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Multilingual and Multimodal Resources in L2 English Content Classrooms

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The Global Spread of English and the Desire for English Medium Education in the 'Outer and Expanding Circles'

English has become an everyday presence in many cosmopolitan cities today in both the 'outer circle' and 'expanding circle' of World Englishes (Kachru, Kachru, & Nelson, 2006). In international airports in Hong Kong, Seoul, Bangkok, Lima, or Rio de Janeiro, bilingual or multilingual signs are everywhere, and among them there are always English signs. The global spread of English has arisen from a host of historical, political and socioeconomic factors. In many 'outer circle' contexts such as Singapore, Hong Kong and Malaysia, where English was historically a colonial language imposed by former British colonial governments, English has carried with it the baggage of colonial histories and exploitations. However, today English has also become a predominant medium of global trade, finance and commerce, science, technology and the Internet. For instance, it serves as a chief medium of communication for different peoples coming from both

within and beyond Asia and it is a common scene in Southeast Asian cities that people of diverse ethnic backgrounds are communicating in some variety of English (see other chapters in this volume; ...).

Comment [C1]: Constant & Brian to fill in.

Southeast Asia, in particular, consists of a vast array of different societies which seem to be at different historical and economic conjunctures of their respective developmental trajectories. However, in all their encounters with the West, now dispersed around the globe in various forms of globalization and global capitalism, English has become an indispensable linguistic resource they seek for themselves (though English has in many formerly British colonies been present to varying extents in the administration and education structures for a long time). The governments in these countries, in their respective socioeconomic contexts, are often infused with a desire for development, modernity, and human resource capital for successful participation in the new global economic order. Such capital includes English with respect to information/communication technology (ICT), business management and commercial know-how and so on, and very often English comes in a package with all these desirable 'goodies', or is considered the indispensable medium for bringing in and acquiring these goodies. How to enable students to cross the English divide—how to make English linguistic capital accessible to more of the school population and how to spread English capital more efficiently and evenly across different social sectors in the society—have become important issues in language policy and English across the curriculum pedagogical research. These concerns very often occupy priority places in national development agendas. For instance, in many Southeast Asian societies today, serious

government attention is given to the notion of using English medium education programmes to promote the use and learning of English. Below we shall illustrate with the case of Hong Kong some of the dilemmas and difficulties associated with English medium education in these contexts and how a proposal of introducing multilingualism, multimodalities and popular cultural genres into the L2 English content classroom might offer a way out of these dilemmas.

The policy context of L2 English medium education in Hong Kong

The current policy dilemma in Hong Kong is how to ensure that students' proficiency in English can be improved, while avoiding the social and educational costs of the previous policy of linguistic streaming (in 1998, schools were streamed into English medium or Chinese medium and there has since been the labeling effect of the Chinese medium schools as second-rate in society; see review of this policy in Lin & Man, 2009). Parental demand for access to English-medium schools is extremely strong and the imposition of restrictions of access through streaming is perceived as inequitable and as reproductive of the structures of privilege that existed in colonial times. Twelve years after the introduction of the 1998 streaming policy, the government is relaxing or destabilizing the strict boundary between the Chinese medium Instruction (CMI) schools and English medium instruction (EMI) schools. Starting from September 2010, over 300 former CMI secondary schools in Hong Kong are allowed to switch the medium of instruction (MOI) to English for some of their academic subjects or for some percentage of the lesson time of each of their academic subjects under the new 'fine-tuning MOI policy' of the Hong Kong Education Bureau. Many CMI schools have chosen to change the MOI of one or two of their academic subjects (usually Science or Mathematics, but in some schools

Geography or Economics too) or some percentage of the lessons of each of their academic subjects from CMI to EMI. One pressing question, however, remains: what kind of bridging curriculum and pedagogy will help (former CMI) basic English proficiency students to cope with changing their learning medium to English?

The need for innovative approaches to L2 English content instruction

In view of the above difficulties and dilemmas, there is the need to break away from rigid linguistic streaming models to develop flexible, productive pedagogies for L2 English content classrooms, as other authors in this volume have outlined. Once we can think out of the box and break away from the static concept of languages as discrete monolithic entities then we might find a whole new space for exploration of innovative means to achieve reachable goals in both English learning and content learning. We shall turn to a discussion of four directions that might offer potential for developing innovative ways out of our difficulties and dilemmas: (i) developing multiple flexible approaches to content-based L2 instruction; (ii) breaking away from the traditional immersion model as the only best approach to designing L2 English content programmes; (iii) drawing on multimodal and continua theories of language and communication; and (iv) drawing on genre-based multilingual, multimodal and popular cultural resources to provide basic-L2-proficiency students with access to L2 academic content and literacy.

