

Chapter 11

Lexical gap, semantic incongruence, and the medium-of-learning effect: Evidence from Chinese-English code-switching in Hong Kong and Taiwan

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1. Introduction¹

There are two prevailing theoretical frameworks explaining motivations behind code-switching (CS): the Markedness Model (e.g. Myers-Scotton 1993, Myers-Scotton and Bolonyai 2001) and conversation analysis (e.g. Auer 1995, W. Li 1994, 2002). Both frameworks have greatly enhanced our understanding of some of the typical motivations behind CS. For example, Myers-Scotton's (1993) analysis of CS data in East Africa shows convincingly that CS from a local vernacular to a prestigious supranational language such as Swahili and English is very commonly found in situations marked by a clear power differential, as in interactions between employer and employee, gate-keeper and visitor. Conversation analysis has shown that sometimes language choice in bilingual interactions may index the speaker's dispreference when responding to a question raised in a different language (W. Li 1994).

Notwithstanding these insightful contributions, there is one theoretical issue which to my knowledge has not been dealt with satisfactorily: by postulating that some social motivation or discourse-analytic factor is at work during CS, it is tacitly assumed that whatever the referential meaning(s) of an embedded language element, there exists a semantically and stylistically congruent counterpart – 'translation equivalent' – in the matrix language, such that referential meaning could be regarded as constant. But is this always the case? The validity of this tacit assumption has been called into question (D. Li 1999, 2001).

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The literature abounds with examples from different multilingual contexts where lexical borrowing is semantically motivated. On problems of referential equivalence across languages, see for example French-English (Grosjean 1982: 336); German-English (Berns 1992: 158); Japanese-English-Chinese (Honna 1995: 46); and Cantonese-English (D. Li 2001, Li and Tse 2002).

A concern for referential meaning is arguably one of the most salient factors triggering CS. Lexical gaps in the matrix language are perhaps the most obvious types of evidence whereby intra-sentential CS is so difficult to avoid, for example, *unplugged*, *skyline*, *present* (v.), *presentation*, and *project* (n.), for which there is as yet no satisfactory translation equivalent in Chinese (D. Li 2001; cf. Chen and Carper 2005). But even where a translation equivalent appears to exist, there is no guarantee that the speaker is aware of it at the moment of speaking or writing. It may be that the speaker is forgetful, tired or nervous. It is also conceivable that despite the existence of a putative equivalent, the speaker finds it unsatisfactory because it carries additional, albeit unwanted, associations. This is one of the findings in Li and Tse's (2002) experimental "purist" study, in which 12 English majors were asked not to use English for one day, the main objective being to see to what extent English was considered necessary and desirable in context-specific social interaction with others (for more details on methodology, see below).

In one instructive example, a female participant (F3) wanted to invite a friend to play wargames with her in the countryside. The idiomatic translation of wargame in Cantonese is 打野戰 (*daa³⁵ je²³ zin³³*, literally 'fight wild battle').² In addition to that meaning, however, it is well-known that this Cantonese expression is commonly used in soft-porn literature (typically written in vernacular Cantonese) alluding to some illicit sexual activity. It so happened that F3's invitation was made to a male friend. To abide by the artificial Cantonese-only rule of speaking, she invited him to 'fight wild battle' with her, which turned out to be a great embarrassment for both. As she explained at the focus group discussion, she would have used the code-mixed expression 𠵼 wargame (*daa³⁵ wargame*) if she had not been influenced by that artificial, 'no-English-allowed' rule of speaking. Examples such as these suggest that one important motivation behind CS is to avoid unwanted semantic loss or gain. In sum, there is considerable evidence in the literature to make a strong case for further scru-

2. Chinese morpho-syllables intended to be read in Mandarin are transliterated in Pinyin; those which are meant to be read in Cantonese are represented using Jyutping (粵拼), the Romanization system of the Linguistic Society of Hong Kong (<http://cpct92.cityu.edu.hk/lshk/Jyutping/>). The two numbers in the superscript indicate tone contour.

tinizing semantically motivated CS (D. Li 2001), with a view to examining how it articulates with the prevailing theoretical frameworks.

This paper reports findings obtained from an experimental study, which show that referential meaning across languages cannot be assumed to be constant in CS research. Where there is (perceived) semantic and/or stylistic discrepancy between the target words in the embedded language and their putative translation equivalents in the matrix language, CS may be more adequately explained by the bilingual speaker's attempt to avoid unwanted semantic loss or gain. One special case involves academic jargon and technical terms learned or introduced in English. The ubiquity of CS between Cantonese and English in informal interactions among Chinese Hongkongers is particularly interesting in view of the fact that they are under tremendous inhibition not to use English entirely among themselves (D. Li 2008, D. Li 2010). Rather than analyzing CS as Hong Kong Chinese bilinguals' conscious strategy to enact a Chinese-cum-western identity (see, e.g., Pennington 1998), the findings presented in this chapter suggest that, through English-dominant education, English continues to exert tremendous influence in the local vernaculars of postcolonial societies such as Hong Kong SAR (Special Administrative Region).

2. Data, methodologies and predictions

The research design of this comparative study draws on three methodologies: the ethnomethodological technique of 'breaching' or 'revelation through disruption' (Garfinkel 1967), language diary (Gibbons 1987), and focus group interview (see, e.g., Lunt and Livingstone 1996, Stewart and Shamdasani 1990). Earlier studies in sociolinguistics and anthropology found that speakers are not always conscious of their language use patterns. When asked whether, and if so, under what circumstances they would use a particular language variety, bilingual informants' self-report data tended to be inaccurate and unreliable (see, e.g., Blom and Gumperz 1972, Gumperz 1972, Gumperz and Hymes 1972). This explains why in sociolinguistic research in the last three decades, little attempt has been made to include speakers' metalinguistic comments about their own language behavior as a source of data.

