

## **CHAPTER 4**

### **THE FIRST CYCLE**

In Chapter Four to Chapter Six, incidents which illustrate the challenges participants faced and the gaps between the program designer's expectation and participants' reactions are chosen. I describe and discuss these incidents in each cycle, trying to reflect on participants' interaction with the program. Then from the reflection in each cycle, I try to generate solutions to adjust the program design for the next cycle.

As a review of the story framed in this program, three pairs of participants were invited to work on tasks in the program. Details of each task were presented first, following with participants' reactions to each task. Then the interpretation and discussion were presented at the end of each section.

#### 4.1 Scene 1: Comprehension of the Detective Story

In this detective problem-solving program, participants were expected to obtain information from Scene 1 by clicking the action items. As a designer and observer, I am interested in: (1) Whether participants would click one of the choices without instruction. If they do, this would indicate that the program gives a clear instruction, and (2) What was participants' reaction toward the sound clip.

##### *4.1.1 The Participants' Reaction to the Initial Task*

In the first cycle, three pairs all managed to click the action choices. Pair No. 1 discussed about the type of this comprehension task. One of the members, Pon, said that the scene looked like a Japanese computer game, while his partner, Wei, said that he felt the scene looked like someone's diary. Then Pon explained for Wei the

instruction of the task and what they had to do. They clicked the action of “open the door” (F1-3-1~F1-3-3)<sup>1</sup>. As for Pair No. 2, they discussed with each other before choosing the action. They seemed to have no difficulty in this kind of activity (F2-3-2). Yi of Pair No. 3 controlled the mouse, read aloud the description, and quickly clicked his selection without any interaction with his partner (F3-3-1).

From participants’ different behaviors, it can be deduced that they had the necessary understanding to complete the comprehension task. The first pair mentioned the similarity of the task to a computer game, seemingly to relate their old experience with this task. Also, the second and third pair seemed to follow the story-like passage and chose the action item without hesitation. No difficulty was met during the process. Their actions suggested to me that the setup of different elements on the screen was clear enough for users to take the next step. Though a clear instruction might make sure that participants would not get lost; its downside was the possibility of taking participants out of the scenario for a while. Thus, since three pairs in the first cycle could smoothly click on the choices on the screen, I decided to keep the original design.

#### *4.1.2 The Participants’ Reaction to the Sound Clip*

Besides clicking, participants’ reaction to the sound clip at the end of Scene 1 was worth discussion. Pairs in the first cycle seemed to experience challenges in listening to the sound clip. For example, Pair No. 1 complained that the volume of the

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<sup>1</sup> “F” stands for fieldnotes of observation. The first code refers to the pair number; the second code refers to the page number which the CSCL program shows on the screen; the third code is the number of events taken place in that screen page.

clip was not loud enough; however, they still could get the main idea from the sound clip (F1-3-6). It took Pair No. 2 three times to listen to the clip before they could understand the information (F2-3-3). Pair No. 3 played the clip, adjusted the volume, and listened to it again before getting the information (F3-3-5). Besides, in the interview which was conducted after working on the program, Yi of Pair No. 3 expressed that the sound clip should be adjusted louder and clearer. Generally speaking, participants in the first cycle did not comprehend the clip the first time they played it. However, through repeated tries, they still could obtain the main idea in the clip.

To decide whether the sound clip needed adjustment, I took three issues into consideration. First, this sound clip was actually quite loud; the real problem might be on the voice quality. In this sound clip, the voice actor meant to puff and blow when saying this sentence, indicating that he had run a long way, and was eager to see Holmes. Second, the actor's British accent might be unfamiliar to the participants. Third, in the end all three pairs managed to complete the task. Since this clip was not the key for the problem to be solved but only background information, my decision was not to adjust this clip for the next cycle of the research.

Nevertheless, after listening to the sound clip, participants were expected to move on to the next page. However, participants seemed to be confused at this point. To solve this problem, a clear instruction of "go to the next page" could be put under the sound clip control panel. In this way, participants could be informed more directly that they could go to the next page after listening to the sound clip

#### 4.2 Task 1, 3 and 4: Speaking Tasks

In this program, there are two free-talking tasks (Task 1 and Task 4). Task 3 is a guided problem-solving task, which prepare learners for doing Task 4. Among them is a note-taking task. For the convenience of making a clear comparison and contrast, the two speaking tasks are discussed first in this section. Task 3 will be discussed in later sections.

In Task 1, learners are asked to engage in a role play. One member is to be the policeman, and the other, the reporter. Correlating the information they have gathered from previous screens, the reporter tells the police what has happened in Holmes' house. In Task 4, learners have to report to Holmes what they have found and what inferences they make from examining the dead man's outfit. (The inferences are what learners have chosen for several clues in Task 3.) Learners are provided with two guided structures and are required to achieve this task within six minutes. Both tasks require the learners to record their conversations onto a separate tape recorder.

I am interested in (1) the participants' first reaction to the speaking task, and (2) the participants' performance on the tape.

#### *4.2.1 Their First Reaction to the Speaking Tasks*

In terms of the participants' reaction to the speaking tasks, three phenomena are worth discussion, including (1) their temptation to skip the task, (2) their struggling to speak, and (3) the behaviors of writing down lines before using the tape recorder.

(1) *Their temptation to skip the task.* First, Pair No. 1 and Pair No. 3 tended to skip the recording task as indicated in my fieldnote below:

Excerpt 4.1

In Task 1:

● Pair No. 1 on the page of Task 1 discussed shortly and then immediately moved to next scene. They did not do the speaking task (F1-4-3).

● In Task1, Yi in Pair No. 3 suggested click to the next page and see what would happen if they skipped the speaking task. His partner, Ho, just held on to the recorder, watching Yi click on the mouse and move to the next page. (F3-4-11).

