

Some factors influencing balanced bilingual development

A study of CALP among bilingual Japanese children in Boston

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This study reports on a bilingual survey of Japanese children (7-12 years old) at Boston Japanese School. The objective of the paper is to propose some factors that foster cognitive academic language proficiency (CALP) in Japanese and English. The following factors are thought to promote CALP acquisition: L1 maintenance and use in the home, individual intelligence, prior overseas experiences, reading, positive attitude and length of stay in the host culture, coupled with early age of arrival. It is found that strong supports in the home helps generate a favorable language environment that enhances CALP development. The paper bases its results on data collected via the Oral Proficiency Assessment for Bilingual Children.

二言語能力に関わる要因について研究することを目的とし、海外子女のバイリンガル能力を調査してきた。特に、学習や思考にかかわる言語能力に研究の焦点を絞り、『バイリンガル会話テスト OBC』（カナダ教育振興会）により調査した。本論では、ボストン日本語学校における二言語調査結果の一部（認知タスク）について事例報告する。認知言語能力に関わる要因として、日本語能力の保持、家庭言語、知的レベル、海外経験、読書、積極的な態度、滞在期間・渡航年齢、家庭のサポートなどが明らかになった。バイリンガル能力は第一言語の認知力に関連し、家庭での母語使用や読み聞かせなど豊かな言語環境によって培われることと、第一言語の認知力が高度に発達した二言語話者になる主たる要因であることが結論としていえる。

Introduction

This study is a part of a broader project to investigate bilingual proficiency of Japanese children growing up overseas.¹ A pilot study (Yumoto, 1996) was conducted at a heritage language Japanese School in Hawai'i in order to investigate age factors and L1/L2 proficiency in a cross-sectional research (study of 108 children). Those who arrived before their first birthday and stayed for an extended period showed the widest range of proficiency both in L1 and L2. These results aroused the author's interest in factors fostering proficient bilingual proficiency, specifically, cognitive academic language proficiency (CALP). A series of studies followed in Vancouver, Boston, Toronto and Montreal Japanese Schools in 2001 (see Yumoto, 2004, 2005a, 2005b). These were all Japanese-medium schools approved by the Ministry of Education, Science and Culture: Students attended English-medium local schools during the week and studied at Japanese maintenance schools on Saturdays. The research focused on cognitive academic bilingual

proficiency in relation to the age of arrival, length of stay and language use at home. The current paper describes the results of the Boston survey on balanced bilinguals.

The study aims to analyze factors that contribute to fostering cognitively and academically required levels of bilingual proficiency.

Background Theories

The term bilingual covers a variety of continuums from balanced to dominant, active to passive, and additive to double-limited. The first distinguishes approximately equal competence in two languages from greater proficiency in one language (Baker & Jones, 1998). The second continuum differentiates bilinguals who with proficient productive skills from those whose skill in their second language is primarily receptive (Noguchi, 2001). The third distinction refers to the status of the two languages, whether a second language adds to the first, or proficiency in both languages is limited.

The literature on the age factor in SLA is abundant, specifically, in the discussion on critical period hypothesis (Billings, 1990; Cook, 1995; Francis, 2005; Harley & Wang, 1997; Singleton, 1989, Singleton and Lengyel, 1995). Billings (1990) found that age played a role in promoting active bilingualism among children in international families in Japan. The studies by Patkowsky (1982), and Johnson and Newport (1989) showed the age of arrival (13-25 years old) was the main factor in L2 proficiency and not the length of residence. Long (1990, 1993) drew from these research findings to develop his hypothesis of SLA as a function of the age of onset.

After extensive research on bilingual proficiency, Cummins (1979, 1980) proposed a BICS-CALP distinction which, along with his L1/L2 interdependent hypothesis, forms the basis of the theoretical framework for the present study. Cummins divides language proficiency into two categories; Basic Interpersonal Communication Skills (BICS) and Cognitive Academic Language Proficiency (CALP). While BICS is concerned with conversational proficiency, CALP focuses on academic proficiency. BICS is language with contextual support (such as gestures or pointing to objects), or “context-embedded” (face to face) communicative proficiency (Cummins, 1984, p. 138). CALP is “context-reduced” (p.138), meaning that the language is not supported by situational cues, but relies primarily on linguistic cues to meaning. Thus, the message depends heavily on “knowledge of the language itself” (p.138). BICS demonstrates surface level everyday conversational proficiency while CALP provides evidence of underlying proficiency or “a deeper conceptual and linguistic proficiency” (p. 143).

Cummins further proposed that “there is a common cross-lingual proficiency that determines an individual’s performance on cognitive/academic tasks (e.g. reading) in both L1 and L2” (Cummins, 1980 in Baker et al., 2001, p. 118) despite the obvious surface differences of each language. According to Cummins, some of “the literacy-related skills” are involved in the common underlying proficiency (CUP) such as “conceptual knowledge, subject matter knowledge, higher-order thinking skills, reading strategies, [and] writing composition skills” (Cummins, 1984, p. 144). Provided the learner is motivated to learn the language and is given sufficient exposure to the target language, these literacy-related skills can be developed through positive transfer from L1

to L2 (p. 144). Cummin's Interdependent Hypothesis suggests that a child's second language competence is partly dependent on the level of competence already achieved in the L1. What is important is that the CUP must be well developed. That is, a child's fundamental, central language proficiency needs to be sufficiently well developed to cope with the curriculum processes of the classroom. This underlying ability can be developed through either the first or second language, or in both languages simultaneously.

Research Aims

The research aims to determine to what extent the following factors are significant in the development of cognitive academic language proficiency among balanced bilinguals;

1. Age of the child on arrival in the host country (AOA)
2. Length of stay in the host country (LOS)
3. Use and maintenance of L1 in the home
4. Prior experience outside the home culture
5. Individual intelligence
6. Reading in L1/L2
7. Attitude towards language

Methods

Participants

The participants were 22 children (13 females and nine males) who attended the Japanese Language School of Greater Boston (hereafter, Boston School). Their ages ranged from 7 to 12 years old at the time of testing. Nine of the participants were born outside Japan, while the age of arrival of others ranged up to 8 years of age. Their length of stay in the US varied between a year and 11;4 years. They studied at American schools during weekdays. On Saturdays they attended a Japanese-medium school, where they studied Math and Japanese in the lower grades, and, in addition, those in the 4th grade and above also studied Science and Social Studies at upper grades (4th grade on).

Materials

Concept behind the Test

The participants' skill in each of their languages was determined according to the *Oral Proficiency Assessment for Bilingual Children (OBC)* (Canadian Association for Japanese Language Education, 2000).