It is in this regard that Garfinkel's (1967) technique of 'breaching' or 'revelation through disruption' proved to be extremely useful and productive. By disrupting the normal patterns of language use through some artificial rule of speaking, this technique obliges the participants to reflect on what they perceived as actually happening in contextually 'rich' situations. It has proved to work very well in Li and Tse's (2002) experimental study, where 12 Cantonese-

speaking English majors at City University of Hong Kong were asked (i) not to use any English for one day; (ii) to reflect on the reasons why they wanted to use English in context-specific situations with the help of a proforma which helped them to record key contextual information regarding ‘who speaks what to whom and when’ (compare Appendix I); and (iii) to participate in a focus group interview two days after the experiment. Very instructive findings were obtained. Practically none of the 12 participants were able to prevent at least some English expressions from cropping up when interacting with friends and peers on the day of the experiment. Among other things, they confirmed that where no negotiation of identity was involved, the typical motivation behind their wish to use English while interacting with others was out of a concern for referential meaning. In particular, they were either unable to find a suitable and satisfactory referential equivalent in Cantonese (i.e. due to a lexical gap in their mental lexicon), or, where an equivalent appeared to exist, they were concerned that the meaning was somewhat different from what they wanted to express (see, e.g., *daa³⁵ je²³ zin³³* vs. *daa³⁵ wargame* discussed above).

The data reported in this chapter were collected for a project designed to replicate the Li and Tse (2002) study. The experiment took place at three universities: two in Taiwan and one in Hong Kong. A total of 108 students participated in the experiment (65 in Taiwan, 43 in Hong Kong). For one day, they were asked to:

- (a) speak only their local, dominant community language (Mandarin in Taiwan, Cantonese in Hong Kong);
- (b) keep a record of speech events specifying ‘who speaks what to whom and when’ with the help of a proforma (soft copy sent to all participants by email before the experiment; see Appendix I);
- (c) write a reflective diary (up to two pages) in a language of their choice and, when completed, send it to the investigators in the form of an email attachment; and
- (d) take part in a focus group discussion attended by participants studying the same discipline, sharing their experiences and views on the reasons behind their preferred language choice in context-specific situations.

At each site of investigation (Dong Hwa University, Hualien; Chengchi University, Taipei; and City University of Hong Kong), a briefing was held in the evening before the day of the experiment, where detailed instructions were given and participants’ questions clarified. The rationale behind the study was vaguely disguised as ‘a comparative study of tertiary students’ language use patterns in Taiwan and Hong Kong’. All participants were rewarded with a

modest hourly remuneration. An overview of their major disciplines and numbers is presented in Table 1.

Table 1. The number of student participants and their major disciplines at each of the 3 universities

University and date of the experiment	Student participants' major discipline	No. of participants
National Donghwa University, Hualien, Taiwan (7 December 2003)	Chinese majors [DC]	9
	English majors [DE]	8
	Science / Technology / Engineering majors [DS]	8
	Business / Economics / Marketing majors [DB]	8
National Chengchi University, Taipei, Taiwan (13 December 2003)	Chinese majors [CC]	8
	English majors [CE]	8
	Psychology majors [CP]	8
	Business / Economics / Marketing majors [CB]	8
City University of Hong Kong, Hong Kong SAR (6 January 2004)	Chinese majors [HC]	8
	English majors [HE]	9
	Science / Technology / Engineering majors [HS]	9
	Business / Economics / Marketing majors [HB]	7
	Psychology majors [HP]	10
	Total	108

In terms of language choice, there is a clear difference between participants in Taiwan and their counterparts in Hong Kong. Given that the majority of educated Hong Kong Chinese are Cantonese-English bilinguals, that artificial rule of speaking in effect obliged the participants to use only Cantonese (cf. Li and Tse 2002). In contrast, since a majority of the student participants in Taiwan have Minnan Hua, Hakka or an Aboriginal language as their main home language in addition to Mandarin (the national language) and English which they learned in school, being obliged to use only Mandarin would mean that they should make every effort to prevent elements of their home language and English from cropping up in their conversation.

The experiments proceeded smoothly. Participants' reflective diaries received by email were analyzed thematically with a view to extracting contextually rich descriptions and reflective commentaries, which were then adapted anonymously into a list of rich points grouped under specific headings serving as stimulus material for discussion by the focus group in question. During the focus group discussion, participants were invited to elaborate on the rich points they documented, while others were encouraged to share their views by citing

similar or different experiences. With the participants' consent, all the focus group discussions were video- and audio-recorded. Data thus consisted of two main sources: 108 language diaries and the transcriptions of 13 focus group interviews.

In terms of coding, the diary data were first processed carefully and inductively, allowing for recurrent themes or categories to emerge emically. The identified categories were then coded inductively and exhaustively with the help of MAXqda, a Windows-compatible software which is especially user-friendly for the multiple coding of selected text segments. To optimize inter-coding reliability, all the 13 focus group transcriptions were coded independently by the research associate and me. Where differences or omissions occurred in the process of coding, they were resolved through clarification and, if necessary, by making slight modifications to the inventory of the coding categories (e.g., change in wording of existing categories, addition of sub-themes to given categories, or creation of new categories). In this way, a total of 63 sub-themes organized under 12 broadly defined categories have been identified.³ In this study our focus is on the participants' own words to account for the main reasons why they code-switched in context-specific situations. Of relevance to this paper are three recurrent sub-themes under the category "Linguistic motivations of CS":

- (a) A lack of translation equivalent: participants reported that CS was triggered by a lack of translation equivalent, or the improvised translation / circumlocution (in Mandarin in Taiwan, Cantonese in Hong Kong) failed to get across the intended meaning.

3. The 12 categories are:

- (a) What happened during and after the experiment
- (b) Language use patterns
- (c) Language choice with specific groups
- (d) Linguistic motivations of code-switching
- (e) Other motivations of code-switching
- (f) Types of code-switching expressions
- (g) Attitudes / perceptions toward language use patterns
- (h) Where no code-switching occurs
- (i) Comments about medium of teaching and learning
- (j) Factors impacting on community language use patterns
- (k) Read aloud materials in another language
- (l) Language in the mind

The focus of this chapter – lexical gap, semantic or stylistic incongruence, and the 'medium-of-learning effect' – are sub-categories under (d): 'Linguistic motivations of code-switching'.

