Chapter 2

Literature Review

This chapter consists of three topics. Firstly, it introduces the background of bilingual education in China. In the 1980s, there was a boom in the implementation of bilingual education programs. However, it slowed down in the 1990s. Based on earlier research (Blachford 1997; Lin 1997; Midomaru 2005; Tsung 2009), this study suggests that the bilingual education programs in China continue to face a number of difficulties. It also includes the recent discussions of the concept of bilingual education in China.

Secondly, concept of Cognitive/Academic Language Proficiency (CALP) is introduced. CALP is a collective language ability working in the academic and cognitive field of human communications. It works behind all the basic language skills such as listening, speaking, reading and writing. CALP development is closely related to the language of instruction. It is also known that the students need time and support to become proficient in academic areas (Baker 2006; Cummins 2000, 2001; Thomas and Collier 1997, 2002). As a result of CALP development, the bilingual students fully appear proficient in formal academic learning. In this study, two basic principles from the CALP theory were chosen as the criteria to define whether the selected bilingual education programs are supportive to the CALP development.

Finally, the chapter discusses the total literacy system introduced by Bhola (1994). He claims that the system is a broad and comprehensive outlook of literacy and bilingual education programs. The total literacy system includes eleven subsystems that are parts of working system no matter how big or small the literacy program is. In other words, these subsystems need to be involved in literacy system in order for it to function well.

2.1 Bilingual education in China

Since the foundation of the People's Republic of China in 1949, the government has paid special attention to education for minority nationalities in China. In the

1950s, the government created or revised scripts of minority languages and assessed minority language education in some areas (this became a prototype for bilingual education after the 1980s) (Hansen 1999; Tsung 2009). After a space during the Cultural Revolution (1966-76), China has promoted bilingual education programs for ethnic minority students since the 1980s (Hansen 1999; Lin 1997; Midomaru 2005; Tsung 2009; Zhou 2001).

Bilingual education in China is legally supported by the National Constitution of 1982. It protects the minority people's rights to use and develop their own languages (Article 4) and promotes nationwide use of Standard Chinese (Article 19) (Bradley and Bradley 2001; Zhou 2004). Article 4 states that "all nationalities have the freedom to use and develop their own spoken and written languages." The 'all nationalities' refers to all the 56 nationalities (official ethnic groups) recognized by the Chinese government. This includes 55 minority nationalities. The constitution does not give any clear definition of what it means by 'use and develop'. However, the local governments' officers and educators understood that the central government protects the minority people's rights to use their languages in education. This is why many provinces and prefectures adopt the policy of using minority languages in formal education.[3] On the other hand, Article 19 discusses educational issues and 'the nationwide use of *Putonghua* (Standard Chinese)'. Under the circumstances, it is clear that the government supports the use of *Putonghua* in education. In these ways, bilingual education is 'a middle way' promoting both indigenous languages and Standard Chinese at the same time. The government adopted the *Law of People's Republic of China on Regional National Autonomy* in 1984. This law committed local governments (province and prefecture level) to bilingual education programs (Article 10, 36) (Zhou 2004).

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[3] Both the Dehong and the Guizhou governments adopt the policy in their provincial/prefecture constitutions.

Table 2: Extracted text from the *Constitution of People's Republic of China* (The National People's Congress of the People's Republic of China)

Article 4

All nationalities in the People's Republic of China are equal. The State protects the lawful rights and interests of the minority nationalities and upholds and develops a relationship of equality, unity and mutual assistance among all of China's nationalities. Discrimination against and oppression of any nationality are prohibited; any act which undermines the unity of the nationalities or instigates division is prohibited.

The State assists areas inhabited by minority nationalities in accelerating their economic and cultural development according to the characteristics and needs of the various minority nationalities.

Regional autonomy is practised in areas where people of minority nationalities live in concentrated communities; in these areas organs of self-government are established to exercise the power of autonomy. All national autonomous areas are integral parts of the People's Republic of China.

All nationalities have the freedom to use and develop their own spoken and written languages and to preserve or reform their own folkways and customs.

Article 19

The State undertakes the development of socialist education and works to raise the scientific and cultural level of the whole nation.

The State establishes and administers schools of various types, universalizes compulsory primary education and promotes secondary, vocational and higher education as well as pre-school education.

The State develops educational facilities in order to eliminate illiteracy and provide political, scientific, technical and professional education for workers, peasants, State functionaries and other working people. It encourages people to become educated through independent study.

The State encourages the collective economic organizations, State enterprises and institutions and other sectors of society to establish educational institutions of various types in accordance with law.

The State promotes the nationwide use of *Putonghua* [common speech based on Beijing pronunciation].

Table 3: Extracted text from the *Law of People's Republic of China on Regional National Autonomy* (The National People's Congress of the People's Republic of China)

Article 10 The organs of self-government of national autonomous areas shall guarantee the freedom of the nationalities in these areas to use and develop their own spoken and written languages and their freedom to preserve or reform their own folkways and customs. **Article 36** In accordance with the guidelines of the State on education and with the relevant stipulations of the law, the organs of self-government of national autonomous areas shall decide on plans for the development of education in these areas, on the establishment of various kinds of schools at different levels, and on their educational system, forms, curricula, the language used in instruction and enrollment procedures.

Bahry (2009) points out that the recent educational policies in China shifted to decentralization. He states that "recent policy promoting quality education has reduced central control, encouraging school-based curriculum development" (Bahry 2009:6). His case study of Chinese-Yugur bilingual education program focuses on local curriculum and school-based curriculum. This recent policy provides great opportunity for the local governments and local schools to take the initiative in supporting bilingual education among minority nationalities, including instructions in their own language.

2.1.1 Types of bilingual education in China

What type of bilingual education is typical in China? Teng and Weng (2001) summarize the varieties of bilingual education in China. They classified the bilingual education programs generally into two types (see Table 4). One is 'language maintenance' bilingual education. This type of program gives equal emphasis to Chinese and a minority language. For example, the school curriculum allocates the same amount of time for teaching each language in primary and middle schools. Therefore, the purpose of the programs are to cultivate the students' fluency in both languages. However, this type of bilingual education is limited to the following: 1) Nationalities with a long history of independent education systems (Tibetan, Uygur, Kazak); 2) Nationalities with a large population in foreign countries (Korean, Mongolian). Another type of bilingual education is 'transitional' bilingual education. A transitional bilingual education begins with a single minority language in the first grade. The use of Chinese as a medium of instruction gradually increases. The purpose of these programs is to help the minority students to be able to follow the lessons at middle school using only Chinese. This latter type is commonly used for

most national minorities in China, especially in Guizhou and Yunnan provinces. Since the variety of national minorities are living close to each other, it is not practical to think of establishing different middle schools for each of the minority students. Therefore, this study only discusses transitional bilingual education programs.

