

## **CHAPTER 7**

### **THE RESULTS**

In the previous three chapters, I discussed the participants' reactions to the CSCL program. Important issues and design principles were generated through three cycles of implementation. In this chapter, important issues are summarized. The first research question on design insights and principles is addressed. The second research question on the participants' interaction is also answered. The last research question on pedagogical implications will be discussed in the next chapter.

#### 7.1 Summary of the Three Cycles

In this section, issues discussed in each cycle are summarized, followed with design principles for human-computer interaction generated from three cycles of implementation.

In the first cycle, the participants were observed to be resistant in conducting speaking tasks. Though adjustments and help were provided in the later two cycles, the speaking tasks still caused the participants to feel anxious to a certain degree. Thus, the issue of accuracy and fluency in the participants' EFL learning context was discussed. The participants' anxiety toward the speaking tasks was interpreted as resulting from the fact that accuracy was overwhelmingly emphasized in the classroom so that the participants did not feel confident with their speaking ability. Besides, in the first cycle, the need for an instructor was discussed when portraying how the researcher (also the teacher) used strategies to lower the participants' anxiety toward the speaking tasks.

In the second cycle, the participants were observed to have difficulty in solving the gun-powder experiment. Thus, the issue of problem-solving ability was discussed. Aspects affected the participants' problem-solving performance included: (1) Language consistency in presenting key clues, (2) Grammar points or language uses that were familiar to the participants or not, (3) The participants' ability to discern trustworthy information, and (4) The participants' ability to collection and correlation information.

In the third cycle, the effect of written elements on the screen was discussed. Through three cycles of adjustments, the instruction in Scene 4 and Task 6 still failed to guide the participants to do discussion in order to generate logical inferences. One possible reason for this failure is that written language tended to be ignored by learners when they interact with the computer-assisted learning programs. A better way to solve this problem is to present information in multimodal ways.

## 7.2 Addressing Research Question 1

The first research question of this study is: After the implementation of researcher-designed software in three cycles, what are some useful design insights and principles that could be derived for computer-supported collaboration EFL tasks? This can be discussed in three points: Teachers' support, the instruction, and language support.

From the three cycles of implementation, it was observed that when the teacher/instructor provided the participants with encouragement and explained to them the design rationales, the participants were less anxious about the speaking tasks. Also, the teacher's own voice embedded in the program was observed to

arouse the participants' interest. Teachers' support had positive influence to the participants. In this study, teacher's role has great influence in two aspects. First, teachers can provide learners with psychological support in order to bridge the gap between learners and the program. Second, teachers can customize the self-design program to cater to learners' needs based on feedback that learners provide.

Besides, this study suggested the following adjustments on instruction for the CSCL program are necessary: (1) A reminder to avoid jotting down lines for the speaking task could discourage learners from writing notes before fluency practice, (2) In the matching task, an explanation on mouse-dragging could help learners understand how to conduct the task, and (3) For scoring tasks such as the matching task in Scene 3, a "Try again" button could be provided to encourage learners to try their best. These added supporting instructions successfully guided the participants in the program. However, literatures on the design of CSCL seldom provide concrete design examples in details as above. The principles generated from this study thus might help teacher-designer in a certain way.

Finally, from the participants' reactions in three cycles of implementation, it can be induced that on language support, four principles can be included: (1) For open-ended speaking tasks such as Task 1, sentence pattern clues might have limited performance, while content clues could stimulate richer dialogues, (2) For note-taking tasks such as Task 2, providing the preposition such as "in" for the sentence pattern clue, "There is..." could discourage learners from making incomplete sentences, (3) Providing an illustration helps to explain complicated concepts, and (4) Avoiding grammar points or language uses that might confuse learners. Literatures on the design of tasks seldom provide local experiences in details such as how these principles above suggested. Thus, what concluded from this

study might give some useful insights for task and program designers.

### 7.3 Addressing Research Question 2

The second research question is: In three cycles of implementation, how did the participants interact with their partners during the pair work? To answer this question, the participants' interaction initiated by the program across the three cycles was explored. Also, the participants' viewpoints on their interaction process were presented.

