education in China.

This study looks at students' language skills in terms of the size of their vocabulary and their performance on two Regular EFL exams. However, for educational program evaluation studies like present one, it is essential to evaluate students' language proficiency from the perspectives of overall language skills including listening, speaking, reading and writing. For future studies, much more time and focus should be put on all of the language skills rather than on part of them.

Content-based instruction is one of the major features of the bilingual program at NCS. Generally speaking, successful content learning has been one of the major

components of CBI and, therefore, should be of primary concern. In this sense, students' academic achievements should be monitored to ensure that content learning in CBI is effective. I am advising future researchers to keep this concern in mind and to put it on their evaluation agenda.

3.3.6 Contributions to future teaching practices

At the local level, the results of the current evaluation study are expected to demonstrate the progress of the CCBP students' English proficiency in vocabulary acquisition. They are expected to demonstrate the strengths and weaknesses of the CCBP. With this knowledge, the school administration can modify the bilingual curriculum in order to achieve the goal of significantly enhancing the students' English proficiency, enabling them to acquire knowledge that is of great use for their future academic studies in an English-medium university in the West.

Although the CCBP introduced in NCS is an isolated case rather than a national scale program, the results are expected to offer help and perhaps provide solutions beyond the New Century School program. As the current evaluation is developed and carried out, the Ministry of Education in Guangdong province has announced that bilingual education is going to be practised in some senior high schools on a trial-basis starting in 2002 ("Guangdong," 2001). The aim of bilingual education is for students in major cities and the Pearl River Delta Area of the Province to have comparable English proficiency levels with students in Hong Kong and other Southeast Asian regions and countries. It is expected that by the year 2005, the overall English level will be dramatically increased. This is the first time in history that such large-scale bilingual education has received such

strong official governmental support and recognition in China. New Century School is ahead of time, having already in place a trial bilingual program that is to be evaluated by this research study. It is expected that the insights gained from the NCS experience will offer timely help and guidelines to school administrators and teachers who will face the complex tasks of establishing bilingual education programs in schools.

CHAPTER IV METHODOLOGY

4.1 Participants

The China-Canada Bilingual Program has been implemented in the New Century School high school. The present evaluation study examines the outcomes of the three grades involved in this program: grades 7, 8 and 10, respectively. One or two classes from each grade were randomly selected to be in the bilingual program. Before the program began, the parents were notified of the incoming China-Canada Bilingual Program and made aware that an extra fee would be charged to students in the program. Enrollment was thus achieved on a voluntary basis. Only those students whose parents were willing to pay the extra fee were recruited into the program. All of the bilingual classes across the three grades were included in the evaluation study. In addition, one or two regular classes from each grade were randomly selected to be part of a control group. Both of the bilingual classes from Grade 7 coded as class 7.2 and 7.3 were included in the study, making up 55 students; in order to have an almost equal number of students to match the students in the bilingual classes, two classes in the regular program were randomly selected, class 7.1 and 7.4, with one class of 30 students and the other of 34. One class of 20 students from Grade 8 was in the bilingual program while a class of 33 students in the regular program was randomly selected to be in the control group. In Grade 10, one class of 20 students was in the bilingual program, while one class of an equivalent number of students in the regular program was randomly selected to be in the control group. In total, 212 students voluntarily participated in this study. Out of the 212,

95 were in the treatment group and 117 were in the control group. All students in NCS has had learned English as a subject since grade 4 (about 4-8 hours per week). That is to say, when the program started, Grade 7 students had had three years' exposure to English; Grade 8 students four years; Grade 10 students six years.

Three individual vocabulary tests (henceforth VT1, VT2 and VT3) designed by the author were given to all participants when they entered the program, four months after and then eight months after. In addition, all of the students who participated in this evaluation study also wrote a midterm exam and a final exam. Both were provided by the school as part of the regular school curriculum. However, not everyone recruited at the beginning of the study wrote all five exams. The two non-bilingual classes in Grade 7 did not take all of the three vocabulary tests. One of them only took VT1 and VT3 and the other only took VT2 and VT3. This necessarily resulted in my having to analyze the Grade 7 data differently from the other two grades. Consequently, the test data from the two Grade 7 non-bilingual classes were compared individually with the corresponding data from the Grade 7 bilingual classes. Within each set of data, any students who missed any test of the four were eliminated.

For the data from Grades 8 and 10, recurrent absenteeism from the five tests eliminated subjects in each group. Any data collected from students who missed an exam has been excluded from the analysis. Thus, the analysis of the data was based on the students who wrote all five of the exams.

Eventually, the treatment group consisted of 77 students, the control group 91 students. Of these 168 students, 46 formed the Grade 7 bilingual group, 53 the Grade 7 non-bilingual group; 16 formed the Grade 8 bilingual group, 23 the Grade 8 non-bilingual group; 15 formed the Grade 10 bilingual group, 15 the Grade 10

non-bilingual group. The distribution of each group is summarized in Table 4.1.

Table 4. 1 Number of students in the quantitative study

Grade	Bilingual	Non-bilingual	
7	46 (7.2 and 7.3)	27 (7.1)	24 (7.4)
8	16	23	
10	15	15	
Total	77	91	

Two identical questionnaires were given to the bilingual groups in each grade to examine their attitudes towards the program and to what extent their attitudes would change with the progression of the program. One was given four months after the program had started and the other eight months after the program had started. As had been done in the test analysis, only the data collected from the students who answered both questionnaires were included in the final analysis. 24 students in one of the two Grade 7 bilingual classes submitted both questionnaire papers, and 24 students in the other Grade 7 bilingual class submitted both questionnaire papers; 14 students in the Grade 8 bilingual class submitted both questionnaire papers; 16 students in the Grade 10 bilingual class submitted both questionnaire papers. Table 4.2 illustrates the distribution of the students from whom the qualitative data were collected.

Table 4. 2 Number of questionnaire participants

Class	7.2	7.3	8.1	10.1	Total
Number	24	24	14	16	78

In addition to the student participants, a couple of school teachers were also directly involved in the study. Two native English-speakers were hired to teach two content

courses. They were both experienced ESL teachers and were good target language models. Several teachers were invited to administer the three vocabulary tests and were asked to assure the students that the results of the test would not have any impact on their GPA.

4.2 Instrumentation

Before the evaluation study started, there were no tests available for the purposes of the current study; therefore, one major task in this research was to create suitable tests. The focus of the tests was on students' English vocabulary improvement. The reason of having focus on vocabulary is that vocabulary knowledge is known to be crucial for reading comprehension and for dealing with academic content in a second language (Laufer, 1992).

4.2.1 Vocabulary tests

Three one-hour vocabulary tests were given in sequence: first when the program started, then four months after the program started, and finally eight months after the program started (see Appendix 1, Part A, B, C respectively). That is to say, the three vocabulary tests were given before and during the progression of the bilingual program. The format of these three tests was taken from the Vocabulary Level Test devised by Paul Nation. He has distributed these tests freely and made them available in two publications (Nation, 1983; 1990). The Vocabulary Level Test is intended to estimate the learners' basic knowledge of common word meanings (Beglar and Hunt, 1996). The test

involves matching target words with the appropriate definition. The test-takers were required to pick 18 target words from another 18 distracters and match the corresponding English definitions. Nation (1990) argues that “this type of item was chosen because it was easy to make and easy to mark, provided very low chances of guessing correctly, tested a large number of words in a short time, and allowed learners to make use of whatever knowledge they had of the meaning of a word” (p. 261).

For the purposes of this research, however, his original test was not used for three reasons. First, the definitions are in English. Although Nation argues that English definitions can also test the examinees’ reading ability, it is not practical for the current research since students’ English proficiency levels were very low and English definitions would result in the tests being too hard for the students to take the tests in a meaningful way. Thus, the definitions in our tests were in Chinese. The second reason is associated with the first. When matching the words to their Chinese definitions, the time for the test was reduced; as a result, the vocabulary tests could be as large as 164 words including 84 targeted words plus another 84 distracters. Third, due to the above two factors, a new English word frequency list was chosen to be the source of test items. Samples used were from *Frequency Analysis of English Usage: Lexicon and Grammar* (Francis and Kucera, 1982). The question left for the researcher is at which level should vocabulary be selected. Nation (1990) argued that the first 2,000 level vocabulary is very important for beginning language learners to achieve a better comprehension ability. Laufer (1992) claimed that the threshold vocabulary is 5,000 lexical items (without the derivatives). Below this threshold readers did poorly in reading. This quantity of lexical items is also a threshold vocabulary for readers to transfer their L1 reading strategies to L2 reading. Given the consideration of the above arguments and NCS’s students’

English competence level, words from the first 3,000 high-frequency words of Francis and Kucera's book were selected.

The selection started from the 107th word on the list. The first 100 words were ignored because they were too easy to be included in the tests. For the first vocabulary test, every 7th word up to the 500 word-level and every 20th word from the 520th word up to 3,000 word-level were selected. The same procedure was followed for the other two tests. The three tests were different in that for test 2, every 7th from the 108th word up to the 500 word-level and every 20th from the 521st word up to the 3,000 word-level were selected; for test 3, every 7th word from the 109th up to the 500 word-level and every 20th word from the 522nd up to the 3,000 word-level were selected. This method of selection ensured that there was no difference between the three vocabulary tests in terms of difficulty. There was the chance that proper nouns would be in a position of selection. Whenever such words were encountered, one word above or below it was picked instead. I did include words like 'September' and 'November'; however, I excluded both 'English' and 'Chinese'.

4.2.2 Regular EFL exams

The students in the bilingual program continued to receive the regular English-as-a-foreign language (EFL) instructions that cover the regular state-established EFL curriculum. However, their regular EFL hours have been reduced and the reduced hours were now used for these content-through-English bilingual instructions. The midterm exam that was given in the middle of the first semester and the final exam that was given at the end of the first semester by the school were included for analysis of the

students' overall English proficiency. The school compiled the two tests based on what had been taught in the regular EFL classes and the two tests were intended to examine students' supposed level of English proficiency at the time when the test were given. In this sense, the final exam was harder for all students than the midterm in that it covered more in terms of English knowledge.

4.2.3 Questionnaire

A questionnaire (see Appendix 2) for students in the CCBP was designed by Dr. Hua Lin and used. The questionnaire was given twice to the students in bilingual group; one four months after the program began and the other eight months after the program began. The aim was to investigate students' attitudes towards the program and find out if their attitudes changed during the program. The questionnaire was composed of two sets of the same questions designed to gather information on the students' attitude towards the two content courses taught in English. In addition, two open-ended questions were given at the end of the questionnaire asking for their comments and suggestions with regard to the effectiveness of the bilingual program. The qualitative results analyzed through these questionnaires were helpful in explaining some results from the quantitative analysis. In addition, they will aid the school administration and other stakeholders in looking at the program from a different perspective and to further improve the quality of the program.

4.3. Research procedure

The research was initiated in September of 2001, when the CCBP started. When students first entered the program, VT1 was given to all of the students who agreed to participate in the evaluation study. The teachers who administered the exam told the students that the test would not be used to evaluate their GPA; but it would be used as part of an evaluation study. The exam lasted one hour.

Not all of the classes recruited initially took VT1, however. One of the Grade 7 non-bilingual classes, which is coded 7.4, missed this exam for some reason. All of the available test papers were collected and mailed by the school administration to the author. The papers were subsequently coded. In order to maintain the highest degree of consistency, the author alone marked them. All of the data were saved in both excel files and SPSS files.