- (b) The putative translation equivalent is semantically infelicitous: participants reported that while a translation equivalent appeared to exist, it was semantically infelicitous or inappropriate in specific contexts.
- (c) Metalinguistic comments on the ‘first-impression hypothesis’ or ‘medium-of-learning effect’: participants attributed their CS to English in part to the cognitive salience of English terms as a result of encountering them first in English, or as a consequence of learning the related concepts through the medium of English.

Owing to space constraints, this study will only draw on the diary data. When analyzing the diary data, care was taken to cross-check the focus group discussion data for consistency and elucidation where appropriate. Below are three key predictions based on the findings of Li and Tse (2002):

- (1) All participants will be inconvenienced to some extent by being artificially prevented from using any language other than their dominant community language.
- (2) Despite conscious monitoring, elements from languages other than their respective community languages cannot be entirely suppressed, resulting in CS.
- (3) When the participants want to code-switch but are prevented from doing so due to the artificial rule of speaking, linguistic motivations, especially a lack of semantically and/or stylistically congruent ‘translation equivalents’, account for the majority of the cases.

3. Results

3.1. The lack of translation equivalent

It is important to note that the analysis is based on the participants’ self-report data. In other words, when a participant claims that some specific instance of CS was triggered by a lack of translation equivalent, it may or may not be accurate. This is because the participant may not be aware that there exists a dictionary equivalent, or that a fairly widely used translation exists. For example, one Hong Kong science major (HSM2) improvised the translation of *FYP* (‘final year project’) as 最後一年報告 (*zeoi³³ hau²² jat⁵⁵ nin²¹ bou³³ gou³³*), which sounded very strange to his interlocutors. HSM2 was not the only one who had problems expressing *FYP* in Cantonese. When chatting about school work with peers, many CityU students in Hong Kong – whatever their discipline – found

it impossible to avoid using this term, which is a graduation requirement of all undergraduate degree programmes. While the Chinese translation certainly exists somewhere (e.g. in programme documents and the Chinese page of the CityU website), it clearly did not have any currency among CityU students. Another Hong Kong participant (HSM3) reported wanting to say 'log in' but could not; he ended up saying 注册 (*zyu*³³ *caak*³³) instead of the standard equivalent in Chinese Windows: 登入 (*dang*⁵⁵ *jap*²²). However, inaccuracies in the participants' perception is methodologically not a problem, for what matters for our purpose is their own awareness and perception which guided their code choice in context. Table 2 gives the number of participants who made such a claim in their reflective diary.

Table 2. Number of participants who claimed that CS was due to a lack of translation equivalent, or the improvised translation / circumlocution failed to get across their intended meaning

Discipline	Dong Hwa U Taiwan	Cheng Chi U Taiwan	CityU of Hong Kong	Total
Business	6 (8)/75%	6 (8)/75%	6 (7)/85.7%	18 (23)/78.3%
Chinese	3 (9)/33.3%	4 (8)/50%	6 (8)/75%	13 (25)/52%
English	3 (8)/37.5%	4 (8)/50%	3 (9)/33.3%	10 (25)/40%
Psychology	–	5 (8)/62.5%	4 (10)/40%	9 (18)/50%
Science	4 (8)/50%	–	3 (9)/33.3%	7 (17)/41.2%
Total	16 (33)/48.5%	19 (32)/59.4%	22 (43)/51.2%	57 (108)/52.8%

Note: The number within brackets indicates the total number of participants in the group.

One domain in which English clearly prevails is electronic communication mediated by personal computers and the internet. Table 3 shows a subset of the English expressions which are frequently used in e-communication or computer applications, for which the participants claimed that there were no usable translation equivalents. Or, the expression in question was suppressed, but then the improvised translation or circumlocution in Chinese resulted in communication problems (those highlighted were mentioned by more than one participant):

Table 3. A subset of English terms in the domain of e-communication which participants wanted to use but could not

Taiwan	CD player, .net ('dot net'), email , Excel, Google , hinet, html, ICQ , msn , power DVD, TRPG, URL, USB, Word , yahoo , yahoo messenger
Hong Kong	CD-ROM, download, Google , hard disk, ICQ , Internet Explorer, log in, mouse, Netscape, print (v.), save, send email , sms, speaker, windows media player, website

It can be seen that the Hong Kong e-communication word list (types rather than tokens) is not only longer than the Taiwanese counterpart; it also consists of nouns (including noun groups) and verbs denoting word processing commands: *download*, *log in*, *print*, *save*, and *send*. This is not the case in the Taiwanese word list, which consists of only substantives. After cross-checking the focus group discussion data with Taiwanese participants (n=65), however, it became clear that word-processing commands such as *click*, *delete*, *highlight* and *print* were also heard and used occasionally, but apparently not as frequently compared with their Chinese equivalents *àn* (按), *shānchú* (删除), *fānbái* (反白) and *yìn* (印), respectively. This is in sharp contrast with the language preference of bilingual Hong Kong Chinese learners, who typically refer to word-processing functions directly in English. To what extent such free variation is a community-wide or idiosyncratic practice in Taiwan remains unclear. There is clearly room for further research in this area. What seems certain is that, when the conversation touches upon e-communication, the pressure to code-switch to English is higher among Hong Kong participants than among their Taiwanese counterparts.