In the data collected, the participants were identified as playing three roles. Since the pairs were of symmetrical academic performance, one would have expected that pair members performed as “sparring partners” for each other. It was thus interesting to observe that three types of interactions emerged in the pairwork. Figure 7.1 shows the concept tree of the three roles. In the concept tree, roles the participants played included the expert, the equal peer, and the supporter. These patterns were identified in situations of reading the instructions, doing speaking tasks, discussing, and doing the note-taking tasks. The following section discusses each role in details.

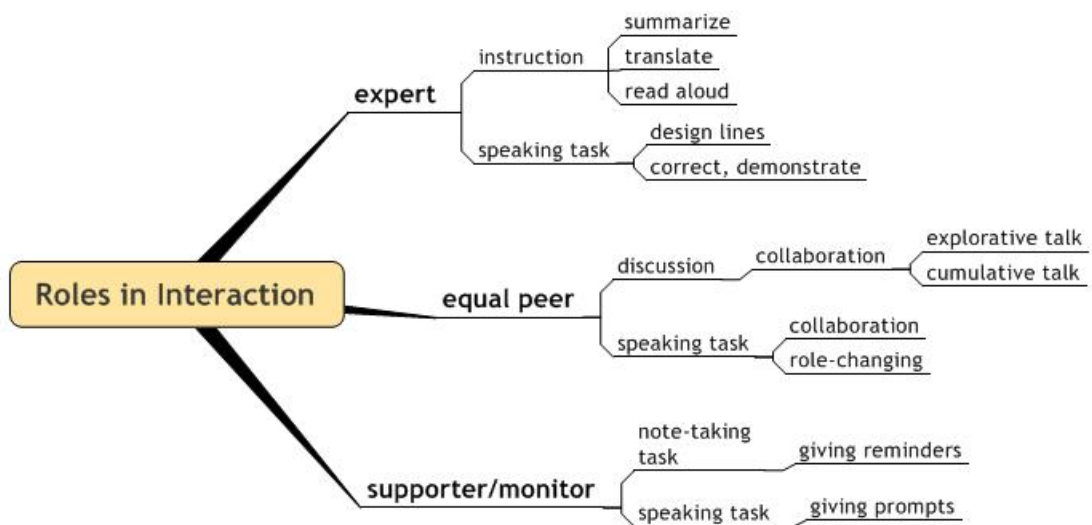


Figure 7.1 The concept tree of pairwork interaction.

### 7.3.1 *The Expert*

The expert role here referred to the “more capable peer” in the peer interaction. It did not refer to the “expert-novice” relationship such as that of teacher-student in the classroom scenario. Since in this study, the chosen pairs were assumed equally capable, the expert role was closer to the situation when “expertise emerges as a feature of the group rather than residing in any given individual in the group” (Lantolf, 2000). That is to say, pair members might take turns to play the expert role in different situations. Whenever the participants showed their expertise or their leadership, they were identified as the expert.

By playing the expert role, the participants usually did the jobs of summarizing, translating, and reading the instructions aloud. This role was also in charge of designing, correcting, and demonstrating lines when pairs did the speaking tasks.

Figure 7.2 shows the concept tree of this role.

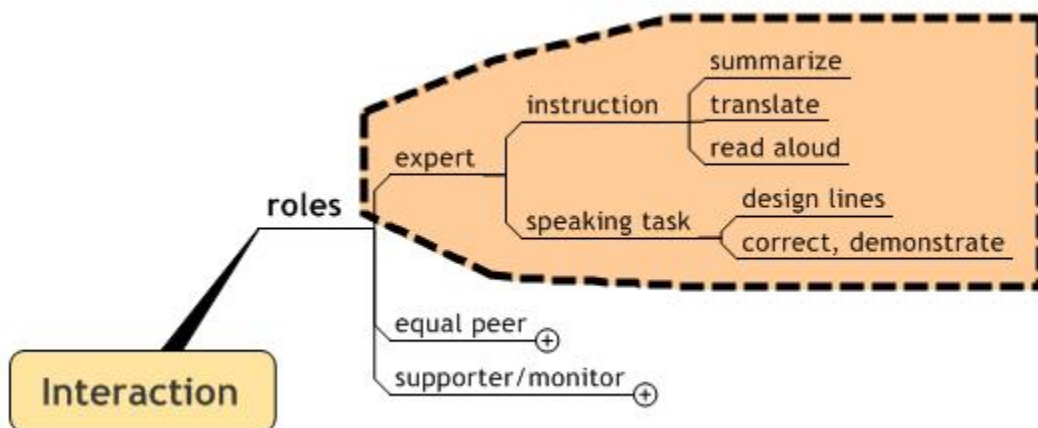


Figure 7.2. The concept tree of the expert role.