The OBC was developed during an eight-year research and development project,² headed by Kazuko Nakajima of the University of Toronto (中島, 2004a; Oketani & Nakajima, 1997). It was originally developed to meet the needs of teachers of Japanese heritage programs for children overseas. The oral proficiency interview test for children (Version 1) was developed in 1992, based on the ACTFL Oral Proficiency Interview. Since then it was field-tested and found applicable in a variety of Japanese educational settings, including Japanese as a Heritage Language (JHL), Japanese as a Second Language (JSL), Japanese as a Foreign Language (JFL), and Japanese as a National Language (JNL). It was also tested in

different languages for a wide range of children aged between 5 and 15, and revised into the OBC (Version 4) in 1997. The OBC is now available in Japanese, English, Portuguese, Spanish, Chinese, Korean and sign language (中島, 2004b, 2005).

The OBC interview tests diagnose different aspects of a child's bilingual proficiency to determine the strengths and weaknesses. In language contact contexts, children's bilingual proficiency is often misleading. The developmental stages of each language can differ. For instance, among many bilingual children the communicative aspect of language proficiency can be strong while cognitive and academic abilities are relatively underdeveloped. Taking this into consideration, the OBC aims to undertake a diagnostic type of assessment rather than a test, a sort of doctors' prescription or "oral language proficiency *karte*" (CAJ LE, 2000, p.ii; Nakajima at workshops). Accordingly, the OBC attempts to check the children's current stage of language development according to a three-tiered assessment of their oral bilingual proficiency: basic/linguistic, communicative, and academic/cognitive. The OBC has practical educational value for both teachers and parents by providing a holistic evaluation of the child's bilingual proficiency.

Description of Test (See Appendix 1 for further details)

The OBC consists of five sub-tasks, as summarized in Table 1 below. The interviewer begins with by gathering basic data about the participant: name, grade, age, birthplace, family, language, the age of arrival, overseas experiences, friends, schools, and favorite subjects/books (20 items). This introductory conversation functions as an initial level check for judging the child's general language proficiency.

Table 1: Structure of the OBC

Tasks	Evaluation Items
Introductory Conversation	Gathering basic background data on the student
Warming Up	Vocabulary (sub-categorical vocabulary)
Basic 1	Basic sentence comprehension (Q&A)
Basic 2	Distinguishing languages, pronunciation, vocabulary, preciseness, sentence types
Communicative 1	Role-plays: asking information, receiving messages, negotiation
Communicative 2	Listening comprehension, fluency, appropriateness/politeness
Cognitive 1	Storytelling, explaining pollution, digestion and cross-cultural comparison of languages, friends, schools and countries
Cognitive 2	Telling events in appropriate order, adequate content, appropriate language use, length of sentences/paragraphs

The OBC enlists two forms of evaluation. First, each item is assessed according to whether or not the child replies (0 or 1 point), and secondly, through a holistic evaluation of general language proficiency based on a five point scale, where 5 is excellent, 3 is good, 1 is barely understandable, and zero is not understandable. The OBC tasks are conducted one-on-one with the aid of picture cards.

Procedure

The bilingual survey was conducted at the Arlington Office of Boston School on August 31 and at Medford High School on September 1, 2001. Both the Japanese and English OBC were administered on the same day. The school randomly arranged the order of the interviews according to the parents' choice of date. Each interviewer was sitting at an angle of 90 degrees to a child in the president office, conference and printing rooms on the first day, and in three classrooms on the second day. Nakajima observed the English OBC, and a researcher from the National Language Research Institute from Tokyo observed the Japanese interviews on August 31. The interviewers had a session with these observers for comments and suggestions on the interviews. Nakajima tested a JSL student in Japanese (none of the cognitive tasks were tested judging from his level of Japanese). The interviews were audio-recorded onto mini-disks and the Boston school interviews were also video-recorded.

Some modifications were made in implementing the test. As it was difficult to find trained native testers for the English OBC, prerecorded tapes were used throughout the bilingual surveys, following Nakajima's suggestion.³ The Japanese version was also prerecorded to make the testing conditions uniform. The interviews took 30 minutes for each language. The steps involved in the evaluation process were as follows:

1. Each interviewer scored the task items (either 1 or 0) in the five-paged OBC Evaluation Sheets (Japanese or English) during the interview, and holistically evaluated basic, communicative, and academic/cognitive proficiency (0~5 scale) just after each interview, and filled in the above sheets with observations and comments.

2. Each interviewer was responsible for transcribing her data including interactions between her and the child. She then rechecked the above scores and evaluations; totaled up the raw scores and filled in the degree of task attainment by percentage.

3. The interviewers then exchanged their evaluation sheets and the transcripts of the interviews for rechecking. They then compiled a report on the participant's proficiency and performance for him/her and the parents.

4. The reports were sent to the parents through the school. Each report consisted of 13 to 15 pages depend on the amount of the participant's conversational data. A list of scores on the five sub-tasks for all the participants was sent to the teachers and school.

Prior to the survey, the participants and their parents provided written agreement to take part in interviews.

Results and discussion

The average total proficiency of the 22 participants assessed in English and Japanese is presented in Figure 1. The graph presents the degree of attainment expressed as a ratio of the student's total score over the full score of 152.⁴