Four months and eight months after the program had begun, VT2 and VT3 were given to the students respectively. The same testing procedure used in VT1 was followed. The students were asked not to guess and to leave blank what they did not know. Again, not all of the classes wrote both tests. One of the Grade 7 non-bilingual classes, which is coded 7.1, missed VT2. Available test papers from the two vocabulary tests were collected by the school administration and mailed to the author. The same scoring strategy used for VT1 was consistently adopted for both VT2 and VT3. All of the marks were coded and saved in the same excel and SPSS files where the first vocabulary test and the mid-term test scores were saved.

Two months into the first semester, the midterm English exam was given to the students. The school marked the papers and the marks were collected by the school

administration and typed onto several spreadsheets. After receiving the spreadsheets through the mail, the author selected the marks of the students who had agreed to participate in this study and saved all of the marks in the previous excel and SPSS files where the first vocabulary test scores were saved. At the same time VT2 was administered, the students wrote the final English exam. The school administration emailed the scores to the author, who then saved them in the same files where the other test scores were stored. Table 4.3 is a summary of the how five exams were administered.

Table 4. 3 The tests administered

Grade	Class	At the entrance	Two months after the entrance	Four months after the entrance	Eight months after the entrance	
7	NBE*	7.1	VT1	Midterm	Final	VT3
		7.4		Midterm	Final VT2	VT3
	BE	7.2	VT1	Midterm	Final VT2	VT3
		7.3	VT1	Midterm	Final VT2	VT3
8	NBE	8.1	VT1	Midterm	Final VT2	VT3
	BE	8.2	VT1	Midterm	Final VT2	VT3
10	NBE	10.1	VT1	Midterm	Final VT2	VT3
	BE	10.4	VT1	Midterm	Final VT2	VT3

*BE is the short-form for bilingual education and NBE is for non-bilingual education.

The first questionnaire was given to all the students in the bilingual group when VT2 and final exam were administered. Before answering the questionnaire, the students were assured that the results would be kept confidential and that they could feel free to give their comments. The second questionnaire was given to all of the students in the

bilingual group when the third vocabulary test was administered.

After all of the expected data had been obtained, the sorting of the data was conducted. SPSS 10.0 was used to process the statistic tests to analyze both the quantitative and qualitative data, and t-test and ANOVA were conducted.

4.4 Scoring of the tests

The scoring of the vocabulary tests was done by the researcher for consistency. For each correct match in the vocabulary tests, students were given one point. The highest possible mark was 84; the lowest was zero. Repeated answers were treated as wrong even if one of them was right. The philosophy behind doing so is that the students may have guessed the meaning. For the regular EFL exams, the scoring results were provided by the school. For each of the tests, the highest possible mark was 100 and the lowest was 0.

CHAPTER V RESULTS AND DISCUSSION

This chapter has two aims: to present the data analysis and to discuss the results of the data analysis. The data obtained through the procedures described in the previous chapter were divided into groups according to both grades and the tests they were given. Since the two Grade 7 non-bilingual classes did not take all three of the vocabulary tests taken by the non-bilingual classes in the other two grades, the analysis procedure is different for Grade 7 than it is for Grades 8 and 10. The chapter is composed of three sections. In the first section, the quantitative data analysis results are described. It is organized in the order of grades. In the second section, the qualitative analysis from two questionnaires is reported. In the last section, a general discussion of the quantitative data analysis is given.

5.1 Effect of content-based instruction on vocabulary development and overall English proficiency

5.1.1 Grade 7

As described in the previous chapter, the evaluation of the Grade 7 differed from that of the other grades in that not all of the non-bilingual classes recruited at the beginning of the evaluation study wrote all three of the vocabulary tests. For this reason, Grade 7 is divided into two subgroups, namely 7.1(NBE) versus 7.2 and 7.3 (BE) and 7.4 (NBE) versus 7.2 and 7.3. In each subgroup, a different set of two of the three

vocabulary tests is investigated. The results are presented in the order of these two subgroups.

5.1.1.1 The results from 7.1 versus 7.2 and 7.3

For the first Grade 7 subgroup, 7.1 versus 7.2 and 7.3, I examine the VT1 and VT3, in addition to their midterm and final exams.

5.1.1.1.1 Vocabulary tests

As shown by the mean scores (see Figure 5.1 for visual illustration; see the first line of Table 5.1 for data), the students in the non-bilingual group scored a little higher ($M = 20.74$) on VT1 than those in the bilingual group ($M = 20.11$) when they entered the program. This result was submitted to the independent t-test to examine whether the test performance of the students in the two groups differed significantly. The results of the t-test show that there was no significant difference in mean scores ($t = -.431$; $df = 71$; $p = n.s.$), as indicated in the first line of Table 5.2. That is to say, the two groups exhibited the same level of competence in vocabulary when the program started.

As shown by the mean scores on VT3 (see Figure 5.1 for visual illustration; see the second line of Table 5.1), the students in both bilingual and non-bilingual groups did better than they did on VT1. The bilingual group scored higher ($M = 35.28$) than the non-bilingual group ($M = 31.26$) eight months after the program had started.

The mean scores on VT3 were submitted to the independent t-test, the results of which show that there was no significant difference between these two groups of students ($t = 1.549$; $df = 71$; $p = n.s.$) (see the second line of Table 5.2). That is to say,

eight months after the start of the program, the two groups' performances on VT3 were still the same as that on VT1.

Figure 5. 1 Means for the first Grade 7 subgroup on VT1 and VT3

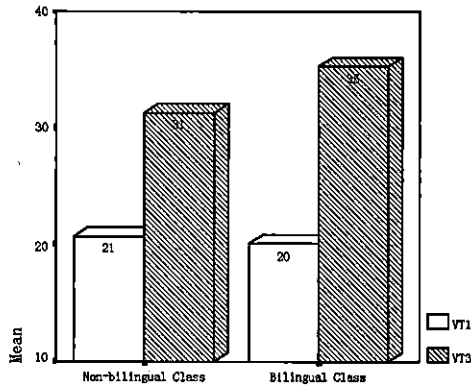


Table 5. 1 Descriptive Statistics for the first Grade 7 subgroup on VT1 and VT3

	BE(n=46)		NBE (n=27)	
	Mean	Std. Deviation	Mean	Std. Deviation
VT1	20.11	5.96	20.74	6.22
VT3	35.28	9.81	31.26	12.11

Table 5. 2 Independent Samples Test for the first Grade 7 subgroup on VT1 and VT3

	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
VT1	-.431	71	.668*	-.63	1.47	-3.56	2.30
VT3	1.549	71	.126*	4.02	2.60	-1.15	9.20

Note: not significant

A paired samples t-test was run to look at whether the students in both the bilingual and non-bilingual groups had improved on the two vocabulary tests. As shown in the first line of Table 5.3, the bilingual group's two vocabulary tests are significantly

different ($t = -11.658$, $df = 45$, $p < .05$): The result proves that the bilingual group did improve from VT1 to VT3. As shown in the second line of Table 5.3, the non-bilingual group also scored significantly differently on the two vocabulary tests ($t = -5.434$, $df = 26$, $p < .05$), thus the non-bilingual group also improved, just as the bilingual group did. The range of mean values from VT1 to VT3 shows, however, that the bilingual group actually performed better than the non-bilingual group. The rate of increase from VT1 to VT3, which was 75% for the bilingual group, was much lower for the non-bilingual group at 33%.

Table 5. 3 Paired Samples *t*-test for the first Grade 7 subgroup on VT1 and VT3

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
BE VT1 – VT3	-15.17	8.83	1.30	-17.80	-12.55	-11.658	45	.000
NBE VT1 – VT3	-10.52	10.06	1.94	-14.50	-6.54	-5.434	26	.000

5.1.1.1.2 Regular EFL exams

As shown by the mean scores (see Figure 5.2 for visual illustration; see the first line of Table 5.4 for data) on the midterm exam, students in the bilingual group scored higher ($M = 79.304$) than those in the non-bilingual group ($M = 66.963$). For the final exam, neither bilingual nor non-bilingual groups did better than they did on the midterm. However, the bilingual group again performed better ($M = 74.457$) than the non-bilingual group ($M = 55.704$) (see the second line in Table 5.4).

Midterm and final exams results were analyzed individually using the independent

t-test to see whether the two groups performed differently at the two times. And according to the results of t-test, there was significant difference in performance between these two groups of students at the two times (see Table 5.5), with $t = 3.673$; $df = 37.235$; $p < .05$ for the midterm exam and $t = 4.164$; $df = 36.976$; $p < .05$ for the final exam. Thus, means the bilingual group did better than the non-bilingual group on both the midterm and final exams.

Figure 5. 2 Means for the first Grade 7 subgroup on Midterm and Final Exams

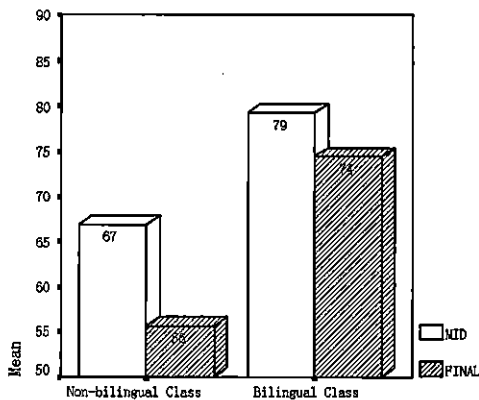


Table 5. 4 Descriptive Statistics for the first Grade 7 subgroup on Midterm and Final Exams

	BE (n=46)		NBE (n=27)	
	Mean	Std. Deviation	Mean	Std. Deviation
Mid	79.304	9.533	66.963	15.856
Final	74.457	12.656	55.704	21.298

Table 5. 5 Independent Samples Test for the first Grade 7 subgroup on Midterm and Final Exams

	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Midterm	3.673	37.235	.001	12.341	3.360	5.535	19.147
Final	4.164	36.976	.000	18.753	4.504	9.628	27.878

A paired samples t-test was conducted to look at whether the students' performances at the two times were significantly different. As shown in Table 5.6, the decrease in mean values between midterm and final exams for both bilingual and non-bilingual groups showed significant difference, with $t = 5.628$; $df = 45$; $p < .05$ for the bilingual group; and $t = 5.587$; $df = 26$; $p < .05$ for the non-bilingual group. However, a comparison of the mean values obtained on the two exams shows that the non-bilingual group's decreasing rate was 17%; while the bilingual group only decreased by 6%, which is almost three times less than their non-bilingual counterparts. Even though the final exam was difficult for all students, as discussed in Chapter IV, the bilingual group had a better learning curve than the non-bilingual group.

Table 5. 6 Paired Samples t-test for the first Grade 7 subgroup on Midterm and Final Exams

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
BE Mid – Final	4.848	5.842	.861	3.113	6.583	5.628	45	.000
NBE Mid – Final	11.529	10.472	2.015	7.117	15.402	5.587	26	.000

5.1.1.2 The results from 7.4 versus 7.2 and 7.3

For the second Grade 7 subgroup, 7.4 versus 7.2 and 7.3, the vocabulary tests, VT2 and VT3 were examined, in addition to midterm and final exams. The same statistical analysis procedures used in the last section were adopted.

5.1.1.2.1 Vocabulary tests

For the second Grade 7 subgroup, students in the non-bilingual group scored a little higher ($M = 29.92$) than those in the bilingual group ($M = 29.87$) on VT2 as reported in Table 5.7, and as illustrated in Figure 5.3. The results of running the independent t-test, shows that the two groups' performances on VT2 was not significantly different ($t = -.022$; $df = 68$; $p = n.s.$), as indicated in the first line of Table 5.7.