(i) Developing multiple flexible approaches to content-based L2 English instruction

In traditional thinking about approaches to designing bilingual education, there is a sharp boundary drawn between teaching L2 English as a subject and using L2 English as the

MOI for teaching content. However, in exploring innovative approaches to designing L2 English content programmes, such a rigid boundary needs to be crossed over. Figure 1 shows a new way of thinking: teaching L2 English as a subject and using L2 English as an MOI for teaching content does not need to be seen as two discrete programme models but as lying on two end-points of a continuum on the horizontal-axis in Figure 1. If we can expand our thinking in this direction, we would be able to design multiple flexible approaches to L2 English content programmes. For instance, in many Southeast Asian contexts where L2 English teaching resources do not exist in abundance (e.g., not enough English fluent teachers to use L2 English as the sole MOI for teaching content subjects), we can develop a strong content-based L2 English programme, which can serve as a good-enough programme with the existing resources to make accessible to the majority of students L2 English academic literacies (e.g., English academic registers and genres, lexico-grammatical knowledge and skills relevant to these genres). Side by side with content subjects taught in L1 (i.e., first language, which ensures that the content teaching goals are reached), we can have a content-based English L2 curriculum taught as an accompanying English academic literacy enrichment programme. We propose one step further that if in some 'outer or expanding circle' contexts where the implementation of L2 English as an MOI for any content subjects is not feasible given inadequate teaching resources (e.g., EMI staff members), then the development of a strong L2 English enrichment programme that has a focus on the academic registers of some key content subjects (see also a review of different ESL in the mainstream programme options in Davison and Williams, 2001) is a good choice as a possible mode of providing some

access to English academic registers (see also review of programme options in Lin and Man, 2009)

[Insert Figure 1 about here]

In Thailand, for instance, the Sarasas Ektra Bilingual School has pioneered an ‘immerse twice’ model (Jones, 2007), which consists of a two-track curriculum: key content areas are taught in the students’ L1 in one track, and the same key content areas (with a less packed but equally challenging content syllabus that is covering less content information but retaining the discipline-specific methods of inquiry) are taught in English (L2 of the students) in the parallel track to the same students. In fact the English instruction on content matter can be seen as a content-based English for Academic Purposes (EAP) instruction, and not as an ‘immersion programme’ in the sense described in the traditional bilingual education literature. In many Southeast Asian states, where content curriculums tend to be packed with information items to prepare students for public examinations on these subjects, this two-track system enables students to cover all the curriculum content for public examinations in the L1, while at the same time allowing for ample exposure of the students to learning the discipline-specific academic registers in the L2. This two-track system seems to be workable in this context of the Sarasas bilingual school, where the majority of students are expecting to continue their studies in local Thai universities that, however, offer some programmes in English (e.g., International Business Studies). The author has observed classes and interviewed students in this school and found that the students were not bored by having to learn the subjects ‘twice’, as the subject

curriculums, in the words of the students, ‘are organized differently and taught by different teachers’. The students feel that this approach has both reinforced their understanding of the content subjects and increased their English ability to learn these content subjects. The students’ public examination scores also show high levels of both academic attainment and English language attainment. While this approach might need to be adapted for it to be workable in other contexts, it does provide an innovative way of thinking when we explore new solutions out of our old dilemmas.

(ii) Breaking away from the ‘immersion’ thinking

Another innovative way of thinking about flexible approaches to L2 English content instruction might involve the need to break away from the immersion model as the only best approach to EMI education. As an increasing number of studies on the potential positive benefits of making use of L1 resources (e.g., Lin, 2006) has shown, strategically and systematically using L1 can help to bridge the gap between the students’ existing L2 proficiency and the required L2 proficiency to learn in the L2. This proposal will be further explored in the sections below.

(iii) Multimodal and continua theories of language and communication

As mentioned above, one of the pedagogical straitjackets imposed by much official and public discourse in Southeast Asian contexts is that of ‘bilingualism through monolingualism’: i.e., to use only the target language as the medium of instruction in the classroom with the hope that students will become bilingual through such monolingual total immersion classes, denigrating and excluding the L1 resources of the students from

the L2 classroom. Fuelled by the native speaker myth (i.e., only teachers speaking the students' L2 as their 'mother tongue' should ideally be employed as teachers in L2 classrooms), the more monolingual the teachers are, the more 'pure' and valued they seem to be in many Southeast Asian contexts because then they are believed to be using only the L2 of the students without any code-switching or mixing;. this is an entrenched theme in official policy discourse that has been critiqued by researchers (Lin, 2000; Luk and Lin, 2005).