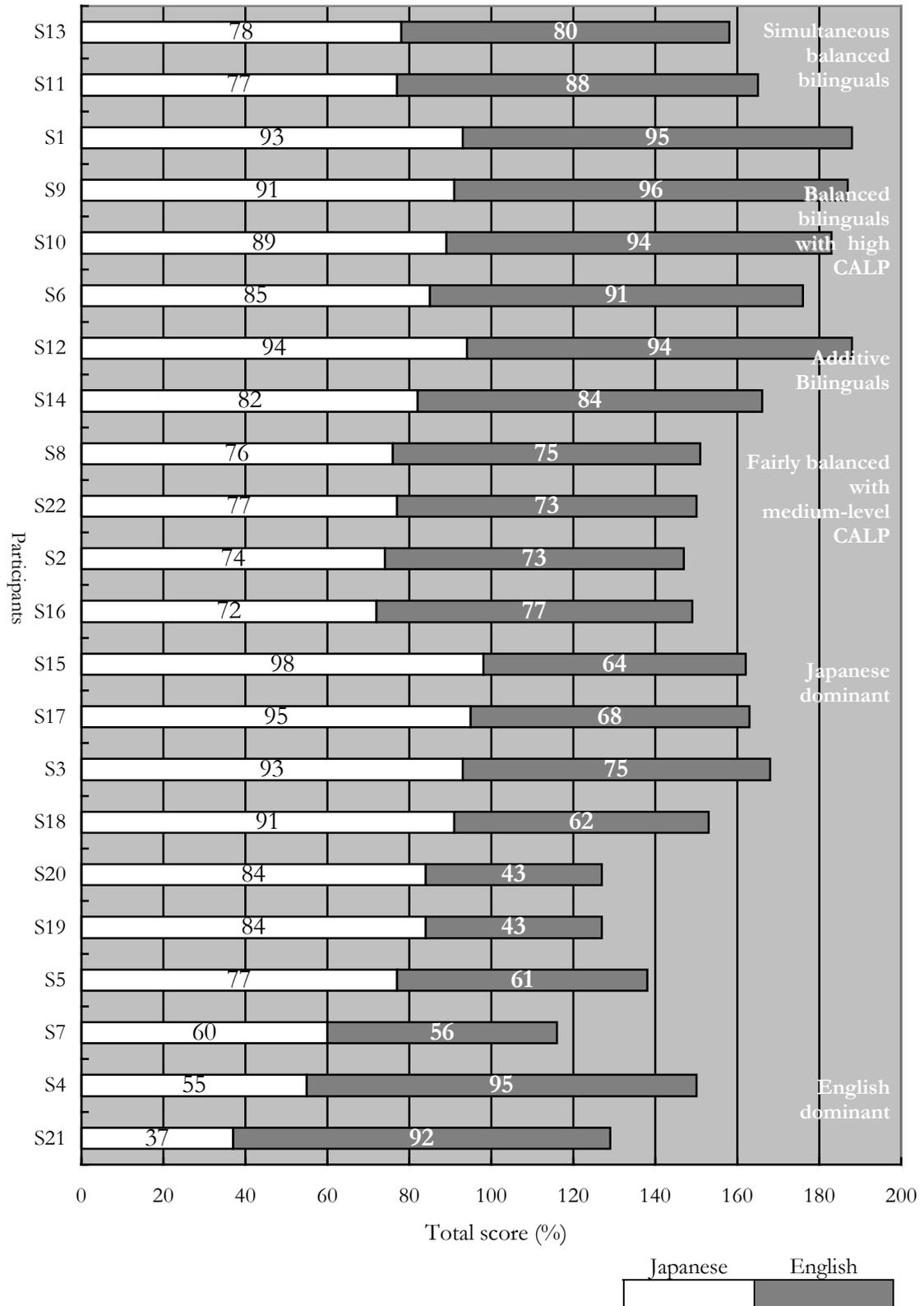


Figure 1: Overall proficiency based on the OBC (Japanese/English)

The results of the Cognitive tasks, those most directly related to the students' English and Japanese CALP, are summarized in Figure 2. Raw scores of this data can be found in Appendix 2.

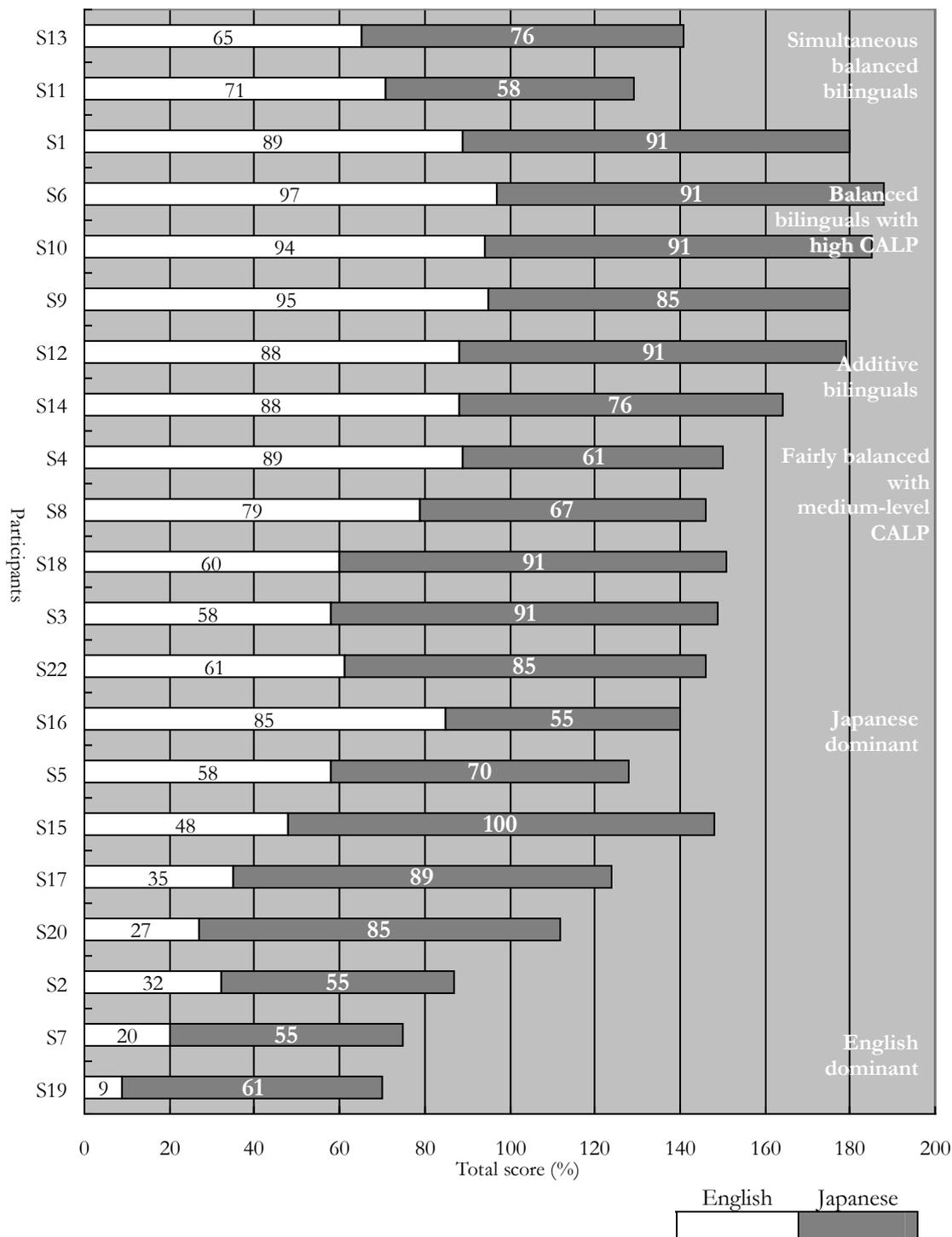


Figure 2: Overall score on cognitive tasks (English/Japanese)

Some general observations can be made from these results. A significant feature of this group was that their overall proficiency in Japanese and English was fairly consistent

among 13 students, or 59 percent of them (Figure 1). In addition, more than one third of the students were quite proficient in both of the languages. Another characteristic of this group was that their overall proficiency and their achievement on cognitive tasks were related (Figures 1 & 2). This tendency was particularly strong among the highly proficient bilinguals who scored extremely high in the CALP-related tasks (S6, S10, S9, S1, S12, and S14). However, some discrepancies can also be observed by comparing the two figures. Among the balanced bilinguals, the scores of the youngest participants (S11 and S13) dropped in the cognitive tasks, probably due to the difficulty in explaining such topics as pollution and digestion at the age of 7. Both of these students had lived in the USA since birth. Others with similar features also performed less well on the tasks that focused on cognitive academic proficiency; S2 dropped sharply compared to her results in the other English tasks; S7 had problems in both academic and communicative tasks, which pulled down her total proficiency in English; and S19 who received the lowest score in overall English proficiency, achieved particularly poorly with respect to cognitive/academic proficiency.