As for VT3, as reported in Table 5.7, and as illustrated in Figure 5.3, the bilingual group scored higher ($M = 35.28$) than the non-bilingual group ($M = 29.13$) eight months after the program started. A comparison of their mean scores with those on VT2 shows that students in the bilingual group did better on VT3 than they did on VT2, while the non-bilingual group did worse on VT3 than they did on VT2. The rate of increase from VT2 to VT3 is 20% for the bilingual group, compared to -.02% for the non-bilingual group.

The independent t-test was used to examine whether the mean difference between the two groups was significant. The second line in Table 5.8 shows that there was a significant difference in the performances of these two groups of students ($t = 2.533$; $df = 68$; $p < .014$). In short, the bilingual group did better than the non-bilingual group on VT3.

Figure 5. 3 Means for the second Grade 7 subgroup on VT2 and VT3

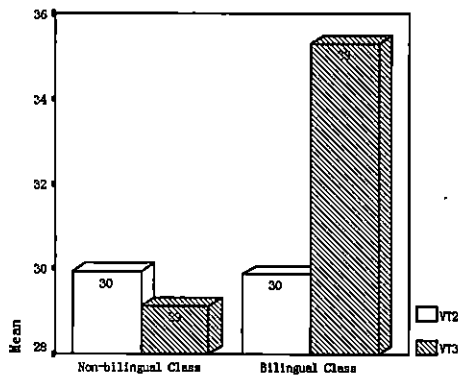


Table 5. 7 Descriptive Statistics for the second Grade 7 subgroup on VT2 and VT3

	BE(n=46)		NBE (n=24)	
	Mean	Std. Deviation	Mean	Std. Deviation
VT2	29.87	7.66	29.92	10.40
VT3	35.28	9.81	29.13	9.35

Table 5. 8 Independent Samples Test for the second Grade 7 subgroup on VT2 and VT3

	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
VT2	-.022	68	.983	-4.71	2.19	-4.41	4.32
VT3	2.533	68	.014	6.16	2.43	1.31	11.01

Since the non-bilingual group did worse on VT3 than on VT2, the paired samples t-test was only run to examine if the bilingual group's mean values at the two times were significantly different. The results of the t-test indicate that the bilingual group improved from VT2 to VT3, as reported in Table 5.9 ($t = -4.418$, $df = 45$, $p < .05$).

Table 5. 9 Paired Samples *t*-test for the second Grade 7 subgroup On VT2 and VT3

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
BE VT2 – VT3	-5.41	8.31	1.23	-7.88	-2.95	-4.418	45	.000

5.1.1.2.2 Regular EFL exams

As for the performance of the second Grade 7 subgroup on the two regular EFL exams, the results were consistent with those in the other subgroup. That is, the bilingual group did better than the non-bilingual group on all regular EFL exams; however, as was found in the first Grade 7 subgroup, neither the bilingual nor the non-bilingual group did better on the final exam than they did on the midterm exam (see Table 5.10). The mean value change for the bilingual group is from $M = 79.304$ on the midterm exam to $M = 74.457$ on the final exam; the mean value change for the non-bilingual group is from $M = 70.125$ on the midterm exam to $M = 56.958$ on the final exam. The change is clearly displayed in Figure 5.4. The scores for both exams were submitted to two separate independent *t*-tests, the results of which are reported in Table 5.11. Significant differences in performance were found for both the midterm exam ($t = 2.922$, $df = 34.835$, $n < .05$) and the final exam ($t = 3.799$, $df = 32.282$, $n < .05$). Thus, the bilingual group did better than the non-bilingual group in both exams.

Table 5. 10 Descriptive Statistics for the second Grade 7 subgroup on Midterm and Final Exams

	BE (n=46)		NBE (n=24)	
	Mean	Std. Deviation	Mean	Std. Deviation
Mid	79.304	9.533	70.125	13.766
Final	74.457	12.656	56.958	20.630

Figure 5. 4 Means for the second Grade 7 subgroup on Midterm and Final Exams

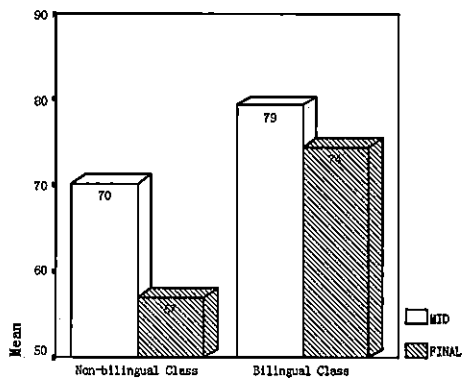


Table 5. 11 Independent Samples Test for the second Grade 7 subgroup on Midterm and Final Exams

	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Midterm	2.922	34.835	.006	9.179	2.807	3.579	14.780
Final	3.799	32.282	.001	17.498	4.606	8.119	26.877

As was done for the first Grade 7 subgroup, a paired sample t-test was conducted to examine whether the students' performances differed at the two times. As shown in Table 5.12, the decrease in mean values between midterm and final exams for both bilingual and non-bilingual groups showed significant differences, with $t = 5.628$; $df = 45$; $p < .05$ for the bilingual group, and $t = 5.956$; $df = 23$; $p < .05$ for the non-bilingual group. However, a comparison of the mean values obtained on the two

exams shows that the non-bilingual group's exam scores decreased by 19%, while those of the bilingual group only decreased by 6%, a third of the non-bilingual group's. This result is consistent with that of the first Grade 7 subgroup. Therefore, again, the conclusion to be drawn is that even though the final exam was harder for all students, the bilingual group had a better learning curve than the non-bilingual group.

Table 5. 12 Paired samples T-test for the second Grade 7 subgroup on Midterm and Final Exams

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
BE Mid – Final	4.848	5.842	.861	3.113	6.583	5.628	45	.000
NBE Mid – Final	13.167	10.892	2.211	8.594	17.740	5.956	23	.000

5.1.2 Grade 8

As previously mentioned, Grade 8 and Grade 10 took all three vocabulary tests, which are analyzed, below, together with their midterm and final exams from their regular EFL course.

5.1.2.1 Vocabulary tests

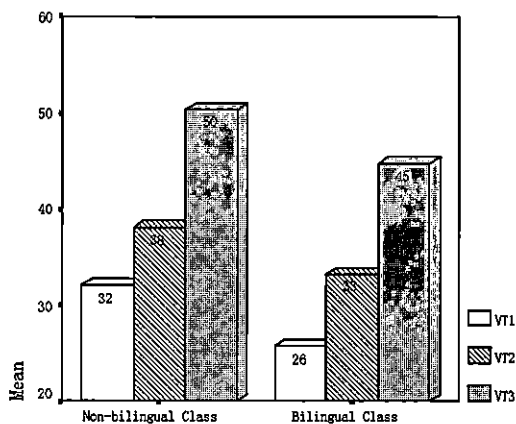
As shown in Table 5.13 and as illustrated in Figure 5.5, both the bilingual and non-bilingual groups improved in the three vocabulary tests. The mean values for bilingual group on the three tests were 25.81, 33.31 and 44.81 respectively. The rate of increase are 29% from VT1 to VT2, 36% from test 2 to test 3 and 74% from VT1 to

VT3. For the non-bilingual group, the mean values were 32.09, 38.17 and 50.43 respectively. We can see that the non-bilingual group did better than the bilingual group in all of the three tests. The rates of increase on the vocabulary tests for the non-bilingual group, however, were lower than those for the bilingual group, which were 19% from VT1 to VT2, 32% from VT2 to VT3, and 57% from VT1 to VT3.

Table 5. 13 Descriptive Statistics for grade 8 on Three Vocabulary Tests

	BE (n=16)		NBE (n=23)	
	Mean	Std. Deviation	Mean	Std. Deviation
VT1	25.81	7.09	32.09	7.82
VT2	33.31	7.91	38.17	9.29
VT3	44.81	9.63	50.43	11.34

Figure 5. 5 Means for Grade 8 on Vocabulary Tests



To investigate whether the means at the three times were statistically different, two individual analysis of variance (ANOVA) tests were carried out. The ANOVA test results are reported in Table 5.14. Alpha was set at .05. The results of the ANOVA revealed that for the bilingual group, there were significant differences in vocabulary development over the three measurement periods: $F = 34.724$; $df(2, 30)$; $p < .05$. For the non-bilingual group, a significant difference was also found in the vocabulary tests, $F =$

48.836; $df(2, 44)$; $p < .05$.

Table 5. 14 ANOVA for Grade 8 on Vocabulary Tests

	Source	Degree of freedom	SS	MS	F
BE	Tests	2	2930.667	1465.333	34.724*
	Subjects	15	1818.313		
	Tests × Subjects	30	1266.000	42.200	
NBE	Tests	2	4017.507	2008.754	48.836*
	Subjects	22	4260.957		
	Tests × Subjects	44	1809.826	41.132	

Note: $p < .05$

5.1.2.2 Regular EFL exams

The overall mean scores and standard deviation for both the bilingual and non-bilingual groups on midterm and final exams are reported in Table 5.15. The mean value changes, also illustrated in Figure 5.6, show that the bilingual group made a greater improvement from the midterm ($M = 68.063$) to the final ($M = 73.125$) than the non-bilingual group, which improved only by .556 from the midterm ($M = 84.087$) to the final ($M = 84.652$). The independent t-test was performed to examine whether there was a difference between the two groups on each of the midterm and final exams. The results revealed significant differences for both exams between the two groups, with $t = 3.673$, $df = 37.235$, $p < .05$ for the midterm and $t = 4.164$, $df = 36.976$, $p < .05$ for the final exam. These results are reported in Table 5.16. Thus, the non-bilingual group did better than the bilingual group at both times.

Figure 5. 6 Means for Grade 8 on Midterm and Final Exams

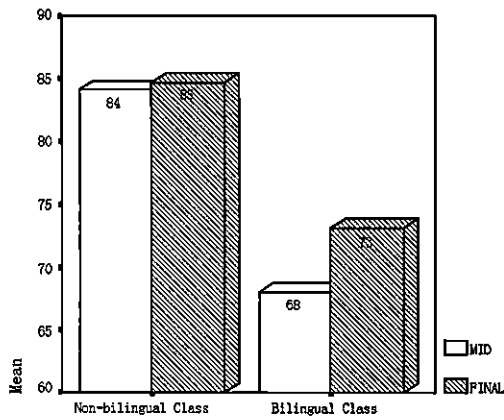


Table 5. 15 Descriptive Statistics for Grade 8 on Midterm and Final Exams

	BE (n=16)		NBE (n=23)	
	Mean	Std. Deviation	Mean	Std. Deviation
Mid	68.063	15.168	84.087	16.456
Final	73.125	13.266	84.652	17.585

Table 5. 16 Independent Samples Test for Grade 8 on Midterm and Final Exams

	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Midterm	3.673	37.235	.001	12.341	3.360	5.535	19.147
Final	4.164	36.976	.000	18.753	4.504	9.628	27.878

The results of paired samples t-tests showed that for the bilingual group there was a significant difference between the mean values of the midterm exam and final exam as reported in Table 5.17 ($t = -2.367$, $df = 15$, $p < .05$). The non-bilingual group, on the other hand, did not show any significant progress, as reported in the same table ($t = -.500$, $df = 22$, $p = n.s.$)

Table 5. 17 Paired Samples T-Test for Grade 8 on Midterm and Final Exams

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
BE Mid – Final	-5.063	8.555	2.139	-9.621	-.504	-2.367	15	.032
NBE Mid – Final	-.565	5.419	1.130	-2.909	1.778	-.500	22	.622

5.1.3 Grade 10

5.1.3.1 Vocabulary test

For Grade 10, results similar to those for Grade 8 were found on the three vocabulary tests, as shown in Table 5.18. That is, both bilingual and non-bilingual groups made improvements in the three vocabulary tests; for each of the tests, the non-bilingual group always did better than the bilingual group (see Figure 5.7); however, the increasing rate from test to test is generally higher for the bilingual group, with the only exception being at stage one, from VT1 to VT2. The detailed description of the change is as follows: the mean values for the bilingual group in the three tests were 30.87, 38.13 and 55.07 respectively, and the rate of increase was 24% from VT1 to VT2, 44% from VT2 to VT3 and 78% from VT1 to VT3; for the non-bilingual group, the mean values were 37.27, 49.73 and 64.67 respectively; the rate of increase for the vocabulary tests taken by the non-bilingual group is 33% from VT1 to VT2, 30% from VT2 to VT3, and 74% from VT1 to VT3.

