

[2.4] W8/16

C: Hm-hm (1) (?) (1)

D: What other treasure we should get? (1)

C: Oh no, /ŋɔ̃ lʌm/ I, I think (?)

(I think)

D: (?) [(?)

C: [(?) (1) what?

D: Chain, northeast (4)

VDU Input: NE (D)

Similar to [2.3], in example [2.4], C appeared to be in a hurry when he uttered "/ŋɔ̃ lʌm/" in Cantonese meaning "I think". Again, he very soon realised this and reiterated the item in English as he uttered "I think".

[2.5] W1/11

D: We, we must enter the building first (1)

C: And then /ŋɔ̃ deɪ/, we, we out the building OK, (?) (1) agree?
(1) we stand outside the building

(we)

D: We must get the lamp first (1)

Similar to examples [2.3] and [2.4], in example [2.5], C in his haste uttered "/ŋɔ̃ deɪ/" in Cantonese meaning "we". However, as soon as he realised this, he switched back to English and uttered "we, we" in the second language.

It appears that a common feature exists among examples [2.1] to [2.5]. All of the mother tongue utterances occurred when the subjects were trying to say something in haste. Prior to the actual articulation of these utterances, the subjects concerned appeared to have forgotten about the exercise constraint and broke into the mother tongue. Nevertheless, in all these examples, almost immediately after each of these short Cantonese string was uttered, the subject concerned realised this and switched back to English.

In conversation, speakers often use delay markers to signal to hearers of their intention to hold the floor. In English, such markers include items like *wait*, *hold on*, *let's see*, *wait a minute*, etc. In Cantonese, such markers include /dʌŋ dzʌn/, /dʌŋ dʌŋ/, /lʌm ha si: n/, /təɪ ha: si: n/, etc. In the experiment, /təɪ ha: si: n/ was actually used by the weak subjects on three occasions. The contexts in which the string occurred are provided in examples [3.1] to [3.3] below.

[3.1] W1/2

D: The lamp, the lamp is on (E) (1)

E=click

C: /təɪ ha: si: n/ (3) rust-, a rusty ladder climb (1)

(let's see)

D: We must move downward to the well, try again (6)

VDU Input: *DOWNWARD (D)*

[3.2] W1/5-6

D: Some sandwich here [what now?

C: [Clean, clean the table

D: [Clean?

C: [No, clean

D: Clean, what's the use of clean?

C: No /təi ha: si:n/

(let's see)

D: We're hunting for the s-, treasure

C: Oh (3) (?) (8) take the litter (3)

D: Take (8)

C: T-T, double T (1) E-R

VDU Input: *TAKE THE LITTER (D)*

[3.3] W8/20

D: We should then go, /təi ha: si:n/ northeast, southwest (2)

(let's see)

VDU Input: *SW (D)*

D: Let's see [(?)

C: [South and east

D: West (E)

E=click

In the above examples, /təi ha: si:n/ was uttered as the subjects concerned wanted to buy some more time in an attempt to figure out further details relating to their current location. The reason for their switching into the mother tongue was perhaps that they were then engaging themselves in deep thought and as a result, attention was diverted. They forgot about the exercise constraint and accidentally broke into the mother tongue. However, in all of these three occasions, after the Cantonese string was uttered, the subjects immediately switched back to English.

Sometimes a subject may utter a short Cantonese string to acknowledge reception of a preceding outcome which was unfavourable or to express disagreement with a preceding suggestion. Example [4.1] illustrates the former and example [3.2] the latter.

[4.1] S1/16

A: Unlock the [cage

B: [Cage (3)

VDU Input: UNLOCK THE CAGE (A)

VDU Output: Please be more specific
What now?

A: (E), /m dΛk/

E=sigh
(cannot be done)

B: Unlock the cage with the keys

A: (gig) (12)

VDU Input: UNLOCK THE CAGE WITH THE KEYS (A)

In [4.1], the subjects executed a command to unlock the cage. However, the program responded with a statement: *Please be more specific* which meant that the command was not good enough. In response to this, A clicked and uttered in Cantonese "/m dΛk/" meaning "not possible" or "cannot be done" to express her annoyance over their unsuccessful attempt.

[4.2] S1/17

A: Perhaps we can go in ano-, another
direc- [tion [go fur-

B: [Go, go further [in, into
darkness (1)

A refers to the clue sheet

A: Go, inside /m dΛk wɔ/

(can't)

B: Hm (E)

E=click

In example [4.2], A first suggested that they should take "another direction". B then refined A's suggestion as she uttered "go further . . . into darkness". At this point, A uttered "go inside" while she simultaneously consulted the clue sheet. However, she soon realised that "go inside" would not be accepted by the program. Apparently, in her haste, she uttered "/m dΛk wɔ/" in Cantonese meaning "not possible" or "can't" to inform B that it was not possible to issue the command "GO INSIDE".