Much of such public and official discourse has derived its legitimacy and authority from some version of Second Language Acquisition (SLA) theory that has not been informed by more recent developments in multimodal and continua theories of language and communication. Language (e.g., L1, L2, L3) should not be seen and planned as discrete separate entities but rather as continua (Hornberger, 2003; Canagarajah, 2005) and language communication can only be fully understood if it is analysed as part of multimodal communication (Kress and van Leeuwen, 1996, 2001). Recent critical sociolinguists also argue that language as a local practice is inherently plural and multiple and it have been the categorizing ideologies of colonialism and modern state nationalism that have imposed boundaries and categories on language (Pennycook, 2003; 2010).

Multimodality analysis as applied to the analysis of the curriculum practices of science teaching and learning (Kress, Jewitt, Ogborn, and Tsatsarelis, 2001) is especially useful for our purposes here. The multimodal analytical tools used to analyse textbook visuals and graphics, are useful in enhancing teachers and students' awareness of how textbooks

and curriculum practices (including teachers' gestures, demonstrations, actions and blackboard drawings) present and construct certain views of the nature and status of science knowledge which are by no means natural or universal but reflecting certain ideological stances. By introducing teachers and students to some of these multimodal analytical tools teachers and students' communicative repertoire of multimodal resources useful for teaching and learning content subjects will also be enhanced.

(iv) Drawing on genre-based multilingual and multimodal resources to provide basic-L2-proficiency students with access to L2 academic content and literacy.

Lin (2006)'s study shows how a bilingual science teacher uses a bilingual teaching approach to provide basic-English-proficiency students with access to the English science discourse. While critics may say that students will be deprived of the much-needed L2 exposure to learn how to give explanations, arguments and examples in L2, we have to acknowledge that what the teacher is doing is basically helping students to understand the L2 science discourse in the L2 curriculum (and texts) and to be able to respond with appropriate L2 science discourse to questions in the L2 science curriculum. Lemke in his book on science classrooms (1990) concludes that learning science basically involves the learning or acquiring of a set of science discourses and their relations. For instance, mastering the science concept of 'photosynthesis' means being able to produce in speech and writing a science definition of the concept (e.g., "Photosynthesis is the process by which solar energy is converted into food energy by green plants"). Mastering science is thus mastering the discourses, rhetorics (Kress et al, 2001) or discipline-specific ways of expressing/constructing scientific concepts and theories and the interrelationships among

them. When the bilingual teacher provides a rich L1 semantic context (of L1 lifeworld examples and experiences familiar to the students) to embed the presentation of the lexico-grammatical elements of the L2 science discourse to facilitate students' understanding of L2 science discourses (i.e., the concepts and theories mediated in specific L2 science lexico-grammatical expressions such as "matter is made up of small particles", "particles are in continuous motion", "this is called Kinetic Theory"). We have to notice that the mastering of the science discourses (or the science genres) is not automatic and involves a lot of concrete illustration of these abstract general concepts with familiar daily life examples, and the corresponding shuttling to and fro between the L2 science discourses and the familiar L1 lifeworld discourses (Luke, Freebody, Cazden and Lin, 2005). Given this situation, it is difficult for basic-English-proficiency students to access (e.g., understand and acquire) the English science discourse without the linguistic and cultural bridging functions offered by the L1 semantic context that the bilingual teacher provides as well as the multiple modes of science teaching, especially visual modes (Kress et al, 2001) . While the students might not have exposure to English for giving lively explanations and examples, the students are at least helped to access and acquire the English science discourse through the use of a bilingual/multilingual and multimodal resources.

However, if the above sounds too much like the 'Identify and Induct' paradigm of recent studies in academic literacies (see critique of the 'Identify and Induct' approach by Street, 2004; Lea and Street, 1998 and Lillies and Scott, 2007 from an 'academic literacies' perspective), we have to point out that the genre-based approach can be

coupled with a critical awareness raising. While students are being apprenticed into science discourse genres, teachers can also simultaneously draw students' attention to the social-historical constructedness of these genres (or discipline-specific ways of expressing/seeing/viewing the world) and thus the potential for students' own transformation of the genres in their own works. As Kress and van Leeuwen (1996) point out:

Teaching the rules of writing has not meant the end of creative uses of language in literature and elsewhere, and teaching visual skills will not spell the end of the arts. (Kress and van Leeuwen, 1996, p. 3)

Likewise, teaching the genres and rhetorics of science discourse does not necessarily turn students into blind followers of these genres and rhetorics if the teaching is done in a way to stress the constructedness (and deconstructing the universalness) of science knowledge. The key point here is that genre theory is used not only to describe what students read and write but to design how they are taught. This involves a pedagogy that asked:

How can we develop teachers who are authorities, without being authoritarian?
How can we develop students who control the distinctive discourses of their culture, and at the same time are not simply co-opted by them but approach them critically with a view to renovation - to challenging the social order which the discourses they are learning sustain? (Martin , 2010, Slide 81)