Figure 5. 7 Means for Grade 10 on Vocabulary Tests

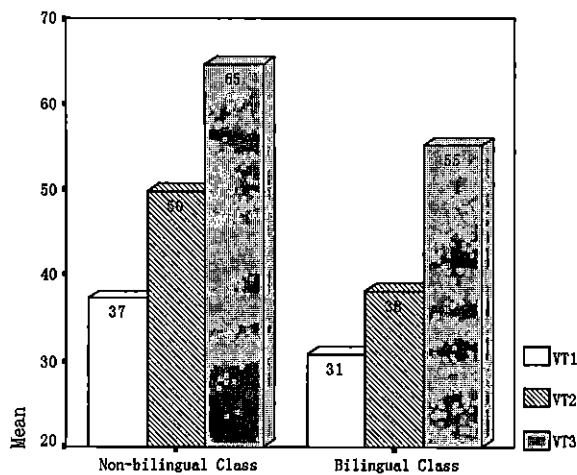


Table 5. 18 Descriptive Statistics for Grade 10 on Vocabulary Tests

	Bilingual(n=15)		Non-bilingual (n=15)	
	Mean	Std. Deviation	Mean	Std. Deviation
Test1	30.87	8.27	37.27	5.08
Test 2	38.13	12.08	49.73	8.21
Test 3	55.07	11.30	64.67	11.965

As was done for Grade 8, the three vocabulary tests scores for Grade 10 were also submitted to an analysis of variance (ANOVA), the results of which are reported in Table 5.19. The results are consistent with those for Grade 8. That is to say, for the bilingual group, there was a significant difference in vocabulary development over the three measurement periods: $F = 45.434$; $df(2, 28)$; $p < .05$. For the non-bilingual group, a significant difference was also found on vocabulary tests, $F = 73.636$; $df(2, 28)$; $p < .05$.

Table 5. 19 ANOVA for Grade 10 on Vocabulary Tests

	Source	Degree of freedom	SS	MS	F
BE	Tests	2	4625.911	2312.956	45.434*
	Subjects	14	3360.978	240.070	
	Tests × Subjects	28	1425.422	50.908	
NBE	Tests	2	5645.911	2822.956	73.636*
	Subjects	14	2231.778	159.413	
	Tests × Subjects	28	1809.826	41.132	

Note: $p < .05$

5.1.3.2 Regular EFL exams

The overall mean scores and standard deviations for Grade 10 on the midterm and final exams are reported in Table 5.20. It is interesting to see that the bilingual group's mean values increased from the midterm exam ($M = 50.467$) to the final exam ($M = 56.600$), while the non-bilingual group did not show a better performance on the final exam; instead, their performance decreased from the midterm exam ($M = 68.733$) to the final exam ($M = 63.533$). The change in the two groups' two exam outcomes is displayed in Figure 5.8. The independent t-test was run to examine whether a significant difference existed between the two groups on each of the midterm and final exams. Even though on both occasions the non-bilingual group did better than the bilingual group, the only significant difference was only found in the midterm exam ($t = -3.848$, $df = 28$, $p < .05$). By the time the two groups had the final exam, there was no statistical difference between the two groups ($t = -1.755$, $df = 28$, $p = n.s.$). These results, which are reported in Table 5.21, show that by the end of the four-month period of study, the bilingual group had caught up with the non-bilingual group and were doing as well as the non-bilingual group.

Table 5. 20 Paired Samples Statistics for Grade 10 on Midterm and Final Exams

	BE (n=15)		NBE (n=15)	
	Mean	Std. Deviation	Mean	Std. Deviation
Mid	50.467	12.305	68.733	13.662
Final	56.600	8.576	63.533	12.677

Figure 5. 8 Means of Grade 10 on Midterm and Final Exams

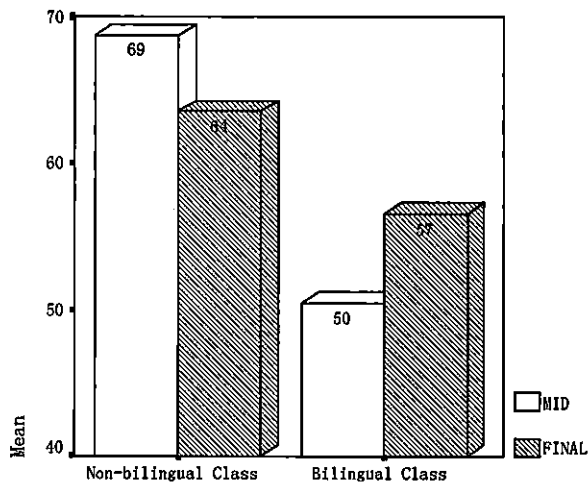


Table 5. 21 Independent Samples Test for Grade 10 on Midterm and Final Exams

	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Midterm	-3.848	28	.001	-18.267	4.747	-27.991	-8.542
Final	-1.755	28	.090	-6.933	3.952	-15.028	1.161

The paired samples t-test results, reported in Table 5.22, confirm the progress of the bilingual group, revealing a statistically significant difference in performance between the two exams ($t = -2.450$, $df = 14$, $p < .05$). Since the mean values for the non-bilingual group did not increase, no further analysis is required.

Table 5. 22 Paired Samples T-Test for Grade 10 on Midterm and Final Exams

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Bilingual group Mid – Final	-6.133	9.694	2.503	-11.502	-.765	-2.450	14	.028

5.2 Students' attitudes towards the program

One questionnaire (see Appendix 2) was used at two different intervals to investigate the students' opinions with regard to the two content courses, General Science and World Culture. The questionnaire was distributed in the fourth month and the eighth month of the program, respectively. A three-point scale was used. The data were analyzed in terms of percentage (see Part A of Appendix 3 for the General Science course and Part B of Appendix 3 for the World Culture course). In each cell with the percentage, the one on the left is for the pre-survey and the one on the right is for the post-survey. Given that the two Grade 7 bilingual classes never sat in the same classroom, it was thought that they may have different opinions on the bilingual program. Therefore, for the purpose of the qualitative data analysis, the Grade 7 bilingual classes were analyzed separately. Consequently, there are four groups in the analysis, namely, 7.2 and 7.3 standing for the two different Grade 7 bilingual classes, and 8.1 and 10.1 standing for the Grade 8 bilingual class and the Grade 10 bilingual class respectively. In the following section, I will discuss the students' opinion on the CCBP according to their answers on the questionnaires.

Question 1: How do you evaluate your comprehension ability to lectures in English?

As has been discussed so far, teaching a subject matter wholly in English is a new practice at NCS. If the students were unable to comprehend the lectures, there would be no point in expecting them to show academic achievement and improve their English proficiency at the same time. Therefore, comprehension ability is of primary concern. The results from the questionnaire consistently reveal that most of the students surveyed believed they could understand the lecture in English. The results also show that the students' evaluation of their comprehension ability is more optimistic in the post-survey than that in the pre-survey.

Question 2: Do you think the hours allocated are appropriate?

It is a dramatic switch for students from the stage where English is taught as a subject matter to the stage where English is used as the medium of instruction. It was therefore a matter for concern how the students would react to some of the regular EFL class hours being replaced by bilingual instruction. The results show that only a few students thought that too many hours were spent on the two courses. Meanwhile, just under half thought the hours allocated to the two courses were not enough and wished to have more hours per week allocated to the two courses.

Question 3: Do you think the design of the present textbook is appropriate?

As was mentioned in Chapter III, two teaching packages were compiled for the school to use. The materials in both packages were authentic. Looking at the results of their answers, one can see that the students in Grade 7 show more preference for the two

textbooks than their peers in the other two grades. In addition, more students favored the textbook for the General Science course than favored that for World Culture.

Question 4: Do you think the speed of teaching is appropriate?

The students were also asked to comment on the speed of teaching. It is indicated that the majority of students in each bilingual class thought the teaching speed for both courses was appropriate.

Question 5: Do you think the course of General Science/World Culture is helpful in improving your listening, speaking, reading, writing and vocabulary?

Whether the two content courses are helpful in improving the students' four language skills, namely listening, speaking, reading and writing, in addition to one sub-language skill, namely, vocabulary, was dealt with in the questionnaires. Most of the students thought that General Science was more helpful in improving their vocabulary skill. It is demonstrated that students who showed disfavor were not dominant. Table 5.23 illustrates the total scores of the five items in accordance with the students' answers².

Table 5. 23 Students' scores of five language skills

		Listening	Speaking	Reading	Writing	Vocabulary
General Science	Pre-survey	14	12	16	10	22
	Post-survey	13	16	12	11	17
World Culture	Pre-survey	14	16	13	9	18
	Post-survey	16	17	12	7	16
Total		57	63	53	37	73

² The scoring was done by ranking the five language skills. The five language skills were ranked for each class, based on the percentage of participants who selected the option of "Agree" (see Question 5 in Appendix Three Part A and B). The ranking range was from 5 to 1, where 5 reflects the highest percentage, and 1 the lowest. For each language skill, a total was then calculated by adding the points given to the four individual classes.

The table shows that, of the five items, writing is the most disfavored. That writing is not favored can be related to the issue of teaching methods. Writing is not the focus of the two courses and no effort is ever spent on improving students' writing skills. Another explanation for this result may lie in the fact that writing improvement takes more time and effort, and it is not an easy task to be promoted to a high level over a short period of time. This is evidenced by the post-survey results, in which more students appear to think the two courses do help their writing skills. Particularly in Grades 8 and 10, the attitude towards General Science changed from no student acknowledging writing improvement to a small number of students acknowledging it. It is not surprising to see that the students evaluate their vocabulary improvement highly for two reasons. First, the two content courses definitely bring a lot of new vocabulary items. Secondly, the direct exposure to authentic English either in written or oral form increases the students' contact with more vocabulary.

Question 6: Through the course of General Science/World Culture, what language skill do you think has improved a lot?

The students were solicited to comment on which aspects the two courses had been effective in. All of the answers were spontaneously provided by the students and were listed in the analysis by the author. Some students gave more than one answer. It is not necessary to list all of them. Therefore I put them under the item of "others" (see Question 6 in Appendix Three). The results show that only a few students thought that the two courses were ineffective. Generally speaking, fewer students evaluated the two courses negatively at the time of the post-survey than at the time of the pre-survey. Among the other answers, vocabulary improvement, once again, was much more

reported than the other ones; writing improvement was least reported. It is interesting to notice that more students provided multiple answers to this question in the post-survey than in the pre-survey, which may relate to the progress of the program. In other words, as the program progresses over time, the students gain ever greater confidence in their language abilities.

