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English as the Language of Instruction at Secondary Level: Challenges and Pedagogical Implications

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This paper explores two major challenges facing students using English as a language of instruction (ELI) in secondary education and discusses some pedagogical principles teachers need to apply to help students meet these challenges. The two challenges explored are: 1) learning complex curriculum content; and 2) learning the complex language of the content, with academic language becoming a focus of learning. Three pedagogical principles are discussed: 1) plan from the content; 2) integrate content and language teaching; and 3) teach the language of the content explicitly. The paper presents three examples of secondary ELI pedagogy to illustrate how the challenges can be met by applying these principles. The three examples show how ELI teachers 1) model the language of the content to students, 2) elicit from students the language of the content, and 3) help students write the language of the content. In all the three examples, the ELI teachers identify the language of the content through knowledge relationships, suggesting that this can be an effective aspect of pedagogy in an ELI context. The paper uses data from four projects that researched ELI classrooms in Hong Kong and Xi'an in Mainland China.

Key words: content-based second language teaching, content-language

pedagogy, language of instruction, secondary language education

INTRODUCTION

Cultural, economic and political imperatives have brought about the expansion of education through a second or other language in Asia and around the world. Immersion education in North America and content-language integrated learning (CLIL) in Europe are well-documented (e.g. Coyle, 2007; Fortune & Tedick, 2008). In Asia, the transition to post-colonial education systems has brought about understandable reactions in favour of the use of local languages in education for cultural, political and, not least, educational reasons (Bernardo, 2004; Hoare & Kong, 2008; The Star, 2009). At the same time, however, this has been accompanied in many places by demands that education through English previously intended for the education of an elite should be available for the majority if it confers economic advantages (Chan & Tan, 2006; Gopinathan, 1998; Ho, 2002; Johnson, 1997; Nunan, 2003). Even in places where English as a language of instruction (ELI) did not previously play a significant role in education, such as China and South Korea, there are moves to expand its use into this role (Hoare, 2007; Hu, 2005; Lee, 2008).

Unlike the use of some languages of instruction, notably, perhaps, French immersion in Canada, ELI is intended to help students acquire high levels of English proficiency for economic and higher educational, rather than cultural, purposes. This is particularly so in contexts such as Hong Kong and Singapore where many ELI students are expected to go on to higher education through the medium of English either locally or overseas. Using a second or other language as the language of instruction at the secondary school level, however, poses particular challenges for students, which are distinct from those at primary level.

ELI is a form of second language content-based instruction (CBI) where 'the form and sequence of language presentation [is] dictated by content

material' "the form and sequence of language presentation [is] dictated by content material" (Brinton, Snow & Wesche, 2003, p. ix). Second language CBI programmes aim to develop students' language through content learning and this has been increasingly shown as an effective curriculum approach to second language learning (Stoller, 2004). It has, however, been recognised that teaching content through a second language is insufficient on its own to bring about language learning (Lyster, 2007). Stoller (2004) suggests that "the interface of language and content" is "the most important pedagogical issue" (p. 276) in CBI. Similarly, Hoare and Kong (2008) state that CBI teachers need the pedagogical skills "to integrate the teaching of language and content in the classroom in ways that can bring about the learning of both" (p. 254). Kong (2008) suggests a framework for integrating content and language teaching and learning at secondary school level, when the content becomes more complex and abstract requiring correspondingly more complex and abstract language use.

This paper examines the challenges of learning through ELI at secondary level and addresses the implications for planning and teaching in secondary ELI classrooms. It discusses how teachers can respond to the challenges students face by the application of three pedagogical principles to the design of integrated content and language teaching and learning activities. It illustrates the principles with examples of good practice from ELI classrooms in Hong Kong and Mainland China. The relationships between challenges, principles and pedagogy are complex and the examples of good practice demonstrate how the principles interact when applied as pedagogies.

Though the data used in this paper come from Hong Kong and Mainland China, the discussion may apply to other secondary ELI contexts in Asia where similar challenges are faced. Before discussing the challenges, a brief description of secondary ELI education in Hong Kong and Mainland China is presented to provide some contextual background.

ELI Education at Secondary Level in Hong Kong and Mainland China

English was a colonial language in Hong Kong and continues to play an important role in the city's economic and educational development (Ho, 2002; Nunan, 2003). From 1998, however, only 112 secondary schools (about the top 25%) were allowed to use English as the language of instruction across the curriculum compared with over 90% before 1998. This was an attempt to improve learning across the curriculum as most ELI schools were using a mix of Chinese and English (mainly English technical terms inserted in a Chinese discourse). Consequently many students were not learning as much as they should because they did not understand enough English (Johnson, 1997). As a reaction to public pressure for more ELI education, from 2010-2011, this policy will be modified to allow schools to teach any class with suitably able students through English and all schools to teach up to 25% of any class through English (Education Bureau, 2009). ELI teachers are subject-trained but they do not need to be qualified to teach English. Classes are typically of 35 to 40. Primary education is in the mother tongue and English is a compulsory subject from Primary 1. University education is in English. Students therefore start ELI at the secondary level and secondary ELI is seen as the path to university education and future success.