The OBC results can be summarized as follows:

- 1) Overall English and Japanese proficiencies, as assessed according to the OBC, were correlated at .62.
- 2) Overall Japanese proficiency correlated with the scores on the English Cognitive Tasks, with Cognitive Task 1 at .80, and Cognitive Task 2 at .59.
- 3) The participants' proficiency in both the Japanese and English tests correlated with the score on the Cognitive Tasks in each language. The correlation between overall English proficiency and the English Cognitive Task 1 was .74 and the English Cognitive Task 2 correlated at .90. The overall Japanese proficiency was correlated with the Japanese Cognitive Task 1 at .66, and with Cognitive Task 2 at .82.
- 4) Overall English proficiency showed a medium correlation with the age of arrival (AOA) at .40.
- 5) Total achievement in the English OBC ranged from 43 to 96 percent, while the Japanese scores ranged between 37 and 98 percent. The group average was 73 percent for English and 80 percent for Japanese.
- 6) Achievement in the English Cognitive 1 and 2 tasks ranged from 9 to 97 percent (or 3 to 32 out of 33 points), while that in Japanese ranged from 55 to 100 percent (or 18 to 33 points).
- 7) The group average in the English version of Cognitive task 1 was 59 percent, and 68 percent in Cognitive task 2. In Japanese, the participants received an average of 76 and 78 percent respectively.
- 8) On the whole, the students' Japanese proficiency was generally higher than their English except in the vocabulary task. Attrition of sub-categorical words was generally observed, including the following examples; *isha* (doctor), *kangofu* (nurse), *bikidasbi* (drawer), *miki* (trunk) or homophonic adjectives such as *atsui* (thick), *bikui* (short), *hosoi* (slim), or *yasui* (cheap).

- 9) Eight students (S1, S12, S9, S10, S6, S11, S14, S13) were considered balanced bilinguals achieving roughly 80 percent or more overall proficiency in both languages. Four participants were fairly balanced with medium-level proficiency, of around 70 percent (S16, 22, 8, 2). Eight children proved dominant in Japanese (S3, S17, S15, S18, S20, S5, S19, S7), and two were dominant in English (S4, S21).

These results can be interpreted as follows. Overall English and Japanese proficiencies were significantly correlated in terms of the OBC within the age range of 7 to 12 years. Specifically, overall Japanese proficiency was strongly correlated with cognitive academic level of English, such as storytelling, explaining about pollution, digestion, and comparing languages, and local/Japanese schools and friends with appropriate language use and content. That is, if a child in this group was highly competent in Japanese, his/her cognitive/academic proficiency in English was also likely to be high. Overall English proficiency, the age of arrival and length of stay were correlated, although not strongly. A distinctive characteristic of the Boston participants was that nine (41 percent) of them were born outside Japan, and the group average of AOA was 2;2 years of age. Some of the early arrivals had stayed for a long time in the host country. The group's average length of stay was 6;6 years and ranged from 1 to 11;4 years of stay. Another noticeable feature was that for a little over half of the students in this group, their level of English and Japanese proficiency was more or less balanced.

Factors contributing to CALP among balanced bilinguals

In this section we will look a little further at the results of the Cognitive tasks among those who were considered balanced bilinguals, in order to determine some of the factors contributing to fostering cognitive academic language proficiency. The highly proficient participants have been categorized into balanced bilinguals with high-level CALP, simultaneous balanced bilinguals and additive bilinguals on the basis of their overall proficiency, achievement in the cognitive tasks, and the time and manner in which they acquired their languages.

We will begin by providing some transcriptions of language samples produced by the students during the cognitive tasks. Due to space restrictions we will limit our discussion mainly to the storytelling activity, from Cognitive task 1, in which participants narrated a story from a picture card or from their own experience. Table 3 gives an outline of the transcription conventions.

Table 2: Outline of Transcription Conventions

Abbreviation or convention	Meaning
AOA	Age of arrival
LOS	Length of stay in the US
<u>underlined speech</u>	Commonly occurring errors
ellipses...	Untimed silence. The more periods, the longer the silence.
[square brackets]	Interviewers' interpretation/comments

Balanced Bilinguals with High-level CALP

Three participants (S6, S9, and S10) showed balanced high-level cognitive proficiency in both languages. The stories made by two bilinguals, S9 who had an extended length of stay, and S10 who had only lived in the US for a fairly short time, are given below, along with occasional extracts taken from the other Cognitive tasks on pollution and digestion.

Transcript 1: S9 (Male, Age:11, AOA:1, LOS: 8;4)

Once upon a time there was a...there was three little pigs. And three little pigs left their home and began to live in their own. And the first pig built built a house with.. wood and he...and he ..and.. he and he built a house with And The Bad Wolf came, and The Bad Wolf said, "I'll eat you, little pig." Then the pig obviously got scared and went....andran into the house and....But ran into the house, but the wolf ... but the wolf wreck the house and ate the pig. Then when that was happening, the second pig... the second pig was making a house with woods. When he was finished, the bad wolf came and said, "I'll eat you up!" Then the second pig like the first pig ran into the house. But like..like the first, ... the first pig, The Bad Wolf wreck the house and ate the pig. When that was happening, the third pig was making...making a house with ..bricks. When he was done with the house, The Bad Wolf came and said, "I'll eat you up!" Then the third pig went into the house and ...and the wolf try to wreck the house as like, as the two pigs. But the house was made of bricks, but out of brick, so he can't wreck it. So he gonna' chimney and go in the house and eat the pig. But the pig already knew he will do that, so he was waiting for him with a.. big bowl of hothot.....uhm...hothot...big.... The big bowl of with hot water in it. When the wolf came ...and the wolfcame into the house, ahm...the pig ...the pig .. the pig punished him into the bowl and ate him for his supper.