To summarize this section on innovative approaches to L2 English content instruction , if we revisit Figure 1 and utilize the criss-crossing of the horizontal axis and the vertical axis to design innovative approaches to the design and provision of bilingual education,

we can put different innovative combinations of approaches in the different quadrants. For instance, in quadrant two, we can have both L1 as MOI for certain content subjects and an additional component of content-based L2 instruction (e.g., as the option being implemented in Malaysia now). In quadrant four, we can have only L2 content-based L2 instruction (as the “shoe-string budget” bilingual education mentioned above). In addition, we can combine quadrants, such as quadrant 2 and 4, as in the Sarasas Ektra Bilingual School in Thailand discussed above. Different innovative approaches to LPP can be explored to suit the local needs and availability of resources in different contexts once we can break away from traditional immersion approaches to the provision of bilingual education.

In the following sections I shall outline the theoretical framework of a genre-based bridging pedagogy that draws on multilingualism and multimodalities to help basic-English-proficiency students to develop L2 English academic literacy.

Proposing a Genre-based, Multilingual and Multimodal Bridging Pedagogy

This section outlines the theoretical framework of a bridging pedagogy that the author is currently developing in the Hong Kong junior secondary school context. The author draws on multiple theoretical traditions in applied/educational linguistics and proposes a genre-based, multilingual, multimodal framework for developing a viable bridging curriculum for Hong Kong secondary schools to assist students in making the transition from CMI to L2 English academic learning. The theoretical frameworks drawn upon are: (1) Halliday’s linguistic theory of ‘grammatical metaphor’—its pivotal role in the

abstraction and technicalization of the language of science as well as Kress and van Leeuwan's Halliday informed and inspired multimodality analysis; (2) the Sydney School of genre analysis and genre-based pedagogy for academic literacy development; and (3) bilingual education and ESL theories of bridging pedagogies. Central to the proposed framework are the principles of genre-based pedagogy (Martin & Rose, 2009; Rose, 2008) and Gibbons (2009)'s methods of 'designed scaffolding and bridging'. While Gibbons' methods can be seen as lying on the level of classroom techniques, the principle underlying her methods is that of using multiple resources (including students' familiar linguistic resources such as their L1) to assist students in accessing the curriculum. This principle is in line with our overall theoretical framework of drawing on multiple linguistic and multimodal resources in curriculum design and practices.

Multiple Theoretical Traditions

In the following sections the useful theoretical traditions will be outlined. Due to limited space these are not meant to be comprehensive delineations of the theories but just synoptic outlines to bear on the present discussion on how to assist students in participating in L2 English content lessons.

(1) Development of knowledge and the language of science: the linguistic and multimodal processes of 'packing' and 'unpacking' English science texts

Halliday (1998) views language development as the development of a child's potential for creating meaning (or the child's 'semogenic' capacity). This semogenic development is conceived as a growing linguistic ability to transform *experience* into language-based

meaning. Knowledge development is thus closely linked to linguistic development under Halliday's model of language and knowledge: as a child moves from commonsense knowledge to educational knowledge and to technical knowledge, the child has to be assisted in learning to move in and out of the different linguistic processes of 'packing' and 'unpacking' the language of science or the language of abstraction and technicality. 'School knowledge is prototypically made of language' (Halliday, 1998: 25), and acquiring the knowledge of science entails acquiring the specific linguistic and multimodal ways of making meaning (e.g., of speaking and writing, of action sequence in conducting experiments) in the science disciplines/communities. These specific linguistic ways of making meaning cannot be expected to be naturally picked up by a child and need to be explicitly taught to the novice.

The main characteristic of the language of science and the main barrier to the learner in tackling science texts is related to the use of 'grammatical metaphor' in educational and technical language. Grammatical metaphor, as articulated by Halliday (1993, 1998, 2004), refers to the specific linguistic processes of 'packing' dynamic, concrete action processes (realized linguistically as verbal clauses) into static, abstract entities and their (logical) relations (realized linguistically as nominal groups); for instance, the everyday oral language of sentence (i) (in a linear, temporal, storytelling/narrative mode) is 'packed' into the technical language of sentence (ii) (in a 'Y is caused by X', non-linear, explanatory logic) below:

- (i) The driver drove the bus too fast down the hill, so the brakes failed.

(ii) The brake failure was caused by the driver's overrapid driving of the bus downhill.