In China, universities under the control of the Ministry of Education are increasingly expected to use ELI in a proportion of courses such as information technology, finance, economics, and law (Jiang, Nong, Zhang & Liu, 2009; Nunan, 2003). The constant search for better English learning outcomes has led to a 'craze for CBEI' (Hu, 2005, p. 14) in secondary schools in Shanghai and subsequently in many other economically developed regions. In these CBEI (content-based English instruction) programmes, English is used as the language of instruction in some curriculum subjects, such as mathematics, physics, computer science. There is very little documentation of the progress of CBEI in China, but Hu (2007) is very

doubtful of its success. In Xi'an, the CCUEI (China-Canada-United States English Immersion) programme started in 1997 on a small scale at the kindergarten level and extended to middle schools by 2004 (Hoare, 2007). At the middle school level, only 4 schools currently adopt ELI and only one subject is taught through English in each school. ELI teachers are only trained to teach English and not the content subject but have received further professional development in teaching content through English. Class sizes are generally between 50 and 60.

Data Source

This paper draws on the findings from four projects in the two ELI contexts of Hong Kong and Xi'an to illustrate the challenges students face in secondary ELI and good pedagogical practices which help them meet these challenges. The first project studied the pedagogies of ELI teachers in Hong Kong (Hoare & Kong, 2006). The data include ELI lessons and interviews with 30 ELI teachers from more than 20 schools. These lessons were videoed and transcribed for analysis of the pedagogies used. The lessons are mostly from Grades 7-9 with some from Grades 10-11 and they represent a range of ELI subjects. The study revealed that the teachers focused on their subject teaching and few paid attention to the use of English within the subject teaching and learning. While the lessons were subject-rich, most provided few opportunities for language learning. This phenomenon is commonly recognised in CBI contexts where the teachers are subject-trained (e.g., Dalton-Puffer, 2007).

The second project studied the development of ELI in three middle schools in Xi'an. Nine ELI teachers from the three middle schools were observed over three years. Lessons were videoed and teachers were interviewed. Students were also interviewed and tested, and their learning outcomes were analysed. Hoare (2010) describes the early stages of this project. The study found that as teachers developed a better understanding of ELI, they provided richer subject content while generally maintaining a focus on language,

which reflected their training as language teachers.

The third project studied important aspects of ELI teaching in Hong Kong and Xi'an to identify effective pedagogies that support students' learning of content and language (Kong, 2009). It described the importance of exploring new content in depth to enable teachers and students to co-construct complex knowledge relationships by using correspondingly complex language.

The fourth project provided support for students in learning to write history essays in English. The students were from two Grade 9 classes in an ELI school in Hong Kong. It was an intervention study with an ESL researcher and a history teacher working together to design writing activities. It involved instruction for students on how to organise history writing in a series of assignments over a semester. The project was undertaken to address the lack of attention and skills for teaching writing in ELI classrooms and the consequent problems students had in writing (Kong, forthcoming). The data include two classes of student writing on four assignments, and a post-project interview with the teacher and the students.

Challenges of Secondary ELI

The challenges of learning through secondary ELI are different in different educational contexts but they remain distinct from those at the primary level mainly because of the complexity of the curriculum content. This paper focuses on two distinctive learning challenges as revealed in the classroom data from the four projects conducted in Hong Kong and Xi'an described above. The two challenges for learners are: 1) learning complex curriculum content through ELI; 2) learning the complex language which accompanies the complex content. The lesson extract below is used to illustrate these two challenges in the discussion that follows. The extract is from a Grade 8 science lesson in Hong Kong on the topic of the structure and functions of the eye and is typical of the discourse found in the Hong Kong lessons.

Extract 1

Yes, the pupil is used to admit light into the eye. And in fact pupil is nothing but a hole. This is not an object. In fact, it is a hole. However, (1) the size of a pupil can be changed by the iris. In different situations, under different conditions, the size of a pupil can be adjusted by the iris. And in fact the iris will change the size of the pupil (2) depending on the lighting condition. Under very bright condition, when there (3) when there is bright light around, the iris will move to make the pupil smaller. And when we are looking things under dark condition, the iris will move (4) to make the hole larger to make the pupil larger. So more light can enter the eye, OK? [….] OK? (Drawing the focusing muscles and lens on the partially drawn diagram of an eye) After passing through the pupil, the light ray will meet another structure. This is the focusing muscle and this is the lens. Don't forget to put 's' at the end of this word. This is important. Don't say 'len'. Lens. But the lens is used to focus object. When light enters the eye, the lens help to change, help to focus all the objects into (5) a single point on the retina which is the back of the eye. (Drawing light rays entering the eye on the diagram) Again the lens can be adjusted. In fact, (6) the thickness of the lens can be adjusted by (6) the movement of the focusing muscles. When we are looking objects from different distances, the lens, the thickness of the lens will be changed. If we are going to look at far objects, the lens will become thinner by the movement of the focusing muscle and when we are looking at a near object, the lens will become thicker, will become thicker to focus the object, to get a good image of it. It is another kind of adjustment in the eye. And again part of the [adjustment] of the eye. So that our eye can see under bright or dark condition. We can see things from far or near distances. …

Learning Complex Curriculum Content

When the content is part of the curriculum, it cannot be simplified or avoided. Students must learn the curriculum content at the level of complexity required by the curriculum. The curriculum content at primary level is relatively context-embedded and cognitively less demanding

(Cummins & Swain, 1986). It focuses, in keeping with the capacity and intellectual maturity of primary students, on classroom and home experiences, concrete things and real events. When the content goes beyond the concrete and the real, it is addressed in ways that make very strong links with students' experience. As education progresses, especially as it reaches secondary level, the curriculum content becomes more abstract, context-reduced and cognitively demanding (Christie & Derewianka, 2008; Cummins & Swain, 1986). At this level, content knowledge in academic subjects becomes increasingly specialised. The specialised and complex content is often organised as knowledge relationships (Kong, 2008, 2009). Learning focuses on the conceptual understanding of knowledge relationships such as definition, cause-effect or hypothesis, which can form 'a complex network' (Kong, 2008, p. 113).