三匹の仔豚がいました。お母さんが「もう大きいのだから自分で暮しなさい」といいました。ですから仔豚たちは出かけて行きました。まずワラをもっている人に会ったので、一番大きい仔豚がそのワラで家を作りました。つぎに木をはこんでいる人に会いましたので、二番目に大きい仔豚がその木をもらって家を作りました。三番目の、一番小さい仔豚は、えーと 四角いレンガを積み上げて家を作りました。レンガの家はとても難しく、なかなかできあがりませんでした。そこへオオカミがやってきました。「おい、おれを中に入れろ」とどなりました。そして、一番上のお兄さんのワラの家を吹き飛ばしてしまいました。お兄さんはあわてて二番目の仔豚の家に逃げて行きました。そこで、オオカミは2匹とも食べちゃいました。そして三匹目の仔豚の家へ行きましたが、どうしても吹き飛ばすことができませんでした。ですから煙突から入ることにしました。それを知った仔豚は煙突の下で火をたきました。ですからオオカミは煙突から出て、逃げて行ってしまいました。

As can be seen from these transcripts, S9 told *The Three Little Pigs* precisely using appropriate time-order in a narrative sequence that follows the traditional English story. The structure is well constructed with compound and complex sentences. However, some minor grammatical errors were found in tense, articles and prepositions. Some words were missing due to vocabulary deficiency or retrieval failure (*he built a house with*

[*straw*]). S9 seemed to be conscious of language use, making frequent self-corrections as he spoke (e.g. *But the house was made of bricks, but [made] out of brick, so he can't wreck it. / The big bowl of with hot water in it*). This demonstrates that he was able to monitor, adapt and refine his language as he produced it. In another cognitive task while he was explaining the causes of pollution he was able to access complex vocabulary such as *carbon dioxide* by employing a self-addressed question:

S9: *Because people are destroying nature and wrecking the environment.
They should try to stop this like ... with...make less... what is the word...
carbon dioxide.*

In the cross-cultural comparison tasks he was explicit in his assertions. He expressed himself clearly throughout the whole range of tasks. He generally replied in complete sentences without fragments and with accurate pronunciation. He was very skillful in obtaining information, receiving messages and negotiation.

S9 likewise used a variety of proficient constructions in telling the Japanese version of the Three Pigs story, including appropriate linking words and polite form *desu-masu* verb endings. His skillful use of various discourse markers like *まず* (“first of all”), *つぎに* (“next”), *ですから* (“so”), *そこへ* (“and there”), and *そして* (“and”) made the narrative flow smoothly as if he were reading the original book. Unlike most of the students, he related slightly different versions of the story in the two languages, showing evidence of biculturality within his bilingual competence. Despite his long stay in the US (8;4), he had maintained his Japanese astoundingly well, and there were no usage errors evident in his speech. He replied to all the researcher’s questions with *desu-masu* verb endings, demonstrating that he had acquired the ability to stylistically adapt his speech according to the interlocutor. He reported that he tries to use Japanese as much as possible. His impressive narrative and the polite speech style possibly reflect his parents’ conscious support at home. S9 exemplified the balanced bilingual with high-level CALP.

As Figures 1 and 2 shows, S9 achieved 96 percent in the English OBC tasks, and 91 percent in Japanese. The achievement ratio in the English version of the cognitive tasks was 95 percent, while that in Japanese was 85 percent.

The narrative was most logically constructed among this group of students. For comparison, look at the transcript of the same story, as told by S10.

Transcript 2: S10 (Male, Age: 9, AOA:4, LOS: 3.9)

Once upon a time there was three little pigs. The first one made the house out of hay. And the second one made it out of sticks. And the the third one made it out of bricks. And ...the...and...uh...oh, the first little pig uh... heard a knock. Knock, knock. “Who is it?” he said. It was a big bad wolf. “I know it’s a wolf.” And he ran into the house, then the..then the wolf says, “I’ll blow your house in one blow. Not the first said, “Chim chim chin”. Then the wolf says, “I’ll puff and huff and blow your house away!” So he puffed and huffed and the hail away. The.. the little pig ran into the second pig’s house. Then they both heard a knock. Knock, knock. “Who is it?” he said. It was a big bad wolf. “Oh no, it’s a big wolf.” And they ran into the house again. And... and ..the . .the wolf says,

“I’ll blow your house in just one blow.” And they said the hail of chim chim chin. Uhm...chim chim chin. Then the wolf puff and huff and blews the house with sticks away. Then both ran to the third little pig’s house. It was made of bricks. He was the oldest one. They heard a knock again. Knock, knock. “Who is it?” he said. It’s a big bad wolf. And ... only the two of them ran, but the oldest one run, didn’t ... uh ... they were in the house. But he didn’t ran in the house. And then the bad wolf says, “I will puff and huff and blow your house away.” But the oldest one said, “Try do!” And so the bad wolf puffed and he huffed and blow his house away. But it could, it didn’t work. He tried tried lots of times. But it never worked. So he gave up. The three little pigs lived happily ever after.

S10 arranged the essential information neatly in a well-constructed version of the traditional narrative, using formulaic opening and closing sentences (*Once upon a time~*, /*The three little pigs lived happily ever after*). He told the story fluently and vividly. His presentation was in natural English with only minor grammatical mistakes in verb agreements and tense (*Once upon a time there was three little pigs. / Then the wolf puff and huff and blews the house with sticks away.*). The way he captured the original text in appropriate time-order with exact phrases (“*I will puff and huff and blow your house away.*”) indicates that he is familiar enough with the story to be able to reproduce it in part. This provides evidence to suggest that he has been read to as a young child.

S10 achieved 94 percent in the English OBC tasks, and 89 percent in Japanese. He achieved 94 percent in English cognitive tasks, and 91 percent in Japanese.

CALP among Simultaneous Balanced Bilinguals

Three participants who had acquired their languages almost concurrently (S1, S11, S13) presented outstanding narratives in natural English and Japanese. S1’s highly balanced bilingual proficiency was particularly impressive. She began to acquire English at two. In this section those who acquired two languages as their first language will be discussed.

Transcript 3: S11 (F, Age: 7, AOA:0, born in NY, LOS: 6;1)

Once upon a time there lived three little pigs with his mother. And their mother says, “You are all grew up to live. So you guys....” So they all went to built their own house. The first little pig built a house with straw. And the second pig made....made a house with....with sticks, stick. And the other little pig, the third little pig, made a house with bricks. So they went for walk together. And a wolf was behind the tree looking at there. And those pigs looked good So all pigs went home and the....and the wolf came to the first little pig’s house, and the pig closed the door and window. But the wolf....but the wolf blew their house, his house down. So the first pig ran into the second pig’s house, and he closed the door and windows. And the wolf blew their house down. And those two pigs went to the third pig.... the third pig’s house. So the third pig’s house and he closed the door and window. And he blew, but it didn’t ...it didn’t break. So he blew again and again, but it didn’t break. So he got tired. So he ran away.