A parallel pattern is found with regard to English abbreviations used for e-learning. Since most universities in Taiwan make use of a Bulletin Board System (abbreviated as 'BBS' in speech) for e-communication between staff, students and the school administration on the intranet, it is understandable why the acronym 'BBS' is so indispensable when reference is made to various aspects of e-communication on campus. Over half of the 65 Taiwanese participants mentioned how inconvenient it was when they were prevented from using 'BBS' with friends and peers. Similar remarks of inconvenience were mentioned by most CityU participations when discussing CityU-related topics with their classmates, but the range of English expressions cited is considerably larger (those highlighted were mentioned by more than one participant). For example:

- **add-drop** referring to the adding or dropping of courses; may be used as verb or noun
- **AIMS**: pronounced as [eims]; ‘Academic Information Management System’
- **AWW**: pronounced as [ei dɛp dɛp]; abbreviated title of the course ‘Advanced Writing Workshop’
- **BACH**: pronounced as [ba:tʃ]; abbreviated title of undergraduate programme ‘Bachelor of Arts in Chinese’
- **BATI**: pronounced as [ba:ti]; abbreviated title of undergraduate programme ‘Bachelor of Arts in Translation and Interpretation’
- **CAPP**: pronounced as [kep]; ‘Curriculum, Advising and Programme Planning’
- **CSC**: ‘Computer Services Centre’
- **e-portal**: name of the intranet for CityU staff and students
- **FMO**: ‘Facilities Management Office’
- **FYP**: ‘Final Year Project’ (graduation requirement of all undergraduate Programmes at CityU)
- **GPA**: Grade Point Average

Many of the English words that participants wanted to use but could not are high-frequency vocabulary words, especially nouns and verbs, in English for Academic purposes (EAP). One Hong Kong Chinese major (HCF3), for example, reported how inconvenient it was when she could not use English at a meeting with other fellow students. She cited a fairly long list of English words. According to HCF3, all of these words had no usable, satisfactory equivalent in Chinese, which is why she felt greatly inconvenienced and found it such a pain. She went on to state one instructive example concerning the improvised translation of ‘pair up’, which sounded awkward to herself as well as her interlocutors:⁴

4. Examples of diary input in Chinese will be translated into English by the author and presented in a two-panel format.

1	<p>晚上開了一個會議，這會議對我來說是極辛苦的，因為會議中我有更多慣用的英語不能用，例如「mention」、「idea」、「training」、「run」、「materials」、「focus」、「pair up」、「suppose」、「miss」、「range」、「workload」、「keep」……將它們用廣東話說出來，一來我覺得很不方便，二來我覺得某些詞的英文發音比中文來得更順口。有些詞譯成廣東話，真的很怪，例如「pair up」變成「組成一隊」，總覺得怪怪的，別人聽起來明白，但他們的表情各異…… (HCF3)</p>	<p>In the evening we had a meeting, which was really a pain to me, because there were many common English terms that I could not use, such as 'mention', 'idea', 'training', 'run', 'materials', 'focus', 'pair up', 'suppose', 'miss', 'range', 'workload', 'keep'.... To render them into Cantonese, I found it inconvenient on the one hand; on the other hand, the English pronunciation sounded more smooth to me. Some of these words sounded really odd when translated into Cantonese. For example, it was very strange to replace 'pair up' with <i>zou³⁵ sing²¹ jat⁵⁵ deoi²²</i> ['literally 'form a team']. Others might understand [what I was trying to say], but their facial expressions varied..."</p>
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Terms of address in English constitute another area where some Hong Kong participants felt that the putative Chinese equivalent was less appropriate. Thus one major of translation and interpretation in Hong Kong (HCF8) reported being inconvenienced by not being able to address her lecturers in English using 'title plus last name', for example, *Dr. Sin*, *Dr. Cheng*. Such a practice appears to be less common in Taiwan.

3.2. The putative translation equivalent is semantically infelicitous

Apart from a lack of translation equivalent in the bilingual's mental lexicon, a perceived lack of semantic congruence between the English term and the putative translation equivalent in Chinese is also thematized in many participants' reflective diaries, including situations where no problem was encountered. Thus HCF5 pointed out that the English terms 'selling point' and 'hard sell' were suppressed and replaced with 賣點 (*maai²² dim³⁵*) and 硬銷 (*ngaang²² siu⁵⁵*), respectively, without triggering any communication problem. Similarly, a business major in Taiwan reported having no difficulty replacing 'calories' that she usually used with its Chinese counterparts, 卡路里 (*kālùlì*) or 熱量 (*riliang*):

2 ...一般我們都很習慣用 <i>calorie</i> 來說熱量,尤其在減肥的時候都說『那一類東西不要吃 <i>calorie</i> 很高。』可是這些避免不用說英文還可以,用“卡路里”、“熱量”來代替都還行的通。(DBF6)	...[We] usually say <i>calorie</i> when referring to <i>riliang</i> , especially when on diet; [we] would say “don’t eat that kind of thing, [for] the <i>calorie</i> is very high. But it is not a problem using [its] Chinese [equivalent] <i>kālùlǐ</i> or <i>riliang</i> instead.
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This example suggests that some Chinese translations of the English terms, be it transliteration or translation, or both, have been integrated into the mental lexicon of Chinese-English bilinguals, though the extent of integration in the local speech community remains unclear.

However, there were many more participants who reported that, while a translation equivalent of a term in English or Mandarin appeared to exist, very often it was dispreferred because it was perceived as semantically infelicitous or stylistically incongruent. One high-frequency example is the translation equivalent of *email*: 電子郵件 (*diànzǐ yóujiàn* / *din²² zǐ³⁵ jau²¹ gin³⁵*), which reportedly has little currency among the participants in Taiwan and Hong Kong alike (cf. Li and Tse 2002). Where the availability of a translation equivalent was thematized, the participant typically showed awareness of, or thought that he or she knew, what the equivalent was, before explaining why it was dispreferred. For example, one engineering major in Taiwan pointed out why he had wanted to use the term ‘voltage regulator’ because its Chinese translation had hardly any currency among his peers. He also commented that the Chinese equivalent *diànyā tiáozhěng qì* was more wordy and ‘not as smooth’:

3 ...專題報告中有許多電機領域的專有名詞,像是“voltage regulator”,我會想直接念出來,因為中文翻譯後的名稱,“電壓調整器”很少人用,字數也很長,感覺不太順口,而且發現講話速度變很慢,每次要講專有名詞時,都要思考一下這個詞彙的中文翻譯,才能講出來。(DSM8)	...in the special report there are many terms specific to mechanical engineering, like ‘ <i>voltage regulator</i> ’, I wanted to say that directly, because few people use its Chinese translation ‘ <i>diànyā tiáozhěng qì</i> ’, it’s wordy and doesn’t sound so smooth; and (I) discovered that (my) speaking pace is slower, for every time a technical term occurs, (I) need to think what its Chinese translation is before saying it out.
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Table 4 gives an overview of the number of participants who made explicit mention (at least once) that the translation equivalent of a target word in English or other Chinese varieties than Mandarin led to some form of communication problem. In some cases, this awareness was arrived at after the participant failed to use the putative translation equivalent; in other cases, the putative translation was used, but communication was adversely affected in some way.

Table 4. Number of participants who claimed that a translation equivalent might exist but it was semantically infelicitous or inappropriate in specific contexts

Discipline	Dong Hwa U Taiwan	Cheng Chi U Taiwan	CityU of Hong Kong	Total
Business	4 (8)/50%	2 (8)/25%	1 (7)/14.3%	7 (23)/30.4%
Chinese	4 (9)/44.4%	3 (8)/37.5%	4 (8)/50%	11 (25)/44%
English	2 (8)/25%	6 (8)/75%	6 (9)/66.7%	14 (25)/56%
Psychology	–	1 (8)/12.5%	8 (10)/80%	9 (18)/50%
Science	5 (8)/62.5%	–	4 (9)/44.4%	9 (17)/52.9%
Total	15 (33)/45.4%	12 (32)/37.5%	23 (43)/53.5%	50 (108)/46.3%

Note: The number within brackets indicates the total number of participants in the group.

One instructive example regarding a lack of semantic congruence between an English expression and its translation ‘equivalent’ in Chinese concerns a casual remark made by a Hong Kong participant (HCF8) majoring in translation and interpretation on a psychologically ‘heavy’ topic (see example 4). That remark was uttered in order not to violate the Cantonese-only rule of speaking. In so doing, however, she felt an acute sense of discomfort because the improvised Cantonese ‘equivalent’ made her appear rude, resulting in unwanted semantic loss or gain, and regret.

4	<p>我們一班親友談到患上末期癌症應抱何種想法(...), 一位阿姨說要“打定輸數”, 為自己身後事做定安排, 讓家人好辦。我和另一位阿姨認同, 這是面對現實, 積極應變的方法。我們並且認為假若能奇蹟地活多幾年, 已是幸運。而我本想說“已經係 bonus”, 但最終只能說“已經俾多你”。雖然“俾多你”意思差不多, 但我覺得有點粗魯。所以即使意思表達到, 感覺始終有別。(HCF8)</p>	<p>I was sharing views with a number of relatives about patients suffering from cancer and who are terminally ill. One auntie said ‘[we had better] be prepared to lose the battle’, and [we] should make arrangements for what happens after [we] pass away. Another auntie and I agreed; [we] have to face reality, and come to terms with the inevitable. We also thought that if we could survive a few more years, we would be lucky. [On this point] I originally wanted to say <i>ji</i>²³ <i>ging</i>⁵⁵ <i>hai</i>²² <i>bonus</i> [‘already a bonus’]; but in the end I could only say <i>ji</i>²³ <i>ging</i>⁵⁵ <i>bei</i>³⁵ <i>do</i>⁵⁵ <i>nei</i>²³ [literally ‘already giving you (something) in excess (of what you are entitled to)’]. Although <i>bei</i>³⁵ <i>do</i>⁵⁵ <i>nei</i>²³ has a similar meaning, still I feel a little rude. Hence even though the meaning was gotten across more or less, [I] somehow feel that there is a difference [in meaning].</p>
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There are several similar reported instances of unwanted semantic loss or gain in the diary data. Such examples, together with those where participants made explicit reference to a lack of a usable translation equivalent, constitute strong evidence that referential equivalence of a given term in English (or for that matter, in any language or language variety) is not always assured. This lends empirical support to the observation that CS is sometimes due to the bilingual’s concern for referential meaning (cf. D. Li 1999, 2001, Li and Tse 2002).

3.3 Metalinguistic comments on the ‘first-impression hypothesis’ or ‘medium-of-learning effect’

In addition to lexical gap in the bilingual’s mental lexicon and a perceived lack of a semantically congruent translation equivalent, more compelling evidence is constituted by the participants’ metalinguistic comments on the reasons for their inability to speak only Mandarin or Cantonese. Where English expressions popped out despite active self-monitoring, a few participants postulated that the cognitive salience of English terms might be a natural result of the ‘first impression’ being in English. For example:

5	<p>你第一次聽的名字是英文, 第一印象就會是英文... (DCF3)</p>	<p>The first time you heard the term, it was in English, so your first impression [of that term] will be in English...</p>
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6	有些東西不用英文說對方可能還聽不懂, 像是滿常用到的“BBS”, “VCD”, “MSN”, “CPU”, “ID”, 等等, 發現這一類幾乎都是英文縮寫後的名稱, 大家可能從第一次知道某樣東西時, 它就是以英文的型式出現, 閩南語方面有些也是有相同的情況, 像有些吃的東西的名稱就是很難翻成國語的... (DSM2)	There are certain things that, if you don't use English, others may not understand, like those terms that we use quite often: 'BBS', 'VCD', 'MSN', 'CPU', 'ID', etc., mostly English abbreviations; probably the first time we encounter them, they are in English. The same is true of some expressions in southern Min, like local snacks and delicacies; [this is why] it is very difficult to translate them into Mandarin [satisfactorily].
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Interestingly, according to some other participants, the cognitive salience resulting from the first impression helped account for the reason why the putative Chinese equivalent of an English term was relatively opaque. Thus one English major in Taiwan (CEF1) explained why it never occurred to her to refer to the Chinese equivalent of the word 'syllabus', because that word was used by the professor from day one of the course:

7	另一個例子是大學課程的「課程大綱表」或「教學進度表」---一張第一堂課時教授會發下來的整學期課程進度的表, 我一直都叫它“syllabus”, 甚至沒去想他的中文對照說法, 因此碰到外系的同學他們聽不懂後, 我才意識到然後才去詢問其他同學們的說法。(CEF1)	Another example is the ' <i>kèchéng dàgāng biāo</i> ' or ' <i>jiàoxué jìndù biāo</i> ' – a progress chart of the whole semester distributed by the professor at the first lecture. I have always called it 'syllabus', and never thought about how it is called in Chinese; hence it was only when classmates from other departments had difficulty understanding [this term] that I realized [the need to] ask how [syllabus] is expressed [in Chinese] by others.
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A very similar point was made by a business major in Hong Kong (HBM4) with regard to the technical terms 'sample size' and 'pilot test' when talking to a lecturer:

8	during our conversation, I couldn't avoid using some English words to express my meaning. Like when she asked about my progress in the research, I had to say something related to my sample size, pilot test, etc. I really don't know what the Chinese words are for sample size and pilot test, so I didn't mention this and just [kept] talking about something related to it or directly using the English words although I knew it violated the rule of this experiment. (HBM4)
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Likewise, a science major in Hong Kong (HSF5) reported that she had never thought about using the Chinese equivalents of ‘mentors’ and ‘mentees’, because the two concepts were always referred to in English:

9	we are mentors from Mentoring Scheme. We have never thought about the Chinese words of mentors and mentees. Although these words are very easy, we will never call these names in Chinese. (HSF5)
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One particularly instructive example comes from a non-Cantonese-speaking exchange student from mainland China, who had been in Hong Kong only for four months at the time of the experiment. As she explained in her reflective diary written in Chinese (simplified characters), before coming to Hong Kong she had rarely found it necessary to insert English words into her Mandarin. But after studying at CityU for only four months, she found it difficult to avoid inserting English words of various lengths into her Mandarin, a surprising change in her everyday language use patterns that she became aware of after this experiment. One example of an English term that she gave is an abbreviated course title generally known to CityU staff and students as *CCIV* (pronounced as C-C-I-V), which stands for ‘Chinese civilization’ – a term that she cited as evidence in support of her ‘first impression hypothesis’:

10	<p>当一个人第一次接触一个新词汇是用英文时, 则这个词留在他脑海中的印象就是英文, 以后使用英文来表达这个词的机会比较大些。例如: 我第一次接触到“中国文化中心”的课程时, 就是“CCIV”, 则在以后的表达中我一直使用“CCIV”来表达, 本次实验是我第一次用中文来表达, 非常不习惯, 不自然。(HEF9)</p>	<p>When a person first encounters a new term in English, the impression of this term in that person’s mind will be in English, and so later the chance of using that English term will be higher. For example, the first time I came across the course <i>zhōngguó wénhuà zhōngxīn</i> [literally ‘Chinese Civilization Centre’] is ‘<i>CCIV</i>’. After that, I have always used ‘<i>CCIV</i>’ to refer to that course. [In] this experiment I used the Chinese term [of this course] for the first time, [which is] unnatural and [I am] not used to it at all.</p>
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In effect, what these participants were saying amounts to the same observation made by the participant F4 in Li and Tse’s (2002: 174) earlier study, namely, *sin⁵⁵ jap²² wai²¹ zyu³⁵* (先入為主), or ‘the first one who entered is the master’. There is thus *prima facie* evidence suggesting that when a new concept is introduced in a specific language, the concept will subsequently be cognitively mediated and retrieved through that language. This ‘first-impression hypothesis’ may be stated as follows:

When a concept C is first encountered in language X, then C tends to be cognitively mediated through the language X (Cx), even if a direct translation of C is subsequently encountered in language Y (Cy).

This helps explain why Cx tends to be cognitively more salient than Cy. Now if Y is the matrix language (Mandarin or Cantonese in this study), the insertion of C in X (English) will result in (intra-sentential) CS. Of course, more empirical research is needed to ascertain the validity of the ‘first-impression hypothesis’. It is, however, interesting to note that this hypothesis was generated emically by a number of participants after they had undergone the artificial Cantonese-only or Mandarin-only experiment for one day.

One recurrent activity in which the ‘first-impression hypothesis’ reportedly prevails is learning through the medium of English. Quite a few participants suggested that their CS to English was often a direct result of learning content subjects through English. This is especially true of those participants from Hong Kong who had undergone English-medium teaching and learning from secondary school onwards. For example:

11	...what we learnt and were taught in schools are in English. We all have a better understanding and good command of English and even more understanding than Cantonese. So, it is unavoidable in using English to have a communication with others. As a result, we always mix some English words in Cantonese or vice versa. (HEM2)
12	since I started learning computer, I haven't come across any Chinese terms. So, when I was suddenly asked to speak only Cantonese, I found it very hard to get rid of saying some English during my explanation. (HEM3)

This point is nicely illustrated by a few instructive examples in our data. Some English majors in Taiwan obviously had come across the English term ‘code-switching’ before. This is probably why this term (and the verb ‘switch’ as well) occurred in two participants’ reflective diary:

13	這也是一點我覺得會用到 code-switching 的原因, 除了方便習慣, 有些時候第一反應就出現某一種語言, 也覺得心裡想的要用這種語言才能表達的淋漓盡致, 用中文的話, 可能無法那麼確切表達自己的感受, 所以才會 switch 到另一種語言... (CEF2)	I think this is another reason why I will use <i>code-switching</i> . Apart from convenience and habit, sometimes a particular language figures in my immediate response, feeling that what I want to say can only be adequately expressed in this language; if I use Chinese, perhaps I won't be able to express my inner feelings so precisely; this is why I <i>switch</i> to another language...
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14	其實我真的常常做 code-switching 啊...雖然不是故意的,不過覺得有時這樣講話會比較流利,不會有被限定住的感覺。(CEF1)	As a matter of fact, I often do <i>code-switching</i> ... although not on purpose, but [I] feel that sometimes saying things in this way will be more fluent, [and that I] won't feel constrained [in what I say].
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These examples point to a 'medium-of-learning effect' (cf. 'the learning effect', Gibbons 1987), an important factor at work in topic-specific Chinese-English CS. It helps explain why technical terms in English are so difficult to avoid. Table 5 lists the number of participants who mentioned the 'first-impression hypothesis' or the 'medium-of-learning effect' as one explanation of their cognitive dependence on English terminologies.