Extract 1 illustrates the degree of complexity of the curriculum content in secondary ELI. The knowledge relationships which give the content in this extract its complexity and which students must understand are themselves interrelated. They include the following:

1. *Cause-effect:* The relationships between the environment and the reaction of the eye (i.e., how the environment affects the reaction of the eye). The environment includes the light conditions and the distances of objects from the eye. The reactions include changes in the size of the pupil and the thickness of the lens, and the movement of the iris and the focusing muscles.
2. *Comparison:* The relationships between different environmental conditions and different reactions of the eye. The environment varies as light conditions vary and distances of objects from the eye vary. Different environmental conditions result in different reactions of the eye.
3. *Definition:* The definition of the concept of adjustment of the eye, which is explained through the cause-effect and comparison relationships above.

The main objective of the lesson is that students understand the key concept of 'adjustment' with respect to the functions of the eye. Extract 1 represents only about one quarter of the teacher's full explanation of this concept. The explanation goes beyond the facts, such as the names of parts of the eye, to the function of each part and how this relates to other parts and their functions. Such complexity is a common characteristic of many of the ELI lessons in our data (Hoare & Kong, 2006; Kong, 2009).

For students who start ELI only at secondary level, such as those in Hong Kong, the challenge presented by the complex curriculum content is increased by a 'proficiency gap' i.e. the gap between the cognitive level of the curriculum content and students' English language level (Johnson & Swain, 1994). The higher the cognitive demand and the lower the language level, the bigger the gap and the more challenging the learning of the complex content through ELI.

Learning the Complex Language of the Content

Explanations of complex content demand the use, and consequently the understanding, of correspondingly complex language. In an ELI context, students have to learn both content and a second language by learning content through the language. In Extract 1, the complex language structures of (1) the passive voice, (2) the participle phrase, (3) the when-clause, (4) the infinitive phrase, (5) long noun phrases, and (6) nominalised phrases (numbered and underlined in the extract) are all used. The density and complexity of language use in the extract can be very challenging for Grade 8 students but without understanding the language, the content, which is part of the curriculum, remains inaccessible. Met (1998) recognises the challenge of learning complex content with the correspondingly complex language even in the later primary years. This challenge becomes significantly greater at the secondary level.

The language in Extract 1 is an example of academic language, which is typical of that found in school subjects and is necessitated by complex

content knowledge. Passive voice, long noun phrases and nominalised phrases are all characteristic of academic language use. While concrete daily life experiences involve basic interpersonal communication skills (BICS), abstract school learning aims to develop cognitive academic language proficiency (CALP) (Cummins, 1994). In systemic functional linguistic terms, knowledge is a reconstrual of everyday life experience. The actions of our everyday life, represented by verbs, are reconstrued into knowledge and concepts (i.e., things), represented by nouns (Halliday, 2004). This process of nominalisation makes it possible for concepts to be further described and explained as the nominalised nouns can be expanded to form noun groups with pre- and post-modifications. This allows knowledge to extend and develop, and explains the complex nature of CALP.

The increasingly context-reduced and cognitively demanding curriculum content at the secondary level necessitates the development of increasingly higher levels of CALP. CALP requires the use of written language, which is abstract without the presence of the referents and participants in context (i.e. written language is 'context-reduced') (Wells, 1999). Secondary ELI students therefore need to acquire CALP through developing academic reading and writing skills. These skills represent one particularly challenging stage in the progression towards advanced study through English. Martin (1986) recognises the need to teach students at secondary level to write in academic genres, failing which students can only use narrative texts learnt from the primary level but inappropriate for academic studies.

Implications for Secondary ELI: Three Pedagogical Principles

The challenges discussed above have direct implications for teaching and learning and they give rise to three principles that can guide the planning and teaching of ELI lessons. These three principles are 1) plan from the content; 2) integrate content and language teaching; and 3) teach the language of the content explicitly. This section explains how these principles represent appropriate pedagogical responses to the challenges faced by students.

Plan from the Content

We have shown above how the complex content in secondary ELI leads to complex language use. The complex language structures identified in Extract 1 are required by the complex knowledge relationships of the content. The language is dependent on the content and the teacher can only identify the language in the ELI curriculum from the content. Planning should, therefore, take the content as its starting point. This initial focus on the content helps to address the challenge students face in learning complex content.

The principle of planning from the content accords with the basic principle of CBI in which the language to learn is derived from the content (Brinton et al., 2003). Planning from the content also reflects the realities of secondary education, where subject specialism is a key feature (Kong, 2008; Wolff, 1997). It acknowledges the importance of the content in the curriculum to both students and teachers and, in some contexts, teachers' perceptions of their own role as subject specialists (Wolff, 1997).