三匹^{さんびき}のブタは「もう大きくなったから 自分^{じぶん}の家をつくりなさい」とお母さんにいわれました。三匹^{さんびき}のブタが出かけて行くと、ワラをたくさん運^{はこ}んで行く人に会ったので、そのワラをもらいました。まず、一番上^{いちばんうえ}のお兄さんブタがワラのお家^{うち}をつくりました。こんどは、木の枝をたくさん持った人が来たので、二番目^{にばんめ}のお兄さんが「その木の枝をください」と頼みました。「ああ いいとも」とその人がいったので、その木の枝をもらって、お家を建てました。それから、こんどはレンガをたくさん持った人が来たので、まだ残っている一番小^{いちばんちい}さいブタがそれをもらってお家を建てました。そこへオオカミがやってきて、「こら 仔豚^{こぶた}、ドアをあけろ」といいました。「だめ だめ だめだよ」というと、オオカミは「フー フー フーッ」と吹^ふいて、ワラの家を吹き飛ば^{とば}してしまいました。お兄さんブタは急いで木の家へ逃^にげて行きました。オオカミは、こんどはその家へ来て、「こら仔豚^{こぶた}、開^あけろったら、開^あけろ」と またどなりました。「だめ だめ だめだよ」と言う、「それなら、見ていろ」と言って、「フー フー フーッ」と吹^ふいて、その木のお家も飛ば^{とば}してしまいました。「たいへんだー」とふたりの仔豚はレンガのお家へ行^いって、もうだいじょうぶになりました。

S11 told the narrative in appropriate sequence. Overall the English syntax was well constructed. She spoke natural English with native-like pronunciation, beat and fluency. She had almost fully acquired irregular verbs, tense agreements and articles. Frequent self-corrections suggest that she was monitoring her speech for precision.

In the academic skill tasks of explaining pollution and digestion, S11 was able to successfully describe the picture cards in highly proficient English. However, she had not yet learned some of the necessary lexical items (e.g. *pollution*, *digest*, *intestines*). She spoke well even though her cross-cultural comparisons of the languages and her friends were somewhat superficial. She claimed that English was much easier than Japanese for her. She spoke fluently using a variety of English expressions and idioms in each response.

Her Japanese story was well constructed with full details and expressive phrases. Her competence in Japanese without any grammatical or usage errors was extraordinary considering her length of stay in the US (6;1). No negative influences of her young age of arrival, multiple overseas experiences, or extended length of stay were found. She was born in New York, moved to Seattle then back to Japan and then finally to Boston at the age of four. It can be assumed that her family supported her Japanese language maintenance during these multiple movements within seven years of her life. She indicated Japanese was her home language. As with the English tasks, she replied to the interviewer's questions competently, except in the cognitive/academic skill tasks of explaining pollution and digestion, which seemed too difficult for her age level. She demonstrated a positive attitude to all the tasks in both languages. She was another successful case of a child who was developing two languages simultaneously.

The results of the OBC confirmed that English was S11's more familiar language. She achieved 88 in English, and 77 percent in Japanese. On the Cognitive/academic proficiency section she achieved 71 percent in the English tasks, and 58 percent in the Japanese.

Additive Bilinguals

Another group of bilinguals can be classed as additive, in that they clearly learned one of their languages after the other was firmly established as an L1. For example, S12 learned his L2 (English) after acquiring Japanese (L1), but without detracting from the maintenance and development of the L1.

Transcript 4: S 12 (M, Age:12, AOA:8, LOS: 3;5)

Three little pigs are having a new home by his.....theirself. One was really lazy so he made out of grasses and the other was not that lazy but a kind of lazy. So he made it with tons of woods. And the other was the youngest, but he was not lazy, and also, got well. The wolf blew the house away since it was made out of grass. So the oldest pig went to other guy's other pig's house, which was made out of trees, too. And then the wolf blewed that house, too. So he went to the last one, which was made out the rocks. He tried to blew it but he couldn't. And so he gave up.

S12 told a short version of the story competently using appropriate English pronunciation. He was able to use complex sentences and relative clauses. The verb tense was generally good with one exception in *blewed*, a conjugation of the irregular verb, which was partially unsettled. Minor grammatical errors were found in an infinitive and a reflexive pronoun. In his utterance, "Three little pigs are having a new home by his.....theirself", *theirself* might be considered as an overgeneralization of *myself/yourself* which is often found as an interlanguage form among L2 learners. Unlike the balanced bilinguals, S12 had no previous overseas experience before coming to Boston. However, he showed a high-level of L2 proficiency in his responses. He participated positively in all the tasks, especially in role-plays. His interaction seemed natural in requesting information and confirming messages on the phone, and he was excellent in negotiation. He had become a successful L2 learner in a short period of time. He did well in all the tasks in his L1 and demonstrated a high-level of proficiency in both communicative and cognitive aspects of his language.

S12 achieved 94 percent in the overall tasks in both Japanese and English. His achievement in the cognitive tasks in English was 88 percent and 91 percent in Japanese.

Factors that influence CALP

The following five factors closely related to cognitive academic level of bilingual proficiency have emerged from the OBC interviews at Boston School:

- first language maintenance,
- length of stay, coupled with age of arrival,
- prior experience outside the home culture,
- intelligence,
- L1 use at home, reading (L1/L2), and positive attitude.

This section will outline how each of these factors played a part in helping foster cognitive academic language proficiency among this group of students.

L1 maintenance

The most striking feature of the balanced bilinguals was the level of Japanese maintenance in terms of its overall proficiency and speech style. Their level of FL maintenance was astounding considering their length of stay. Some of them had stayed in the USA for an extended period (S1, S9, S14). Table 3 shows their overall Japanese proficiency, length of stay, and proficiency in the Cognitive tasks in the two languages.

Table 3: Balanced bilinguals' backgrounds and proficiency on Cognitive Tasks

Student (Age)	Overall L1 (%)	Length of stay in US	Cognitive tasks in L1 (%)	Cognitive tasks in L2 (%)
S12 (12)	94	3.5 years	91	88
S1 (10)	93	8.1 years	91	89
S9 (11)	91	8.4 years	85	95
S10 (9)	89	3.9 years	91	94
S6 (9)	85	4 years	91	97
S14 (12)	82	11.4 years	76	88
S13 (7)	78	7.5 years	76	65
S11 (7)	77	6.1 years	58	71
Average	86.1%	6.6 years	82.4%	85.9%

(L1=Japanese, L2=English)

The highly proficient bilinguals maintained Japanese quite well in the polite speech style with appropriate use of honorific forms, and *desu-masu* verb-endings. (This feature was specifically distinctive among those who had stayed the longest: S1 and S9 used the *desu-masu* polite form throughout the interviews.) Their speech style reflected the language of their parents, and their conscious effort to speak in socially appropriate Japanese. The cognitive academic proficiency of these students was high in both languages. Their average on the cognitive tasks in both Japanese and English was much higher than that of the group as a whole participants. Academic skills are said to be involved in the common underlying central proficiency (CUP), which is developed through the first language, or in both languages for simultaneous bilinguals (Cummins, 1979). The bilingual's level of competence in the first language, as a bridge to the other language(s), is the crucial factor in developing cognitive academic proficiency in the L2. The literacy-related skills and cognitive functioning acquired in Japanese seem to have been transferred to English in those with a high level of bilingual proficiency. The level of Japanese proficiency and its maintenance play a crucial role in helping foster CALP development in both languages. On the other hand, simultaneous bilinguals acquire cognitive functioning in both languages, which interactively develop common cross-linguistic proficiencies.