Table 4: Summary of 'language maintenance' bilingual education and 'transitional' bilingual education

	Language maintenance BLE	Transitional BLE
Stage	Primary school and middle school	Primary school only
Goal	Students would be fluent in both languages	Students can follow lessons at middle school using only Chinese
Language	Bilingual with the equal emphasis on both Chinese and a minority language	Moves from a minority language to Chinese
Target group	Kazakh, Korean, Mongolian, Tibetan, Uygur	Most minority nationalities in China (especially in Guizhou and Yunnan provinces)

BLE: bilingual education

Tsung (2009) also studied different types of bilingual education in China. One of these types popular in Southwest China is called the 'pyramid model'. She explains that "[in the 'pyramid model'] the mother tongue is used as the medium of instruction in the first year in primary school and is gradually reduced as the students' level of Han language competency increases" (Tsung 2009:107). Table 5 is the 'pyramid model' timetable supported by the Yunnan Provincial government. This is similar to the transitional bilingual education mentioned above. It is evident that the bilingual education in Southwest is mainly transitional bilingual education.

Table 5: The pyramid model (Tsung 2009:108)

Year of the school	Class time allocation of minority languages (percent)	Class time allocation of the Han language (percent)
Year Six	10	90
Year Five	20	80
year Four	30	70
Year Three	40	60
Year Two	50	50
Year One	70	30
Kindergarten	100	Conversational

Feng (2007) points out that Chinese-English bilingual education increases in the east coast such as in Beijing, Shanghai, and Guangzhou. He insists that the discussions of bilingual education in China should include bilingual education for majority nationality (Chinese-English bilingual education) as well as bilingual education for minority nationalities (Chinese-minority language bilingual education) (Feng 2007:2-3). However, Chinese-English bilingual education is still very rare in Southwest China. English is taught in primary schools today as a foreign language but it is not used as a language of instruction. Therefore, this study focuses on bilingual education for minority nationalities.

2.1.2 Reasons for slowing down of bilingual education in the 1990s

It is said that about 160,000 schools were conducting bilingual education in the 1980s (Lin 1997: 195). Nevertheless, the number of schools conducting bilingual education decreased in the 1990s. The State Educational Commission reported in 1994 that over 7000 schools among 21 minority nationalities offered bilingual programs (Tsung 2009:111). Lin (1997) systematically studied educational reforms undergone in China since the 1980s. She is one of the researchers who recognized the changes of Chinese bilingual education programs in the 1990s in the early stages. According to her, "in the 1990s there have been reports that in certain regions efforts have slackened, and some minority areas are giving up [the bilingual education] because of the lack of textbooks, teachers and local support." (Lin 1997:195) The author (Midomaru 2005) calls it a slowing down of bilingual education in the 1990s. For example, Chinese-Hani bilingual education program in Honghe Hani-Yi Autonomous Prefecture, Yunnan Province, was conducted at 58

primary schools in Luchun County in 1984. However, many schools found difficulties such as the lack of qualified teachers, textbooks, and financial support. As a result, the number of bilingual schools in Luchun County started to decrease at the end of the 1980s.[4] Finally, Guangma Primary School, the last school conducting bilingual education in Luchun County, canceled its bilingual courses in 2005.

Chinese scholars argue that the bilingual education programs have performed well. This is based on the evidence of students' exam results and graduation rates. For example, Bai and Che (1995) are Chinese researchers who studied the Hani-Chinese bilingual education in Honghe Prefecture, Yunnan Province.[5] They reported that the average scores of Guangma Primary School, a Chinese-Hani bilingual school, were 44 points for Chinese and 67.8 points for Math in 1986. In comparison, Guidong Primary School, scored only 10.5 points and 61 points respectively for the same examinations. Both schools are from Luchun County (Che 1995). The graduation rates of Guangma Primary School also recorded 100% in 1991 and 1992, which were the top scores in the county. Moreover, one student from Guangma Primary School received the first prize in the Math Olympics in Luchun County in 1994 (Bai and Che 1995). However, Guangma Primary School ended up canceling the program in 2005. Therefore, the exam results and graduation rates were not the reasons why bilingual education was slowing down in the 1990s.

Bilingual education programs in China continue to face a number of difficulties including political and societal issues. Blachford (1997) studied the language and education policies in China. She found major problems in three areas of Chinese bilingual education: policies, research and practices. She insists that there are no specific laws or regulations which guarantee bilingual education programs. That is why in many cases, bilingual education only means a way for minority children to learn Chinese. This prevents the advantages of being bilingual speakers. She summarizes that such Chinese dominant bilingual education programs may lead to the loss of some minority languages. It should be noted that her concern is not only school level practices, but also the Chinese education policies and ideologies behind them. Lin (1997) also points out problems of the bilingual education programs in divergent aspects: the policies, curriculum, textbooks, teaching methods and teacher training. She mentions that the roots of failure in bilingual education in China exist

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[4] The number of Chinese-Hani bilingual schools decreased rapidly from 58 schools in 1984 to one school in 1995. Yunnan Minority Language Commission (2001:34) states that "the Chinese-Hani bilingual education program in Honghe Prefecture experienced the rise and fall in a decade. It was a difficult change like an explosion of up and down."

[5] The researcher interviewed Bai about his research at Yuxi Normal University in 2003.

not only at the school level but also at the societal level. Thus, she suggests that understanding both the political and social functions of bilingual education is crucial.

In *Slowing Down of Bilingual Education in China: A Case Study of Guangma Primary School* (Midomaru 2005), the author concluded that the number of bilingual education programs in China decreased in the 1990s for various reasons. There were technical difficulties of bilingual education, such as lack of quality teachers and ineffective teaching methods. There were also other social factors, such as Chinese dominating ideologies in ethnic minority societies and the lack of government support. In fact, the problems facing the system of a bilingual education program is not just limited to the classroom activities. They also exist in a much wider and more complicated structure (see Table 6).

Table 6: Reasons for slowing down of Chinese bilingual education in the 1990s (Midomaru 2005)

Educational factors (technical difficulties in school/classroom level)	Social/political factors	Other factors
- Centralized curriculum - Lack of bilingual textbooks - Lack of quality teachers - Burden for the students - Ineffective teaching methods	- Chinese dominating ideologies - Lack of government support - Lack of financial support - Economic inequality	- Ethnic diversity

Tsung (2009) also points out the changes in the 1990s and afterward. She says, "Since the late 1990s, the fast economic development in China has challenged mother tongue instruction in minority schools across all minority areas... In many mother tongue instruction schools students' numbers have fallen, with minority parents voluntarily sending their children to Chinese schools, and language loss has become a hot topical issue" (Tsung 2009:120) Interestingly, she emphasizes the change of the languages of instruction. Here she clearly mentions that: "Since the time demands for Chinese are limited, they are willing to reduce mother tongue instruction... How will minorities maintain their current cultural and linguistic identity if they are under pressure to learn a national and an international language simultaneously?" (2009:198). The balance of the languages of instruction (Chinese and a minority language) is another important issue in bilingual education programs in China today.

Tsung's study suggests that the discussions of the bilingual education programs in China should incorporate a linguistic perspective, as well as the political and social issues.

2.2   Cognitive/Academic Language Proficiency (CALP)

In a bilingual education program, the students learn two languages at the same time. People ask whether bilingual education is just an added burden for the students and how bilingual education can be helpful to the students. A theory on Cognitive/Academic Language Proficiency (CALP) answers those questions by showing how the language proficiency in both languages are linked and learning two languages benefit each other.