Integrate Content and Language Teaching

Planning for content and language teaching begins with content yet students also have to learn the language of the content. Within the secondary ELI context, integrating content and language in the planning and teaching of ELI lessons is recognised as a necessary approach to bring about both content and language learning (Kong, 2008; Othman, 2008). ELI teachers, whether subject-trained or language-trained, do not allocate lesson times to teach content and language separately (Kong, 2009). They do not see that there is sufficient curriculum time to do so. Subject-trained teachers tend to focus on content with the language being used only as the medium of instruction but with no explicit attention paid to it (Dalton-Puffer, 2007; Hoare & Kong, 2006). Language-trained teachers tend to use the content as the medium for student language use and practice but still with no explicit focus on language (Hoare, 2010; Kong, 2009). The complexity of language use also increases

with the complexity of the content, as shown in the previous section. Integrating content and language teaching seems, therefore, a pragmatic and effective approach. This approach has also been recognised in the CBI literature (Lyster, 2007; Swain, 1996).

Teach the Language of the Content Explicitly

If content and language teaching should start with planning from the content, and content and language have to be integrated, then attention must be paid to the teaching of the language in order to ensure that the balance between content and language is maintained. This balance is important to helping students face the challenge of learning the language of the content, rather than simply using it (Kong, 2009). Students will need explicit support in order to learn the increasingly complex language, in the form of CALP (Crandall & Tucker, 1990). This explicit focus on language within the context of the content is now recognised as being necessary if language is to be learned through content (Lyster, 2007; Swain, 1996). Planning for language learning objectives that require the explicit teaching of identified language is recognised as an effective means of achieving this (Kong, 2008; Snow, Met, & Genesee, 1989).

Implications for Secondary ELI: Effective Pedagogies

In this section we will illustrate how these three principles can be applied to help students meet the challenges of secondary ELI with pedagogies that support language learning in the context of content learning. We will exemplify these pedagogies with examples of good practice by ELI teachers in Hong Kong and Xi'an drawn from the data used in this paper. The examples illustrate how teachers can 1) model the language of the content (i.e. provide students with input in the language of the content); 2) elicit the language of the content from students through scaffolded interaction (i.e. help students produce spoken output of the language of the content); and 3) help

students write the language of the content (i.e., help students produce written output of the language of the content). Relevant language is underlined in the extracts for easy reference. Although each of the three examples is chosen to illustrate a particular aspect of pedagogy, we should emphasise that pedagogical practices do not work in a compartmentalised manner and so each also provides further examples of the others.

Modelling the Language of the Content

This example is taken from a Grade 8 science class in Xi'an on the fire triangle. The fire triangle refers to the three conditions necessary for fire to occur, namely the presence of oxygen, the presence of heat and the presence of fuel. After some revision of what the students have previously learned about air, the teacher demonstrates what happens when she puts a lighted splint into a test tube of normal air. She asks the students to think about the relationship between the splint and oxygen (i.e., a condition relationship).

Teacher: Oxygen in this test tube is very limited, right? Now think about the relationships between this (holding the test tube and the wooden splint) burning…burning splint and the oxygen. Do you have any idea? (students keep silent) There is…not enough oxygen right? Why? Why there is not enough oxygen, the fire stops burning? The fire stopped. (inviting a student to respond) OK.

Student: Burning need oxygen.

Teacher: Burning needs oxygen. Good. Sit down please. Burning needs oxygen (slowly and loudly), right? Please look at the screen. Now, if we put the burning splint into the tube filled with normal air, just now we have done the experiment, it will…go out.

She pushes the students to consider how the burning splint and oxygen are related and then links them in a conditional relationship by using the language of conditions (i.e., *Burning needs oxygen; if we put the burning*

splint into the tube filled with normal air, it will go out). The teacher is aware, however, that the students need to move towards a more academic form of language use, in this case the passive verb form. She therefore rephrases the sentence, providing a written model on the PowerPoint, thereby showing the language in writing as additional support to her oral language use:

Teacher: Just now, you said burning needs oxygen, right?
Students: Yes.
Teacher: Now we can use another…(shows PowerPoint slide)…oxygen is needed for burning.

The teacher then elicits from the students that oxygen is not the only requirement for burning. They supply this from their prior reading for the lesson and are able to say '*Burning needs fuel'* and *'Burning needs heat'*. The teacher accepts these responses but then refers back to her PowerPoint scaffold, which has incomplete sentences, and students read and complete the sentences:

Teacher: O.K. now (looking at the slide) we can see what is needed for burning… for example, what is needed? Heat, right?
Students: Yes (noises). Heat is needed for burning.
Teacher: And…
Students: Fuel is needed for burning.
Teacher: (pointing to the slide) Now fuel is needed for burning. Also…
Students: (together with the teacher) Heat is needed for burning.
Teacher: Now fuel, heat and oxygen are three conditions for fire to happen. Now, please fill blanks. Oxygen, fuel and heat…
Students: …(noises)… for burning.
Teacher: (signalling a student to answer)
Student: Oxygen, fuel and heat are needed for burning.
Teacher: Good […]. Oxygen, fuel and heat are...
Students: Are needed for burning (together with the teacher).

Thus, having drawn on and reinforced the students' content knowledge about the three conditions, she again models and scaffolds the students' use of the passive verb form to talk about the three conditions needed for burning to occur.