Question 7: Which course is more helpful in your English proficiency?

As mentioned previously, in addition to the regular program the students in the bilingual program continued to have regular EFL instruction, called “extensive reading” by the school. The students were asked to compare the content courses and the extensive English course in terms of the relationship between the course and English proficiency promotion. It was consistently demonstrated that fewer students favored content courses at the time of the post-survey than at the time of the pre-survey. This result was unexpected in that it differs from the quantitative data analysis results, which consistently showed that bilingual groups improved more on regular EFL exams than did non-bilingual groups.

Question 8: How do you evaluate the effectiveness of General Science/World Culture?

One general question that was put to the students concerned the effectiveness of the content courses. As in the previous question, even though the students demonstrated the preference of content courses at the time of the pre-survey, they seemed not to have the same level of interest in content courses at the time of post-survey.

The results from the last two questions are surprising in that there is a big contrast

with what was found in the quantitative data analysis, which showed that the bilingual group made consistently better progress than the non-bilingual group.

Two open-ended questions were raised at the end of the questionnaire to solicit students' comments and requirements concerning the program. Teaching content in English is a new phenomenon never practiced before at NCS. Learning a subject matter in the classroom entirely through whole English instruction is quite challenging for the students. Comprehension ability is thus of concern. It was found that the students required a teacher to translate the lecture. This requirement denotes that the students may sometimes have difficulty understanding the instruction in English. In spite of the difficulty comprehending the lectures in English, there is no indication that the students were not interested in the two courses. In fact, the students in all three grades demanded that more hours be allocated to both courses.

With regard to teaching methodology, students suggested that some hands-on activities, like performing some experiments in the General Science course, be included, and that the outdoors activities be increased.

The students did not specify any language skills they expected to be improved through the two courses other than vocabulary acquisition. Some students pointed out that a lot of new vocabulary is acquired through bilingual courses. Vocabulary seems to be one of the most important hurdles for them to jump over. They wished that the teachers would introduce more vocabulary in the classroom, and they wanted to be given much more time to memorize vocabulary.

The students appreciated having native speakers teaching the content courses. Many students wished to have more hours of content courses. The reasons may lie in the fact that they enjoy the content courses in English and they think having more exposure to

the perfect model can enhance English proficiency. However, in terms of classroom interaction, the students did not feel that they were given enough opportunity to communicate with either content teacher, which they believed would have improved their speaking ability. Students indicated they were normally motivated to learn more when the teacher is nice, easygoing and well-organized.

5.3 Discussion

The results of this study do not completely support the hypothesis that the bilingual group would achieve significantly greater improvements on the vocabulary test than their non-bilingual counterparts. In fact, while the bilingual groups made progress on vocabulary learning, the non-bilingual groups also made progress and the non-bilingual groups in grade 8 and 10 did even better than their bilingual counterparts on any of three exams. However, the results of the data analysis indicate that bilingual groups across grades consistently made more progress than non-bilingual groups.

A comparison of VT1 and VT3 for the first Grade 7 subgroup shows that the bilingual group's performance changed from being worse than that of the non-bilingual group on the first test to being better than that of the non-bilingual group on the third test. This is further evidenced by the results of the other Grade 7 subgroup. As demonstrated by the above analysis, we can see that four months after entry into the program, when the second vocabulary test was given to the students, the bilingual group had not performed better than the non-bilingual group. Despite the higher mean value of the non-bilingual group, the two groups' performance on VT2 was not significantly different statistically, and thus they had the same level of competence in terms of vocabulary

learning at that time. However, by the eighth month, when the third vocabulary test was given, the improvement in the bilingual group is very obvious. In contrast, the non-bilingual group did not show progress, as a matter of fact, its performance was worse than on the second vocabulary test. The existence of significant differences between the two groups shows that eight months after the program was implemented, the bilingual group performed demonstrably better than the non-bilingual group.

Even though the above dramatic phenomenon did not occur in Grade 8 and Grade 10, there was still a marked improvement for the bilingual groups in both of these grades at the three different stages when the tests were given. As discussed above, the Grade 8 bilingual group showed greater progress than the non-bilingual group from one test to the next. The same consistent progress was also found for the Grade 10 bilingual group.

Clearly, time length has an effect on students' vocabulary learning improvement. By the time the second vocabulary test was given, the students in the bilingual groups generally did not show much improvement over the non-bilingual groups. However, after another four months, the improvement of the bilingual group was obviously bigger than that of the non-bilingual groups. Another point to be noticed is that bilingual groups across grades consistently made progress, while the same was not true for the non-bilingual group. As was discussed above, some non-bilingual groups even made negative progress. Therefore, it can be concluded that the longer the program goes on, the bigger improvement the bilingual group will make. This denotes that the success of bilingual education is to a large extent based on long-term practice.

The results of this evaluation study did support the finding that the bilingual group performed better than the non-bilingual group on regular EFL exams. From the available data on the two regular EFL exams, consistent progress of bilingual groups across

grades was found. For the first Grade 7 subgroup, by the time the midterm exam was given, the bilingual group already had a better performance level than the non-bilingual group. The t-test performed indicated that this difference was statistically significant. By the time the final exam was given, even though the bilingual group did not show a positive progress compared with the midterm, it still performed better than the non-bilingual group. And the t-test run for the final scores of both groups further indicated that there was a statistically significant difference between the two groups. In other words, the bilingual group performed better than the non-bilingual group on both regular EFL exams. The same phenomenon also occurred in the other subgroup of Grade 7 and it further supported the conclusion that the bilingual group had better performance than the non-bilingual group.

Grade 8 and Grade 10 have different results from Grade 7 in terms of regular EFL exam progress. First of all, the scores from the midterm to final exams generally increased rather than decreasing. Looking at Grade 8 only, one can see that the non-bilingual group performed better than its bilingual counterpart on any given local exam. In addition, at both times, the non-bilingual group's performances were significantly better than the bilingual group's. Despite this fact, the non-bilingual group did not show any significant improvement statistically, whereas the bilingual group's improvement is statistically significantly different. Thus, the students in the non-bilingual group, on average, just maintained the scores they got on the midterm exam, while the bilingual group, made progress from the midterm exam to the final exam. For Grade 10, the non-bilingual group still did better than the bilingual group on any local exam. However, as discussed previously, the bilingual group increased its mean value while the non-bilingual group did not even maintain its ability but instead

decreased its mean value. And by the time the midterm was written, there was a statistically significant difference between the two groups' scores. Thus, the non-bilingual group was better than the bilingual group at that time. However, by the time when the final exam was taken, this difference had already disappeared. Further analysis shows that the bilingual group made a significant improvement from the midterm exam to the final exam. The conclusion to be drawn is that the bilingual group had mastered the learning curve to make a better improvement.

It is essential to draw the readers' attention to the fact that both regular EFL exams were intended to test the students' overall English proficiency based on what they had learned from the regular EFL classes. As was discussed in Chapter IV, the bilingual groups' regular EFL classes were reduced in number and the reduced hours were compensated by providing equivalent hours through the content-based courses. In the sense of content, the content-based courses did not cover what the students in the bilingual groups had missed from the regular EFL classes. Given that the students in the bilingual group across grades performed better than their counterparts in the non-bilingual group shows that the bilingual program did not have conflicts with the regular EFL program. This proves that the aims, and even an unanticipated higher goal set by the regular curriculum, can be achieved by bilingual instruction.

CHAPTER VI CONCLUSIONS

6.1 Conclusion

In this section, we return to the research questions raised in Chapter I. Our findings will be summarized in the order of these research questions.

The first question we asked was whether the students in the bilingual program would show a better improvement in vocabulary expansion than their counterparts in the regular EFL program over a four-month period and an eight-month period. As was presented and discussed in Chapter V, in general, both bilingual groups and non-bilingual groups across the three grades made progress on three vocabulary tests. That is to say, language learning took place in both groups. That non-bilingual groups made progress is understandable in that it is attributed to EFL instruction. Even though no significant difference was found in any of the bilingual groups compared with the non-bilingual groups, it is clear that the bilingual groups in general made more extensive improvements than their non-bilingual counterparts during both the four-month and the eight-month periods of the program implementation.

Addressing the second research question, which is concerned with the students' overall English proficiency, we have concluded that even though the regular EFL hours were reduced for the bilingual groups and the two content courses did not overlap with the content of the EFL course, the bilingual groups had either better performance or showed more significant progress than their counterparts on the two regular EFL exams. That the bilingual groups did not lag behind the non-bilingual groups but mostly

performed better than the non-bilingual groups shows that the bilingual program did not have a negative effect on students' regular English learning; rather, it enhanced learning efficiency.

One point worth repeating is the time effect on students' learning. This study consistently demonstrated that the longer the program continued, the greater the improvement made by the students, and the more significant the improvement was.

With regard to the last research question we asked, which concerned the students' attitudes towards the China-Canada Bilingual Program, the study revealed that the students in general showed positive attitudes. They appreciated having native speakers teaching them. On the one hand, their content knowledge was augmented. On the other hand, and most important of all, their English skills improved a lot through learning English content via the direct contact with the native speakers. They expressed the wish to have more hours in such a program.

6.2 Pedagogical implications

This study shows that bilingual education, if done properly as the NCS' CCBP is, works very well in terms of students' vocabulary learning and overall English proficiency. The statement we can make is that putting students in an environment in which language is learned meaningfully is more effective than involving them in the situation where language is taught in isolation. To some extent, if practised systematically on the basis of a well-designed curriculum, it can even replace the regular EFL program. Concluding from our study, it can be stated that the bilingual program at New Century School has achieved the goal of killing two birds with one stone. It, on the one hand, expanded

students' content knowledge and exposed students to the culture of the target language, and, on the other hand, improved students' English proficiency to a great extent in a short period of time. It is true that the model of the bilingual program varies from one school to other. As for which model to use, it depends on factors such as financial conditions, the school administration's teaching philosophy, students' motivation, parents' cooperation and participation, etc.

Given the lack of qualified teaching staff who have a good command of content knowledge and at the same time have an excellent proficiency in English, Chinese educators can consider revising the existing EFL program and introducing courses such as we had in CCBP at New Century School, driving English teaching along the path of integrating language and content.

6.3 Future study

This study sheds light on bilingual education in China. Researchers in future studies can build on this study to further explore different issues of bilingual education in China to contribute to this body of knowledge. To date, this study has been the first one on bilingual education in China. Although it has opened the door to bilingual education research for researchers who are interested in bilingual education in China, it leaves more questions to be answered. In order to systematically develop bilingual education in China, many aspects involved in this new foreign language teaching system need to be examined.

With regard to language learning, future evaluation research should focus on all of the language skills, as has been done in French immersion (Swain and Lapkin, 1982).

Secondly, since bilingual education usually starts in one's early years, native language learning is also an issue to be investigated. Future evaluation studies should take into account the students' native language to see if bilingual education interferes with students' development in Chinese. Thirdly, as was discussed in Chapter II, bilingual education has the feature of integrating language and content, using language as the medium of instruction rather than as the subject matter. Therefore, one major concern is whether teaching a subject matter in students' second language will impede students' regular academic learning. In this sense, future research should also consider examining students' academic development.

Evaluation studies are always closely associated with the instruments used. In future research, evaluators should consider using various alternative assessments. Where conditions permit, researchers should use diaries, daily reports, homework, classroom observations and exams etc., which should lead to further insights into bilingual education.

As was pointed out in Chapter III, the current evaluation study would have been more ideal if it had been on a long-term basis, therefore, future studies should be carried out on long-term bases. In doing so, the results would be more meaningful and far-reaching in their contributions to this area of study.