It is noticed that the four basic language skills (listening, speaking, reading and writing) in one language cannot be developed independently. For example, speaking skills require improved listening skills. In the same way, the practice of reading skills improves writing skills as well. Oller (1979) suggests that the relevance between the basic language skills is caused by a single underlying factor, which he calls Global Language Proficiency. He explains that the Global Language Proficiency underlies all four basic language skills. When one of the skills is improved, the Global Language Proficiency is also developed. That is why the four basic language skills are simultaneously developed. The concept is summarized in the picture bellow.
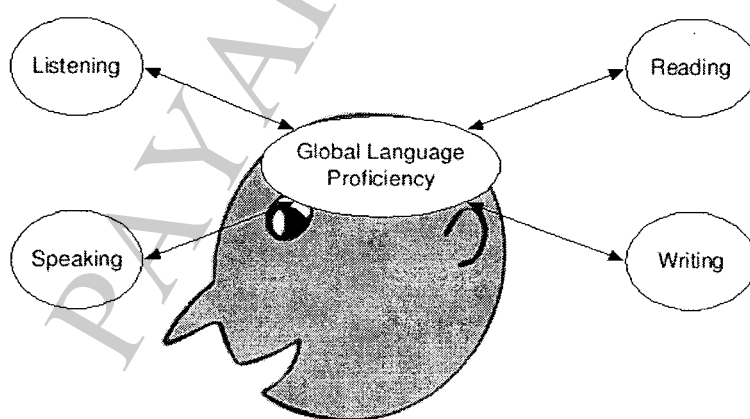

Figure 3: An image of Global Language Proficiency based on Cummins (2001) (illustrated by the

author)

Cummins (2000, 2001) applies the concept of Global Language Proficiency to language proficiency over two languages (L1: first language and L2: second language) of bilingual speakers. He believes that the improvement of the language skills in L1 and L2 are controlled by a common proficiency. That is why he mentions that "either language can, theoretically, promote the development of the proficiency underlying both languages" (Cummins 2001:130). Cummins conducted a study of bilingual education in Canada. He observed that the immigrant children who seemingly spoke L2 (English) fluently, often failed the national education curriculum for which all classes are conducted in L2. He suggested that there are distinctions between communicative language skills and academic language skills. He named the two dimensions of language proficiency BICS and CALP. BICS (short for Basic Interpersonal Communicative Skills) is a surface part of language proficiency that supports people to communicate in their daily life. The concept of BICS is similar to the four basic language skills in Oller's discussions above. On the other hand, CALP is the underlying part of language proficiency in charge of academic and cognitive activities which are not shown in appearance. The concepts of CALP and BICS can be summarized in the image below (see Figure 4).
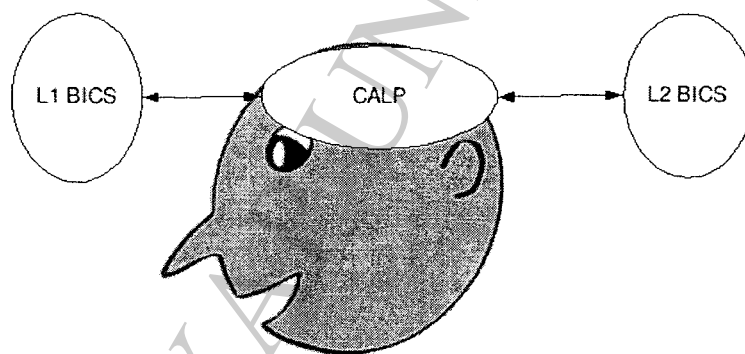

Figure 4: An image of CALP and BICS based on Cummins (2001) (illustrated by the author)

Similar to the discussions of the Global Language Proficiency and basic language skills, CALP can be developed through BICS either in L1 or L2. The developed CALP is also able to improve BICS both in L1 and L2. Therefore, Cummins suggests that this CALP is the true character of the relevance between the language skills of L1 and L2, and developing students' CALP is a key factor of a successful bilingual education program. He says, "Placement of bilingual children in different types of instructional programs should not be based only on 'natural communication' (BICS) tasks. Developmental level of L1 and L2 CALP should also be taken in action" (Cummins 2001:134).

Finding the concept of CALP leads Cummins to two hypotheses: threshold hypothesis and interdependence hypothesis. The following section introduces these hypotheses and related discussions.

2.2.1   Threshold hypothesis

The first hypothesis introduced here is the threshold hypothesis. Baker (2006) illustrates the hypothesis by using the picture of a three-storey house (see Figure 5). The house has two thresholds as a ceiling between each floor. The thresholds are the levels of children's language competency. There are also two language ladders of L1 and L2 placed on the wall on both sides. In a bilingual education program, students are learning each language like climbing up the ladders. Each floor represents a stage of bilingualism where the students would achieve in the program. The first floor, which is the lowest floor, represents a low level of language competence in both languages. The students in this floor could not climb the language ladders well and stay in the stage of cognitively and academically undeveloped. The second floor, which is in the middle, represents the age-appropriate language competence in one language, though it is not in both languages. The students in this floor develop their CALP as much as other monolingual students are expected to. Finally, the third floor represents balanced bilinguals. The students who have achieved age-appropriate language competence in both languages are cognitively developed (or will reach the higher competency in the future) even more than monolingual students.

Top Floor   Balanced Bilinguals

At this level, children have age-appropriate
competence in both languages and there are
likely to be positive cognitive advantages

SECOND THRESHOLD

Middle Floor   Less Balanced Bilinguals

At this level, children have age-appropriate
competence in one but not two languages.
There are unlikely to be positive or
negative cognitive consequences

FIRST THRESHOLD

Lower Floor   Limited Bilinguals

At this level, children have low levels of
competence in both languages, with likely
negative cognitive effects
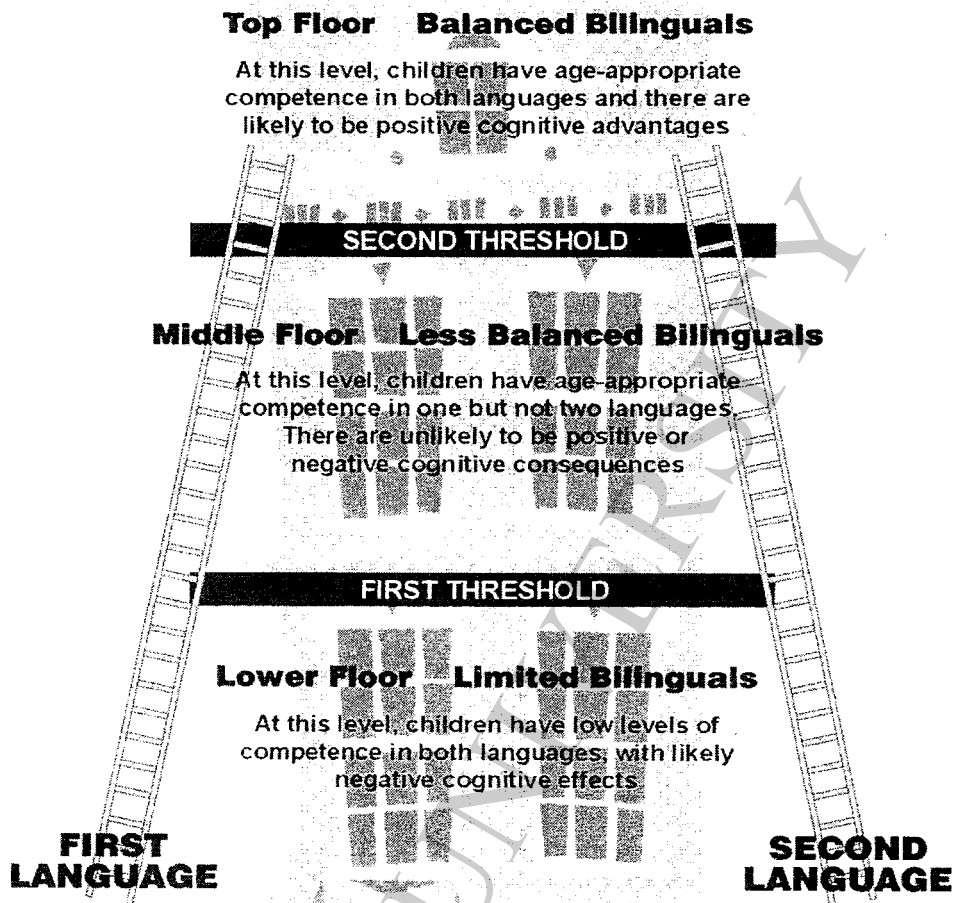
**FIRST
LANGUAGE**