In Task 4:

● Pair No. 1 ignored the second speaking task and directly moved on to the next page. Then I insisted that they should finish this task before moving on. (F1-8-2).

● After several minutes of rehearsal, Wei in Pair No. 1 announced that they could record now. However, the rehearsal only made one of the three required inferences. Pon told Wei that he thought there should be another two inferences to make, according to the three clues on the screen. Wei persuaded Pon that it was fine just to choose one item. Pon then agreed, and let Wei talk into the tape-recorder himself (F1-8-7).

The fieldnote clearly recorded how participants “skipped to the next scene” or “ignored” the task. I intervened and insisted that they do the speaking task and Wei of Pair No. 1 suggested his partner skip the other two required reports about the boots and the occupation of the dead man after solving the first required clue. And when witnessing one pair member skipped the speaking task, the other partner did not have any reaction to the partner’s behavior, except that Pon of Pair No. 1 questioned Wei, “Aren’t there two other inferences to make?” This skipping behavior was critical, since among the whole program, the participants did not have this skipping behavior but only in doing the speaking task. Thus it could be inferred that there were certain elements which made the participants not willing to fulfill the task.

(2) *Their struggle to speak.* Seeing this skipping behavior, I intervened and insisted that participants should finish the task. I also helped them assign roles for the role-play of Task 1. Wei in Pair No. 1 then asked me if it was allowed to speak in L1

in the speaking task, while Yi in Pair No. 3 questioned why they could not type in lines instead of speaking lines for this task (F1-4-5, F3-4-9). Upon my insistence, Wei in Pair No. 1 took the role of the reporter in Task 1 while Pon was supposed to take the role of the police officer. Wei said “You be the police officer.” Pon obviously had no idea what was going on, even though they both had spent a long time trying to read from the screen. So Wei had to tell Pon in Chinese what had happened in Holmes’ house. Then they rehearsed for several minutes. However, they still could not work out meaningful contents. Actually, they could only generate three lines, “There is a man die,” “Please coming now,” and “Oh, yes, I am coming now.” (These three statements were original spoken in English. *Sic*) Pon, the more fluent one, in this task was somewhat stuck. He kept laughing, but still tried to follow Wei’s directing (F1-4-6, 1-4-7). Their reactions indicated that they were not used to making dialogues on their own.

Task 4 asks participants to report their inferences based on their previous discussion in Task3. Wei and Pon first engaged in a rehearsal.

#### Excerpt 4.2

(During the rehearsal)

*Wei: There is nothing in the right part<sup>2</sup>. We guess (..) what?  
how does it[Note: the word “right-handed”] pronounce?*

*Pon: Because*

*Wei: We guess he is right-handed*

*Pon: (laugh)*

*Wei: Because (..)*

*Pon: We guess (..) we guess he is the (.)*

*Wei: right=*

*Pon: =right what?*

*Wei: Let’s check.*

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<sup>2</sup> Italic texts without underline in the dialogue are speech in Chinese transcribed and translated into English by the researcher. Italic underlined texts are original speech in English.

Pon: Right-handed=  
 Wei: =Oh, right-handed. There is what in so we think he is right-handed right-handed. We guess he is right handed because (.) he (..)  
 Pon: because he is happy. [Note: He did not have a word to put after “he”, so he just threw the words “is happy” there randomly.]  
 Wei: (laugh) He(..) he right pot [pocket] have (..)  
 Pon: Nothing. (laugh)

(F1-8-4)

From the excerpt, it is clear that they had difficulty in the word, “right-handed.” Wei first tried to say the word. He asked Pon the pronunciation of it. Pon did not answer him. So Wei said the word in Chinese. Then Wei and Pon both were stuck again. Wei then suggested to check it from the previous screen. They tried to negotiate the word “right-handed” for several turns, and gradually got the sentences that they wanted to say. That was, “There is nothing in his right pocket, so we guess he is right-handed.” And it also took them much time to produce their line, which they obviously knew because they tried to search for the right word in Chinese.

(3) *The behavior of writing before speaking.* Beside the participants’ behavior of skipping and struggling in speaking, I also observed that the learners insisted on writing down every line before doing the speaking task. In both Task1 and Task 4, Lin of Pair No. 2 wrote down lines before the two participants started recording (F2-4-1, F2-8-3, F2-10-7). Pair No. 2 achieved the speaking tasks by reading directly from the notes. Comparing with the awkwardness and stammering that Pair No. 1 experienced as described above, their strategy, whether consciously or unconsciously used, seemed to enable them to cope with the requirement of speaking and the stress that the speaking task might cause. Writing down lines also allowed them to achieve accuracy and complexity. However, this behavior made the speaking task less

spontaneous and defeated the purpose of the task. From the participants' behavior in speaking in English, it could be inferred that this kind of speaking task might have given the learners much anxiety to a degree that participants were struggling to try and find a way out of doing it.

#### *4.2.2 The Participants' Performance*

In the previous sections, I have discussed participants' first reaction to Task 1 and Task 4 before they pushed the record button on the tape recorder. In this section, the three pairs' performance on the two tasks is presented and then related issues are discussed.