Excerpt 7.1 described a situation after the participants of Pair No.2 read aloud the instruction on the screen. The Chinese instruction on the screen says: It is a raining afternoon. Holmes and Watson are drinking their tea. They are waiting for

clients. Suddenly a man knocks on the door. You: Turn on the TV, open the door, or go to sleep.

Excerpt 7.1

Wei: *What are we doing now?*

Pon: *We are now drinking and now suddenly a man is knocking. Now do we turn on the TV, open the door, or do we go to sleep?)*

(F1-3-2)

In the excerpt, Wei asked Pon to tell him what their next step was. Pon then immediately summarized the instructions to give Wei a general idea of the task. Pon's quick and fluent response contrasted with Wei's hesitation. The role Pon played here thus was as an expert. Similar interaction was observed in the other pairs throughout the three cycles of observation when the participants encountered the instruction of tasks.

Besides summarizing, the expert also translated the instruction into L1 for their partner, as described in the following excerpt.

Excerpt 7.2

(Instruction on the screen: There is some powder on the dead man's fingers. Holmes thinks we can get it by using wax. He has a special liquid. You can put the powder into the liquid. This liquid will tell you what the powder is.)

Pon: *There is some (...)what(...)powder in his(.)on the. It says that there is some powder on the dead man's finger, and Holmes thinks that we can get it by using some wax. We can use some wax.*

Wei: *Use some wax.*

Pon: *That we use that we can take those powder by using some wax. Then he has a special(...)special that, that, he has a special liquid, then*

Pon: *[You can put the](.)on the*

Wei: *[You can put the] put the(..)*

Pon: *You can [put the powder] in that, that liquid.*

Wei: *[ put some powder]*

Pon: *These liquid, that will tell you that (.) what the powder actually is.*

(F1-9-1)

In Excerpt 7.2, Pon explained to Wei what the instructions were about. He read aloud parts of the phrases and translated parts of them. Wei sometime read aloud with Pon and sometimes listened to Pon carefully. It could be noticed that the more capable peer, Pon, switched his languages between English and Chinese to read aloud (in English) and translate (in Chinese) the instructions. At the end of their discussion, Wei tried to complete Pon's translation (in the line of "put some powder"); however, Pon spoke faster than Wei so that Wei just listened carefully. Similar observations on the expert translating the instruction into Chinese were also found in other pairs.

The expert, besides summarizing and translating, also did the job of reading aloud the instruction (in English) as a way of initiating the task. For example, in the matching task in Scene 3, Lee of Pair No. 4 read the instructions aloud first and then orally translated the contents with her partner. Also, Gan of Pair No. 8 read aloud the instruction on the introduction page while his partner helped to translate some unknown words which Gan could not pronounce. Chen of Pair No. 9 also read aloud the instruction on the introduction page and explained it to his partner in Chinese. Other pairs also had similar situations. These behaviors could be interpreted as that the expert was willing to encounter the task and at the same time signaled for their partners to follow their pace. Thus, the expert role not only provided knowledge their partner needed but also spread their emotional involvement by reading the instructions aloud.

When doing the speaking tasks, the expert was usually in charge of designing lines, correcting pair member's performance, and demonstrating how to say a line. While designing lines for the speaking task of Task 1, the following describes how Lee of Pair No. 4 designed lines for her partner. This task asked the participants to produce a report for the police concerning what had happened in Holmes' house.

Four WH clues were provided in order to generate richer contents.