**SECOND
LANGUAGE**

Figure 5: Picture of threshold hypothesis (Baker 2006:172)

Baker (2006) puts the theory in practice to explain the poor achievement situations
of ethnic minority children who are studying in a second language only. He stated
that "minority language children taught through a second language (e.g. immigrants
in the US) sometimes fail to develop sufficient competency in their second language
(e.g. English) and fail to benefit from 'weak' forms of bilingual education. Their low
level of proficiency in English, for example, limits their ability to cope in the
curriculum" (Baker 2006:173). The L2 ladder is usually more difficult for ethnic
minority children to climb up without any special assistance.

This is similar to the Chinese context. Zhou (2001) compared educational levels and
illiteracy levels of all the 56 Chinese nationalities. He recognized that some minority
groups, such as Zhuang, may have relatively low illiteracy but at the same time have
relatively less people with secondary and college education. He assumed that this is
because in these communities many young people are motivated to attend primary

schools but they cannot complete monolingual primary education in Chinese. Therefore, basic literacy is high but graduation results are law. He summarized that "with no bilingual education and without adequate Chinese, some groups of [these] communities have not been able to make good progress beyond primary education" (Zhou 2001:146).

The threshold hypothesis calls for children's CALP development to be supported by both languages of L1 and L2 in a successful bilingual education program, not by one language. Cummins (2000:175) says that "continued academic development of both languages confers cognitive/linguistic benefits whereas less well-developed academic proficiency in both languages limits children's ability to benefit cognitively and academically from interaction with their environment through those languages (e.g. in school)". It is said that in order to get to the top floor of language competence and take full advantage of bilingualism both languages are necessary. His image of this hypothesis may be closer to the image of building a house rather than climbing up the ladders. That means balanced bilingual children's cognitive development is built in both languages just like building up a house from both sides, otherwise the upper floors are not stable enough to stand on the foundation. Some minority students could still reach the second floor even though their schools only used one language (usually it is L2). However, many of them fail to build their language competence without a strong foundation of CALP.

2.2.2   Interdependence hypothesis

Waters (1998:74), in her book, compares a reading activity to driving a car[6]. To move a car forward or backward, many parts inside of the car need to work together, such as motors, gears, shifts, and so on. It is not as simple as just a driver operating the handle. In the same way, when people read a book, he/she follows alphabets, puts out the phonetic sounds, takes the meaning of each word from his/her stock of vocabularies, and graphically images the event according to the word order in the language. Reading includes not only verbal communication activities but also many non-verbal activities. These include reading from left to right, turning pages, knowing print has meaning, and so on. It is also a cognitive activity which accesses their experience, knowledge and culture to understand the value of the sentence. In this way, parts of reading activities do not depend on which language the action is taken in. Therefore many skills are transferable from L1 to L2 if students learn to

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[6]   This idea is originally from Adams (1990) Beginning to read: Thinking and learning about print. Washington D.C.: Department of Education.

read in their L1 first. Similarly, the other basic language skills such as listening, speaking and writing, also include such 'language-free' activities.

Cummins (2000:173) suggests that "academic language proficiency transfers across languages such that students who have developed literacy in their L1 will tend to make stronger progress in acquiring literacy in L2". The CALP of both L1 and L2 are interdependent and transferable between the languages. In fact, CALP commonly exists behind the two languages in appearance. The theory is summarized in the iceberg image below. Two icebergs, actually which is one huge ice block, are connected under water. Similar to the iceberg image, a bilingual speaker's language competencies of L1 and L2 share the common cognitive and academic proficiencies. Even though the L1 and L2 are very different in the surface structures, they share one common huge body of the cognitive proficiency under the water.

Surface features of L1   Surface features of L2

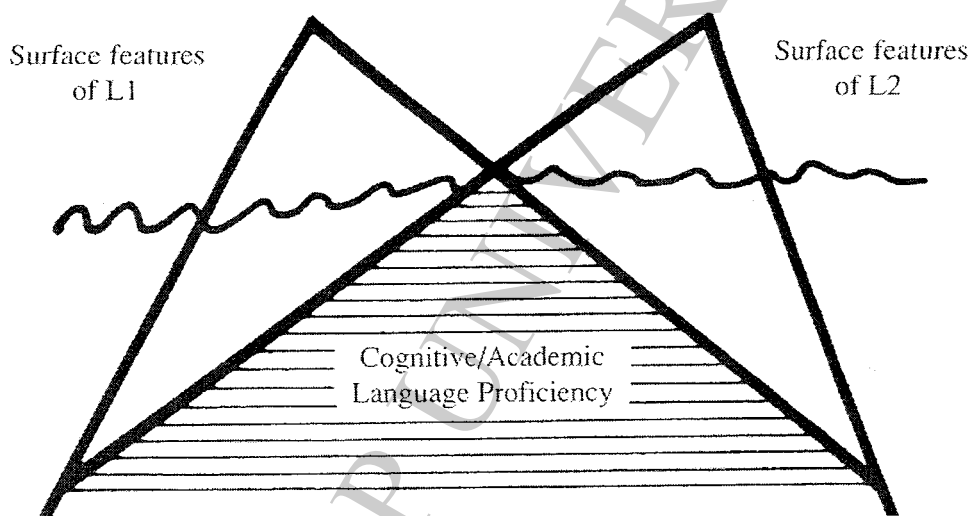Cognitive/Academic
Language Proficiency

Figure 6: The iceberg image of bilingual children's language proficiency (Cummins 2000:118)

Discussion of the interdependence theory raises a question: What is CALP specifically? In other words, what is transferable between the languages of L1 and L2? The transferable CALP firstly includes non-verbal abilities, such as turning pages in reading, knowing print has meaning, thinking and understanding the meanings. Cummins labels the non-verbal abilities as 'literacy skills' or 'operational knowledge (knowing how)'. Besides, Cummins (2000:178) suggests that 'cognitive' can refer to not only 'non-verbal abilities' but also 'verbal cognitive abilities'. The transferable CALP also includes people's background knowledge or common knowledge of the world, such as cultures and ideas behind the vocabularies that is called conceptual knowledge (knowing that). Similarly, Hamers and Blanc (2000:98-99) present these two independent continua of CALP: 1) the degree of

contextual support available for expressing and receiving meaning; and 2) the degree of cognitive involvement in the verbal activity.

