The Development of Academic Language Proficiency: Challenges for Middle School Immersion in Hong Kong and Xi'an

Stella Kong
Hong Kong Institute of Education

Philip Hoare
Hong Kong Institute of Education

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THE DEVELOPMENT OF ACADEMIC LANGUAGE PROFICIENCY: CHALLENGES FOR MIDDLE SCHOOL IMMERSION IN HONG KONG AND XI’AN

Stella Kong, Philip Hoare
Hong Kong Institute of Education

ABSTRACT

This paper investigates the development of academic language proficiency through immersion in middle school programmes in Hong Kong and Xi’an. The study reveals that in both contexts students have exposure to complex academic language through teacher talk and textbooks; however, there is not sufficient support for students’ academic language use in writing. The paper discusses the possible causes and suggests how students can be helped to develop better academic language proficiency in these immersion contexts.

INTRODUCTION

Academic language proficiency (ALP) is commonly recognized as a curriculum objective in content-based language teaching (CBLT) (Crandall & Tucker, 1990). CBLT is increasingly recognized as an effective curriculum to support the development of a second language through which some students study their academic subjects, including language minority students in American mainstream schools, language majority students in Canadian immersion schools and students in English medium schools in some parts of Asia such as the Philippines or Singapore (Fortune & Tedick, 2008). In these CBLT programmes, academic language is necessary to access and represent the curriculum content.

In both Hong Kong and Mainland China, English proficiency is a critical factor in the academic progression of students in education systems in which university space is limited. This creates a competitive environment in which secondary schools are under pressure to strengthen their English language curriculum.
The development of academic language proficiency: Challenges for middle school immersion in Hong Kong and Xi’an

English medium instruction (EMI) in Hong Kong and content-based English instruction (CBEI) in China, both examples of CBLT, are a reaction to this pressure (Hoare, 2007; Hu, 2005). Therefore, a key curriculum aim of each of these programs is the development of a high level of English proficiency and particularly ALP.

This paper investigates some aspects of the development of ALP within the CBLT curriculum in middle schools in Hong Kong and Xi’an, a major city in Northwestern China. While some comparisons are inevitable, the goal is to investigate, rather than to compare, the development of ALP in the two programs, each set in a different Chinese context. The paper begins with a brief review of relevant literature on ALP and CBLT as a means of developing ALP, followed by a description of the two CBLT programs. The paper draws on data from lesson transcripts, textbooks and student writing from the two programs to explore the use of academic language by teachers and students. A discussion on the success and limitations of ALP development with suggestions for improvement follows.

ACADEMIC LANGUAGE PROFICIENCY AND CONTENT-BASED LANGUAGE TEACHING

Cummins (1994) explains that daily social life experiences involve the use of basic interpersonal communication skills (BICS), while academic school subject learning requires the use of cognitive academic language proficiency (CALP). As students progress through education, the academic content becomes more abstract, context-reduced and cognitively demanding (Cummins & Swain, 1986). At the middle/secondary school level, curriculum content is increasingly technical, specialized and complex, which requires the use of correspondingly complex language (Christie & Derewianka, 2008; Kong, 2008). In systemic functional linguistic terms, knowledge is developed through reconstruing daily life experience—as actions represented by verbs into knowledge and concepts, as things represented by nouns (Halliday, 2004). This nominalization process allows concepts to be described and explained further, with the nominalized nouns representing concepts being extended into noun groups with pre- and post-modifications. This opens up space for meaning extension and knowledge development and explains the complex nature of CALP, or academic language proficiency (ALP) as termed in this paper.

CBLT entails “the concurrent study of language and subject matter, with the form and sequence of language presentation dictated by content material” (Brinton, Snow & Wesche, 2003, p.ix). The use of curriculum content necessitates the use of academic language and provides opportunities for students to “broaden and deepen” their language proficiency and to acquire “the more formal, decontextualized, cognitively complex academic language” (Crandall & Tucker, 1990, p.83). CBLT teachers therefore need the skills “to integrate the teaching of language and content in the classroom in ways that can bring about the learning of both” (Hoare
& Kong, 2008, p.254) and, in a CBLT context where academic language is necessary, the skills to support students’ academic language development.

**Content-based language teaching in Hong Kong and Xi’an**

CBLT is implemented in Hong Kong and Xi’an under different contextual constraints. In Hong Kong, CBLT has been more widely available since 2010. Secondary schools in the public school system may use English to teach any or all subjects (except Chinese) in any class in which 85% of the students come from the 40% most academically competent members of their age group (Education Bureau, 2009). Students assessed as being able to learn through English are, therefore, more academically capable, and both they and their parents have higher education as an aim, which demands a high level of ALP (Hoare & Kong, 2008). CBLT teachers in Hong Kong are subject-trained and have good English proficiency but they do not need to be qualified to teach English. The success of the CBLT program in Hong Kong, however, is contested. Marsh, Hau and Kong (2000) studied students’ learning in science, geography, history and mathematics and concluded that “immersing high school students into L2 instruction has very negative effects” (p. 339) on their content learning, though they showed slight improvement in English learning. Yip, Tsang and Cheung (2003) focused on science and reported that “English-medium students, despite their higher initial ability, were found to perform much more poorly than their Chinese-medium peers” (p.295) after two years of CBLT. Nonetheless, Tsang (2008) found that the ground lost after two years had been made up after seven years of instruction in English. Kong’s (2010) study on the use of writing in four Grade 10 late immersion biology and history classrooms concluded that students’ writing did not demonstrate the levels of content and second-language learning expected of late immersion classrooms.