In both of the above examples, it was A who accidentally broke into the mother tongue. From the video recording, it is evident that A switched to the mother tongue quite unintentionally, possibly as she was attempting to express her thoughts in haste. On each of these occasions after the Cantonese string was uttered, A actually covered her mouth with her hand which could arguably signify that she realised her violation of the prescribed rule of the exercise. Moreover, B appeared not to be affected by A's code switching as she responded in English on both of these occasions.

[5] W1/16

D: You'll back, you'll back to the s-,
small hill again

VDU Input: SOUTH (C & D)

*VDU Output: You are on a small hill. To the north an
active volcano throws a plume of ash into
the air. A path leads east and you can see a
small brick building surrounded by woodland
far away to the west. To the south, a spire
rises into the clouds
What now?*

C: /həɪ ɑ:/, yeah (3)

(yes)

In example [5], C uttered the Cantonese string /həɪ ɑ:/ meaning "yes" to register that he was being right in predicting the location of their making a move to the south. However, as soon, as he realised that he had switched codes, he switched back to English and reiterated the item as he uttered "yeah".

In the experiment, when the subjects came across new program settings, it is possible for them to form visual images of the settings in their minds. Sometimes they may even 'think aloud'. Example [6.1] illustrates this.

[6.1] S1/19

VDU Input: RUB THE WALL (A)

A: (gig) **crazy** (gig)

B: Oh, we can't do so I think, can't shake it, we can't get it, we
can't (3) erm (2) (?) we can't jump (2) what do you suggest?

A: Hm (2) it's most likely then, that when, magic word is said, the
wall can some sort of, move (gig)

B: Hm-Hm

A: I have some picture like this in my mind (gig)

B: Hm-hm, hm

A: Smash the wall (gig) (1) **crazy**

B: We can't do so (?) probably

A: (gig)

VDU Input: SMASH THE WALL (A)

In example [6.1], the subjects came across a wall. They were figuring out all sorts of possibilities relating to it: A actually stated explicitly that she had in her mind "some picture" of the wall moving when a magic word was said. In this instance, A complied with the prescribed rule of the exercise and used the second language when she was describing her mental visual image. On the other hand, one instance of code switching was recorded when a subject broke into the mother tongue under similar circumstances. This is illustrated in example [6.2]

[6.2] W8/18

C: You are inside the bear room
[(?)
D: [A chained bear (1) /həv yau s-/
(very thin)

C: (?)
D: Chained
C: Chained
D: Being locked (1) [(E)
C: [Yes

E=click

In example [6.2], the subjects came to a location where they could see a bear tied to a chain. The program provided no description as to how the chain looked. Nevertheless, after reading this information, D paused for a second as he appeared to be visualising the setting. It seemed that he was imagining that the bear was tied to a thin chain as he uttered in Cantonese /həv yau s-/ which means "very thin". In this instance, the mother tongue was uttered subconsciously as the subject was engaged in deep thought and had temporarily forgotten about the exercise constraint.

Lexical Substitution

Lexical substitution is a phenomenon which Crystal (1980) defines as "the insertion of particular lexemes at particular places in grammatical structures". (p.209) An example of this can be identified from the data. The context is provided in example [7.1].

[7.1] W1/10

C: Open (3) the door (2) bottle,
VDU Input: OPEN THE BOTTLE (D)
VDU Output: Please be more specific
What now?

C: Open bottle
D: Please be more spec-, what now? (E) (2) we have the keys,
on hand

E=click

C: Blast the building
D: Then we, [(gig) **you're short.**
C: [OK? try, try it
D: **Short, you're short.** please be more specific

*the two occurrences of 'short' are
mispronounced as /s t/*

C: (gig)

In example [7], the subjects were trying to open a bottle. They executed a command to do so. However, the program responded with a reply asking them to be more specific. The subjects had been attempting to figure out what to do with the bottle for some time and the opening of the bottle was only one of their latest attempts. As they were getting nowhere, C came up with a wild idea. He suggested that they should "blast the building". D responded by telling C off as he uttered "you're short". *Short* was used to mean "crazy". This utterance illustrates a typical example of lexical substitution which can be found in the speech of many contemporary Hong Kong teenagers.

Observations of day-to-day conversations of these teenagers indicate that the item has crept into the lexicon and is used quite frequently. The item could have been derived from the term *short-circuit* which in colloquial Cantonese means "a faulty connection of wires" and extends metaphorically to mean "an unhealthy association of nerve fibres".

Hong Kong students who have weaker proficiency in English usually utter the item as /sɒt/, with the initial palatal fricative /ʃ/ fronted as the dental alveolar fricative /s/ while the final consonant /t/ is largely unreleased. The reason being that /ʃ/ does not exist in the Cantonese phonological system. Further, Cantonese items which comprise final consonants are normally uttered in an unreleased manner. On the other hand, students who have better mastery of English usually utter the item as /ʃɒt/.

In a context where the basic code of communication is the mother tongue, to convey the message that "you are crazy", a speaker could utter, "/nei du: tsi: ge/", in which /tsi:/ represents an abbreviated form of /tsi: si:n/, i.e., "crazy". Alternatively, the speaker could substitute /tsi:/ with short. The utterance would then become "/nei du:/ short /ge/". The fact that /tsi:/ and short can occur in free variation in similar contexts reveal that they are both surface forms of the same underlying lexeme: *CRAZY*.