The teacher always focuses the objective of her teaching on the content – the fire triangle and the three conditions necessary for fire to occur. In order to reinforce this, she draws the students' responses together and focuses once more on the fire triangle:

Teacher: Now these three conditions support…
Students: Fire.
Teacher: Fire. Right. Now this candle structure is called fire...
Students: Fire triangle.
Teacher: O.K. Now. That means fire triangle is formed by…(pointing to the picture of fire triangle)
Students: Oxygen, fuel and heat.

She hypothesises the results of the experiments with the students and models for them the language of hypothesis in the same way. She asks the students to hypothesise about her demonstrations: '*What will happen to the lighted splint?'*. She then repeatedly uses the language of hypothesis, for example, '*If we put the burning splint into the tube filled with normal air, it will go out'*. At first when she asks these questions of hypothesis, the students answer the question but do not use the language of hypothesis she is modelling. Later, she provides the students with written scaffold on the PowerPoint: '*There ___ be no fire ____ there is no ____'* and a student is able to respond with '*There will be no fire if there is no heat'*. Towards the end of the lesson she asks the class to discuss ways of putting out fires using their knowledge of the fire triangle. By this stage students are able to hypothesise about what will happen under different conditions, applying their knowledge of the science expressed through the English she has modelled:

Teacher: Why does the person cover the wok with a lid when the wok is on fire?

Student: Because when cover the wok with a lid it will remove the oxygen because if there is no oxygen, there will be no fire.

In these extracts, the teacher's starting point in her teaching is the fire triangle and, primarily, the relationships between oxygen-fire, fuel-fire, and heat-fire. In order to explore these relationships, she and her students both need to use the language of the content. She identifies the knowledge relationships of condition and hypothesis as the link between content and language. She then models the language of condition and hypothesis (Kong, 2008, 2009), which is explicitly scaffolded by the written version on PowerPoint slides, to support students' learning of the content and the language.

Eliciting the Language of the Content through Scaffolded Interaction

This example is taken from a Grade 9 geography lesson in Hong Kong on modern farming methods. The teacher is not satisfied with the students often giving short answers to her questions which do not fully express their understanding of the knowledge relationships required by the content. She provides them with various scaffolds to help them give more elaborated answers. In the extract below, the teacher is asking the students to review their learning from the previous lesson by discussing a question with their partner, a strategy she uses as a routine to support ELI students' use of language to learn.

Teacher: But we have discussed the effects on...of scientific farming methods on our environmental pollution. And there is a way how we can elaborate or explain the points here. Can you still remember how we elaborate this point? Think about it…What do you think? Yes? How would scientific farming methods lead to environmental pollution? What kind of pollution will we have? [Students discuss 1 ½ minutes]

Teacher: OK, let us try. I am not looking for perfect answers, so relax. Anna? OK, how can we describe how can the methods lead to environmental pollution.
Anna: Overuse of chemical fertilizer and pesticides.
Teacher: Yes. What else?
Anna: Pests resistant to pesticides and farmers use more pesticides to cause…
Teacher: Well done…
Anna: To cause the…To pollute the environment.
Teacher: Is it something related to water or rivers?
Anna: And pollute the rivers.
Teacher: Yes.
Anna: And polluted the drinking water.
Teacher: Yes, how about the spraying of pesticides? What will happen?
Anna: It…pollute the air.
Teacher: Yes, good, well done. So, I guess it is a good way for you to remember the points. You can start with thinking about the pollution. We can divide the pollution into water pollution, and then air pollution, and then your classmate gave pretty good answers. She can remember all the details and this is what we have last time on elaborating the points. But please remember when you try to write these in your answers, you need to use 'therefore', and use complete sentence, or you can say 'result in' or 'lead to' in order to link the several phrases together.
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Teacher: Is it something related to water or rivers?
Anna: And pollute the rivers.
Teacher: Yes.
Anna: And polluted the drinking water.

Teacher: Yes, how about the spraying of pesticides? What will happen?

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Throughout the lesson the focus is on geography learning. The teacher's planning is based on very clear content learning objectives: the advantages and disadvantages of scientific farming methods and the effects these methods have on environmental pollution. These are not facts, they are relationships. She recognises, however, that as the geography content becomes more complex, she needs to help her students use the English of the content in order that they can learn and express their understanding of the geography in appropriate English. She identifies the knowledge relationship of cause-effect to link the content and the language. She elicits the use of the language of cause-effect with a variety of scaffolds to support and encourage students, who are generally unwilling to speak up in English in class (Marton & Tsui, 2004). In the extract above, the teacher reminds them of the need to elaborate their answers ('*And there is a way how we can elaborate or explain the points here. Can you still remember how we elaborate this point?'*). The students have learnt how to 'elaborate', i.e. to express the cause-effect relationships, in the previous lesson and the teacher ensures that the students express these in full. A short phrase, such as *'farmers use more pesticides'*, which would be a typical response to a teacher's question in an ELI classroom in Hong Kong, does not achieve this. She knows, however, that students find speaking in English difficult and stressful and she provides a variety of scaffolds, including the following:

- asking a focused question using the language of cause-effect ('How would scientific farming methods lead to environmental pollution?');
- rehearsal (by asking the students to discuss the question with their partner before she asks for an answer);
- ensuring a relaxed atmosphere ('I am not looking for perfect answers, so relax.');
- prompts (e.g. 'Yes. What else?');
- praise and encouragement (e.g. 'Well done…');
- cues (e.g. 'Is it something related to water or rivers?');
- nominating a student to answer and insisting on a complete answer, to help them succeed.