Excerpt 4.3 was the actual recording for Task 1 (Figure 4.1), which asked pairs to have a role-play, reporting to the police what had happened in Holmes' house. The excerpt could be analyzed in three parts: accuracy, complexity, and fluency. In terms of accuracy, lines like "there is police station", "there is 911" were incorrect expressions. Participants might have taken "there is" for "this is". And the line of "there is a man die" appeared in Pair No. 1 and Pair No. 2's lines, with the same grammar mistake, the use of "die". It could be understood that participants had not learned the use of participle "dying" in their textbook. Second, in terms of complexity, the contents of participants' product seemed to be simple and short. All dialogues were finished within three to four lines. Also, it seemed that Pair No. 1 and Pair No. 2 limited their lines within the provided pattern clue "there is..." Participants did not report to the police any details such as the outfit of the dead man and what the man said before he died. Third, in terms of fluency, since participants were allowed to rehearse before pressing the recording button, their formal performance here was



quite fluent without any pause or hesitation (though Pair No. 2 had their lines written down on the paper). To conclude, the incorrect use of “there is”, and the limited information seemed to be a problem for the participants’ product of Task 1, while at the same time participants moderately achieved the object of fluency. I suspected that the provided pattern clue in Task 1 might have misguided and limited the participants’ performance, and that participants might need more clues on what elements they could include in order to expand the information their dialogues provided.

#### Excerpt 4.3

- Pair No. 1:  
Wei: Hello, there is police station.  
Pon: There is a man die. Please coming now.  
Wei: Oh, yes. I am coming now. (F1-4-9)
- Pair No. 2:  
Lin: There is 911.  
Huan: There is a man die. Can you come here?  
Lin: Ok! I come at once. (F2-4-4)
- Pair No. 3:  
Ho: What happen?  
Yi: Someone dead.  
Ho: Where is he?  
Yi: Follow me. (F3-4-26)

Excerpt 4.4 below indicates how pattern clues and element clues might have guided participants’ sentence making. In Task 4, participants were asked to report their inferences, with two target pattern clues of “there is...in...so we think...” and “we guess...because...” at the bottom of the screen (Figure 4.2.). Also, on the screen, three blocks with words of “clothes”, “right pocket”, and “boots” aimed to suggest that there were at least three inferences to make.

#### Excerpt 4.4

- (Pair No. 1)  
Wei: We guess he is right-handin [*sic*] because he right packet have a pens [*sic*](F1-8-8).

## ●(Pair No. 2)

Lin: There is a noble clothes. So we think he is a business man.

Huan: There is a pen in the right pocket so we think he is right-handed.

Lin: There is a dirty boots. So we think he walks for a long way (F2-8-8).

## ●(Pair No. 3)

Yi: He has a [*sic*]noble clothes. It means maybe he is a businessman (...)

'cause his has some money. We guess a pen in his right pocket means he is a right-handed. He have [*sic*] a very dirty boot. Maybe he had run a long way from here.

(F3-8-7~11)

To analyze Excerpt 4.4, the three elements, accuracy, complexity, and fluency, were again used here. First, in terms of accuracy, most lines were correctly composed except words like “right-handin” for “right-handed”, “he right packet” for “his right pocket”, and “a noble clothes” for “noble clothes”. Also, Pair No. 1 correctly used the provided pattern clue (though they skipped the other two inferences). Pair No. 2 added “a” for the plural nouns in their first and third line; Pair No. 3 used their own sentence patterns, “He has...It means...”, “We guess...means...” instead of the target pattern clues. Generally speaking, participants did well on the dialogue task with only minor mistakes in vocabulary. And since the focus of the recording task was not based on accuracy but was based on conveying their meaning, the grammar mistakes can be saved for the debriefing stage, in which a teacher may present and explain grammar after the program.

Second, in terms of complexity, the dialogue produced by Pair No. 2 and Pair No. 3 covered three required elements of “clothes”, “right pocket”, and “boots”, while Pair No. 1 only covered “right pocket” and skipped the other two. And information provided for Task 4 was much richer than that generated in Task 1, though it has to be noted that Task 1 is designed to be a role play, which is more likely to produce a

*Task 1: Report*

Holmes 手邊在忙,所以要求你們用英文幫他報警.

1. 跟據剛才看到的細節,用1分鐘計劃待會要怎麼說(人事時地)  
可以按下面向左的鍵頭 再看一次故事
2. 用錄音機錄下對話,一個人當policeman, 一個人當報案的人.
3. You only have ten minutes.

可用句型: "There is....."

09:53

MENU

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Figure 4.1. Task 1

*Task 4: Report*

Now Holmes asks you to tell him

你只有六分鐘完成錄音  
請想好後  
跟據死者的衣服  
告訴Holmes你們的推論

clothes right pocket boots

Grammar: "There is...in....so we think..."

"We guess.....because..."

05:59

MENU

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Figure 4.2. Task 4

dialogue, while Task 4 is a report task, which tends to generate monologues.

Third, in terms of fluency, all three pairs did not have any pause or long hesitation during their report. But again it should be noted that Pair No. 2 had their lines written down before doing the recording. To conclude, participants in Task 4 correctly used the sentence patterns provided in the program and still moderately achieved the goal of fluency, while at the same time they made few mistakes in vocabulary.

From the participants' formal performance in Task1 and Task4, a few points for design improvement could be derived. First, in the open-ended speaking task such as making a dialogue in Task1, it was not necessary to provide the sentence pattern clue for participants. Otherwise, the patterns might limit participants' sentence variety (for example, F1-4-9 and F2-4-4 in Excerpt 4.3). On the other hand, tasks with high demand on structure such as the report reporting task in Task4, giving sentence pattern clues might generate satisfying result (for example, F1-8-8 and F2-8-8 in Excerpt 4.4). This point can be further verified from one participant's view. In the interview, Huan in Pair No.2 mentioned that the patterns provided on the screen helped her know how to make sentences. Thus, it is suggested to remove the sentence pattern clues in Task1 while keep the clues in Task4 in the next cycle. However, while doing Task 4, Huan in Pair No. 2 told her partner that they did not need to use the required "there is..." pattern. Instead, she said another option was "he wears" (F2-8-5). Similarly, Pair No. 3 did not use the provided clues either but still did the recording job well both for Task 1 and Task 4. It seemed that the participants needed the space to exert their autonomy and experiment with optional sentence patterns, particularly those that they feel comfortable with. Therefore, the program design could keep the target sentence pattern for the speaking tasks, while at the same time it

could also be useful to inform the participants that they have a choice of using it or not.