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Appendices

Appendix One

Part A

Vocabulary Test I

请将与右栏意义相同的词的号码填在对应的横线上。如下所示：

- | | | |
|-------------|-------------|----|
| 1. business | | |
| 2. clock | _____6_____ | 墙 |
| 3. horse | _____3_____ | 马 |
| 4. pencil | _____4_____ | 铅笔 |
| 5. shoe | | |
| 6. wall | | |

I.

- | | | |
|----------|-------|-----|
| 1. both | | |
| 2. thing | _____ | 同样的 |
| 3. same | _____ | 事情 |
| 4. well | _____ | 呼叫 |
| 5. call | | |
| 6. three | | |

II.

- | | | |
|------------|-------|----|
| 1. without | | |
| 2. write | _____ | 每个 |
| 3. follow | _____ | 没有 |
| 4. eye | _____ | 跟随 |
| 5. than | | |
| 6. every | | |

III.

- | | | |
|--------------|-------|----|
| 1. let | | |
| 2. stand | _____ | 服务 |
| 3. upon | _____ | 站立 |
| 4. service | _____ | 总统 |
| 5. president | | |
| 6. business | | |

IV.

- | | | |
|----------|--|--|
| 1. power | | |
|----------|--|--|

- | | | |
|------------|-------|----|
| 2. law | _____ | 经常 |
| 3. several | _____ | 几个 |
| 4. girl | _____ | 法律 |
| 5. often | | |
| 6. big | | |

V.

- | | | |
|----------------|-------|----|
| 1. mind (noun) | | |
| 2. continue | _____ | 主意 |
| 3. idea | _____ | 继续 |
| 4. field | _____ | 田地 |
| 5. month | | |
| 6. street | | |

VI.

- | | | |
|-------------|-------|----|
| 1. lead | | |
| 2. college | _____ | 职位 |
| 3. study | _____ | 学院 |
| 4. home | _____ | 带领 |
| 5. receive | | |
| 6. position | | |

VII.

- | | | |
|----------------|-------|----|
| 1. board | | |
| 2. society | _____ | 社会 |
| 3. section | _____ | 信息 |
| 4. speak | _____ | 可能 |
| 5. information | | |
| 6. probably | | |

VIII.

- | | | |
|--------------|-------|--------|
| 1. letter | | |
| 2. far | _____ | 在...周围 |
| 3. remember | _____ | 桌子 |
| 4. available | _____ | 记得 |
| 5. table | | |
| 6. around | | |

IX.

- | | | |
|-------------|-------|----|
| 1. term | | |
| 2. behind | _____ | 财产 |
| 3. really | _____ | 学期 |
| 4. wall | _____ | 墙 |
| 5. property | | |
| 6. true | | |

X.

- | | | |
|-------------------|-------|-----|
| 1. central | | |
| 2. concern | _____ | 表演 |
| 3. present (verb) | _____ | 中间的 |
| 4. performance | _____ | 涉及 |
| 5. army | | |
| 6. how | | |

XI.

- | | | |
|---------------|-------|-----|
| 1. population | | |
| 2. hard | _____ | 有效的 |
| 3. southern | _____ | 人口 |
| 4. total | _____ | 听众 |
| 5. audience | | |
| 6. effective | | |

XII.

- | | | |
|------------|-------|----|
| 1. film | | |
| 2. force | _____ | 纳闷 |
| 3. treat | _____ | 强迫 |
| 4. observe | _____ | 观察 |
| 5. wonder | | |
| 6. due | | |

XIII.

- | | | |
|-------------|-------|--------|
| 1. stress | | |
| 2. consist | _____ | 特种部队 |
| 3. complete | _____ | 由...组成 |
| 4. standard | _____ | 压力 |
| 5. corps | | |
| 6. someone | | |

XIV.

- | | | |
|----------------|-------|-----|
| 1. actual | | |
| 2. chapter | _____ | 拒绝 |
| 3. repeat | _____ | 秋季 |
| 4. fall (noun) | _____ | 实际上 |
| 5. drink | | |
| 6. refuse | | |

XV.

- | | | |
|------------|-------|-----|
| 1. thin | | |
| 2. belong | _____ | 科学的 |
| 3. ability | _____ | 杀人犯 |

4. scientific _____ 属与
 5. atmosphere
 6. murder

XVI.

1. immediate
 2. close _____ 一代
 3. generation _____ 先前的
 4. grant _____ 答应
 5. rest
 6. previous

XVII.

1. personnel
 2. motion _____ 最初的
 3. arrange _____ 移动
 4. reading _____ 员工
 5. lack
 6. initial

XVIII.

1. talent
 2. coast _____ 翻译
 3. yourself _____ 海岸
 4. interpretation _____ 才能
 5. closely
 6. foundation

XIX.

1. suit
 2. accompany _____ 预算
 3. branch _____ 集会
 4. warn _____ 陪同
 5. budget
 6. assembly

XX.

1. chain
 2. sum _____ 缺席
 3. height _____ 链子
 4. star _____ 综合
 5. busy
 6. absence

XXI.

- | | | |
|---------------|-------|-----|
| 1. cultural | | |
| 2. finance | _____ | 估计 |
| 3. constitute | _____ | 文化的 |
| 4. necessity | _____ | 必要 |
| 5. estimate | | |
| 6. cover | | |

XXII

- | | | |
|-------------------|-------|-----|
| 1. gradually | | |
| 2. sick | _____ | 否定的 |
| 3. present (noun) | _____ | 子弹 |
| 4. negative | _____ | 礼物 |
| 5. acceptance | | |
| 6. bullet | | |

XXIII

- | | | |
|-----------------|-------|----|
| 1. occasionally | | |
| 2. intelligence | _____ | 篱笆 |
| 3. hire | _____ | 智力 |
| 4. knock | _____ | 雇用 |
| 5. surely | | |
| 6. fence | | |

XXIV

- | | | |
|----------------|-------|-----|
| 1. thickness | | |
| 2. grand | _____ | 居住的 |
| 3. residential | _____ | 织物 |
| 4. mostly | _____ | 壮丽的 |
| 5. bureau | | |
| 6. fabric | | |

XXV

- | | | |
|------------------|-------|----|
| 1. darkness | | |
| 2. profession | _____ | 决定 |
| 3. museum | _____ | 确定 |
| 4. confirm | _____ | 同意 |
| 5. determination | | |
| 6. allowance | | |

XXVI

- | | | |
|-------------|-------|--------------|
| 1. rough | | |
| 2. merchant | _____ | 新娘 |
| 3. bride | _____ | 全体海员, 全体机务人员 |

-
4. anywhere _____ 大约
 5. crew
 6. liberal

XXVII

1. examination
2. insight _____ 目前的
3. tremendous _____ 测验
4. comfortable _____ 结果
5. outcome
6. presently

XXVIII

1. colony
2. grace _____ 最近的
3. latest _____ 殖民地
4. rhythm _____ 韵律
5. lumber
6. wish

Appendix One Part B

Vocabulary Test II

请将与右栏意义相同的词的号码填在对应的横线上。如下所示：

- | | | |
|-------------|---------------|----|
| 1. business | | |
| 2. clock | _____ 6 _____ | 墙 |
| 3. horse | _____ 3 _____ | 马 |
| 4. pencil | _____ 4 _____ | 铅笔 |
| 5. shoe | | |
| 6. wall | | |

I.

- | | | |
|-----------|-------|-----|
| 1 good | | |
| 2 after | _____ | 伟大的 |
| 3 work | _____ | 反对 |
| 4 great | _____ | 他自己 |
| 5 against | | |
| 6 himself | | |

II.

- | | | |
|-----------|-------|----|
| 1 again | | |
| 2 problem | _____ | 保留 |
| 3 small | _____ | 问题 |
| 4 keep | _____ | 战争 |
| 5 much | | |
| 6 war | | |

III.

- | | | |
|-------------|-------|----|
| 1 off | | |
| 2 woman | _____ | 有些 |
| 3 something | _____ | 移动 |
| 4 move | _____ | 妇女 |
| 5 end | | |
| 6 boy | | |

IV.

- | | | |
|------------|-------|----|
| 1 however | | |
| 2 toward | _____ | 向 |
| 3 question | _____ | 设定 |

- 4 set _____ 然而
 5 only
 6 large

V.

- 1 doctor
 2 body _____ 相信
 3 believe _____ 身体
 4 play _____ 发展
 5 other
 6 develop

VI.

- 1 sense
 2 perhaps _____ 政策
 3 carry _____ 成长
 4 grow _____ 也许
 5 like (verb.)
 6 policy

VII.

- 1 death
 2 anything _____ 决定
 3 age _____ 死亡
 4 determine _____ 材料
 5 material
 6 wait

VIII.

- 1 include
 2 early _____ 特殊的
 3 involve _____ 包括
 4 special _____ 卷入
 5 all
 6 fall (verb.)

IX.

- 1 place (verb.)
 2 much _____ 主要的
 3 spirit _____ 控制
 4 major (adj.) _____ 精神
 5 industry
 6 control

X.

- 1 individual

2	wish	_____	个别的
3	occur	_____	保持
4	production	_____	出现
5	maintain		
6	cold (adj.)		

XI.

1	yes		
2	rest (noun)	_____	文学
3	well (exclam.)	_____	帮助
4	literature	_____	休息
5	hang		
6	aid		

XII.

1	item		
2	apparently	_____	公民
3	marriage	_____	明显地
4	citizen	_____	婚姻
5	oh (exclam.)		
6	Sunday		

XIII.

1	main		
2	democratic	_____	进一步的
3	measure	_____	民主的
4	further	_____	测量
5	page		
6	dinner		

XIV.

1	captain		
2	expense	_____	任务
3	duty	_____	避免
4	mission	_____	花销
5	application		
6	avoid		

XV.

1	shot		
2	desire	_____	财政的
3	replace	_____	射击
4	financial	_____	取代
5	cross		

6 wash

XVI.

1	identify		
2	twenty	_____	结合
3	estimate	_____	鉴别
4	while	_____	估计
5	gain		
6	combination		

XVII.

1	total		
2	somehow	_____	文化
3	sharp	_____	锋利的
4	culture	_____	由于某种原因
5	earlier		
6	longer		

XVIII.

1	dust		
2	honor	_____	荣誉
3	tomorrow	_____	大致的
4	significance	_____	重要性
5	reasonable		
6	approximately		

XIX.

1	expand		
2	unusual	_____	可能的
3	moon	_____	不同寻常的
4	cost	_____	扩展
5	possibly		
6	past		

XX.

1	emphasis		
2	neighbor	_____	邻居
3	path	_____	前进
4	cup	_____	强调
5	afraid		
6	proceed		

XXI.

1	sister		
2	fort	_____	民间的
3	reporter	_____	记者
4	folk	_____	碉堡
5	critic		
6	weakness		

XXII.

1	guide		
2	criticism	_____	批评
3	exercise (verb)	_____	投资
4	interview	_____	采访, 面视
5	retain		
6	investment		

XXIII.

1	quote		
2	luck	_____	推荐
3	remarkable	_____	显著的, 值得注意的
4	category	_____	引用
5	dangerous		
6	recommendatio n		

XXIV.

1	pride		
2	palace	_____	连接
3	ice	_____	特征
4	connect	_____	骄傲
5	hunt		
6	characteristic		

XXV.

1	anxiety		
2	persuade	_____	抱怨
3	stick	_____	介意
4	complain	_____	好奇
5	bread		
6	mind (verb)		

XXVI.