Finally the teacher congratulates the student on her answer and explicitly reminds all the students how to use the language of cause-effect. She mentions the use of connectives (*'therefore'*) and verbs (*'leads to'*, *'results in'*). She also points out the need to be more precise in writing, reflecting her concern for the increasing importance of writing as students progress through secondary education.

In the next extract, the students have just finished a short discussion in which they are asked to explain the effects of scientific farming methods on employment.

Teacher: Scientific farming methods may lead to unemployment. This is what we have already discussed, because they use a lot of what? Alice, would you please tell us the point number 4?

Alice: The mechanisation needs less labour and finally leads to unemployment.

Teacher: Very good of you to use leads to, mechanisation, you can say a higher level of mechanisation leads to fewer or…leads to less need of labour, less need of labour, and therefore results in unemployment.

The teacher again uses short pair or small group discussions to allow the students to clarify their understanding with peers in a non-threatening

atmosphere and rehearse an answer they can give before the whole class. In this way she lowers the stress on the students and gets better quality answers. The critical point here is that the student draws on what she has heard the teacher say and uses the appropriate cause-effect language herself (*'The mechanisation needs less labour and finally leads to unemployment.'*). The teacher recognises this and immediately praises the student (*'Very good of you to use leads to'*) to reinforce the learning. The student is also able to use two nominalised words (i.e. *mechanisation* and *unemployment*) linked in a cause-effect relationship, characteristic of academic language.

The teacher's use of the various strategies and scaffolds to elicit from students more elaborated answers supports integrated content-language learning with students being more able to express the knowledge relationship of cause-effect using the appropriate language. The identification of the knowledge relationship of cause-effect in the content and the explicit focus on the language of cause-effect provide the basis for these strategies.

Writing the Language of the Content

This example is taken from a Grade 9 history class in Hong Kong in which students were taught to write four history essays, each focusing on the knowledge relationships of cause-effect and comparison-contrast as required by the history content. This reflects the knowledge structures – text structures framework proposed in Kong (2008) and the genre approach described in Hyland (2004). There was gradual release of scaffolding from the first to the fourth writing activities to help students write more independently and with less need for support.

In the fourth writing activity (see Appendix 1), students had to write an essay on their own. The essay writing was seen as a learning process and not a summative writing assignment. In order to achieve this, the writing was scaffolded in three ways: first, a table was provided to help students collect and organise ideas from the textbook; second, they were given questions to answer which helped them identify the text structure and language use; third,

they were provided with a planning frame in which to structure their ideas before writing the essay. Previous writing activities helped students learn the text structure and language of an explanation-comparison text, and provided them with a model paragraph or a writing frame to complete the writing activities. This fourth writing activity aimed to help students explore three aspects of the comparison-contrast relationships between WWI and WWII: the scale of fighting, the use of weapons and strategies, and the number of civilian deaths. It also helped them explore the cause-effect relationships between these aspects and the degree of destruction. Students learned to structure an explanation-comparison text and used the language of comparison and cause-effect for the purpose of the history content, thus developing their proficiency in CALP.

Appendix 2 shows two pieces of student production for the writing activity, one at the higher end of performance and the other at the lower end. In the first piece, the student manages to structure the writing coherently and logically, starting by pointing out the theme of his comparison (i.e. WWII was more deadly and destructive than WWI) and the aspects to compare; he then compares each aspect in turn, and finishes by summarising the comparison. He demonstrates an understanding of content concepts, such as the cause-effect relationships between wars and destruction, and the use of different weapons and strategies (and the differences between them) to bring about different degrees of destruction. The language of cause-effect, the language of comparison and the subject-specific vocabulary, all of which are demanded by the content, are appropriately used. Noun phrases are used to identify the aspects of comparison. The level of CALP in this piece is much higher than that in the second piece, where the student uses interpersonal language (BICS) to address people (e.g. *We know, Now I will talk you about*) rather than to address knowledge (CALP). The second piece, however, still exhibits a recognisable structure, which is a key feature of learning in the four writing activities.

The knowledge structures – text structures framework used to design these writing activities follow the principles of planning from the content,

represented in knowledge structures (i.e. knowledge relationships), and teaching the language of the content explicitly, through the teaching of the text structures and language of the knowledge structures represented. The writing activities can thus support students' content and language learning, and their academic language and writing development to prepare for learning in higher education.

CONCLUSION

In view of the continuing importance of secondary ELI in Asia, it is helpful to explore what distinguishes secondary from primary ELI and how the former can be effectively implemented. We have explored two significant challenges which secondary ELI students face and some pedagogical principles that help students meet these challenges. We have also used ELI classroom data from Hong Kong and Xi'an to illustrate some pedagogies that apply the principles to help students. We are proposing that secondary ELI pedagogies need to start with planning from the content because the content is complex yet cannot be avoided. The complex content necessitates complex language use. As content and language learning are the dual curriculum goals, the explicit teaching of the language of the complex content is necessary for these goals to be achieved. Our data suggest that the use of knowledge relationships can serve as a link between content and language to support the teaching and learning of both. This accords with the pedagogical framework proposed by Kong (2008) for integrating content and language teaching and learning in a secondary ELI context.