The China-Canada-United States English Immersion (CCUEI) Project in Xi’an was the first CBLT program in China (Yu, 2009). The Project was started in 1997 and drew on experience and expert support from immersion education in Canada and the United States. In 2004, there were eighteen kindergartens, thirteen primary schools and three middle schools involved (Hoare, 2007). The middle school level of the program, with which this study is concerned, entails the teaching of one academic subject (either science or social studies) through English for two fifty-minute lessons each week by an English teacher. Therefore, the instruction is more appropriately described as CBLT than immersion. Although they have received further professional development in CBLT, teachers are qualified to teach English but not the content subject. At all levels, the Project aims to complement mainstream English lessons with a stronger focus on spoken English. At the primary level the project has achieved some success, but little formal research has been conducted (Knell, Qiang, Pei, Chi, Siegel, Zhao & Zhao, 2007). At the middle school level in particular, the lack of appropriate resources and the difficulty of the subject content for language-trained teachers may inhibit success.
The development of academic language proficiency: Challenges for middle school immersion in Hong Kong and Xi’an (Hoare, 2010; Hu, 2005). A study of the extent to which ALP is developed and how it can be enhanced in both programs is therefore timely.

**The development of ALP in CBLT in Hong Kong and Xi’an: Data analysis**

This section presents an analysis of some aspects of the development of ALP in the two programs as reflected in the spoken and the written use of academic language by teachers and students. These encapsulate the conditions of language input and output in both spoken and written forms recognized as conducive to language learning (Gass & Selinker, 2008). The analysis of the teachers’ modeling and teaching and the students’ use of academic language in the classroom is initially presented using lesson transcript data. The analysis of written language input for students and student output is presented using textbook data and student writing respectively.

The lesson transcripts from Hong Kong come from a project that tracked teachers’ development following an 8-week full-time in-service course on late immersion pedagogies (Hoare & Kong, 2006). Thirty video-recorded lessons were collected from more than twenty EMI schools at Grades 7-10 including a range of non-language subjects. Kong (2010) studied Grade 10 students’ biology and history writing throughout one full semester in four EMI classrooms in Hong Kong and contributed students’ writing. The lesson transcripts and students’ writing from Xi’an come from a project that studied the contextual influences on the implementation of the CCUEI Project in middle schools, the earlier stage of which was reported in Hoare (2010). The data consist of 29 Grades 7-8 videoed lessons taught by twelve teachers and post-lesson written tests by twelve classes of students. Analysis of representative sample data across several subjects and levels from these projects is presented in this section.

The analysis of academic language use in the lesson transcripts, textbooks and student writing is mainly based on the framework used by Christie and Derewianka (2008). Using a systemic functional linguistic approach, Christie and Derewianka’s (2008) study analyzes student writing, assessed as “good” by teachers, in English, history and science from primary and secondary schools (aged 6-18) in Australia aiming to provide “a benchmark of what is possible at each phase of [school writing] development” (p.6). They identified the following characteristics of academic language, some of which have been described in the section on ALP and CBLT above:

1. Use of subject-specific vocabulary;
2. Use of nominalizations (nominalizations are often used as grammatical metaphors but not all nominalizations involve grammatical metaphors; when a nominalized word cannot be unpacked, it is not metaphorical);
3. Use of grammatical metaphors (when meanings are expressed in “unexpected grammatical forms” (Christie & Derewianka, 2008, p.25), for example, volcanic eruption vs. volcanoes erupt);
4. Use of complex noun phrases (noun phrases with a head noun plus pre-
modification and/or postmodification);
5. High lexical density (measured as the number of lexical items expressed as a ratio of the number of clauses in a text; lexical items are nouns, adjectives, verbs and adverbs as contrasted with grammatical items such as articles, prepositions, pronouns, auxiliary verbs, conjunctions, demonstratives);

Our data suggested an additional characteristic:
6. Use of the language of knowledge relationships (such as classification, definition, cause-effect) (Kong, 2009; Kong & Hoare, 2010).

A grounded approach (Wiersma & Jurs, 2009) was therefore adopted, using both the literature and our own data from several studies to arrive at a framework for data analysis. In addition to the qualitative analysis using this framework, quantitative data of the number and length of teacher and student turns are included. In the analysis presented below, nominalizations and grammatical metaphors are combined as one item because most nominalizations in our data are grammatical metaphors, and there are very few other examples of grammatical metaphor. Errors in all extracts are in the original.