Thus a Secondary 2 (Grade 8) student is likely to encounter school texts with sentences like the following one:

(iii) Waste gases released by motor vehicles, power stations and factories are the main sources of air pollution in Hong Kong. (From a Secondary 2 Integrated Science textbook commonly used in EMI schools)

To 'unpack' academic language for students, a competent EMI teacher might typically transform (or translate) sentence (iii) into everyday language that usually consists of the following assemble of sentences delivered in an IRF (Initiation-Response-Feedback) classroom discourse format (Sinclair & Coulthard, 1975; Heap, 1985; Lin, 2007); such IRF exchanges function to engage students in talking about the text, to relate the textbook topic to students' daily life experience, and to get students interested:

T: Why do we have air pollution in Hong Kong? What are the things that pollute the air? What are the things that make the air dirty, making it smelly or bad for people? Can you give me some examples? What are the things that make the air bad and the bad air will make you sick?

S1 /S2 /S3: Factories! Cars! Smoking!

T: Yes, very good! Cars, factories, what else? What other things can you think of?

S4: Power companies!

T: Yes, very good! Power companies, power stations... So, let's look at the textbook, page 65, first paragraph, it says: Waste gases released by motor vehicles, power stations and factories are the main sources of air pollution in Hong Kong. So, now, you know the main sources of air pollution in Hong Kong, do you? The cars, the power stations and factories, they give out waste gases, dirty gases, and so these dirty gases pollute our air and make people sick, right?

The above reconstructed classroom exchanges (based on the PI's many years of classroom observation in Hong Kong schools) is readily recognizable by teachers as a common pedagogic strategy in rendering the school academic texts accessible and interesting to students. It illustrates how teachers are engaged in the linguistic/interactive processes of 'unpacking' academic texts for students in their daily teaching. When the students' English proficiency is limited and even English paraphrasing (as shown above) might not help the unpacking of academic texts, the teacher might draw on L1 resources to assist with the unpacking process as shown in the reconstructed dialogue below (English translations of the Cantonese utterances are placed in square brackets immediately after the utterances):

T: Why do we have air pollution in Hong Kong?

S: [no response]

T: [slowly] So, why do we have air pollution in Hong Kong? What are the things that pollute the air?

S: [no response]

T: Air pollution, 咩係 <what is> air pollution 呀 <question particle>?

S: 空氣 <air>...

T: 空氣咩呢 <air what>?

S: 空氣污染 <air pollution>!

T: Yes, 空氣污染 <air pollution>, 即係<that is> air pollution。咁點解會有<so why is there> air pollution 呢 <question particle>? 咩野會做成<what will lead to> air pollution 呢 <question particle>? 個<the> source 係咩呢 <is what>?

S: 汽車 D 廢氣 <cars' waste gas>!

T: 係喇 <yes>, 汽車 D 廢氣係其中一個源頭<cars' waste gas is one of the sources>, 其中一個<one of the> source。仲有 D 咩<what are the other> source 呢 <question particle>?

S: 工廠 D 廢氣... 車 D 廢氣... 食煙... <factories' waste gas... cars' waste gas... smoking...>

T: 工廠 D 廢氣點用英文講 <factories' waste gas, how to say it in English>? 工廠係 <factory is>...

S: Factory!

T: 係喇<yes>, factory。咁廢氣呢<then how about waste gas>?

S: air...

T: no, not air. 廢氣唔係叫做<waste gas is not called> air, 係<it's> waste gases。Waste gases, 即係廢氣 <that is waste gases>。

S: 哦 (Yes)...

T: 哦 (Yes) ,咁即係咩呢 <so, what does that mean>? 除咗<apart from> waste gases, 仲有咩野其他源頭呀 <what are the other sources>?

S: 空氣污染嘅源頭有汽車 D 廢氣、工廠 D 廢氣同食煙 D 廢氣<The sources of air pollution are car waste gas, factory waste gas and smoking's waste gas>。

T: Right. Any other sources?... No? no other sources? 無其他源頭喎 <No other sources>? OK, so, let's look at the textbook, page 65, first paragraph, it says: *Waste gases released by motor vehicles, power stations and factories are the main sources of air pollution in Hong Kong.* 嘩, 睇吓呢句 <Okay, look at this sentence> *Waste gases released by motor vehicles, power stations and factories...* motor vehicles 同<and> factories 你地都講啱咗 <you are all correct about>, 但無講到<but you haven't talked about> power stations 喎 <still>。咁咩係<So, what are> power stations 呀 <question particle>? What is a power station?

S: 係地鐵站<It's subway station>!

T: 唔係地鐵站<It's not subway station>, 地鐵站係<subway station is> MTR station, 你答啱一半啫<You're only half correct>。咩係<What is> power station 呀<question particle>? 仲有 D 咩 <Are there any other> station 呀 <question particle>? 唔係車站呀吓 <Remember it's not a train station>?

S: 發電站<Power station>!