In the experiment, the strong subjects never uttered "short". Instead they uttered "crazy" on five occasions. Three times in S1 and two times in S8. The contexts in which the item occurred are provided in examples [7.2] to [7.6].

[7.2] S1/19

- A: Hm, we [can't rub it
 B: [Rub the wall, and see what happens,
 [(gig)
 A: [(gig)

VDU Input: RUB THE WALL (A)

- A: (gig) **crazy** (gig)

[7.3] S1/19

- A: Smash the wall (gig) (1) **crazy**
 B: We can't do so (?) probably
 A: (gig)

VDU Input: SMASH THE WALL (A)

[7.4] S1/19-20

A: Hit the wall

B: Hit the wall (3)

VDU Input: HIT THE WALL (A)

A: (?) (2)

A: (gig) [(gig)

B: [You should only attack enemies (2)

A: What should we do now?

B: (E) (E) (gig) (2)

E=click, sigh

A: [Can we enter?

B: [(?)

B: OK enter (1)

VDU Input: ENTER (A)

A: (gig) **crazy** [(?) direction

B: [Can't move

[7.5] S8/17

A: Roll the carpet and get the moss (gig)

B: (gig)

A: **Crazy**

VDU Input: NE (B)

B: Hm-Hm

[7.6] S8/23

A: (gig) (?) **crazy** (gig)

B: You keep killing dwarfs today

IV. CONCLUSIONS

From the above discussion, it can be seen that the subjects largely complied with the prescribed rule of the exercise, i.e., they communicated with one another in English for most of the time. The occasional switches to the mother tongue came about mainly in a subconscious fashion in circumstances when the subjects had to utter something in haste; when they were engaged in deep thought; when they acknowledged reception of an unfavourable outcome; or when they correctly predicted the outcome of a certain move. During such circumstances, it was likely for them to temporarily forget about the exercise constraint and switch to the mother tongue.

However, there was one instance that the shift to the mother tongue appeared to be deliberate. D, a weak subject, employed the mother tongue as a problem solving strategy. This seemed to be his final resort to get his views

across to his partner. As a result, his partner not only received his message, but also agreed with what he had suggested. Subsequently, the pair worked in closer harmony.

On the other hand, in instances when the subjects realised that they had switched to the mother tongue, they would usually make a conscious shift back to the second language to proceed with the exercise.

In the data, only one instance of lexical substitution was identified. This was *short*. An attempt was made to explain how the item was derived. Its phonological realisations and its syntactic environments in Cantonese were briefly examined. It was also found that although the strong subjects never used the item, they used its English equivalent five times. This implies that the more proficient one's English is, the less likely will one employ lexical substitution of the kind similar to *short* while one is talking to another person in English.

The data collected in this study have been derived from an experimental setting where the subjects had to communicate largely in the second language. One wonders what the outcome might have been if no prior instructions relating to the use of codes had been provided. A reasonable guess would be that the base language would have been Cantonese and there would be occasional switches to the second language as the subjects had to read the information provided on the VDU screen and type in the commands in English. Further work adopting this approach could perhaps shed more light on the issue.

On the other hand, the way that this experiment was conducted has revealed that it is possible to use adventure games in similar settings to induce second language interaction among Hong Kong students. Hence, such games could be regarded as having a vital role to play in ESL research. The data derived from the study open up a number of possibilities for further investigation. For example, it is possible to approach such data from the psychological level to investigate the cognitive processes involved in human problem solving. It is possible to analyse the data at the discourse level to study the features in problem solving discourse. It is also possible to examine the data at the lexical level relating to the subjects' use of lexis in such discourse including their choice of audio paralinguistic elements.

Work relating to the areas outlined in the preceding paragraph is currently in progress and the findings will be presented in subsequent papers.

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Appendix A

COLOSSAL ADVENTURE CLUES

Objectives:

1. Try to find and get into the cave where the treasures are.
2. Try not to get yourself killed.

Directions:

ABOVE
INSIDE
NORTH
NORTHWEST

ACROSS
INTO
SOUTH
SOUTHEAST

CROSS
OUTSIDE
EAST
SOUTHWEST

DOWN
OVER
WEST

EXIT
UPWARDS
NORTHEAST

Verbs:

ATTACK
CHUCK
DISCARD
ENTER
FREE
KEEP
LOB
POUR
SHAKE
UNLOCK

BLAST
CLIMB
DRINK
EXIT
GET
KILL
LOCK
READ
SHUT
WAVE

BREAK
CLOSE
DROP
FEED
GIVE
LEAP
OFF
RELEASE
SMASH

CARRY
CROSS
EAT
FIGHT
HIT
LEAVE
ON
RUB
TAKE

CATCH
DETONATE
EMPTY
FILL
JUMP
LIGHT
OPEN
SAY
THROW

Special instructions:

CATALOGUE LOOK

Examples of instructions that the computer understands:

GET THE LAMP
DROP THE KEYS
GO EAST
MOVE UPWARDS

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