**Teachers’ and students’ classroom language use**

In Extract 1 below, from a chemistry lesson in Hong Kong, the teacher is explaining how concentrations of solutions are measured using the support of a worksheet; this is the second lesson on the topic. The English is complex and has many of the characteristics of academic language (see Table 1 for an analysis).

**Extract 1: Chemistry, Concentrations of solutions, Grade 10**

T: In chemistry, concentration of solution is also expressed in mole per unit volume of solution, and mole is chosen as the unit of the properties of solute while unit centimetre is chosen as the volume of solution. When the solute is measured in terms of mole, the unit of concentration, the unit of concentration is mole per cubic centimetre. Or we can simply write the capital letter M. Now we move to part B, calculation of concentration in molarity given the mass of solute and volume of solution in example 2, which is at the bottom of your notes. Here, there is 170g of sodium chloride dissolved in distilled water. And the solution is made up to 500cm3. And now you are requested to calculate the concentration of solution expressed in mole per cubic decimetre. And then how can we work it out? First, we have to calculate the volume of the solution in dm3. I think you can get the answer, what is the answer in it? In dm3?
Ss: 0.5.
T: 0.5, correct.
### Table 1: Academic language use in Extract 1

<table>
<thead>
<tr>
<th>Academic language characteristics</th>
<th>Academic language use in the text</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Subject-specific vocabulary</td>
<td>concentration of solution; mole; per unit volume of solution; solute; molarity; mass of solute; volume of solution; sodium chloride; dissolved; distilled water; is made up to</td>
<td>To name / refer to the specialized knowledge and entities specific to chemistry and the topic on concentrations of solutions.</td>
</tr>
<tr>
<td>2. Nominalizations &amp; grammatical metaphors</td>
<td>definition; concentration; solution; calculation; molarity</td>
<td>To turn concrete actions / objects (e.g. define, solute) into a process (e.g. definition, calculation), an abstract concept (e.g. concentration, molarity) or the product of a process (e.g. solution) so that these nouns can be further described / explained e.g. concentration of solution is also expressed in mole per unit volume of solution.</td>
</tr>
<tr>
<td>3. Complex noun phrases</td>
<td>concentration of solution; mole per unit volume of solution; the unit of the properties of solute; the volume of solution; the unit of concentration; calculation of concentration in molarity given the mass of solute and volume of solution; 170g of sodium chloride dissolved in distilled water; the concentration of solution expressed in mole per cubic decimeter; the volume of solution in dm³</td>
<td>To provide accurate and exact information necessary in chemistry (with pre- and post-modifications to a head noun (underlined)) e.g. instead of just sodium chloride, 170g of sodium chloride dissolved in distilled water describes the quantity and the condition of the sodium chloride.</td>
</tr>
<tr>
<td>4. Language of knowledge relationships</td>
<td>concentration of solution is also expressed in mole per unit volume of solution; the unit of concentration is mole per cubic centimetre</td>
<td>The use of the relational verb is together with the subject-specific vocabulary and nominalisations give the language of definition required for defining the chemistry concepts e.g. concentration of solution is….</td>
</tr>
<tr>
<td>5. Lexical density</td>
<td>4.85</td>
<td></td>
</tr>
</tbody>
</table>

In Extract 2 below, also from Hong Kong, the teacher is helping the students
to explore the difference between volcanic eruptions at destructive and constructive plate boundaries and is using pictures to support the explanation. Although the comparison is quite simple, it involves the use of complex academic English (see Table 2 for an analysis).

**Extract 2: Geography, Volcanic eruptions, Grade 8**

T: I will show you one picture about volcanic eruption and destructive plate boundary. And one picture about volcanic eruption at destructive plate boundary and one picture about volcanic eruption at constructive boundary. You have to tell me the difference in their characteristics. Now this is the picture taken, about the volcanic eruption at destructive plate boundary; on the other hand, this is constructive plate boundary. What is the difference in characteristics between the two? Look at the destructive plate boundary: Look at the ash and at the height of the ash. What do you think? What will the people here think? Then look at the volcanic eruption occurring at the constructive plate boundary. What is the difference between these two?

S: Volcanic eruption at destructive plate boundary is more explosive.

T: More explosive! And this one is…

S: Less explosive.