Table 5. Number of participants who attributed their CS in part to the 'first-impression hypothesis' or the 'medium-of-learning effect'

Discipline	Dong Hwa U Taiwan	Cheng Chi U Taiwan	CityU of Hong Kong	Total
Business	0 (8)/0%	0 (8)/0%	2 (7)/28.6%	2 (23)/8.7%
Chinese	1 (9)/11.1%	1 (8)/12.5%	1 (8)/12.5%	3 (25)/12%
English	1 (8)/12.5%	2 (8)/25%	4 (9)/44.4%	7 (25)/28%
Psychology	–	2 (8)/25%	4 (10)/40%	6 (18)/33.3%
Science	2 (8)/25%	–	3 (9)/33.3%	5 (17)/29.4%
Total	4 (33)/12%	5 (32)/15.6%	14 (43)/33%	23 (108)/21.3%

Note: The number within brackets indicates the total number of participants in the group.

It can be seen that Taiwanese participants (9 out of 65, or 13.8%) are clearly outnumbered by Hong Kong participants (14 out of 43, or 32.6%). This is understandable to the extent that more English is used in universities in Hong Kong – both as a medium of teaching and learning as well as school administration – compared with their Taiwanese counterparts. This pattern is also reflected in the language choice of the participants' reflective diaries: over 44% of the Hong Kong participants (n=19) opted to write their diary in English, whereas the number of Taiwanese participants who chose English for their diary-writing is negligible (3 out of 65; see Table 6).

Table 6. Number of diaries written in English

Discipline	Dong Hwa U Taiwan	Cheng Chi U Taiwan	CityU of Hong Kong	Total
Business	0 (8)/0%	1 (8)/12.5%	2 (7)/28.6%	3 (23)/13%
Chinese	0 (9)/0%	0 (8)/0%	2 (8)/25%	2 (25)/8%
English	2 (8)/25%	0 (8)/0%	5 (9)/55.6%	7 (25)/28%
Psychology	–	0 (8)/0%	5 (10)/50%	5 (18)/27.8%
Science	0 (8)/0%	–	5 (9)/55.6%	5 (17)/29.4%
Total	2 (33)/6.1%	1 (32)/3.1%	19 (43)/44.2%	22 (108)/20.4%

Note: The number within brackets indicates the total number of participants in the group.

The above analysis shows that the use of English as the medium of teaching and learning is one important factor behind Chinese-English CS in Hong Kong, and to a lesser extent in Taiwan. A substantial part of English lexical items that occur in Chinese-English CS in Hong Kong and Taiwan are technical terms or academic jargon taught or introduced to students in English, resulting in cognitive salience with regard to the relative ease with which cognitive retrieval of these terms takes place. This psycholinguistic CS motivation, which is widely attested in our data, is topic-specific (cf. ‘topical regulation of language choice’, Fishman 1972: 439) and is clearly a consequence of the medium of learning, hence the ‘medium-of-learning effect’. Fishman’s (1972) insightful observation is worth quoting at length:

The implication of topical regulation of language choice is that certain topics are somehow handled ‘better’ or more appropriately in one language than in another in particular multilingual contexts. However, this greater appropriateness may reflect or may be brought about by several different but mutually reinforcing factors. Thus, some multilingual speakers may ‘acquire the habit’ of speaking about topic *x* in language X (a) partially because this is the language in which they are *trained* to deal with this topic (e.g., they received their university training in economics in French), (b) partially because *they (and their interlocutors)* may *lack the specialized terms* for a satisfying discussion of *x* in language Y, (c) partially because *language Y itself may currently lack as exact or as many terms* for handling topic *x* as those currently possessed by language X, and (d) partially because *it is considered strange* or inappropriate to discuss *x* in language Y. (Fishman 1972: 439–40; emphasis in original)

In a footnote on the same page, Fishman explains point (b) further as follows:

This effect [i.e. lacking the specialized terms for a satisfying discussion of x in language Y] has been noted even in normally monolingual settings, such as those obtaining among American intellectuals, many of whom feel obliged to use French or German words in conjunction with particular professional topics. English lexical influence on the language of immigrants in the United States has also been explained on topical grounds. (Fishman 1972: 439)

4. Discussion and conclusion

With the help of Harold Garfinkel's (1967) ethnomethodological technique of 'breaching' or 'revelation through disruption', we are able to tap into the metalinguistic awareness of bi- and multilingual speakers regarding the reasons why they feel the need to code-switch in context-specific situations. It is a valuable source of data to the extent that the question 'why do bilinguals code-switch?' cannot be adequately researched without including the code-switchers' own voices and views in the data for triangulation purposes (cf. Ten Have 2004: 180–181). In the past, self-report data tended to be dismissed because it was believed that speakers lacked the linguistic awareness needed to describe their own patterns of language use accurately (Blom and Gumperz 1972). The research design of this study, however, shows that qualitatively reliable self-report data *can* be obtained provided the subjects' metalinguistic awareness has been raised in regard to their code choice in context-specific situations. To this end, the complementary methodologies – revelation through disruption, language diary and focus group interview – have been shown to be very productive.