Second, from the fieldnotes, the participants generated richer contents in Task 4 than in Task 1. The reason might be that Task 4 provided participants with 3 information cues (clothes, pockets, and boots) while Task 1 did not. The content clues function as a springboard in the speaking task. They guide the participants in a clearer direction and also help break the contents into manageable parts, particularly when participants are those who are not comfortable with speaking in English. Thus, it was suggested that the task design could add some content clues in Task 1. Clues such as the four “WH” questions: where, when, who, and how, might help the participants produce better contents for open-ended speaking tasks such as Task 1.

#### 4.3 Task 2: Note-taking Task

In the note-taking task, the participants were expected to get clues from the outfit of the dead man and type what they knew from the clues in the blank provided in Task 2. A target sentence pattern clue “there is...” was provided at the bottom of the screen.

In the beginning of the task, Pair No. 1 asked “why should we type? I can’t type in English” (F1-6-1), and Pair No. 2, “could I type in Chinese (F2-6-1)?” I encouraged them by saying that there was no time limit, and gently insisted that they typed in English. I realized that typing in English was not familiar to them; in particular, they were not familiar with the keyboard. Though the participants knew what they needed to do, still they did not have much confidence in typing. However, compared with the speaking task discussed previously, the participants took less time

to accept the typing task. I did not need to spend much time persuading them into doing the task.

The participants also tended to make incomplete sentences for this task. The following excerpt was the sentences each pair typed according to the four content clues, “clothes, pocket, fingers, and boots” and one grammar clue, “There is...”

#### Excerpt 4.5

##### ●(Pair No. 1)

- (a) There is noble clothes.
- (b) There is nothing.
- (c) There is some dirt.
- (d) There is dirty. (F1-6-6)

##### ●(Pair No. 2)

- (a) he wears noble clothes.
- (b) a pen (right) nothing (left)
- (c) some dirt.
- (d) the boots are dirty. the socks are smell. (F2-6-6)

##### ●(Pair No. 3)

- (a) It is a [*sic*] noble clothes.
- (b) there is a pen at the right pocket and nothing at the left pocket.
- (c) there is some diit [*sic*] on it.
- (d) it is a drity [*sic*] boot and has a bad smell. (F3-6-2)

Except spelling mistakes, Pair No. 3’s answer was the closest to the task’s default answer. Pair No. 3 correctly used the target sentence pattern “there is” for their Sentences (b) and (c) while they used adjectives to describe clothes and the boot for Sentences (a) and (d). However, compared with Pair No.3’s answer, Pair No.1 and No.2 tended to use incomplete sentences for their sentences (b) and (c). For example, Pair No. 1, Sentence (b) “There is nothing” should have been “There is nothing [in his pocket]”, while Pair No. 2, sentence (c) “some dirt” should have been “[There is] some dirt [on his fingers]”. Besides that, Pair No. 1 wrongly used the pattern “there is” in their sentences (a) and (d) instead of using adjectives.

From the performance discussed above, it could be inferred that they were not familiar with the target pattern “there is”, which they had learned from the textbook. The incorrect use of the target pattern “there is” was also found in participants’ oral recording in Task 1. Therefore, for the program design improvement in this task, participants might need to be reminded with the clue “There is...in” (e.g., “There is a pen in the right pocket.”), instead of “there is...” This is to help them generate the location for the object being found. Also, another pattern clue, “He wears...,” could also be given for the items “clothes” and “boots.” However, no matter what clues are provided and how the program design improves, it is not reasonable to expect an error-free performance from participants. For one thing, one of the goals of this program was to give participants chances to practice and to problem-solve instead of achievement evaluation. Second, common errors that learners make are valuable information which teachers could discuss later with the whole class. (More about pedagogical information will be provided in the discussion chapter.)

#### 4.4 Scene 4: Matching Task



Figure 4.3. Scene 3-1



Figure 4.4. Scene 3-2

In Scene 3 (Figure 4.3), the participants were expected to match the vocabulary with the correct pictures by pressing the vocabulary button and then drag it to the target picture. After matching, participants could press the score button. The percentage of correctness would be shown at the bottom (Figure 4.4).

Some participants seemed not to know how to conduct the matching task. For example, it was observed that Pair No.1 actually did not do the matching. They thought it was just an introduction of vocabulary (F1-9-2). Also, one participant in Pair No.2 did not know how to press the mouse and drag it to the match before her partner told her how (F2-9-3). When designing Scene 3, I thought that a short instruction “Match the Vocabulary with Correct Pictures” (originally in Chinese) in Figure 4.3 would be clear enough and that the participants should be able to do the matching. However, the participants’ reaction indicated that clearer instruction on how to use the mouse to do the matching task was necessary.

Besides the problem of instruction, another problem is that the participants are not allowed to conduct the matching again once they press the score button. By limiting the participants to one chance of correctly matching everything, the original design should promote the participants to consider their choices thoroughly before completing the exercise. It also means to prevent the participants from randomly matching choices until they score 100%. However, this design seemed to hinder the participants from trying errors. Except for Pair No.3, the other two pairs did not achieve 100% in their matching challenge. Pair No.1 scored 60% and then asked each other which items they matched wrongly (F1-10-4). Neither of them had the answer. The program design did not provide them with a chance to do self-learning. Pair No.2, after matching wrongly, tried to drag the mouse in order to change the matching answer. However, the system did not allow them to do so. Then they gave themselves



a chance creatively by exiting the task page and re-entering it again (F2-9-5), so that they could change the original answers.