T: Less explosive.
Table 2: Academic language use in Extract 2

<table>
<thead>
<tr>
<th>Academic language characteristics</th>
<th>Academic language use in the text</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Subject-specific vocabulary</td>
<td>volcanic eruption; destructive plate boundary; constructive plate boundary; volcanic eruption at destructive plate boundary; volcanic eruption at constructive (plate) boundary; ash</td>
<td>To name the specialized entities specific to geography and the topic of volcanic eruptions.</td>
</tr>
<tr>
<td>2. Nominalizations &amp; grammatical metaphors</td>
<td>eruption; difference; height</td>
<td>To turn concrete actions (erupt) and qualities (different, high) into a process (eruption) or a geographical entity (difference, height), which can become the subject of a sentence for further elaboration e.g. Volcanic eruption at destructive plate boundary is more explosive.</td>
</tr>
<tr>
<td>3. Complex noun phrases</td>
<td>volcanic eruption at destructive plate boundary; volcanic eruption at constructive (plate) boundary; the difference in characteristics between the two; volcanic eruption occurring at the constructive plate boundary</td>
<td>To provide an accurate description of different types of volcanic eruption (with eruption as head noun qualified with both pre- (volcanic) and post-modifications (e.g. a prepositional phrase)); and to focus on their differences (the difference in...).</td>
</tr>
<tr>
<td>4. Language of knowledge relationships</td>
<td>the difference in characteristics between the two; destructive Vs constructive; more explosive, less explosive</td>
<td>The use of comparatives and the language of comparison to compare volcanic eruptions at destructive and constructive plate boundaries, which is the focus of the extract.</td>
</tr>
<tr>
<td>5. Lexical density</td>
<td>4.18</td>
<td>In addition to the dense use of all the features of academic language in the analysis framework, the lexical density of 4.85 in Extract 1 and 4.18 in Extract 2 also suggests a moderate level of complexity in the spoken language of the teachers. By way of comparison, Christie and Derewianka (2008) found a lexical density of 3-4 in the narrative texts and 5-6 in the science texts written by adolescent learners. In contrast, the Hong Kong students use almost none of this academic language. In the chemistry lesson from which Extract 1 comes, the only audible student utterance in the lesson is a response to a request for the answer to...</td>
</tr>
</tbody>
</table>
a calculation, which is “zero point five” as shown above in Extract 1. While this may be an extreme example of a lack of opportunity for students to use spoken English in the classroom, it is not atypical of the EMI classrooms in Hong Kong. Even in more interactive lessons, student utterances are almost always limited to single words or phrases and, at most, to one sentence, as shown in Extract 2. The average student turn in the Hong Kong classroom data is only 2.76 words, and the longest student response is 137 words, as contrasted with the longest teacher turn which is 2624 words. Undoubtedly, lengthy teacher monologues are common.

In Xi’an, academic language occurs more randomly. After a group discussion and sharing of ideas (shown in Extract 3) on the topic of air pollution, the teacher summarizes causes. While the content requires some use of academic language (see Table 3 for an analysis), the language use is not as dense as in the Hong Kong lessons.

**Extract 3: Social Studies, Air pollution, Grade 7**

T: Let’s see the causes of air pollution. You know the causes come in order. The first one, there are too many people. That is to say, we breathe in more oxygen than we breathe out more carbon dioxide. Then the air is not fresh. The second one, some people use traditional fuel such as firewood. Do you know firewood?
S: No.
T: Do you know “wood?”
S: Yes.
T: This is to use wood to light up fire, that is, firewood; or cow dung, do you know cow dung?
S: No.
T: That’s the waste of cows. I’m not good at drawing, okay? (Draws cow dung on board) Some people use firewood and cow dung for cooking and heating. And they will give out a lot of smoke. And it is bad for the air. And next one?
S: The smoke from the exhaust of bus…
T: Just like you said that, the exhaust gas from buses or cars or factories causes air pollution. And the next one--the rubbish also causes air pollution.
Table 3: Academic language use in Extract 3

<table>
<thead>
<tr>
<th>Academic language characteristics</th>
<th>Academic language use in the text</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Subject-specific vocabulary</td>
<td><em>air pollution; fuel; exhaust gas; carbon dioxide; (fire-wood; fire; the waste of cows; smoke; factory)</em></td>
<td>To name the entities necessary to the topic on air pollution. It is however not easy to decide whether some of the words are subject-specific vocabulary or not. Those in brackets are more like general words.</td>
</tr>
<tr>
<td>2. Nominalizations &amp; grammatical metaphors</td>
<td><em>Pollution</em></td>
<td>To turn the action of “pollute” into a phenomenon (<em>pollution</em>) so that the different types and causes of pollution can be elaborated.</td>
</tr>
<tr>
<td>3. Complex noun phrases</td>
<td><em>the causes of air pollution; the exhaust gas from bus or cars</em></td>
<td>To name (with the head nouns underlined) and qualify (with a prepositional phrase or a relative clause) the topic (<em>the causes of air pollution; air pollution that affects the quality of the air</em>); to identify (with the head noun underlined) and describe (with pre-<em>exhaust</em> and post-modifications—*a prepositional phrase—<em>the causes the exhaust gas from bus or cars</em>).</td>
</tr>
<tr>
<td>4. Language of knowledge relationships</td>
<td><em>the causes of air pollution; ... causes air pollution</em></td>
<td>The use of <em>causes</em> as a noun and a verb to identify cause-effect.</td>
</tr>
<tr>
<td>5. Lexical density</td>
<td>3.08</td>
<td></td>
</tr>
</tbody>
</table>

In Extract 4 (shown below), the teacher guides the students to think about the difference between evaporation and boiling and then discusses the causes of evaporation. Although some use of academic language occurs (see Table 4 for an analysis), its use is again less dense than in the Hong Kong lessons. The lexical density of Extracts 3 and 4, at 3.08 and 3.46, is also lower than that in the Hong Kong lessons.