T: 係喇<Yes>, right! 係發電站 <It's power station>。Very good! Power station 就即係發電站喇 <is power station>。咁究竟咩野會做成<So, what will lead to> air pollution 嘅 sources 呢<air pollution's sources>? Look at the textbook again, *Waste gases released by motor vehicles, power stations and factories are the main sources of air pollution in Hong Kong.* So now you know the meaning of this sentence, right? Now you know the main sources of air pollution in Hong Kong, do you? The cars, the power stations and factories, they give out waste gases, dirty gases, and so these dirty gases pollute our air and make people sick, right? 咁呢 D 空氣污染嘅源頭就整到我地病喇 <So, these air pollution sources make us sick>...

In the above reconstructed classroom exchanges, we illustrate how the teacher uses both L1 everyday language and examples and L1 formal technical language (e.g., waste gases, sources of air pollution) to unpack the L2 academic text for his students. Teachers can also enhance their ability of unpacking science texts for students using visuals (Kress et al, 2001) and graphic organizers (Kress and van Leeuvan, 1996). For instance, just tabulating the L1 and L2 expressions in a contrastive table will help students to grasp the L2 technical language using L1 resources. Of course, other visual images regarding the sources of pollution can be used. Students can also be asked to draw multilingual comic strips in groups to brainstorm about the sources of pollution in Hong Kong and the world. Sociolinguists and new literacies researchers have, for instance, researched the rising use of multilingual resources in the new media among young people in recent years (Androutsopoulos, 2006, 2007, 2008; Lin, 2008); drawing on new digital and popular cultural resources such as youtube videos on science topics will also help link students' everyday popular cultural worlds with their school worlds (Lin and Man, 2011).

[Insert Table 1 about here]

We can see that multiple linguistic (including L1 informal and formal lexico-grammatical resources) and multimodal resources are useful in making academic texts accessible and interesting to students and this can be summarized in Fig. 2.

{Insert Figure 2 about here}

While unpacking academic texts to students is very important, what is missing in many classrooms, however, is the explicit modelling and mentoring of the linguistic processes of ‘packing’ or ‘repacking’; i.e., to assist students to progressively move from everyday oral language to educational and technical language, and this has to be part of, in tandem with, an L2 academic literacy programme. It is to this second related theoretical tradition that we shall turn in the next section.

(2) Genre Analysis Theory and Genre-based Pedagogy for Academic Literacy Development: Modeling and mentoring academic genres in the context of shared experience

What students need to learn to ‘pack’, ‘unpack’, and ‘repack’ in order to succeed in navigating the textual world of the school is not just condensed nominal groups (grammatical metaphors) at sentence level, but also the genres of academic texts. Discipline-specific genres consolidate the knowledge patterns of a specific discipline and both co-textualise it and contextualise it with respect to related knowledge. Genres are ‘consolidation displays’ or ‘storage devices’ / knowledge configurations that have evolved in specific communities of an academic discipline. Building on Halliday’s systemic functional linguistics, the Sydney School of genre analysis further developed theoretical and analytical tools of ‘discourse semantics’ (i.e., analyzing meaning patterns beyond the clause level) (Martin, 1992; Martin & Rose, 2003/2007). While there are other schools of pedagogically oriented genre analysis (e.g., the New Rhetoric group (cf Russell et. Al., 2009), or genre analysis in the ESP (English for Specific Purposes) traditions; c.f., Prior and Hengst, 2010), the Sydney School of genre analysis has had a

long tradition of developing a school-based pedagogy for working with primary and secondary students using the genre-based approach to academic literacy development (e.g., Martin & Painter, 1986; Martin, 1989, 1990; Derewianka, 1990; Rothery, 1990, 1994, 1996; Martin & Rose, 2008).

David Rose's website, *Reading to Learn*, has served as a knowledge exchange nexus to apply genre analysis theory to the everyday work of teachers, supporting a school-based pedagogy for scaffolding students' academic literacy development (<http://www.readingtolearn.com.au/>). The Sydney School's genre-based academic literacy pedagogy can be summarized in Rose (2008)'s *Reading to Learn Cycle*. (Fig. 3). (In adopting this approach we also acknowledge the usefulness of other genre approaches developed in the literature which can all inform our curriculum practice; e.g., Swales, 1990, 2004; Russell et.al., 2009; Bhatia, 2001). It hinges on the importance of explicit modeling and mentoring students about the features of specific academic genres through the cycle of: (i) Deconstruction (teacher models to students how to analyze genre schematic structure and sentence patterns of reading texts) (see Fig. 4, Appendix, for an example of genre analysis of an informational report on Barn Owls), (ii) Joint Construction (teacher assists students in co-constructing texts in a specific genre and joint-writing of sentences), and (iii) Independent Construction (students independently write sentences and construct texts in a specific genre).

{Insert Fig. 3 about here}

Such explicit modeling and mentoring, however, has to take place in a context of shared experience instead of through mere lecturing of genre structure and sentence features.