The implementation of this pedagogy places considerable demands on the teacher. Teachers must be prepared to go beyond their own curriculum area, be it English or a content subject, to be able to integrate both and make the integration explicit to students. The implications for teacher education, therefore, are considerable and warrant further study.

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APPENDIX 1
The Fourth Writing Activity

Topic: Comparison of WWI and WWII

Why was the Second World War more deadly and destructive than the First World War?

Write an essay to **explain** your answer.

You can **compare** the two wars in the following areas:
1. scale of fighting
2. weapons and strategies
3. civilian deaths

Use a **table** to help you collect and organise information. You can find a lot of the information from the textbook but you need to summarise it in your own words.

	WWI (p. 23)	**WWII** (p. 70)
scale of fighting (How large an area did the war take place in?)	_____ _____ _____ _____	_____ _____ _____ _____
	Which was more destructive: WWI / WWII? Explanation (How did the facts prove it was more destructive?): _____ _____	
	WWI	**WWII**
weapons and strategies	weapons (p. 34): _____ _____ _____	new weapons (pp. 76-77): _____ _____ _____

	strategies (p. 35: use 3 sentences to describe the strategies used at land, sea and air): ___- _____ _____ _____ _____ _____ _____ _____ _____	new strategies (p. 72 & p. 76: use 2 sentences to describe the strategies used at sea and air): _____ _____ _____ _____ _____ _____ _____ _____
	Which was more destructive: WWI / WWII? Explanation (How did the facts prove it was more destructive?): _____ _____	
	WWI (p. 33)	**WWII** (p. 79)
civilian deaths	_____ _____ Mass killing? Y / N	_____ Mass killing? Y / N e.g. _____ _____ _____
	Which was more destructive: WWI / WWII? Explanation (How did the facts prove it was more destructive?): _____ _____	

Now, write your essay using the information you have collected in the table. Ask yourself the following **questions**. Use the answers to make a plan before you start writing.

What type of writing do I have to write?

_____

How should I organise the writing / How many parts are there in this type of writing? What is each part about?

_____

_____

_____

What language do I have to use to compare? (Write down a few words that signal comparison.)

_____

What language do I have to use to explain? (Write down a few words that signal cause-effect relationship.)

_____

Now, **make a plan** of the main points you need to include in your writing.

Part 1: _____

_____ was more deadly and destructive than _____ _____ in terms of (use noun phrases) _____

Part 2: _____ (one **paragraph** for each area)
Area a: _____
Area b: _____
Area c: _____

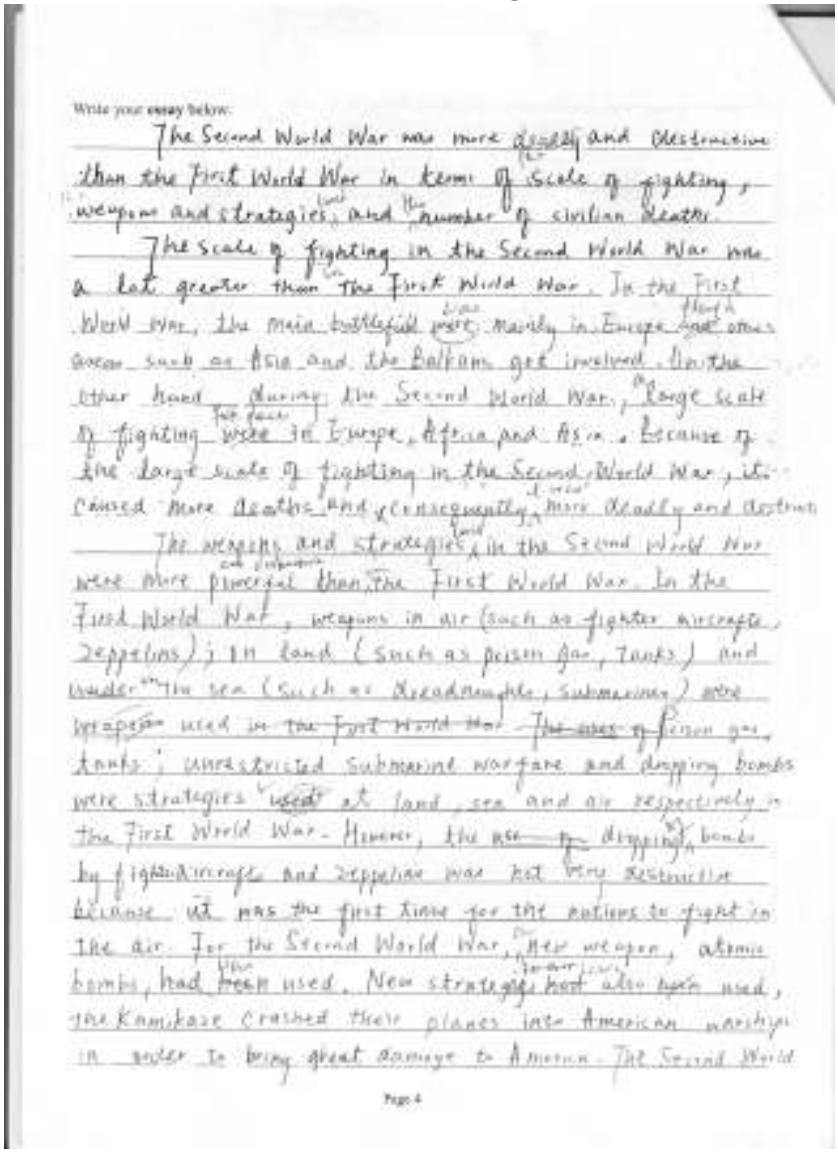
Part 3: _____

_____

_____

Write your **essay** below:

APPENDIX 2
Student Writing



Write your essay below:

The Second World War was more deadly and destructive than the First World War in terms of scale of fighting, weapons and strategies, and the number of civilian deaths.