The participants' behaviors described above indicated that they held a serious attitude toward the matching task. Pair No. 3 scored 100% at the first attempt, while Pairs No. 1 and No. 3 tried to mend their mistakes. They did not treat their mistakes casually as how I originally thought they would. To interpret the phenomena, the reasons might be that since the participants were all high-achievers chosen by the researcher in the first place, their sense of achievement would drive them to do the matching again until they scored 100%. Their various behaviors indicated that I underestimated their sense of achievement in my task design. And thus the design of locking the matching answers, which might be effective for participants with a certain learning style, does not fulfill the high-achievers' need. Therefore, in the second cycle, I would add a button of "Try again" beside the score button in order to allow the participants a full chance to understand the target vocabulary through this task.

#### 4.5 Task 5: Giving Orders

In Task 5, the participants were expected to think about the process of obtaining the powder on the dead man's finger by composing four imperative sentences in the right order (Figure 4.5). The participants tended to write down lines on the paper before they recorded the procedure in the right order. Lin in Pair No. 2, after discussing the sentence order with her partner in Chinese, composed the lines on the paper "Light candle, take the wax, and drip the wax on the hand" before recording. Yi in Pair No. 3 also jotted down lines for his partner: "Go to the desk. Take the match. Light on the candle. Drip the wax on hand." Only Pair No. 1 orally

rehearsed without writing down anything. Therefore, most of the participants relied on written forms and reading out loud to complete this written task. This is similar to the previous speaking tasks when participants were asked to report to the police and Holmes.

On the other hand, the design of having the participants click on the pictures to get the pronunciation of the word worked as had expected: participants seemed to like it, and the function helped them do the task smoothly. For example, Wei in Pair No.1, after his partner clicked on the pictures to get the sound file, said, “Great!” in Chinese. Also, Pair No. 2 seemed excited to find the pronunciation of “wax” which they had encountered in the previous screen but had had no idea how to pronounce it. “So, that’s wax!” they murmured to themselves.

From participants’ reaction to this task, two points could be concluded: 1) the participants had the tendency to write down lines whenever they encounter speaking tasks. A reminder of not to jot down lines could be provided in the next cycle in order to achieve the goal of fluency practice. 2) The design of clicking on the picture to get the pronunciation was acceptable to the participants. It could be kept for the next cycle.

#### 4.6 Scene 4: Detective Work

In Scene 4 (Figure 4.6), the participants were given the results of the gunpowder experiment supposedly carried out by Holmes. However, the information was hidden in the “five” button. For example, when the button “wax (tested) in the liquid” was pressed, there would be a pop-up window with information about the color of the liquid when tested: in this case it was blue. When cross-reference with



Figure 4.5. Task 5

the table on the right-hand side, the participants would see that the color “blue” indicated that lead (gunpowder) was the ingredient in the liquid. After reading the information, the participants had to discuss with each other on what might have happened to the dead man (Figure 4.7).

The results of the experiment showed that the back of the dead man’s left hand and right hand palm had traces of gunpowder. What I originally expected was that the participants knew that from the previous inference-making tasks (Task 3), they could infer that the dead man might have been a right-hander. If the dead man had shot the gun, the back of his right hand should have had a trace of gunpowder. However, the experiment indicated that gunpowder was on the back of the left hand and on the right palm. Thus, the participants might be able to point out that the dead man did not shoot the gun. As to why the gunpowder would be in the dead man’s hand was to be answered in a later scene.

*Scene 4: Findings...*

Holms has a special liquid.  
You can put the powder into the liquid.  
This liquid will tell you what the powder is.

按下按鈕看粉末實驗結果

wax in the liquid

left hand palm

left hand back

right hand palm

right hand back

化學溶液對照表

**Color of the liquid means...**  
Red: blood  
Black: dirt (soft dirt)  
Blue: led (gunpowder)

liquid: 液體      liquid: 液體  
blood: 血液      palm: 手掌  
dirt: 泥土      mean: 意思是

led: 鉛, 開槍後鉛粉會往後飄 至開槍者的手背

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Figure 4.6. Scene 4-1

*Scene 4: Think....*

跟小組員討論:

1. 根據開槍後鉛粉(gunpowder)可能覆蓋的範圍, 討論開槍現場可能的情況
2. There is a pen in the dead man's right pocket. What does that mean?

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Figure 4.7. Scene 4-2

To be able to make the logical inference, the participants had to have the concept of how gunpowder might spread out after firing. However, the participants in doing this discussion did not have a clear understanding of gunpowder and thus they could not successfully make a logical inference. Both Pair No.1 and Pair No.3 recognized gunpowder by mentioning one famous detective cartoon “Conan”. When seeing the experiment of gunpowder, Pon of Pair No.1 reminded Wei, “Have you ever seen “Conan”? In one of the episodes the characters investigate the chemical reaction of gunpowder. When a man shoots a gun, gunpowder spreads to his hand, so there will be lead on his hand”. Pair No. 3 recognized gunpowder and mentioned "Conan". They discussed how criminals avoid gunpowder by using umbrellas (F 3-11-1 and F3-12-2). As for Pair No.2, they seemed not to have the concept of gunpowder. In the interview, when I asked them about the liquid experiment, Huan of Pair No. 2 thought that the dead man was “poisoned”. Her answer indicated that the pair did not have any idea about the significance of gunpowder at all.