**Extract 4: Science, Evaporation, Grade 8**

T: “What is the difference between evaporation and boiling?” Anybody? (question shown on PPT).
S: Evaporation can happen at any temperature, and boiling only happens at 100 degrees.
T: Yes, quite right, you’re very smart. What’s the difference?
S: I think evaporation can happen at any temperature, and boiling only happens at...boiling points...
T: Yes, boiling point. We know that if the water is boiled, it must reach its boiling point, right? It's the difference. Evaporation happens at any temperature, but boiling only happens at one temperature, which is the boiling point (answer shown on PPT). You know that, right? Ok, we go on. As we know, evaporation is the change from liquid to vapour, and also we know the difference between the evaporation and the boiling; let’s think, what helps evaporation? “What helps evaporation?” (writes the question on BB). Imagine you’re washing clothes. After washing them you hang all the wet clothes on the clothes line, clothes line, and then some days later, the wet clothes will be dried. What can make the wet clothes dry faster, and how do the wet clothes dry?

Table 4: Academic language use in Extract 4

<table>
<thead>
<tr>
<th>Academic language characteristics</th>
<th>Academic language use in the text</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Subject-specific vocabulary</td>
<td>evaporation; boiling; temperature; boiling point; liquid; vapour</td>
<td>To name the entities specific to the topic on evaporation.</td>
</tr>
<tr>
<td>2. Nominalizations &amp; grammatical metaphors</td>
<td>evaporation; boiling</td>
<td>To turn concrete actions (evaporate, boil) into science processes (evaporation; boiling) so that they can be further explored e.g. defined and compared.</td>
</tr>
<tr>
<td>3. Complex noun phrases</td>
<td>the difference between evaporation and boiling; the change from liquid to vapour</td>
<td>To identify the focus of the topic (the difference between evaporation and boiling), to define evaporation (and boiling) (the change from liquid to vapour).</td>
</tr>
<tr>
<td>4. Language of knowledge relationships</td>
<td>the difference between evaporation and boiling; Evaporation can happen at any temperature, and boiling only happens at 100 degrees/boiling point; evaporation is the change from liquid to vapour</td>
<td>The use of the language of comparison to focus on comparison-contrast; the use of the existential verb happen and the relational verb is together with the subject-specific vocabulary and nominalisations give the language of definition required to define and compare evaporation and boiling.</td>
</tr>
<tr>
<td>5. Lexical density</td>
<td>3.46</td>
<td></td>
</tr>
</tbody>
</table>

The Xi’an lessons are, however, very interactive. In the lesson that Extract 3
comes from, for example, there are 54 student turns, ranging from single words to one of 78 words, out of a total of 112 turns in the lesson. Three group discussions last nearly nine minutes in total, and all students appear to be engaged. The average length of student turns in the Xi’an lessons is 5.47 words (more than double that in the Hong Kong lessons) and the longest student response is 222 words whereas the longest teacher turn is 764 words.

Language use in textbooks

Textbooks are the major source of written language input for students in CBLT classrooms in Hong Kong and, where textbooks are available, in Xi’an as well. In some classes in Xi’an there are no textbooks and therefore very little written language input. In one school the teachers wrote the textbooks themselves (see Zhou & Xie, 2006). The English in the Hong Kong textbooks is very dense, as reflected in the lexical density of 12.67 in Extract 5 (see Table 5 for an analysis), and students are exposed to increasingly more complex academic and specialized language as they advance through school. The variety of textbooks is very wide especially in Hong Kong, and space prevents the inclusion of a full range of examples. Nonetheless, the language use is typical of academic English.

Extract 5: Economics and Public Affairs, The political development of Hong Kong, Grade 7 (Fong, 2001, p.13)

After lengthy negotiations, the Sino-British Joint Declaration on the Question of Hong Kong was finally signed in Beijing in December 1984 between China and Britain. Both parties agreed that the Chinese Government would resume the exercise of sovereignty over Hong Kong from 1 July 1997. In addition, Hong Kong would continue with its capitalist way of life for 50 years after the handover.
Table 5: Academic language use in Extract 5

<table>
<thead>
<tr>
<th>Academic language characteristics</th>
<th>Academic language use in the text</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Subject-specific vocabulary</td>
<td>Sino-British Joint Declaration; the Question of Hong Kong; parties; the Chinese Government; sovereignty; capitalist way of life; handover</td>
<td>To name the entities specific and necessary to the topic on the political development of Hong Kong.</td>
</tr>
<tr>
<td>2. Nominalizations &amp; grammatical metaphors</td>
<td>negotiations; declaration; sovereignty</td>
<td>To turn concrete actions and nouns (negotiate, declare, sovereign) into processes (negotiations) and abstract concepts (declaration; sovereignty) so that they can be qualified and described (lengthy negotiations; Sino-British Joint Declaration).</td>
</tr>
<tr>
<td>3. Complex noun phrases</td>
<td>the Sino-British Joint Declaration; the exercise of sovereignty over Hong Kong from 1 July 1997; capitalist way of life for 50 years after the handover</td>
<td>To provide more detailed description (using pre- and post-modifications) of entities of the topic (represented as head nouns as underlined).</td>
</tr>
<tr>
<td>4. Language of knowledge relationships</td>
<td>The language of description; the language of sequence (See analysis in the next column).</td>
<td>Using complex noun phrases (with head nouns qualified by pre- and post-modifications) to provide detailed descriptions; using discourse time markers (e.g. After, finally, in December 1984) to describe a sequence of political events.</td>
</tr>
<tr>
<td>5. Lexical density</td>
<td>12.67</td>
<td></td>
</tr>
</tbody>
</table>