The scale of fighting in the Second World War was a lot greater than the First World War. In the First World War, the main battlefield were mainly in Europe and other ocean such as Asia and the Balkans get involved. On the other hand during the Second World War, large scale of fighting were in Europe, Africa and Asia. Because of the large scale of fighting in the Second World War, it caused more deaths and consequently, more deadly and destruc

The weapons and strategies in the Second World War were more powerful than the First World War. In the First World War, weapons in air (such as fighter aircrafts, zeppelins); in land (such as poison gas, tanks) and under the sea (such as dreadnoughts, submarines) were weapons used in the First World War. The uses of poison gas, tanks; unrestricted submarine warfare and dropping bombs were strategies used at land, sea and air respectively in the First World War. However, the use of dropping bombs by fighter aircrafts and zeppelins was not very destructive because it was the first time for the nations to fight in the air. For the Second World War, new weapon, atomic bombs, had been used. New strategy had also been used, the Kamikaze crashed their planes into American warships in order to bring great damage to America. The Second World

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War was more deadly and destructive because the atomic bomb caused many deaths. It was powerful and destructive enough to cause Japan to surrender, also powerful strategies and weapons caused more deaths.

The number of civilian deaths in the Second World War was greater than the First World War. In the First World War, 8.5 million people were killed and 30 million people were injured. However, 60 million people were killed in the Second World War and mass killing occured, the Nazi Party killed about 6 million Jews. As a result, the Second World War was more deadly and destructive because more people died due to weapons and mass killing.

To sum up, the Second World War was more deadly and destructive than the First World War because of larger scale of fighting, more powerful weapons and strategies and also the great number of civilian deaths.

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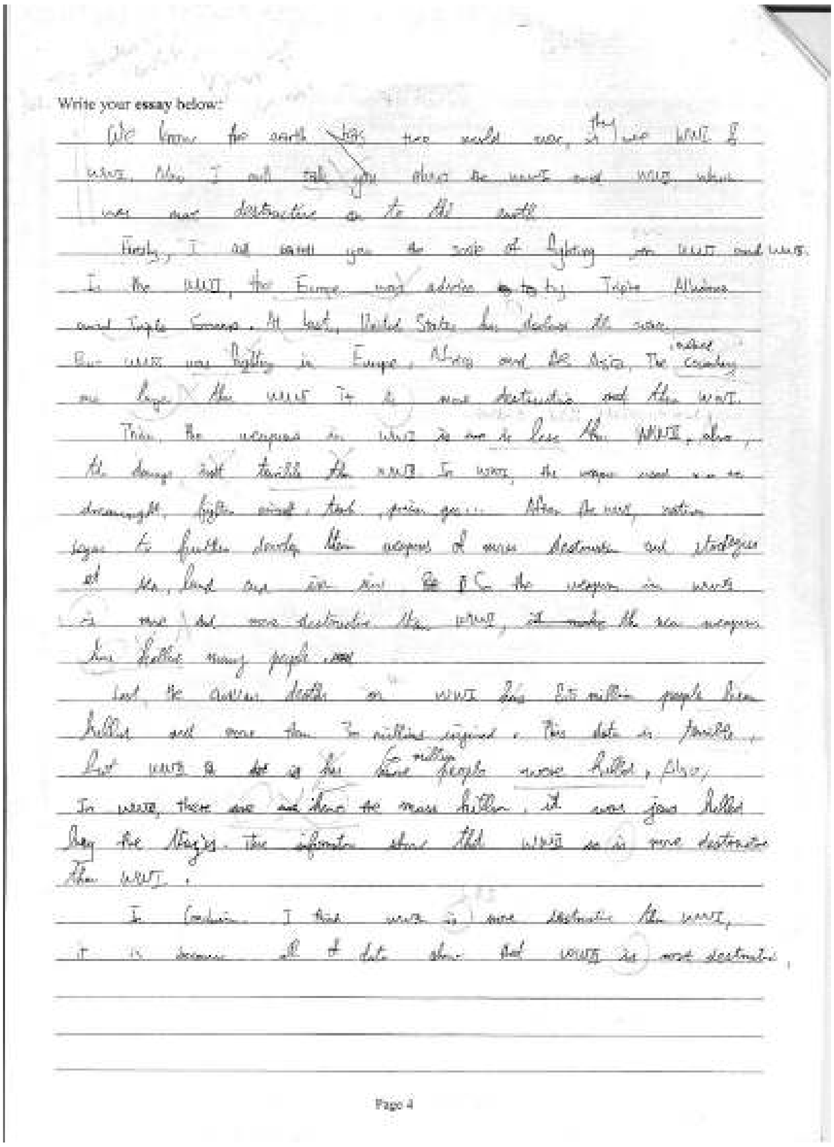
Write your essay below:

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