However, the transfer between L1 and L2 is not automatic. The development of CALP takes longer than that of BICS. Cummins (2001:113-114) says, "CALP follows the curve of overall cognitive development which begins to flatten out around mid-adolescence, whereas BICS tends to reach a plateau soon after the age of about five or six" (see Figure 7). It is supported by Thomas and Collier's (1997, 2002) research on immigrant students in the United States during the 1980s and the 1990s. They confirmed that "the students who arrived between ages 8 and 11, who had received at least 2-5 years of schooling taught through their primary language (L1) in their home country, were the lucky ones who took only 5-7 years [to catch up with the other native L2 students]. On the other hand those who arrived before age 8 [who had little or no schooling in their native language] required 7-10 years or more" (Thomas and Collier 1997:33). They also estimated that 30-40% of the younger ones fail to reach acceptable levels of English reading by the end of their elementary schooling. That means a student's development of L1 cognitive and academic development (which includes L1 proficiency development) requires at least two to five years schooling in their first language.
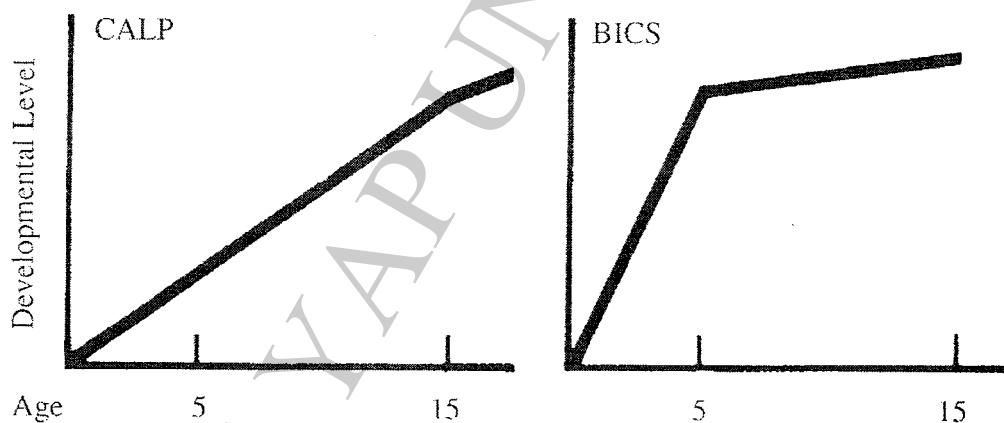

Figure 7: Developmental trends of CALP and BICS (Cummins 2001:114)

In a transitional bilingual education program, it is important not to shift from one language of instruction to another language of instruction too quickly. If so, the students may be able to communicate in both languages, but their CALP will not be developed enough for smooth transfer between L1 and L2. The term of transfer process between L1 and L2 should be considered.

2.2.3   L1 first: An (mis-)interpretation of CALP

The discussions of both threshold hypothesis and interdependence hypothesis sometimes cause an interpretation that bilingual education should begin with L1 instruction only. The implementation of L2 instructions should wait until the student's L1 is cognitively developed sufficiently. However, Cummins (2000:194) says, "Neither the threshold nor interdependence hypotheses, individually or together, provides support for any specific configuration of L1/L2 instruction within bilingual education" and "[interdependence hypothesis] does not argue that initial instruction in the early grades should be totally through the minority language… In situations where bilingual students may have varying levels of proficiency in their L1 and English on entry to the program, it may be more effective to promote literacy in both L1 and English simultaneously or in close succession, rather than delaying the introduction of English reading instruction".

The question is why many scholars interpreted that Cummins supports L1 first policy. For example, Baker (2006:173) defines the interdependence hypothesis as when "a child's second language competence is partly dependent on the level of competence already achieved in the first language." This statement may cause many people to think that L2 should be taught only after children acquire complete L1 CALP. However, the interdependence hypothesis actually suggests developing L1 not only helps learning L2 but also, developing L2 helps learning L1. Cummins (2000:198) emphasizes that "it appears that both languages must be given the opportunity to continue to develop into the school years… It is certainly not the case that instruction in the majority language should be delayed until a certain 'threshold' level of L1 literacy has been attained".

Cummins, however, does not totally deny the effectiveness of the L1 instruction first. He mentions, "consequently, it was assumed that children who were not proficient in English ought to be educated through both their L1 and English in the initial grades until they had acquired sufficient proficiency to benefit fully from English-only instruction. Implementation of the transitional bilingual programs which are the logical outcome of this assumption necessitated operational procedures for entry into and exit from bilingual programs" (Cummins 2001:123). As he mentions, the L1 first policy is useful in some practical cases, according to the students' language environments. For example, many speakers of non-dominant languages in countries such as China live in remote, poor, and rural areas in environment where education is not as prominent as in the rich Western countries. In

such contexts small children have no exposure to L2 at all, or the exposure is minimal. Therefore, L1-based approaches may be preferred there.

The 'two ways' (L1 to L2 and L2 to L1) idea is similar to the bridging model introduced by Malone (2006). She says, "Bridging classes can go two ways. In some classes, people who are literate in their first language learn to read and write in their second language. In other classes, people who are literate in their second language learn to read and write in their first language." (Malone 2006:7) She explains that effective bilingual courses, which she calls "bridging" classes, help people build a bridge between the two languages so they can become fluent readers and writers in both languages (see Figure 8).
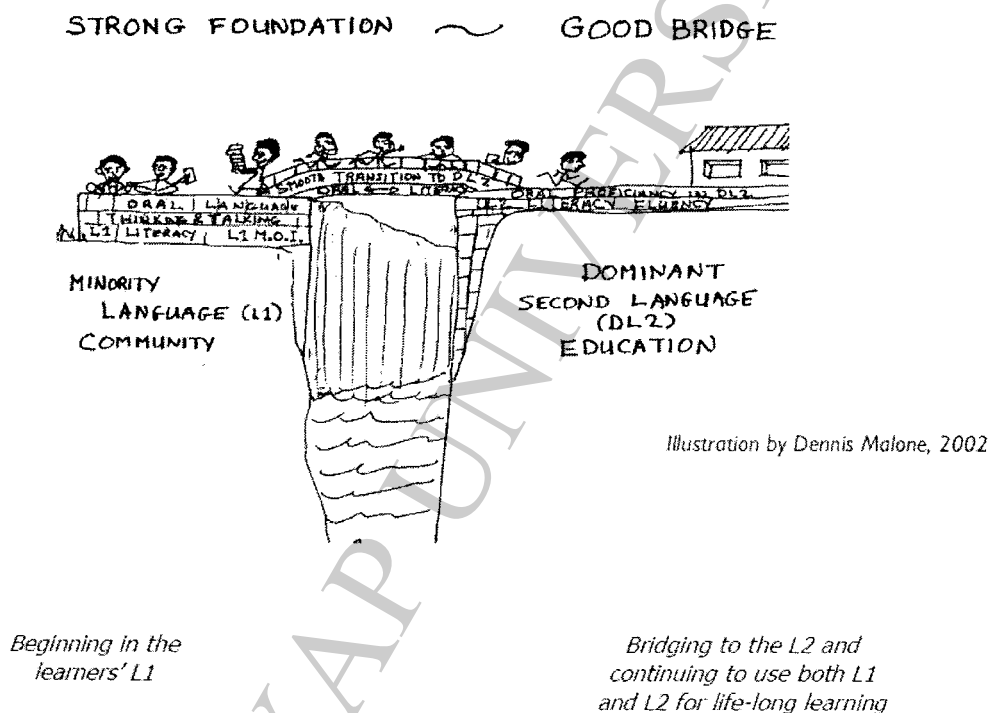