Besides, though some participants had discussed gunpowder in the cartoon they had seen, they still were unable to answer the question: “There is a pen in the dead man’s right pocket; what does that mean?” asked on the screen. For example, Pair No.1 did not know the answer to this question and then decided to skip it (F1-12-2). Pair No.3 also met difficulties in this part. I brought Pair No. 3 back to gunpowder experiment page and asked them to notice the differences between the palms and hand back. Yi of Pair No.3 then noticed the differences. However, he did not relate these evidences to the inference that the dead man was right-handed (F3-15-5, F3-15-6). To conclude, three pairs all failed to make logical inferences from results of the gunpowder experiment. The reason might have been that the participants could not understand the spreading of gunpowder simply by reading the explanation, “The

gunpowder will attach to the back of a hand after a man fires a gun” at the bottom of the screen. Thus, in the second cycle, it is necessary to provide participants with a clearer explanation and illustration on how gunpowder spreads before the participants analyze the liquid experiment. This adoption of making task more concrete echoes with Blooms’ (1956) taxonomy, in which the competence of application is based on the competence of knowledge and comprehension. To ask the participants to be able to apply the knowledge of gunpowder, the program should first help them fully understand how gunpowder works when firing.

#### 4.7 Scene 5: Newspapers

In the newspaper scene, the participants were given two pieces of news on the death of a business man (Figure 4.8.) and a notice of an auction held by the deceased last month (Figure 4.9). In the first piece of news, the participants were expected to know the identification of the dead man in Holmes’ house. In the second one, the participants were expected to guess that the businessman’s son might have the motive to murder his father. Finally, in Task 6, they were expected to have a conclusion as to who the real killer was (Figure 4.10).

Since in the gunpowder experiment, three pairs were unable to make logical inferences, thus in the final decision on who the killer was, three pairs all failed to give sound reasons to support their answers. The reasons which they generated seemed to be unimaginable or totally based on the information the news provided. In other words, the gunpowder experiment played no role in their final decision. For example, the following described how Pair No. 1 made their speculation on the real killer.



Figure 4.8. Scene 5: Newspapers 1

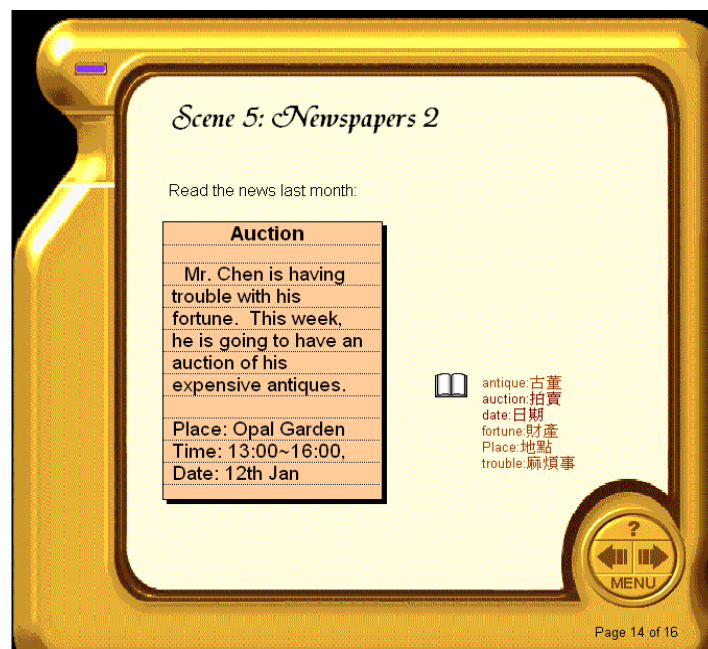


Figure 4.9. Scene 5: Newspapers 2

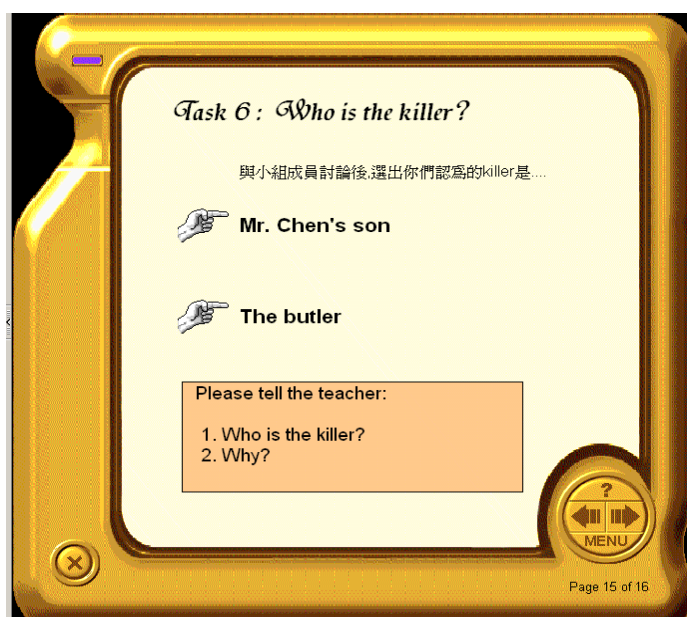


Figure 4.10. Task 6

#### Excerpt 4.6

After Pon read aloud the instruction for Task 6, he thought the killer was the butler. But Wei thought that in the cartoon “Conan”, the most obvious suspect was usually not the real killer. They seemed to be stuck. And they told me an unrelated and funny answer. I thus decided to intervene, bringing them back to the page which reported the evidence of the powder on the dead man’s hand. On that page, I asked them to think about the differences between the “palm” and “the back of the hand.” Immediately, they began to discuss. Wei thought that the boss killed himself. Pon argued with the evidence of the relationship between gunpowder and hands. Then Wei argued for the possible position of hands. At this point, I could see that they took the man in Holmes’ house as the dead businessman. The researcher clarified for them that the man knocking on Holmes’ door was the butler. Then they considered all the evidence again. Wei thought the son killed



the boss and the butler witnessed the event. Therefore, the son also wanted to kill the butler. That was why the butler sought help from Holmes. Though Wei's speculation was a good one, he did not use any evidence to support his point. Then I asked them to think about the powder on the butler's hand and the inference of "right-handed" which they made previously. Hearing my suggestion, they claimed that the butler must be left-handed instead of right-handed. And the killer was the butler. Pon argued, "But why did the butler die in the end? That does not make sense". So Wei changed his mind and claimed that the son was the real killer. Pon still wondered how the butler died. In the end, Pon thought that the butler was left-handed and was the real killer (F1-15).