The language in the textbooks in Xi’an is no less dense, especially in the subject of science. The lexical density is relatively high: 5.67 in Extract 6 (see Table 6 for an analysis).

**Extract 6: Science, Respiration, Grade 8 (Doyle, Ma & Yung, 2004, p.46)**

Respiration and breathing are not the same.
Respiration is a process which involves a number of chemical reactions in living cells. During this process, oxygen is needed to break down food to release energy. Carbon dioxide and water are also produced. Breathing is a physical process. It involves the movement of air into and out of our lungs.
The development of academic language proficiency: Challenges for middle school immersion in Hong Kong and Xi’an

### Table 6: Academic language use in Extract 6

<table>
<thead>
<tr>
<th>Academic language characteristics</th>
<th>Academic language use in the text</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Subject-specific vocabulary</td>
<td>respiration; breathing; chemical reactions; living cells; oxygen; food; energy; carbon dioxide; water; physical process; lungs</td>
<td>To name the entities specific and necessary to the topic on respiration and breathing.</td>
</tr>
<tr>
<td>2. Nominalizations &amp; grammatical metaphors</td>
<td>respiration; breathing; reactions; movement</td>
<td>To turn concrete actions (respire, breathe, react; move) into processes (respiration; breathing; reactions; movement) so that they can be compared (Respiration and breathing are not the same), described (Respiration is…) and connected (between respiration and chemical reactions, breathing and movement).</td>
</tr>
<tr>
<td>3. Complex noun phrases</td>
<td>a process which involves a number of chemical reactions in living cells; the movement of air into and out of our lungs</td>
<td>To define with a head noun (underlined) and post-modifications (with a relative clause or a prepositional phrase) what respiration and breathing are.</td>
</tr>
<tr>
<td>4. Language of knowledge relation-ship</td>
<td>The language of comparison (are not the same), the language of definition, the language of process (See the analysis in the next column).</td>
<td>The use of the relational verb is, together with the subject-specific words (respiration; breathing) and complex noun phrases (see No.3 above) to define; the use of passive voice and (is needed; are produced) and to-infinitive (to break down; to release) to describe processes.</td>
</tr>
<tr>
<td>5. Lexical density</td>
<td>5.67</td>
<td></td>
</tr>
</tbody>
</table>

### Student writing

Not surprisingly, perhaps, students’ writing exhibits less consistently the features of academic language. Extract 7 is a typical sample from our Hong Kong data (see Table 7 for an analysis). Although the student uses some subject-specific vocabulary, nominalizations and noun phrases, the language of knowledge relationships is inappropriately used. There is an over-reliance on the language of narration when, in fact, the question requires the language of cause-effect and explanation.
Extract 7: History, Grade 10, Discuss the underlying causes of the 1911 Revolution.

After the period of cooperation, Chinese had faced to serval wars. But she had got lost in them. So she need to respon the huge military payment. Then, they due to people had appeared their anti-foreign feeling. On the other hand, the missionaries had came into China to spread their religion. Then, they started to build churches in her. However, the Chinese people didn’t like them and thought that they might broken the fengshui. Almost at the same time, there had many natural disasets that example the bad harvest. So the Chinese people thought that was because of the breakage of fengshui so they also went to break the missionaries’ religion, burnt their churches, etc.
### Table 7: Academic language use in Extract 7

<table>
<thead>
<tr>
<th>Academic language characteristics</th>
<th>Academic language use in the text</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Subject-specific vocabulary</td>
<td>military payment, anti-foreign feeling, missionaries, religion, natural disasters (for natural disasters), fengshui</td>
<td>To name the entities related to the topic on causes of the 1911 Revolution.</td>
</tr>
<tr>
<td>2. Nominalizations &amp; grammatical metaphors</td>
<td>cooperation, payment</td>
<td>To turn the concrete actions of ‘cooperate’ and ‘pay’ into concepts (cooperation, payment) so that they can be further qualified and described in noun phrases (the period of cooperation, the huge military payment). These phrases are, however, used as learned chunks but are not grammatically accurate.</td>
</tr>
<tr>
<td>3. Complex noun phrases</td>
<td>the period of cooperation, huge military payment</td>
<td></td>
</tr>
<tr>
<td>4. Language of knowledge relationships</td>
<td>The language of narration: temporal discourse markers (After, Then, Almost at the same time); contrastive and causal discourse markers (But, So, On the other hand, However, because of); action and behavioural verbs (had faced, had got lost, need to respond, had came, started to build, didn’t like, thought, went to break, burnt)</td>
<td>The question asks for a discussion of causes, which requires the language of cause-effect and explanation. However, the language of narration is used to describe a series of events rather than to explain causes: temporal discourse markers (double-underlined in the extract); action and behavioral verbs (single-underlined). Even the contrastive and causal discourse markers (dot-underlined), especially so, function more like temporal markers.</td>
</tr>
<tr>
<td>5. Lexical density</td>
<td>4.18</td>
<td></td>
</tr>
</tbody>
</table>