Figure 8: A picture of bridge (Malone 2006:12; UNESCO 2007:8)

2.2.4 Basic principles of CALP development

As discussed above, the threshold hypothesis and interdependence hypothesis illustrates that the children's CALP development is the key for a successful bilingual education program. The two basic principles of CALP development derived from these discussions are: 1) Instruction in both languages; and 2) Long term transfer process.

(1) Instruction in both languages

The students' CALP development functions fully when both languages are used for instruction. It does not mean that the students should learn two languages as different subjects, which just develops the students' BICS of each language. The point is that the instruction should be given in both languages and the students can take advantage of the situation to develop into effective bilingual speakers.

(2) Long term transfer process

CALP development takes longer than BICS. Cummins states that everyday conversational language (BICS) could be acquired in two years while the more complex language abilities (CALP) needed to cope with the curriculum could take five to seven or more years to develop (Baker 2006:174, 185-6). An important factor of effective bilingual education is how long it allows for the transfer process. This transfer process refers to the periods of using both languages for instruction. During this process, students' CALP develops enough to transfer between L1 and L2 fluently.

Table 7 below summarizes the two principles discussed in this section.

Table 7: Features of bilingual education programs that are supportive and not supportive of CALP

	CALP supportive BLE program	Non-CALP-supportive BLE program
Language of instruction (LOI)	Both L1 and L2 are used as LOI	Only one language is used as LOI
Term of transfer process	Longer than 5 years	Shorter than 5 years

BLE: bilingual education

2.3 The total literacy system

As another theoretical framework, this study uses the total literacy system introduced by Bhola in 1994. Bhola (1994:156-57) points out that "an effective literacy system is often large both in size and scope," and "to be effective as literacy initiatives, they all have to have all the necessary parts, that is, they have to have all the necessary subsystems." Based on this idea, he introduces the total literacy system, which consists of three levels in size and eleven subsystems as scopes. The literacy system is summarized into the picture below.
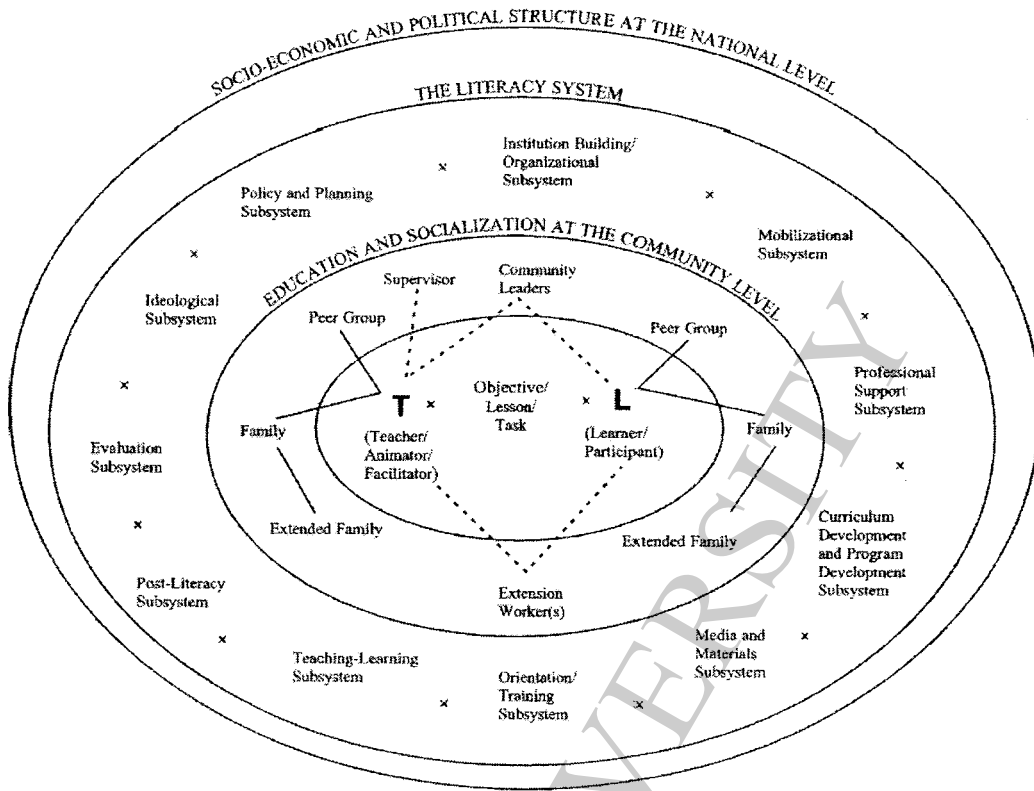
Figure 9: Picture of the total literacy system (Bhola 1994:159)

The two inner circles and the outer circle represent the different levels of the system. They are the classroom, community and national levels. The other circle, which is located between the community and national levels, represents the literacy system itself. The columns under the literacy system which are divided by the 'X's represent the eleven subsystems.

It should be noted that the system was not originally designed for a formal bilingual education program. Bhola (1994:10) says, "I wish that the word 'literacy' was not used to cover all kinds of reading – children and adults, inside and outside the school." Therefore, he defines that "[in his book,] the word literacy is reserved for the teaching of reading to adults in settings outside the school". That means Bhola discusses the total literacy system only under adult literacy, not bilingual education for children and in school. This study considers it possible that the concept of the total literacy system can be adapted into bilingual education programs. This adaptation is discussed in section 3.3.

2.3.1 Three levels

(1) Classroom level

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There is no doubt that the classroom level is the core of bilingual education programs. It is because that most the basic teaching and learning activities take place in the classroom. The two actors in this level are the teacher/s and learner/s (students). The teachers teach languages (inclusive of other subjects in bilingual education programs) to the students. The students participate in the classroom and learn languages from the lessons.

(2) Community level

Of the three different levels of the literacy system, the size of the community level is the most difficult to define. A community is wider than a classroom (or a school), which has walls and doors clearly divided from the outside. However its outer boundary is often invisible and ambiguous, which could be a range of the students' lives and an administrative division of a school, a village, or the local government. Bhola (1994) considers the community level as a collective structure of the actors and events which have any direct (and second-direct) impact on the classroom and the actors in it. That is why the picture of the total literacy system draws the direct (and second-direct for extended family) lines from the actors of community level to the teachers and learners in classroom. The lines represent their direct relationship and influence.