From the lengthy description above, it could be observed that the researcher tried to help the participants by providing more clues. The first time they were asked to think about the differences between the "palm" and "the back of the hand." The second time they were asked to think about the powder in the butler's hand and the inference of "right-handed" which they made previously. However, even though the participants were given clues, they still had difficulty in linking the evidence with the inference on the real killer. In the description, it could be observed that the participants made at least five claims as to who the real killer was. Still, what they based their guesses on seemed to be the information provided by the newspaper and their imagination. Their claims lacked subtle evidence to support them. This kind of creative claim-making also occurred with Pair No. 2 and Pair No. 3. It was reasonable to interpret that since the participants already had met difficulty in interpreting the gunpowder experiment previously, they did not have enough resources to obtain the whole picture of the murder case. Thus participants used information from the newspaper with their creativity to rationalize their guess.

To help the participants make logical inference, it seems necessary to first make them understand fully how the gunpowder spreads in Scene 4 (Figure 4.7). Once the

participants understand that, they would be able to apply the knowledge to Scene 5. On the other hand, though the indirect clues in the first cycle failed to make participants follow the target reasoning logic, the positive point was that the clues did allow the participants to interpret the whole story. That is to say, although the evidence seemed vague, the participants still were able to discuss and engage in this program. Thus, in the second cycle, the evidence in Scene 4 could be made clearer, more direct, while those in Scene 5 could be maintained to allow the participants to make multiple interpretations.

#### 4.8 Discussion and Conclusion of the First Cycle

In the first cycle, the participants were invited to work in pairs and interact with the program. The participants' reaction was observed and interpreted for the adaptation of the next cycle. In this section, three issues are discussed: (1) The participants' resistance toward unprepared audio recording; (2) The need for a teacher's instruction, and (3) A brief summary of suggestions for program adaptation.

##### 4.8.1 *The Resistance to Record*

In the first cycle, the participants were observed to be resistant toward the two speaking tasks, which required the participants to record a dialogue (Task 1) and their inferences (Task 4) into a tape recorder. The participants first tried to skip the tasks; and when asked to click back, they struggled for a while before producing their contents. Some of the participants also jotted down lines before recording (discussed in 4.2).

As how most of the junior high school English teachers in Taiwan tended to

conduct their teaching with grammar translation method (Wu, 2005), one of the possible reason for the observed resistance is that grammar translation might cause learners to pay too much attention to accuracy at the cost of fluency, resulting that “their production will probably be so slow and hesitant...”(Willis, 2003, p.18). In grammar translation method, learners are always expected to get the accurate answer for multiple choices, cloze tests, and sentence translation. Learners thus are deprived of the chance to practice fluency. Fluency is “a product of organizing performance so that it is based not on rules which are applied more quickly...but on contextually coded exemplars...” (Skehan, 1998, p.60). Without sufficient emphasis on fluency in class, it is understandable that these students would feel reluctant to try when they were given the chance.

The focus on accuracy is not only reflected in the teaching scenarios but also in many CALL program design. For example, *MyET* (LLab, 2007), one of the widely known CALL software in Taiwan, emphasized the accuracy of intonation and pronunciation. Learners repeat the sentences demonstrated first by native speakers and then receive an analysis of voice patterns. In this software, learners do not have space for spontaneous practice. Another CALL program, *Traci Talk: The Mystery* (Courseware, 1997), also made learners read aloud the sentences presented on the screen, with the technique of voice recognition to determine accuracy. However, learners still did not have space to compose their own sentences.

A naturally occurring dialogue places less emphasis on accuracy and more emphasis spontaneous production. Natural speech focuses more on meaning conveyance and usually will be “full of hesitations, false-starts, grammatical inaccuracies, have a limited vocabulary, tend towards repetition and be structured around short thought units or quasi-clauses based on the constraints of breath and of

spoken language processing” (Hughes, 2002, p77). To create the chance for such natural dialogue practice, the design of the CALL program needs to focus more on the stimulation and facilitation that the computer could provide and less on accuracy. In the case of the program design for this study, learners are provided with story-based scenarios and are asked to tape record their oral product. The rationale for these designs is (1) To provide real needs to speak, and (2) To elicit creative natural production.

#### 4.8.2 The Need for an Instructor

The uncertainty and ambiguity embedded in the speaking tasks may cause the learner’s resistance. In helping learners overcome their anxiety, this study shows that support from a human instructor may be necessary. In usual cases like Pair No. 1 and Pair No. 2 in the first cycle, I only had to use the strategy of assigning roles when they had difficulties in the recording tasks. Although some participants might be hesitated to do the open-ended speaking task at first, they were usually quite easy to be encouraged to work on the task. There was only one exception, which clearly shows the importance of a teacher. This scenario happened with Pair No. 3.