Extract 8, a sample of student writing from Xi’an, reflects the focus on general English practice, rather than academic language use (see Table 8 for an analysis), that typifies some of the teacher talk, as shown in Extracts 3 and 4. There is some use of subject-specific vocabulary (though some of the words can also be considered general words, such as water, waste, protect) and nominalizations, but the language use is more of an informal personal plea than a formal public persuasion required in academic writing. There is frequent use (see underlined) of the first and second person pronoun (we, you), contractions (don’t, That’s), imperatives (don’t over use, Remember) and modals of high degree of certainty (should,
must), but no use of hedging or complex noun phrases, characteristic of academic language (Hyland, 1994).

**Extract 8: Science, Grade 8, What can we do to protect water?**

We all know water is very important for our daily life. We need to wash, drink and use water everywhere. But we don't have enough water to use today, because of many reasons, for example: large population, more pollution and wastes. So modern people should take care to protect water. First of all, we should take care not wasting water. When we see the running tap, we should turn off the running tap quickly, and when we see someone poor clean water on the road, we should stop them. Then, don't over use water, we must reuse water. For example, we can use washing vegetable or rice water to water the flowers, we can also use washing clothes water to clean the WC, in that way, water is saved. That's two ideas how can a student protect water. Remember, people can't live without water, if we waste water, do you think what will happen in the future?

**Table 8: Academic language use in Extract 8**

<table>
<thead>
<tr>
<th>Academic language characteristics</th>
<th>Academic language use in the text</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject-specific vocabulary</td>
<td>water, population, pollution, wastes, protect, reuse</td>
<td>To name the entities related to the topic on water protection.</td>
</tr>
<tr>
<td>Nominalizations &amp; grammatical metaphors</td>
<td>population, pollution</td>
<td>Used as subject-specific words to refer to the factors involved in not having enough water.</td>
</tr>
<tr>
<td>Complex noun phrases</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>Language of knowledge relationships</td>
<td>The language of explanation: need to, because of; the language of persuasion: when-clause (when we..., we should), modals (should, must, can); imperatives (don't over use, Remember)</td>
<td>The question asks for suggestions of ways to save water, which require the language of suggestion, persuasion and explanation. The student uses the relevant language of knowledge relationships but the level of formality is more personal than academic.</td>
</tr>
<tr>
<td>Lexical density</td>
<td>4.16</td>
<td></td>
</tr>
</tbody>
</table>

**DISCUSSION**

The analysis of the lesson transcripts, which are illustrative of those in the databases from Hong Kong and Xi’an, exhibit some important features of academic language. The Hong Kong teachers use a high proportion of subject-specific vo-
The development of academic language proficiency: Challenges for middle school immersion in Hong Kong and Xi’an

cabulary and nominalizations, which are necessary to represent the content; these also appear in textbooks. Complex noun phrases are also common. Knowledge relationships such as definition, cause-effect and process that require a higher level of understanding (Kong, 2008) recur in the teacher talk due to the depth of content. Being subject- rather than language-trained, however, Hong Kong teachers tend to lack the flexibility or the sensitivity in language use to adjust their English to accommodate the level of their students (Hoare & Kong, 2008; Marton & Tsui, 2004). Academic language can occur, therefore, without the glossing with redundancy and paraphrase that might make it more accessible to students and provide the basis for language acquisition. Students are also seldom expected to use academic English, or very much English of any sort, in class.

In the Xi’an lessons, the teachers also use subject-specific vocabulary, but complex noun phrases are used less frequently. Knowledge relationships tend to be less prominent, especially in social studies lessons. In accordance with the findings of Hoare (2010) and Kong (2009), students’ use of English in class and in writing is more typical of general English rather than academic English. While the subjects taught in CBLT lessons in Xi’an are academic, they are taught by language-trained teachers, not content specialists, and the priority for schools and teachers is language learning as opposed to balanced language and content learning (Hoare, 2010). Consequently, this method seems to result in a greater focus on interaction and language practice in the context of the subject rather than on the development of a deeper understanding of the content (Kong, 2009). This focus maximizes the opportunities for students to practice oral English and for teachers to exercise their language teaching skills. Students are very responsive, often turning a lesson into a dialogue between the teacher and the students (the percentages of teacher and student turns are often about 50-50, and some student turns can be comparable in length to the teacher turns). The content is generally more interesting and rich than that of mainstream English lessons, which promotes more purposeful language use (Hoare, 2010). The lack of content depth, however, results in less demand on academic language use in terms of both complexity and quantity.