In terms of bilingual education programs, the community level is similarly considered as a collective structure of the actors and events which have any direct impacts to the classroom. For example, a student's home is where he or she tells his parents what he or she learned in class, does his or her homework, and learns languages through oral communications with his or her family members. The student also communicates with other adults in the neighborhood and friends from play ground. At the community level, the identity and language use of minority students are reinforced. This is also the level where bilingual education will be either encouraged or discouraged.

The teachers also have their families and neighbors. The teachers may have opportunities to attend a conference or training and meet with professionals of bilingual education from outside the village. The teachers also need encouragement at this level.

(3) National level

The national level is the biggest circle in the picture of the total literacy system. The actors of this level are the national (and regional) government, companies, publishers, donor organizations, NGOs, and so on. They are not directly (face to

face) influencing the actors in the classroom. They influence the program through ways such as making policies, publishing reading materials, and supporting financially. It is also same in a bilingual education program.

The picture of the total literacy system above illustrates the literacy system at national level. That is probably because most of the literacy programs in the world are conducted in one nation (country), not beyond nations. However, Bhola (1994:156) himself mentions "sometimes international specialists would be involved." The system does not deny the possibility that a program is influenced by the international sector. In cases where certain international actors are influential to the bilingual education program, they are cited at the national level.

2.3.2   Eleven subsystems

Bhola (1994) summarizes the different scopes of the total literacy system into eleven subsystems: ideological subsystem; policy and planning subsystem; institution building and organizational subsystem; mobilizational subsystem; professional support subsystem; curriculum development and programming development subsystem; media and materials subsystem; orientation and training subsystem; teaching-learning subsystem; post-literacy subsystem; and evaluation subsystem. The eleven subsystems cover not only something visible, such as events or productions, but also something invisible such as ideas and structures. Each subsystem works through the actors in all the different levels: classroom, community and nation.

The subsystems are also overlapping each other. Bhola (1994:161) says, "No subsystem is an island. Subsystems are all interconnected within the total literacy system." For example, printing bilingual textbooks mobilizes the students to study in two languages, and it supports the teachers using two languages in classroom. Therefore, the picture of the literacy system above shows that the eleven subsystems are divided by small crosses, not by clear boundaries.

Table 8 is brief descriptions of each subsystem adapted into the Chinese context.

Table 8: Eleven subsystems adapted into the Chinese context

Subsystems	Descriptions
(1) Ideological subsystem	China is a multi-national country. The Chinese government officially recognizes 56 nationalities in the country. Even though the government emphasizes the equality of all nationalities and languages, Chinese language clearly dominates all over the country (Zhou 2004). Bilingual education is often used as a way for promoting Chinese language among minority nationalities (Blachford 1997; Bradley and Bradley 2001; Tsung 2009).
(2) Policy and planning subsystem	The Chinese constitution protects the language rights of minority nationalities (Bradley and Bradley 2001; Zhou 2004). However, it does not clearly mention if the minority languages should be used in education. Most the provincial and prefecture governments still consider that the central government supports the use of minority languages in education. It is also evident that other laws support the use of minority languages in education, such as the *Law of People's Republic of China on Regional National Autonomy* (Zhou 2004:77-78). Therefore, some provinces and prefectures adopt the policy of implementing bilingual education in their constitutions and regulation laws, such as the *Dehong Prefecture Law* (see Section 4.1) and the *Guizhou Provincial National Folk Culture Protection Law* (see Section 5.3.1).
(3) Institution building and organizational subsystem	China uses a 'top-down' system for decision-making. The central government makes overall decisions. The local (provincial and autonomous prefecture) governments enact legislation following the central government guidelines. The educational departments of local governments are usually responsible for making decisions on the details of educational issues. The local schools have very little room to make any changes (Bradley and Bradley 2001:79).

(4) Mobilizational subsystem	One of the most important goals for the minority students and their parents is to go to a middle school and high school, where Chinese is used as the only medium of instruction, except in some areas such as Korean, Mongolian and Uygur (Zhou 2001: 145-46). The ethnic minority students (and their parents) are often motivated to learn in Chinese more than their own language. That is because Chinese is required to receive higher education and find a good job in the future (Tsung 2009:197-98).
(5) Professional support subsystem	There are many researchers and professors studying bilingual education in universities and research centers, which may include Chinese-English bilingual education as well as Chinese-minority language bilingual education (Feng 2007). Several international organizations, such as SIL International and Save the Children also work in the educational sector.[7] At the provincial level, there are universities providing several language, literature and history courses for ethnic minorities, such as Yunnan Institute of the Nationalities (Hansen 1999).[8]
(6) Curriculum development and programming development subsystem	The curriculum for formal education is provided by the education department of the local governments according to the Central Government guidelines. The local schools and teachers have to follow the curriculum and make lesson plans (Lin 1997). It is said that the recent educational policy reduced central control and encourages school-based curriculum development (Bahry 2009).

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[7] These two organizations participated in the workshop on Multilingual Education in Ethnic Minority Communities, Bangkok, 10-21 July 2006.

[8] According to Hansen (1999:22-23), Yunnan Institute of the Nationalities offers some classes in Xishuangbanna Dai, **Dehong Dai**, Jingpo, Lisu, Lahu, Yi, and Wa languages.

(7) Media and materials subsystem	Minority language textbooks for primary and middle school are published in 30 minority languages (Tsung 2009:123). The government and local media also make some efforts to produce TV and radio programs in minority languages (Zhou 2004:89). However, there is a limit to the amount of those materials in terms of quality and quantity.
(8) Orientation and training subsystem	The teachers in local schools usually graduated from teachers' college. The college mainly focuses on education using only Chinese as a language of instruction. The teaching methods of bilingual education for minority students are rarely taught.[9] The government and international NGOs coordinate special trainings of bilingual education only when the teachers started teaching in a school for ethnic minority students (Cobby 2007:189).
(9) Teaching-learning subsystem	In China, during lessons, teachers give lectures and students passively listen for the bulk of the period. The students also read out textbooks, answer questions, write an essay according to the teachers' instructions. The students practice what they learned through work books at home.[10]
(10) Post-literacy subsystem	Provinces and prefectures where the majority of the population are ethnic minorities usually have a minority publishing house. For example, Guizhou Minority Publishing House, Yunnan Minority Publishing House, and Dehong Minority Publishing House publish several volumes of books in minority languages every year. Some provinces or prefectures also spend efforts to publish newspapers in minority languages, but the number of publications is very different according to the areas (Zhou 2004:89).

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[9] This information was given by a teacher from Zhefang Center School during the interview.

[10] This is what the author of this thesis learned through his three years' experience in teaching and observing classes in China.

(11) Evaluation subsystem	In order to go to middle school and high school, the students have to take the United Entrance Exam that is written entirely in Chinese. Students are allocated their schools according to their exam scores. Some students who did not attain a minimum score cannot go to the middle school or high school of their preference (Tsung 2009:173). Some provinces have special treatment for ethnic minority students in the exam (Hansen 1999:24).