Length of Stay

Apart from S12, one factor common to the balanced bilinguals was an extended length of stay coupled with early age of arrival (see Table 4). Three of these participants were born

in the US. The average length of stay was six and a half years, and on average they arrived in the US at around 2 years of age. Unlike the other students in the Boston group, English proficiency among the balanced bilinguals was higher than their Japanese (Japanese: 86.1 percent and English: 90.6 percent as opposed to 80 percent and 73 percent for the group as a whole). The overall Japanese/English proficiency of the balanced bilinguals was correlated at .86. The correlation was much stronger compared to that of the group as a whole (.62). Compared to the others, this length of residence in the US perhaps had a different meaning for S13, who had one non-Japanese parent; this meant that she was much more clearly warranted in claiming two first languages and probably had greater usage of both languages in the home.

Table 4: Balanced bilinguals' overall proficiency and exposure to L2

	S14	S9	S1	S13	S11	S6	S10	S12	Average
Length of Stay (yrs)	11; 4	8;4	8;1	7;5	6;1	4	3;9	3;5	6;6
Age on Arrival (y.o.)	1;6	1	2	0	0	0	5	8	2;4
L1 (%)	82	91	93	78	77	85	89	94	86.1
L2 (%)	84	96	93	80	93	91	94	94	90.6

(L1=Japanese, L2=English)

Another distinctive feature of these balanced bilinguals was that there was no general tendency toward Japanese attrition. Some degree of first language attrition is commonly observed among children with an extended stay abroad (Hansen, 2001, Kaufman, & Aronoff, 1991, Francis, 2005). In this respect the results recorded with the Boston group represented a marked contrast to the other surveys we conducted in Hawai'i (Yumoto, 1996), Vancouver (Yumoto, 2004, 2005a, 2005b) and Montreal. Factors common to those who had L1 attrition were insufficient basic grammar and vocabulary. Their delay in L1 development (and probably the CUP) might have been influenced by exposure to multiple languages; one child studied at Chinese school as well as Canadian and Japanese schools, another was exposed to Vietnamese at home from her father, and still others studied at a French school while being exposed to English and Japanese in the community. One sister and brother had been exposed to French and Italian in Europe.

Unlike the proficient bilinguals, length of stay and age of arrival were not considered to be contributing factors to English CALP development in other children such as S2 (LOS: 7;10, AOA: 0), S5 (LOS: 9;9, AOA: 0) and S7 (LOS: 6;10, AOA: 1). This may have been because the CUP was under-developed due to insufficient use of the L1 at home during early childhood, leaving them without a firm foundation (CUP) to bridge L1 and L2 skills. Although it is beyond the scope of the current study, there is obviously a need for further research into the causes of delayed CALP development.

Other experience outside Japan

The most distinctive feature of the participants at Boston School was that 13 children (59%) had lived outside Japan before they arrived in Boston. This fact was particularly true among the balanced bilinguals, apart from S1 and S12. Moreover, seven of them had moved between multiple cities and countries, including across the Pacific. Table 5 outlines a brief history of the balanced bilingual students' overseas experiences with reference to the available AOA and the total LOS.

Table 5: Overseas experiences of the balanced bilinguals

Student	Birth place	Extended stays, in chronological order		
		Place	Age on arrival	Length of stay in US
S3	London	Boston	2	7;1
S6	New York	Japan Boston	unknown 5	4;0
S9	Japan	New York Washington DC Boston	1 5 7	8;9
S10	Japan	Los Angeles Boston	5 8.9	3;9
S11	New York	Seattle Japan Boston	unknown unknown 4	6;1
S14	Japan	New Jersey Chicago Cincinnati Japan Boston	1.6 unknown unknown unknown 9	11;4
S16	Hawai'i	Boston	0	7;3
S19	Japan	Boston Japan Boston	1 3 7	3;8
S20	Japan	Boston Japan Boston	4 7 9	3;8

It is generally thought in Japan that moving during the school age puts mental strain on children. However, quite the contrary seems to be the case in this group: moving several times was not mentally or academically disadvantageous to these proficient bilinguals. Contrary to common belief, such experiences enhanced their academic, linguistic and cognitive development. The result was a striking contrast to the surveys conducted in Vancouver and Montreal, where multiple overseas experiences had negative effects on linguistic/cognitive development, namely, the common underlying central proficiency (CUP). Consequently, these children ended up as double limited bilinguals (Yumoto, 2005b). In the case of the Boston participants, the parents' strong support, the level of L1 and positive attitude/motivation must have contributed to the children's balanced bilingual competence. There were, however, moving cross-culturally may have contributed to L2 developmental delay for the children in one family (S19, S20).⁵

Intelligence

Another factor common to the Boston participants in general was their high intellectual level, which was particularly conspicuous among the balanced bilinguals. This observation might sound impressionistic with no objective intellectual tests conducted at the bilingual survey. However, the intellectual level of the students was reflected in the group average of the overall proficiency, which was incomparably high both in Japanese and English (80 percent and 73 percent respectively). Unlike previous investigations conducted by the author, not a single participant who could be described as a double-limited bilingual was found in the present study. Even among those listed at the end of the proficiency rank order, none of them scored below 60 percent in both languages. Their proficiency was dominant only in one or the other language. This was an encouraging result because they were able to develop their weaker language along with the stronger one by using the CUP. Their intellectual level was also observed in their reactions and performance at the interviews. None of the students simply replied, “I don’t know” to the questions and there was no prolonged silence, as was often the case during the interviews in the earlier studies.

The CALP level of the Boston group was probably a reflection of their parents’ educational and socioeconomic backgrounds. The majority were in professional occupations; two researchers, three physicians, a lawyer, four engineers, a teacher and nine in business circles.⁶ The speech style of the students also mirrored the parents’ language. From a sociolinguistic point of view, the speech style of their Japanese language markedly reflects the speech of their educated socioeconomic background, indicating that the parents must be very conscious of their children’s education in general. These characteristics point to a home environment that foster not only linguistic development but also intellectual, cognitive and academic abilities. It seems these sojourning families could be compensating for the otherwise unfavorable environment caused by extended and multiple overseas experiences.

Home Language, Reading, Positive Attitude

Four questions were asked in the introductory conversation concerning language use at home: language use within family,⁷ with father/mother, and language use with siblings. Fourteen students, or 64 percent of the group, said that Japanese was their home language (S1, S3, S4, S6, S8, S9, S10, S11, S12, S15, S17, S19, S20 and S22). The relatively high percentage of L1 use at home helps explain the generally high level of Japanese proficiency among this group of students. L1 use at home played an especially important role in L1 maintenance and CALP development among the proficient bilinguals. S13 and S14 used both languages with their siblings. S13 spoke in English with her American father. Of the four other children from international families, S2, S21 and S16 spoke to their American parent in English, while S3 reportedly spoke “half Japanese” to his Japanese-American father. Each of these children spoke in Japanese to their Japanese parent. The demarcation of languages between home and school appeared to play an important role in helping foster balanced bilingual proficiency in this group.