Comment [BVS2]: Yes, a key point and implicitly a critique of much of the Sydney approach, especially Martin

And to avoid an over-emphasis on linguistic structures, emphasis has to be given to providing a multimodal context for the curriculum topic. How to establish a rich multimodal curriculum context of meaningful experience shared by teachers and students is essential to the success of explicit modeling and mentoring of academic literacies. For instance, explicit modeling of text analysis (e.g., Fig. 4) should come only after a meaningful context of shared experience has been established; e.g., the context of writing an informational report on the kinds of interesting living things that one can find in the campus or neighborhood). The *Write it Right--Sydney Metropolitan East Disadvantaged Schools Program* (Rothery, 1994), for instance, provides resources to teachers and students to carry out a genre-based pedagogy for academic literacy learning. As academic knowledge lives mainly in writing, or reading texts that also integrates visuals, images and increasingly in conjunction with sound too, and only a fraction of the discipline-specific knowledge can be covered orally in class, reading is crucial. Students have to learn to read academic texts. In the teacher-student joint reading and writing processes, an important unpacking and repacking context is created. Through teacher-student joint reading, students are apprenticed into using the unpacking/reading strategies to extract useful concepts and their logical relations from the text and to re/present this content in visuals (e.g., graphic organizers, diagrams to enhance students' grasp of the scientific concepts and their logical relations). Through teacher-student joint writing, students are apprenticed into using the repacking/writing strategies to re-textualize the graphically represented information and logical relations into appropriate text types in the

discipline. However, how can these joint-reading and joint-writing processes be enabled among EFL students who might still have gaps in their English proficiency?

{Insert Fig. 4 about here}

(3) Bilingual Education Theories of Scaffolding and Bridging in L2 Academic Literacy Development:

As the Sydney School genre-based academic literacy pedagogy has been developed mainly for scaffolding L1 students (albeit always including disadvantaged and indigenous / linguistic minority groups in their development phases), one needs to turn to bilingual education theories and L2/ESL academic literacy pedagogies for theoretical and pedagogical input on how best to bridge the L2 academic literacy development of L2 learners (e.g., English as an L2 might be a language used only in the school context and not in the communities or everyday life of the students and their families and in the larger society—as in Hong Kong, China or many East Asian societies).

Such an L2 context often means that multiple gaps exist not only in the students' L2 academic literacy knowledge and skills, but also in their L2 oral everyday language and oral academic language skills, as well as L1 oral and written academic language skills (see Fig. 2). How to scaffold students in such a context so that they can acquire L2 academic literacy presents a daunting task to educational linguists, researchers and teachers. Apart from drawing on the Sydney approach to genre-based pedagogy, teachers can also draw on other useful genre-based pedagogical approaches (e.g., Swales, 1990;

Bhatia, 2001; Paltridge, 2009; 2011) in developing their own situated approaches fit for their own purposes.

Cummins' L1-L2 interdependence theory and notions of BICS (Basic Interpersonal Communication Skills) and CALP (Cognitive Academic Language Proficiency) in bilingual education (Cummins, 1991) have informed us on the important role that L1 language and literacy can play in the learning of L2 language and literacy (see review of Cummins' theories in Lin & Man, 2009). In particular, it has informed Gibbons (2009)'s pedagogy of scaffolding and bridging ESL students' academic literacy development through *rich tasks* and *high support*—*i.e., learning in the challenge zone*. Gibbons (2009)'s observation that many ESL literacy curriculums have been characterized by low-level mechanical drills and intellectually unchallenging tasks is also very true of the situation in many Hong Kong schools (Lin, 1999; 2000). A preliminary analysis of the Integrated Science English textbooks commonly used in Band 2-3 schools in Hong Kong (Lin, & Wong, research-in-progress) shows that the textbook language is truncated and made up of almost point-form text and provides little modeling of coherent text types found in the science discipline (e.g., informational reports, explanatory texts). Students are provided with mainly simplified English language in these textbooks (i.e., serving the 'unpacking function', but there is little exposure to well-written academic text types; i.e., no support for 'repacking').

In light of the current Hong Kong situation, we find Gibbons' works (1993, 2002, 2008, 2009) especially instructive. Below we summarize the principles from Gibbons (2009: 154-158) on how to do designed scaffolding and bridging in content-based ESL programs:

1. Programmes build on students' prior knowledge and their current language skills (both their mother tongue and their second language), while at the same time embracing new content and language goals
2. Clear and explicit program goals are shared with the students
3. Tasks are sequenced so that each task serves as the 'building blocks' for the subsequent task
4. A variety of organizational structures is used (pair work, group work, individual work, teacher-directed whole-class work)
5. The curriculum is *amplified*, not simplified: Teachers use 'message abundancy' (i.e., key ideas are presented in many different ways, including rhetoric strategies and genres, visuals and images, as well as academic social practices such as classroom/laboratory inquiry practices)