1	aim		
2	prior	_____	永远的
3	whisky	_____	日历
4	forever	_____	在...之前
5	neutral		
6	calendar		

XXVII.

1	corn		
2	mad	_____	制造
3	enormous	_____	玉米
4	convention	_____	大量的
5	manufacture		
6	tough		

XXVIII.

1	native		
2	grace	_____	作文
3	accurate	_____	典雅
4	composition	_____	精确的
5	southerner		
6	bigger		

Appendix One Part C

Vocabulary Test III

请将与右栏意义相同的词的号码填在对应的横线上。如下所示:

- | | | |
|-------------|---------------|----|
| 1. business | | |
| 2. clock | _____ 6 _____ | 墙 |
| 3. horse | _____ 3 _____ | 马 |
| 4. pencil | _____ 4 _____ | 铅笔 |
| 5. shoe | | |
| 6. wall | | |

I.

- | | | |
|------------|-------|----------|
| 1. between | | |
| 2. down | _____ | 离开 |
| 3. how | _____ | 再...之间 |
| 4. leave | _____ | 少数的, 不多的 |
| 5. one | | |
| 6. few | | |

II.

- | | | |
|---------|-------|----|
| 1. so | | |
| 2. on | _____ | 非常 |
| 3. long | _____ | 线 |
| 4. city | _____ | 城市 |
| 5. work | | |
| 6. line | | |

III.

- | | | |
|-----------|-------|----|
| 1. upon | | |
| 2. member | _____ | 表格 |
| 3. out | _____ | 自从 |
| 4. form | _____ | 成员 |
| 5. since | | |
| 6. before | | |

IV.

- | | | |
|------------|-------|----|
| 1. little | | |
| 2. start | _____ | 国家 |
| 3. general | _____ | 开始 |

4. national _____ 一般的
 5. name
 6. nation
 V.

1. cost
 2. reason _____ 理由
 3. expect _____ 期望
 4. increase _____ 增加
 5. least
 6. little

VI.

1. different
 2. effect _____ 效果
 3. itself _____ 朋友
 4. serve _____ 不同的
 5. friend
 6. five

VII.

1. change
 2. mother _____ 改变
 3. money _____ 将要, 会
 4. already _____ 已经
 5. shall
 6. human

VIII.

1. whole
 2. learn _____ 目的
 3. build _____ 全部的
 4. cut _____ 真实的
 5. real
 6. purpose

IX

1. offer
 2. step _____ 活动
 3. activity _____ 舞台
 4. stage _____ 提供, 提出
 5. full
 6. piece

X.

1. hope

- | | | |
|------------|-------|-----|
| 2. test | _____ | 外国的 |
| 3. foreign | _____ | 警察 |
| 4. police | _____ | 希望 |
| 5. summer | | |
| 6. higher | | |

XI.

- | | | |
|----------------|-------|----|
| 1. poet | | |
| 2. end | _____ | 合作 |
| 3. western | _____ | 诗人 |
| 4. directly | _____ | 歌曲 |
| 5. corporation | | |
| 6. song | | |

XII.

- | | | |
|-----------|-------|-----|
| 1. mark | | |
| 2. longer | _____ | 坚定的 |
| 3. eat | _____ | 完成 |
| 4. finish | _____ | 更长 |
| 5. wide | | |
| 6. firm | | |

XIII.

- | | | |
|-------------|-------|----|
| 1. heavy | | |
| 2. employee | _____ | 雇员 |
| 3. column | _____ | 储存 |
| 4. easily | _____ | 后院 |
| 5. store | | |
| 6. yard | | |

XIV.

- | | | |
|-----------|-------|-----|
| 1. jazz | | |
| 2. attack | _____ | 爵士乐 |
| 3. fresh | _____ | 新鲜的 |
| 4. direct | _____ | 攻击 |
| 5. usual | | |
| 6. fit | | |

XV.

- | | | |
|---------------|-------|-----|
| 1. September | | |
| 2. California | _____ | 俄罗斯 |
| 3. carefully | _____ | 九月 |
| 4. Russia | _____ | 目前的 |
| 5. past | | |
| 6. current | | |

XVI.

- | | | |
|--------------|-------|----|
| 1. recommend | | |
| 2. message | _____ | 电话 |
| 3. driver | _____ | 消息 |
| 4. fire | _____ | 推荐 |
| 5. match | | |
| 6. call | | |

XVII.

- | | | |
|----------------|-------|-----|
| 1. Jewish | | |
| 2. fourth | _____ | 后果 |
| 3. appearance | _____ | 历史的 |
| 4. historical | _____ | 面貌 |
| 5. consequence | | |
| 6. lift | | |

XVIII.

- | | | |
|-------------|-------|-----|
| 1. apparent | | |
| 2. separate | _____ | 爬 |
| 3. farmer | _____ | 农场主 |
| 4. beat | _____ | 向 |
| 5. towards | | |
| 6. climb | | |

XIX.

- | | | |
|-------------|-------|------|
| 1. warm | | |
| 2. powerful | _____ | 推进 |
| 3. painting | _____ | 绘画 |
| 4. greatly | _____ | 有权力的 |
| 5. succeed | | |
| 6. promote | | |

XX.

- | | | |
|--------------|-------|-----|
| 1. bay | | |
| 2. sensitive | _____ | 自由的 |
| 3. quick | _____ | 敏感的 |
| 4. hence | _____ | 海岸 |
| 5. liberal | | |
| 6. straight | | |

XXI.

- | | | |
|----------------|-------|----|
| 1. discovery | | |
| 2. probability | _____ | 苦的 |
| 3. load | _____ | 负载 |
| 4. bitter | _____ | 混淆 |

5. imply
6. confuse

XXII

- | | | |
|-------------|-------|------|
| 1. safe | | |
| 2. cousin | _____ | 吃惊 |
| 3. fairly | _____ | 表、堂亲 |
| 4. stranger | _____ | 陌生人 |
| 5. surprise | | |
| 6. milk | | |

XXIII

- | | | |
|---------------|-------|-----|
| 1. network | | |
| 2. selection | _____ | 完全的 |
| 3. completely | _____ | 商店 |
| 4. store | _____ | 选择 |
| 5. lesson | | |
| 6. o'clock | | |

XXIV

- | | | |
|------------|-------|----|
| 1. pace | | |
| 2. entry | _____ | 职员 |
| 3. clerk | _____ | 入口 |
| 4. hundred | _____ | 发现 |
| 5. display | | |
| 6. finding | | |

XXV

- | | | |
|-------------------|-------|----|
| 1. transportation | | |
| 2. aim | _____ | 交通 |
| 3. bus | _____ | 扔 |
| 4. yield | _____ | 退让 |
| 5. toss | | |
| 6. motive | | |

XXVI

- | | | |
|---------------|-------|-----|
| 1. proof | | |
| 2. presumably | _____ | 最坏的 |
| 3. storm | _____ | 证据 |
| 4. steal | _____ | 暴风雨 |
| 5. strip | | |
| 6. worst | | |

XXVII

1. channel

-
- | | | |
|----------------|-------|-----|
| 2. besides | _____ | 保险 |
| 3. effectively | _____ | 有效地 |
| 4. insure | _____ | 频道 |
| 5. charter | | |
| 6. like (adj.) | | |

XXVIII

- | | | |
|----------------|-------|-----|
| 1. admission | | |
| 2. dirty | _____ | 滴 |
| 3. creature | _____ | 生物 |
| 4. frontier | _____ | 洞察力 |
| 5. insight | | |
| 6. drop (noun) | | |

Appendix Two

Part A

Questionnaire (Chinese Version)

亲爱的同学们：

你已经被邀请参加评估新世纪学校双语教学项目的研究。这些数据将用在我的硕士研究生论文中。你提供的任何信息将会保密。你提供的信息会对双语项目的进一步发展做出贡献。非常感谢你的合作。

请针对科技课回答下列问题

1. 在你看来课时是否合适？（多/少课）
a.多 b.少 c.无意见
2. 你认为自己对课堂的听懂程度达到：
a.基本懂 b.基本不懂 c.一般
3. 目前使用的课本设计在你看来是否合适？
a.合适 b.不合适 c.无所谓
4. 你认为现在的课堂进度是否合适？
a.合适 b.不合适 c.无所谓
5. 你是否觉得自己现在听力比本学期开学时有了很大的进步？
a.同意 b.不同意 c.一般
你是否觉得对词汇有很大的帮助？
a.同意 b.不同意 c.一般
你是否觉得科技课对阅读有很大的帮助？
a.同意 b.不同意 c.一般
你是否觉得科技课对口语有很大的帮助？
a.同意 b.不同意 c.一般
你是否觉得科技课对写作有很大的帮助？
a.同意 b.不同意 c.一般
6. 本学期，通过科技课，我的()有很大的改进。
7. 科技课和精读课，哪一个对你的英语帮助更大？

a.科技课 b.精读课 c.无意见

8. 你认为科技课有没有效果?

a.有 b.没有 c.无所谓

请针对世界文化课回答下列问题

1. 在你看来课时是否合适? (多/少课)

a.多 b.少 c.无意见

2. 你认为自己对课堂的听懂程度达到:

a.基本懂 b.基本不懂 c.一般

3. 目前使用的课本设计在你看来是否合适?

a.合适 b.不合适 c.无所谓

4. 你认为现在的课堂进度是否合适?

a.合适 b.不合适 c.无所谓

5. 你是否觉得自己现在听力比本学期开学时有了很大的进步?

a.同意 b.不同意 c.一般

你是否觉得对词汇有很大的帮助?

a.同意 b.不同意 c.一般

你是否觉得世界文化课对阅读有很大的帮助?

a.同意 b.不同意 c.一般

你是否觉得世界文化课对口语有很大的帮助?

a.同意 b.不同意 c.一般

你是否觉得世界文化课对写作有很大的帮助?

a.同意 b.不同意 c.一般

6. 本学期,通过世界文化课,我的()有很大的改进。

7. 世界文化课和精读课,哪一个对你的英语帮助更大?

a.科技课 b.精读课 c.无意见

8. 你认为世界文化课有没有效果?

a.有 b.没有 c.无所谓

9. 有什么要求?

10. 其它的看法?

Appendix Two Part B

Questionnaire (English Translation)

You have been invited to participate in an evaluation research being conducted at NCS to gather information about the effectiveness of bilingual education. The data are being gathered for my master's dissertation and will be used strictly for educational research. All information you provide will be confidential. The information gathered will contribute to the improvement of bilingual program. Your cooperation is appreciated. Thank you.

General Science:

1. Do you think the hours allocated are appropriate?
A. Too much B. Less C. No opinion
2. How do you think your comprehension ability to lectures?
A. Above average B. Average C. Below average
3. Do you think the design of the present textbook is appropriate?
A. Yes B. No C. No opinion
4. Do you think the speed of teaching is appropriate?
A. Yes B. No C. No opinion
5. Do you think the course of General Science is helpful in improving your
listening skill: A. Strongly agree B. Disagree C. Slightly agree
vocabulary: A. Strongly agree B. Disagree C. Slightly agree
reading skill: A. Strongly agree B. Disagree C. Slightly agree
speaking skill: A. Strongly agree B. Disagree C. Slightly agree
writing skill: A. Strongly agree B. Disagree C. Slightly agree
6. Through the course of General Science, what language skill do you think has improved a lot?