The opportunities presented in the CCUEI CBLT context for ALP development are, therefore, much more limited than in Hong Kong EMI classrooms, and the constraints on progress are considerable for two main reasons—the amount of curriculum time and the depth of the subject content. In Xi’an, students have only two CBLT lessons per week taught by non-subject specialists. In Hong Kong, many EMI schools teach most subjects in the curriculum in English. Since teachers are subject-trained and the subjects are within the mainstream curriculum, content depth is not compromised and demands complex academic language use (Crandall & Tucker, 1990).

In other respects, however, it is apparent that both in Hong Kong and Xi’an important opportunities for the further development of students’ ALP are being missed. The Hong Kong extracts reveal that students are exposed to a rich con-
tent and correspondingly complex academic language use, both orally from the
teacher talk and in writing from the textbooks. They are, however, given few
opportunities to present complex academic knowledge in English. They are not
expected nor encouraged to do so orally in class or in writing inside or outside
class. Lessons with no student utterances longer than two or three words are typi-
cal, and students’ writing shows clear evidence of a lack of language resources to
match the academic content demand (Kong, 2010; Marton & Tsui, 2004).

In Xi’an, the emphasis on classroom interaction is not matched by a demand
that students process the new content in depth. Classroom interaction tends to
stay at the level of sharing of ideas students already know (Kong, 2009). Re-
sources are a consistent problem for teachers, and they often rely on their own
materials drawn from the internet. As English teachers rather than content subject
specialists, they tend to incorporate materials with which they feel comfortable,
and these generally have less subject depth (Hoare, 2010). These resources pro-
vide some subject-specific vocabulary and may indicate knowledge relationships,
for example “the causes of air pollution.” The focus on oral language use in class
has resulted in the downplaying of the written language. Even when a textbook
is available in which academic language is used, as shown in Extract 6, there is
little focus on student writing. As in Hong Kong, there is no teaching of academic
writing. When students are asked to write, the focus reflects the prioritization of
extended language practice over ALP, as shown in Extract 8. Students’ writing
in both contexts reflects the use of academic language only at the word level, in
the form of subject-specific vocabulary and sometimes nominalizations, but not
at the sentence level. Few complex noun phrases are used and the language of
knowledge relationships is often inappropriate. The lexical density of student
writing (4.18 and 4.16 in Extracts 7 and 8) is more comparable with that of teach-
ers’ spoken language use (ranging from 3.08-4.85 in Extracts 1-4). Christie and
Derewianka (2008) found an average lexical density of 5-6 in the science writing
of students at the same age level.

In both contexts, a modest change of emphasis could bring considerable ben-
efits. In Hong Kong, a better balance between the factual learning of content with
an emphasis on memorization and an understanding and articulation of the knowl-
edge relationships in content would encourage deeper learning and an increased
need for the use of ALP. For example, students might be taught to develop their
understanding of a science concept through a well-written paragraph rather than
simply memorizing subject-specific vocabulary. Demanding more writing in
some subject areas by students (and relevant training in this area for teachers)
would be an important step forward, though the change in educational philo-
sophy that this requires should not be underestimated (Kong, 2010; Schleppegrell,
2004).

In Xi’an, teachers need to focus more on teaching new knowledge relation-
ships that emerge from a richer and deeper content. The use of knowledge rela-
tionships has been shown to be an effective pedagogy in CBLT lessons (Dalton-
The development of academic language proficiency: Challenges for middle school immersion in Hong Kong and Xi’an

Puffer, 2007; Kong, 2009; Kong & Hoare, 2010). The focus on content is, of course, challenging for teachers who are not specialists in the subject they teach, but there are examples, albeit atypical, of teachers who have achieved this (Kong & Hoare, 2011). It requires them to explore the content with students in depth and from multiple perspectives. As in Hong Kong, a greater focus on academic writing would also be helpful. The focus on content and writing should lead to the demand and support for ALP development (Gibbons, 2002).

CONCLUSION

The importance of English as a means of accessing higher education in Hong Kong and the increasing emphasis on the use of English in universities in China bring into focus the value of the CBLT programs in both contexts in the development of ALP in secondary English language learning. This paper has reported a preliminary study into the use of spoken and written academic English by teachers and students in the CBLT programs in Hong Kong and Xi’an. The study shows that the two programs provide students with important access to ALP, especially oral and written exposure through teacher talk and textbooks. It is apparent, however, that students need more help with learning to use academic language, especially in writing. The paper has made some suggestions as to how this might be approached, but further research is warranted to identify the most effective ways to accomplish this goal.

NOTES

1 It is not easy to get a full picture of the development of other CBLT programmes at school level in China. A proposal to introduce CBLT in Shanghai by 2005 does not seem to have occurred on the scale expected (Hu, 2003) though it is apparent that some CBLT programmes are in place albeit perhaps on an experimental basis (Yu, 2009).

2 In 2011, there are four middle schools participating. The number of kindergarten and primary schools, however, has no significant change.

REFERENCES


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