Yi of Pair No. 3 was known as having slight emotional obstacles in social interaction. In the speaking Task4, after reading the recording instruction, Yi and his partner, Ho, were reluctant to do the task. I intervened and negotiated with them, saying that their recording would be carefully protected from purposes other than the current research project, and that there would be no evaluation or assessment. Upon hearing what I said, Yi tried to say one phrase, “There is someone... want to kill he.” Hearing this sentence, Ho argued with Yi that the man was already dead. Yi then

turned to me and asked if they could skip this recording task. I explained that I needed them to try for the sake of the research. Yi was still reluctant to do it, while Ho compromised and volunteered to take the role of the policeman. Yi neglected Ho's role assignment and became annoyed, saying that the recording was too troublesome.

I comforted Yi that there were only two to three recording sections in this program. Yi then questioned me, "Why couldn't we type instead of speak?" Ho told Yi that it was impossible to change the design of this program right then. Ho tried to help me persuade Yi into cooperation. Yi then suggested clicking to the next page and seeing what would happen. Ho just held the tape recorder in his hand and watched Yi click the mouse. When Yi entered the next scene, he claimed, "It does not matter if we do the speaking task or not. There is no connection between the speaking task and the pocket-checking task." He also claimed, "You (the researcher) meant to make things difficult for us by insisting on doing the recording." On hearing this, I gave Yi pedagogical reasons why the speaking task was necessary. The reasons were: first, it was found that junior high school students did not have much chance to practice speaking. Second, this program aimed to have a balance catering to four skills, adding that the previous sound file was for listening, while this recording task was for speaking. Later on, they could expect writing and reading tasks. I also encouraged Yi that he spoke quite well in class, and comforted Yi that he could feel relaxed and speak freely. Yi showed his smile after hearing my explanation and encouragement. He seemed willing to do the speaking task this time.

However, after a while, Yi still argued with me, "Why do you ask us to do it? Do you doubt our speaking ability? You just treat us like mice in the laboratory." I told him that I viewed myself as a teacher and them as students. What we were doing was to collaboratively work out something usable for other students. Also, I

mentioned some details of this research design, such as how many pairs were included, and that each pair might represent various kinds of individual differences. I also took Yi as an example, saying that he might represent the type who preferred writing to speaking.

Yi then shifted to complaining, “I did not completely understand what the man said in the sound clip.” So I comforted him that he could achieve the task without completely understanding all the details of the sound clip. He only had to simply describe what just happened.

Yi then asked if he had to begin the sentence with “there is”. His partner, Ho, asked how many sentences were enough. I told them that he did not have to be limited by this sentence pattern and that they could decide how many sentences were enough. Then I asked Ho to say something as a policeman and suggested that they could discuss four elements: who, what, where, and when. Yi and Ho then tried to work out lines. Ho wanted to record it without any rehearsal. However, Yi suggested a rehearsal first. And Yi asked Ho to say the first sentence. The following was their rehearsal.

Excerpt 4.7

(During the rehearsal)

Yi: *Ok, you ask me.*

Ho: *Hey, I am the policeman. How come I should ask you first?*

Yi: *But the problem is that I do not know what the address is.*

Ho: *You can just say “follow me”=*

Yi: *=Follow me.=*

Ho: *=Because you know the address. So why do you have to tell me the address? You can just bring me there.*

Yi: *Follow me. Isn't he calling the policeman?=*

Ho: *=Is he calling the policeman?\**

Yi: *Okay.*

Ho: *Anyway is all right.*

Yi: *Okay, you ask me, “what’s happen”, and you ask me when the man died. Does it mention when he died?*

(F3-4-23)

Then Yi went back to search for detailed information, but he did not find the answer.

So he discussed with Ho. When witnessing Yi's change in his attitude, I breathed a sigh of relief.

From the description above, it should be noted that a teacher's support may be necessary to lower the participants' anxiety and encourage them to face the recording task. The six strategies I used in this scenario included: (1) Informing learners how many recording tasks they could expect, (2) Giving learners pedagogical reasons on why doing the recording tasks was necessary, (3) Encouraging and giving learners confidence in their speaking ability, (4) Revealing contextual reasons for doing the recording task (the reasons used in this case were for researching purpose), (5) Helping learners tolerate ambiguity, and (6) Helping learners assign roles in the dialogue. These strategies successfully encouraged Yi to do the recording task; and in the end he even asked his partner to do a rehearsal, facilitated to say the first line, and engaged in a discussion with suggestion, confrontation, and negotiation, which were recognized as patterns of explorative talk.

#### 4.8.3 Design Adjustments

Suggestions for design adjustments generated from the first cycle are followed:

(1) *Scene 1*. The action choices and the sound clip could be maintained, while in the end of the sound clip control panel, an instruction of "go to the next page" could be added in order to guide learners to move on.

(2) *Discouraging learners from writing down lines for the speaking task*.

Though learners may experience heavy cognitive loading in the recording tasks, they should be reminded that writing down every line for the speaking tasks is not encouraged. Pedagogical reasons and encouragement might also be provided at the beginning of the program.

(3) *Clues for the speaking task.* To motivate learners in the open-ended speaking task, the sentence pattern clue “there is” could be removed, while the four WH clues could be added.

(4) *Typing task.* In order to help learners produce complete sentences, the sentence pattern clue “there is...” could be changed to “there is...in...” Also, the pattern clue “he wears...” could be added for the items “clothes” and “boots”

(5) *Matching task.* An instruction on how to drag the mouse is necessary. Also, a button of “Try it again” could be added in order to satisfy learners’ sense of achievement.

(6) *Gunpowder experiment.* In order to give learners a clearer concept of the gunpowder, an explanation and illustration on how the gunpowder would spread after firing a gun is needed.

Based on these suggestions, the program was adjusted before inviting another group of participants to work on the program in the second cycle.