2.3.3   The total literacy system in bilingual education

The total literacy system explains that the events and activities in classrooms are not the only matter in a bilingual education program. It is suggested that there are components in community level and national level that are also influential to the students' language learning process. The system summarizes the different scopes of the literacy system in eleven subsystems. The eleven subsystems cover the wide and deep aspects of a bilingual program and help the researchers look over the program without any omissions. However, the system is originally designed for adult literacy programs operating in one language. There should be some issues considered when the system is adopted for the examination of a bilingual education program.

The total literacy system may be adjusted flexibly. Bhola (1994:18) mentions that the total literacy system is an ideal system, so that "not all literacy projects, programmes or campaigns are lucky enough to have all these components." In other words, there is a chance that all the eleven subsystems do not exist in one program. When some subsystems are missing, the researchers have to examine the program without those subsystems. It is even possible that some subsystems are ignored according to the evaluator's perspectives. For example, Waters (1998:410-412), in her work in Papua New Guinea, discounts the number of subsystems according to her priority on learning events in the program (see Figure 10). She suggests that the other researchers adjust the system according to their understandings and situations.
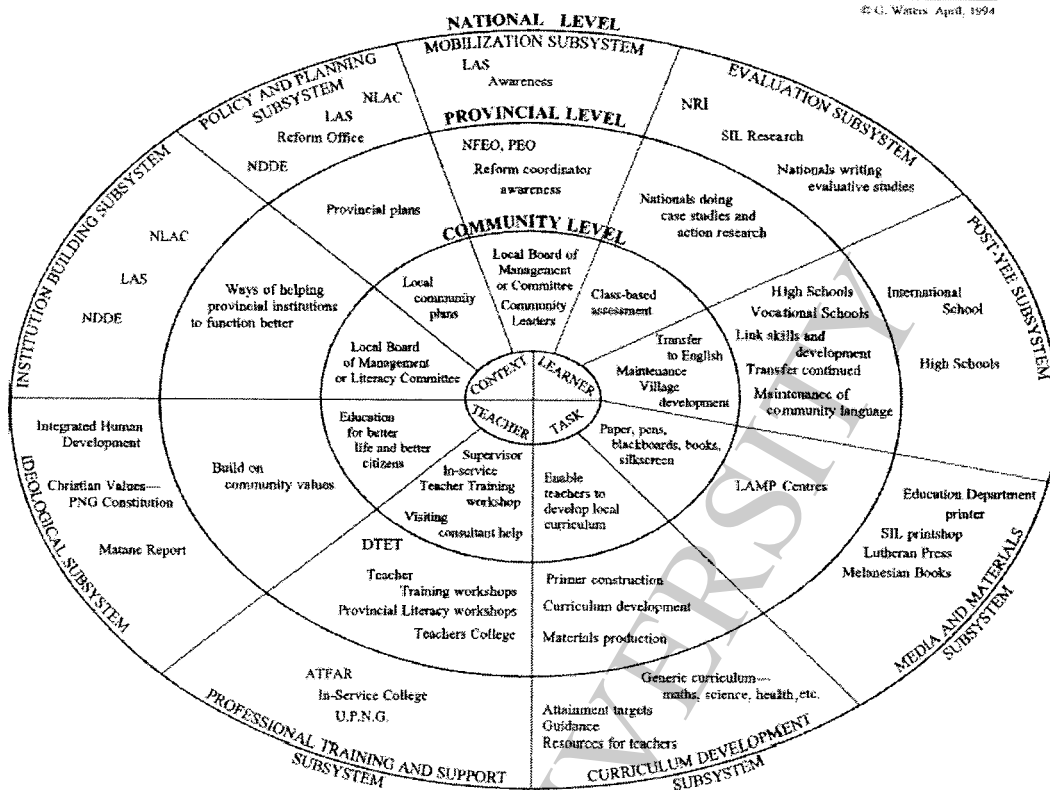
Figure 10: Elementary Education in Papua New Guinea (Waters 1998:411)

This study does not change the number of the subsystems, but adapts the total literacy system into bilingual education. The question is how much change is acceptable to the system.

Interestingly, it is found that the total literacy system is already used to examine some literacy programs for children by previous researchers. As it is shown in the Waters' work above (Figure 10), she adapts the system to examine elementary education, which is for children in formal schools. Another example is the work of Hilgendolf, Locnikar and Nichols (1996). They also use the total literacy system to examine literacy programs for children in Papua New Guinea.[11] Moreover, one of these programs that applied the system was where "many of the people were already literate in the language of wider communication". This program aims to help the minority children to be bilingual.[12]

The components of Bhola's model are mostly common sense in all kinds of education activities in many places. Therefore, many of the subsystems are found in

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[11] Hilgendolf et al. (1996) evaluate seven literacy programs in Papua New Guinea. Six of them set their target to the minority children.

[12] This is an example of L2 to L1 transfer.

the discussions of bilingual education in China. For example Lin (1997:193, 203) states (words emboldened for emphasis);

> Since 1980, bilingual education has been provided in some minority schools as a part of the government's policy to improve relationships with ethnic minorities in China. Chinese scholars have argued that bilingual education is necessary to advance learning among minority students. However, schools attempting to implement bilingual teaching are faced with many problems -- notably with respect to **curriculum, textbook publishing, teacher training** and **instructional adjustments**. Even greater problems lie within society at large, where minorities still suffer discrimination and bias...
>
> Another need is to understand both the **political** and the broader cultural, economic and social functions of bilingual education. The preservation of minority language and culture can be realised only if the minority groups see the **need** for such education. The roots of failure in bilingual education, where some forms of it are provided, exist not only at the school level but also at the societal level. Minority people need to **feel empowered** and to be given the power to judge their conditions and decide on **what they want** for their children.

Her statement presents the concepts of ideology, policies, motivations, curriculum, textbooks, training, and professional support. Another example is Blachford (1997:162) saying;

> [The fact that there have been no **specific laws** or **regulations** to guarantee the status and practice of developing bilingualism] has directly resulted in lack of funding for bilingual programs. The problem is also caused by the **negative attitude** towards the use and development of minority languages by some party officials, and some minority elites... All these **policy issues** will no doubt affect the nature and the future of bilingual education in China.

She presents the concepts of ideology (attitude), policies, and planning. Hansen (1999) presents an empirical study of bilingual education programs for Naxi students and Xishuangbanna Dai students in Yunnan Province. She mentions institutional issues of bilingual education in China (Hansen 1999:6):

> The development of bilingual education is **legitimized** in the PRC Constitution, which supports the study of minority languages in autonomous regions. However, very often local educators and government officials reject political decisions or proposals about bilingual education because **they disagree with the argument that**

> **bilingual education is necessary and useful** or because they lack
> financial support and qualified teachers.

Lastly, Tsung (2009:129) points out an issue of evaluation:

> Despite the government's continued support for a mother tongue
> medium of instruction since 1980, the number of minority
> students enrolled in these schools has been declining. One
> problem is that the educational reform did not change the
> **examination system** and tertiary institutions have emphasized
> English examination results.

In these ways, the total literacy system seems to be a useful tool to examine
bilingual education programs in China. Of course, all details of Bhola's discussions
are not unconditionally rephrased in bilingual education programs. To avoid the
conflicts in details, this study uses the system just as a framework to categorize the
evaluation objects.