Academic and cognitive information depend greatly on written forms of language. Reading in L1 and L2 is crucial in attaining cognitive academic level of bilingual proficiency (Cummins, Swain, Nakajima, Handscombe, Green & Tran, 1984). Two questions were posed concerning the kind of Japanese/English books the students read. The highly proficient bilinguals replied as follows: S1 read fairy tales in L1, and fiction in L2; S6 liked *Harry Potter* in L2, and read all the 王様 (king) stories in L1; S9's favorite books were Japanese history and regular books in L1, and chapter books in L2; S12 liked adventure and history books in L1 and L2; S16 read "most easy kind" in L1 and *Harry Potter* in L2, and S17, who was not yet proficient in English (L1 dominant with 95% achievement), was reading the Narnia books in Japanese and had read "all kinds of books"; S20 read 「ゼロ弾きのゴージュ」 ('Gosh, the Cellist') twice in Japanese. Generally speaking, good reading habits are fostered at home from a young age, and this seemed to be the case with the balanced bilinguals in this group.

What was most impressive (to the author) was that these proficient bilinguals had positive attitudes towards their future jobs with a specifically clear vision in highly professional fields, such as a doctor or a scientist (S6) and a professor (S10, fathers were researchers). Other occupations mentioned included artists (S1, S13), a teacher (S11), basketball players (S9, S12), a librarian (S17) and a baker (S19). Their positive attitudes were also reflected in their active participation in the interviews, specifically, S9, S11, S12, S13 and S15. Being positive about language may have enhanced their L2 acquisition and L1 maintenance. This positive nature along with high motivation levels helped S12 and S15 acquire English in a short period of time. A positive outlook must also have been an important contributing factor of Japanese maintenance for S9, S11 and S13. L1 use at home, reading and positive attitudes were promoted by strong support in the home. Apparently the family had a very positive influence on these children's outlook.

Conclusion

This study has several inevitable limitations due to the time constraint of the interviews and the tight schedule of the Japanese school. Only a partial sketch of bilingual proficiency can be depicted within the hour of the interviews. In order to describe bilinguals' versatile aspects of language proficiency, it is advisable to observe them in other settings such as their local/ Japanese school, and have interviews with their teachers. Ideally, it is recommended that the L1 and L2 interviews be implemented on different days using the student's stronger language first.⁸ Future studies will also include a questionnaire to the parents to complement the available data on children from interviews.

While there are also obvious limits to which the findings in the current investigation can be extended to other populations, the survey at Boston Japanese School has proved valuable in pointing out some preliminary observations on factors that positively contributed to increased cognitive academic level of bilingual proficiency. These included L1 maintenance and use in the home, intelligence, prior overseas experiences, a love of reading, a positive attitude towards language, and the length of stay in the host culture coupled with an early age of arrival. These mutually related factors were fostered through strong support at home, which had generated a favorable language environment that

enhanced CALP acquisition, as well as, of course, BICS development. Strong parental support encouraged and maintained L1 and fostered good reading habits in L1, which helped to develop the CUP. For those who learned English after acquiring Japanese, the bilingual's level of competence in their first language was the crucial factor in developing cognitive academic proficiency in their L2. Academic skills and cognitive functioning acquired in L1 seem to have been transferred to L2 in such language contact situations. The common cross-linguistic proficiency was further developed in their multiple overseas experiences among the highly proficient bilinguals.

The most distinctive feature of the children at Boston School was their parents' educational and socioeconomic backgrounds. This marked characteristic provided a favorable environment for CALP development. Devoted family support empowered children's linguistic and cognitive development during extended and multiple cross-cultural experiences. Both nature and nurture nourished the highly proficient bilingual participants in a complementary manner.

The current study of CALP across languages can also contribute to language teaching in general in Japan. It offers suggestions for teaching English as a second language and also in multilingual education for newcomers from, for example, Brazil or China. Language contact situations are becoming more and more globalized and promoting bilingual/multilingual programs has become a matter of great urgency, in order to foster competence in L1 and L2 (without L1 attrition) in Japan.

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Notes

¹ The project was conducted in conjunction with Toshiaki Ishiguro (Hawai'i), and members of the JACET SIG on Bilingualism, Sakiko Yoneda and Kimie Tsuruta (Vancouver), Tsuruta and Mizuho Hasegawa (Boston). See Yumoto (1996, 2001) for details on the Hawai'i study and Yumoto (2004, 2005a) for Vancouver.

² The OBC Project was funded by a Canadian government grant in 1991, and a Japan Foundation fellowship in 1996-1997. The OBC has been tested in Japanese/English, and Ukrainian/English at heritage programs in Toronto-area schools; Japanese as a mother tongue at a public school in Tokyo, and a Japanese maintenance school in Calgary; English/Japanese at an international school in Tokyo; and English/French/Japanese at a trilingual immersion school in Toronto (CAJLE, 2000).

³ The tape was recorded by Robert Erickson and the Japanese OBC was recorded by the author. The interviewers took OBC tester workshops given by Nakajima on July 1 and July 20, 2001, as a follow-up to a talk sponsored by JACET and the JACET SIG on Bilingualism, which was held at Tokyo University on June 21, 2001.

⁴ Those tasks not available were not counted. For example, for S21, a JSL student, there is no data for the Japanese Cognitive 1 (13 points) and Cognitive 2 (20 points) sections of the test since it was determined that this section of the test was inappropriate for the student. The degree of attainment was calculated by the ratio of his total score in the other tasks over the full score of these tasks.

⁵ The OBC results of S19 and S20 were as follows: S19, L2: 43 and Cognitive, S9; L1: 84 and Cognitive, 61 percent; S20, L2: 49 and Cognitive, S27; L1: 92 and Cognitive, 85 percent. The fact that S19 spent her optimal time for language development (age 1 to 3) in Boston might have influenced the CUP development.

⁶ Two of the father's occupations remain unknown. Although no question was posed concerning what the participants' mothers do, one student disclosed that her mother was working, and another was apparently doing graduate work.

⁷ A word should be said on the structure of the families. Six of all the participants were from one-child families; six had two siblings, and five had three siblings (five unknown). Among the proficient bilinguals, four had no siblings (S1, S6, S10, S12), and the others (S9, S11, S13, S14) were firstborn. There is a tendency for the firstborn to get more attention, care and one-on-one reading sessions (Billings, 1990, Döpke, 1992), which can lead to increased bilingual competence (Noguchi, 2001). The family structure might also have had some influence on the proficiency of the balanced bilinguals in the study.

⁸ Implementing tests on different days pose another problems; the bilingual survey in Hawai'i was conducted before class in two consecutive weeks using Language Assessment Scales (LAS), first in L1 followed by L2. Not all of the participants took both of these tests and those who missed one of them were left out of the analysis. It was also difficult to get back the questionnaire from the parents, even with the author's repeated appeal to them with the returned postage on the envelope. In the end, 30% of the students missed either one test or failed to turn in the questionnaire.