While these principles have been tried out and proved useful in ESL contexts in Australia, it remains untested in EFL or L2 contexts where the L2 is used mainly in the school and not in the everyday life of the students (e.g., English in Hong Kong; see Li, 2009; Lin, 1999, 2008). In the Hong Kong policy context, research in this area has been made difficult during the past decade given the government's linguistic streaming policy implemented in 1998 that maintained a strict division of 'pure English' or 'pure mother

tongue' in segregating schools into EMI and CMI schools. The 2010 implementation of the fine-tuning MOI policy in Hong Kong witnesses a relaxation of MOI policy options and new options are now open to CMI schools, which can opt for using English in some of their content subjects or in some portions of a selected content subject. Exactly how this is to be done in terms of classroom language practices is largely left to the devices of the schools, which often try out different methods randomly. It is out of this urgent need of many Hong Kong schools for theoretically based and empirically grounded principles for guiding their pedagogy that the present pedagogical model is proposed.

Proposing a genre-based multilingual and multimodal bridging pedagogy for the Integrated Science subject in Hong Kong junior secondary schools

In this section the author proposes a multilingual and multimodal pedagogy for the Integrated Science subject in junior secondary schools in Hong Kong, as a pilot model for future research in this area for other L2 English content subjects in other L2 contexts. The model draws on genre-based pedagogical principles developed by Martin and Rose (2008) and Rose (2008), the bridging pedagogical principles proposed by Gibbons (2009) (see above) as well as the findings of science educators of EFL and ESL students (Fang, 2006; Janzen, 2008) and these principles are summarized below:

- Explicit modeling and mentoring of academic genre schematic structure and language patterns and features in a rich meaningful curriculum context of shared experience that is supported by rich visuals and multimodalities, including the use of

images, graphic organizers, diagrams and (Youtube) videos on science experiments and activities: e.g., how to make a tornado in a bottle; this Youtube video can provide a rich experiential context for stimulating students to think, talk, discuss, read, and write explanatory texts in joint-activities with the teacher:

<http://www.youtube.com/watch?v=reEQfFVeJUw>.

- Explicit joint-analysis with students of the lexical and grammatical features of science or academic language including analysis of complex nominal groups and science/academic word-formation processes (Fang, 2006)
- It is informed by Gibbons (2009)'s principles of ESL bridging pedagogy (see above); in particular, the curriculum is *amplified*, not simplified: Teachers use 'message abundancy' (i.e., key ideas are presented in many different ways, including visuals, multimodalities, and multiple linguistic resources);
- It is informed by science educators' pedagogical principles: diverse instructional strategies including group work, hands-on activities, and multiple forms of input are used (Janzen, 2008)
- Science classroom interactions are linked to an academic literacy (reading and writing) programme that comprises teacher-student joint reading and joint writing leading gradually to student independent reading and writing (see Fig. 3)
- Through professional development collaboration the teacher and researcher engage in co-lesson planning and co-teaching, with the aim of enhancing expertise in both teacher and researcher (with the teacher acquiring academic literacy mentoring skills, and the researcher acquiring expertise in interweaving academic literacy teaching into the science curriculum) (e.g., see the integrated approaches to academic

literacies of Mitchell, 2006)

- Before entering into the above professional development stage, naturalistic classroom observations are conducted to enable the research team to design the pedagogic intervention strategies that are suited to the contextual and curriculum needs of the class (see studies in this area; e.g., Hornberger and McKay, 2010; Paltridge, 2009, 2011; Kress et al, 2001)
- During the post-professional development period, no co-lesson planning/co-teaching takes place and naturalistic classroom observations are conducted to see if there is sustained effect of the earlier pedagogical support.

Coda

Future research is needed to both explore and test out the effectiveness of different innovative multilingual and multimodal approaches to the provision of English academic literacy in the Expanding Circle contexts as these contexts are increasingly infused with the desire to acquire the necessary English (L2) academic skills to participate in the global knowledge economy. Such desires are not fantasies only if we can break away from traditional models of purist immersion education which have emerged from contexts radically different from those of the Expanding Circle. Languages (e.g., L1, L2, L3) should not be seen and planned as discrete separate entities but rather as continua (Hornberger, 2003; Canagarajah, 2005). Likewise, L2 English content education programmes can also be designed and developed not as discrete models but as lying on

criss-crossing continua (e.g., Figure 1). With such flexible non-categorical thinking we can perhaps alleviate much of the undesirable labeling effect associated with streaming students categorically into different discrete L1 and L2 immersion programmes. There is thus a strong need, in our own respective contexts, to do our own pioneering research to explore and test out multiple flexible pedagogical approaches that draw on multilingual and multimodal resources in English academic content classrooms.

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