Regarding the motivations of CS, existing explanatory frameworks tend to emphasize either social motivations or discourse-analytic factors. In both frameworks, it is tacitly assumed that referential meaning may be held constant when switching between languages. The findings in this comparative study, however, suggest that such an assumption is not always warranted. One special case is switching that involves technical concepts acquired or introduced in a particular language – in this case, English. There is plenty of evidence in our data showing that our participants are either unaware of the Chinese equivalents of field-specific technical terms in question, hence a lexical gap in their mental lexicon. Or, where such translation equivalents appear to exist, they are perceived as 'not saying the same thing' owing to a lack of semantic congru-

ence. This is further compounded by a consideration of the (improvised) translation having little or no currency in the local speech community.

This study has also found *prima facie* evidence of a ‘first-impression hypothesis’, whereby a new concept C encoded and introduced in language X tends to be cognitively mediated and retrieved as C_x, even though the same concept is subsequently encountered in another language Y (C_y). This helps explain the cognitive salience of C_x vis-à-vis the relative opacity of C_y (if it exists). CS will result when instances of C_x and other technical concepts in X occur in the middle of a conversation in language Y. According to our data, one recurrent activity in which the ‘first-impression hypothesis’ reportedly prevails is teaching and learning through the medium of English, resulting in a ‘medium-of-learning effect’ (cf. Gibbons 1987). This CS motivation has received considerable support in this study, where many participants provided logically sound first-person accounts of the reasons why they found certain English terms they had learned earlier cognitively more salient – and thus so difficult to avoid – compared with their Chinese equivalents (if they existed).

In sum, this study has furnished strong empirical evidence in support of Gibbons’s (1987) original observation that CS may be the direct result of English-medium education (‘the learning effect’). Such a motivation was confirmed and reported by many student participants themselves in their own words (first in diaries, then in focus group discussions) after they had undergone a one-day experiment requiring them to use only Cantonese or Mandarin. The medium-of-learning effect is particularly revealing in the analysis of CS that involves academic topics in informal interactions between university students in Hong Kong and Taiwan.

It should be noted that the CS motivations discussed in this study – lexical gap in the bilingual’s mental lexicon, perceived semantic incongruence between an original English term and its putative translation equivalent in Chinese, and the medium-of-learning effect – tend to prevail in informal interactions between educated Chinese friends and peers where little or no negotiation of identity is at stake. They constitute three more or less discrete reasons why CS is perceived as the unmarked code choice (cf. Myers-Scotton 1993). In short, the three predictions based on Li and Tse’s (2002) one-day experiment are all supported in this replication study, especially linguistic motivations of CS, suggesting that referential meaning cannot be bracketed off as constant when investigating CS motivations in bilingual interaction.

What do linguistic motivations of CS among educated Chinese bilinguals tell us about the global hegemony of English in a postcolonial society like Hong Kong SAR? We have seen that, when the conversational topic touches upon their school experience or the formal learning of any content subject

taught through the medium of English, bilingual Chinese Hongkongers tend to find it difficult to avoid using at least some English in their informal interactions among themselves. In particular, technical jargon of a content subject taught and learned through English – from Medicine to Computing to Fine Art; from Physics to Economics to Linguistics – tend to be irresistible in the middle of Cantonese, which then assumes the role of the ‘matrix’ code in Cantonese-English CS. This point was already observed in Gibbons’ (1987) language diary study of several dozens of Chinese students studying at the University of Hong Kong. He referred to this CS motivation as ‘the learning effect’. Over two decades later, a very similar ‘medium-of-learning effect’ is attested among university students in Hong Kong (to a lesser extent in Taiwan; cf. Li and Tse 2002). What is remarkable is that the ubiquity of Cantonese-English CS is in stark contrast with Hong Kong Chinese bilingual’s reluctance to use English entirely for intra-ethnic communication. Rather than indexing a complex Chinese-cum-western identity, as some scholars have argued (e.g., Pennington 1998), I believe the findings in this study, in particular the medium-of-learning effect, provide strong evidence of the continued global hegemony of English in the realm of higher education in the postcolonial era (cf. Ammon 2001, Phillipson 1992, Skutnabb-Kangas 2000).

Finally, in terms of what we can learn from patterns of language use in postcolonial societies, the prevalence of and dependence on English among educated Hong Kong Chinese when conversing among themselves in Cantonese-English ‘mixed code’, especially on matters related to academic study, is one of the clearest indicators of Hong Kong’s British colonial heritage. It can be traced to two main sociolinguistic factors. First, English has been an official language (alongside Chinese since 1974) for over 150 years. Second, more importantly, as a correlate of the emergence of English as the dominant language of higher education from natural science to humanities, an important part of being educated in the increasingly globalized world entails knowledge of and competence in using a large amount of field-specific vocabulary, which tends to be invoked among bilingual speakers of English when conversing in their local vernacular. This linguistic and psycholinguistic phenomenon, which has been observed since Gibbons (1987) with regard to Cantonese-English code-switching in colonial Hong Kong, is clearly borne out by one important finding of this empirical study in the postcolonial era: the medium-of-learning effect – albeit to different extents in Hong Kong and Taiwan as a result of how deeply English has penetrated into the local education domain.

Since July 1, 1997, Hong Kong has been re-nationalized and become a Special Administrative Region of China (HKSAR). Postcolonial subjects’ dependence on English, which is largely mediated by the medium-of-learning effect

as attested in this study, shows that linguistically Chinese Hongkongers could hardly relinquish their colonial masters' language – so long as higher education and learning takes place substantially in that language. Somewhat ironically, however, the majority of educated Chinese Hongkongers are acutely aware that, how well they fare in their struggle to go up the social ladder depends in no small measure on how well they are able to appropriate their former colonial masters' language and blend it into the vernacular they know better (D. Li 2002). In this light, Cantonese-English mixed code may be seen as a linguistic artifact of Hong Kong's British colonial heritage.

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