7. Which course is more helpful in your English proficiency?
A. General science B. Extensive reading C. No opinion

8. Do you think General Science is effective?

- A. Agree B. Strongly disagree C. No opinion

World culture:

1. Do you think the hours allocated are appropriate?

- A. Too much B. Less C. No opinion

2. How do you think your comprehension ability to lectures?

- A. Above average B. Below average C. Average

3. Do you think the design of the present textbook is appropriate?

- A. Appropriate B. Not appropriate C. No opinion

4. Do you think the speed of teaching is appropriate?

- A. Appropriate B. Not appropriate C. No opinion

5. Do you think the course of World Culture is helpful in improving your

listening skill: A. Agree B. Strongly disagree C. Disagree

speaking skill: A. Agree B. Strongly disagree C. Disagree

reading skill: A. Agree B. Strongly disagree C. Disagree

writing skill: A. Agree B. Strongly disagree C. Disagree

vocabulary: A. Agree B. Strongly disagree C. Disagree

6. Through the course of World Culture, what language skill do you think has improved a lot?

7. Which course is more helpful in your English proficiency?

- A. World culture B. Extensive reading C. No opinion

8. Do you think World culture is effective?

- A. Agree B. Strongly disagree C. No opinion

9. What are your requirements?

11. Do you have any other comments?

Appendix Three

Part A

The results of questionnaire on the course of General Science

Questions	7.2 (n =24)		7.3 (n = 24)		8.1 (n = 14)		10.1 (n = 16)	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Question 1: How do you think your comprehension ability to lectures?								
Above average	54.2%	62.5%	25%	62.5%	7.1%	21.4%	43.8%	37.5%
Average	12.5%	4.2%	29.2%	16.7%	42.9%	14.3%	18.8%	18.8%
Below average	33.3%	33.3%	45.8%	20.8%	50.0%	64.3%	37.5%	43.8%
Question 2: Do you think the hours allocated are appropriate?								
Too much	8.3%	4.2%	0	4.2%	14.3%	14.3%	0	0
Less	33.3%	33.3%	66.7%	41.7%	35.7%	7.1%	50%	25.0%
No opinion	58.3%	62.5%	33.3%	54.2%	50.0%	78.6%	50%	75.0%
Question 3: Do you think the design of the present textbook is appropriate?								
Yes	66.7%	41.7%	54.2%	66.7%	42.9%	28.6%	31.3%	31.3%
No	12.5%	4.2%	12.5%	0	35.7%	21.4%	50%	43.8%

	No opinion	20.8%	54.2%	33.3%	33.3%	21.4%	50.0%	18.8%	25.0%
Question 4:	Do you think the speed of teaching is appropriate?								
	Yes	58.3%	54.2%	66.7%	79.2%	50.0%	35.7%	31.3%	25.0%
	No	20.8%	4.2%	20.8%	4.2%	35.7%	7.1%	37.5%	25.0%
	No opinion	20.8%	37.5%	12.5%	16.7%	14.3%	57.1%	31.3%	50.0%
Question 5:	Do you think the course of General Science is helpful in improving your								
	Listening								
	Agree	37.5%	29.2%	29.2%	54.2%	14.3%	35.7%	37.5%	37.5%
	Strongly disagree	29.2%	25.0%	16.7%	8.3%	28.6%	7.1%	0	12.5%
	Disagree	33.3%	45.8%	54.2%	37.5%	57.1%	57.1%	62.5%	50.0%
	Speaking								
	Agree	33.3%	37.5%	45.8%	62.5%	14.3%	14.3%	18.8%	43.8%
	Strongly disagree	12.5%	12.5%	12.5%	4.2%	7.1%	7.1%	12.5%	25.0%
	Disagree	54.2%	50.0%	41.7%	33.3%	78.6%	78.6%	68.8%	31.3%
	Reading								
	Agree	45.8%	37.5%	54.2%	58.3%	28.6%	21.4%	18.8%	12.5%
	Strongly disagree	25.0%	16.7%	8.3%	4.2%	28.6%	21.4%	18.8%	18.8%
	Disagree	29.2%	45.8%	37.5%	37.5%	42.9%	57.1%	62.5%	68.8%
	Writing								
	Agree	12.5%	4.2%	29.2%	37.5%	0	21.4%	0	18.8%
	Strongly disagree	33.3%	29.2%	33.3%	29.2%	64.3%	28.6%	31.3%	18.8%
	Disagree	54.2%	66.7%	37.5%	33.3%	35.7%	50.0%	68.8%	62.5%
	Vocabulary								
	Agree	37.5%	41.7%	58.3%	54.2%	35.7%	42.9%	25.0%	31.3%
	Strongly disagree	16.7%	4.2%	12.5%	4.2%	14.3%	0	25.0%	12.5%
	Disagree	45.8%	54.2%	29.2%	41.7%	50.0%	57.1%	50.0%	56.3%

Question 6: Through the course of General Science, what language skill do you think has improved a lot?									
No effect	20.8%	4.2%	8.3%	4.2%	28.6%	21.4%	18.8%	31.3%	
Listening	16.7%	8.3%	12.5%	12.5%	7.1%	0	18.8%	12.5%	
Speaking	12.5%	12.5%	25.0%	4.2%	7.1%	14.3%	12.5%	12.5%	
Reading	8.3%	8.3%	4.2%	8.3%	0	0	0	0	
Writing	0	0	0	0	0	7.1%	6.3%	0	
Vocabulary	12.5%	8.3%	16.7%	16.7%	42.9%	35.7%	37.5%	18.8%	
Content knowledge	16.7%	20.8%	20.8%	4.2%	14.3%	0	0	0	
Comprehensive English skills	12.5%	4.2%	8.3%	12.5%	0	7.1%	0	6.3%	
Others	7.5%	33.4%	4.2%	37.4%	0	14.4%	6.1%	18.6%	
Question 7: Which course is more helpful in your English proficiency?									
General Science	50.0%	20.8%	66.7%	41.7%	35.7%	21.4%	37.5%	18.8%	
Extensive Reading	12.5%	45.8%	16.7%	37.5%	50.0%	42.9%	50.0%	50.0%	
No opinion	37.5%	33.3%	16.7%	20.8%	14.3%	35.7%	12.5%	31.3%	
Question 8: How do you think the effectiveness of General Science?									
Yes	62.5%	16.7%	58.3%	25.0%	50.0%	0	37.5%	18.8%	
No	25.0%	33.3%	33.3%	33.3%	42.9%	35.7%	37.5%	25.0%	
No opinion	12.5%	50.0%	8.3%	41.7%	7.1%	64.3%	25.0%	56.3%	

**Appendix Three
Part B**

The results of questionnaire on the course of World Culture

Questions	7.2 (n = 24)		7.3 (n = 24)		8.1 (n = 14)		10.1 (n = 16)	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Question 1: How do you think your comprehension ability to lectures?								
Above average	41.7%	87.5%	16.7%	66.7%	7.1%	35.7%	31.3%	50.0%
Average	16.7%	12.5%	37.5%	12.5%	64.3%	14.3%	18.8%	6.3%
Below average	41.7%	0	45.8%	20.8%	28.6%	50.0%	50.0%	43.8%
Question 2: Do you think the hours allocated are appropriate?								
Too much	12.5%	8.3%	29.2%	4.2%	14.3%	21.4%	6.3%	12.5%
Less	41.7%	25.0%	20.8%	41.7%	50.0%	14.3%	37.5%	37.5%
No opinion	45.8%	66.7%	50.0%	54.2%	35.7%	64.3%	56.3%	50.0%
Question 3: Do you think the design of the present textbook is appropriate?								
Yes	50.0%	41.7%	16.7%	70.8%	28.6%	28.6%	18.8%	31.3%
No	8.3%	4.2%	8.3%	8.3%	21.4%	7.1%	37.5%	18.8%
No opinion	41.7%	54.2%	75.0%	20.8%	50.0%	64.3%	43.8%	50.0%

Question 4: Do you think the speed of teaching is appropriate?									
Yes		41.7%	54.2%	12.5%	79.2%	50.0%	42.9%	31.3%	43.8%
No		33.3%	4.2%	62.5%	8.3%	35.7%	0	43.8%	0
No opinion		25.0%	41.7%	25.0%	12.5%	14.3%	57.1%	25.0%	50.0%
Question 5: Do you think the course of General Science is helpful in improving your									
Listening	Agree	33.3%	33.3%	16.7%	66.7%	14.3%	57.1%	37.5%	62.5%
	Strongly disagree	33.3%	20.8%	20.8%	4.2%	42.9%	0	0	0
	Disagree	33.3%	45.8%	62.5%	29.2%	42.9%	42.9%	62.5%	37.5%
Speaking	Agree	37.5%	50.0%	25.0%	75.0%	7.1%	35.7%	43.8%	62.5%
	Strongly disagree	0	8.3%	25.0%	4.2%	28.6%	7.1%	18.8%	12.5%
	Disagree	62.5%	41.7%	50.0%	20.8%	64.3%	57.1%	62.5%	25.0%
Reading	Agree	33.3%	33.3%	29.2%	54.2%	7.1%	35.7%	25.0%	25.0%
	Strongly disagree	25.0%	16.7%	12.5%	4.2%	35.7%	21.4%	25.0%	18.8%
	Disagree	41.7%	50.0%	37.5%	41.7%	57.1%	42.9%	50.0%	56.3%
Writing	Agree	12.5%	12.5%	16.7%	33.3%	7.1%	14.3%	0	12.5%
	Strongly disagree	33.3%	25.0%	50.0%	29.2%	50.0%	28.6%	37.5%	25.0%
	Disagree	54.2%	62.5%	33.3%	37.5%	42.9%	57.1%	62.5%	62.5%
Vocabulary	Agree	37.5%	54.2%	45.8%	50.0%	21.4%	57.1%	33.3%	43.8%
	Strongly disagree	16.7%	4.2%	8.3%	8.3%	28.6%	0	22.2%	6.3%
	Disagree	45.8%	41.7%	45.8%	41.7%	50.0%	42.9%	44.4%	50.0%
Question 6: Through the course of General Science, what language skill do you think has improved a lot?									

No effect	20.8%	4.2%	16.7%	4.2%	35.7%	14.3%	6.3%	31.3%
Listening	4.2%	0	29.2%	12.5%	7.1%	14.3%	18.8%	31.3%
Speaking	8.3%	25.0%	16.7%	33.3%	0	7.1%	37.5%	12.5%
Writing	8.3%	4.2%	4.2%	0	6.3%	0	6.3%	0
Reading	4.2%	0	0	0	0	7.1%	0	0
Vocabulary	29.2%	12.5%	16.7%	4.2%	50.0%	28.6%	0	12.5%
Content knowledge	12.5%	20.8%	4.2%	4.2%	7.1%	0	0	0
Comprehensive	0	0	4.2%	8.3%	0	7.1%	0	0
English skills								
Others	12.5%	33.3%	8.1%	33.3%	6.2%	21.5%	31.1%	12.4%
Question 7: Which course is more helpful in your English proficiency?								
General Science	33.3%	20.8%	45.8%	45.8%	21.4%	21.4%	50.0%	25.0%
Extensive Reading	29.2%	45.8%	25.0%	20.8%	42.9%	42.9%	31.3%	25.0%
No opinion	37.5%	33.3%	29.2%	33.3%	35.7%	35.7%	18.8%	50.0%
Question 8: How do you think the effectiveness of General Science?								
Yes	50.0%	25.0%	41.7%	41.7%	35.7%	14.3%	37.5%	25.0%
No	33.3%	20.8%	29.2%	12.5%	50.0%	28.6%	31.3%	6.3%
No opinion	16.7%	54.2%	8.3%	45.8%	14.3%	57.1%	31.3%	68.8%

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