Excerpt 7.3

Lee: *So you have to ask “who is dead”. And I have to say “it is (...)”*  
 Shen: Dead.  
 Lee: Dead. D-E-A-D. (She checked the pronunciation with her dictionary.)  
 Lee: Dead. Then =  
 Shen: =at what time, so what would you answer?  
 Lee: (check the previous scene) It’s a raining afternoon. Raining after? Is that so? Could we say that?  
 Shen: afternoon, might be. What are our answer? Go to the first question. =  
 Lee: =Who is dead?  
 Shen: And the answer?  
 Lee: It’s a knock(...) knock(...) wait, let me see it again. (She checked the previous scene.) It’s a knock on the door. Or it’s a man rather. A man. Shall we say that, the short answer?  
 Shen: (...) Is that person a client?  
 Lee: I don’t know, just it’s a man. A man (5.0) He is a man? Do we use “a”?  
 Shen: In that way, “he” is male.  
 Lee: He is a man. (5.0) A man is dead. and “when” refers to at what time.  
 Shen: It refers to at what time.  
 Lee: A raining afternoon. (Check the previous scene). A raining afternoon.  
 Shen: Might be. The place is?  
 Lee: “Where”. It’s a raining afternoon. And then “Where” is Holmes’ home. What’s happening?  
 Shen: A man [said]  
 Lee: [What happened?] So I have to say : A man is dead(...) A man. Holmes and Watson were drinking their tea when a man was knocking on Holmes’ door, saying two sentences and he died.  
 Shen: Really?  
 Lee: We should say in that way. We could use past tense. It was, it was a raining afternoon. Holms and Watson (..) was drink, was drink their tea. But(..) but a man, a man is knock on the door. He said, say said two sentence and [sic] Shall we write down like that? Let’s practice first.  
 (Shen looked at Lee when she said that long paragraph above.)

(F4-4-7)

From the excerpt, it could be observed that Lee, the expert, was in charge of designing the lines. When her partner was providing the four WH prompts, Lee was the one to articulate the lines they were going to record in English (the underlined lines). Lee might be not very sure about certain lines when she said “Shall we say that, the short answer?” or “Could we say that?” to her partner. Though her partner usually could not answer Lee’s inquiry, listening to Lee seemed to stimulate the



expert to have a self talk and then gradually adjust the lines and finally organized a completed dialogue. It could be observed that Lee in the end used Chinese to organize the whole dialogue they were going to record it and then expressed the lines in English. Similar situations also took place in other pairs.

Besides, in conducting the speaking task, the expert also corrected their partner's performance and demonstrated for them. Excerpt 7.4 illustrated how Anne of Pair No. 6 corrected her partner, Jin, and helped her to complete the speaking Task.

Excerpt 7.4

(during the rehearsal)

Jin: *I guess he is right-handed because he is, because he..*

Anne: *Because there's a pen in his right pocket.*

Jin: *Because there's a pen in his po(...)*

Anne: *[right pocket].*

Jin: *[right pocket].*

Anne: *You think about that. Because there's a pen. You then say "because there is a pen in his right pocket." Is that okay? You say it again.*

Jin: *I guess he's a right hand=*

Anne: *=Guess, there is no "s"*

Jin: *I guess he's a right-hand*

*[because] (..)*

Anne: *[handed]*

Jin: *because his(.)*

Anne: *there is*

Jin: *because* (laugh...)

(F6-8-13)

From the excerpt, it is obvious that Anne, the expert, tried to help Jin say the line "I guess he is right-handed because there is a pen in his right pocket." Anne first demonstrated the phrase "because there is a pen in his right pocket" to Jin. Then Anne corrected Jin's pronunciation of words such as "right pocket", "guess", and "handed". Anne's intonation showed her impatience. However, Jin seemed to suffer from organizing all the information and failed to articulate a complete sentence. Anne's continuous correction seemed to interfere with Jin's thinking so that in the

end Jin even could not finish a complete sentence but only stammered out short phrases.

After several turns of practice, Anne rushed Jin to say her lines again before speaking into the tape recorder. But Jin really had a lot of difficulty in speaking her lines fluently. Jin was frustrated and said sorry to Anne because she could not complete the sentences. Therefore, Anne decided to record all the sentences herself for Task 4.

From the description above, it seemed that the expert, Anne, tried to help her partner articulate a long sentence by correcting her pronunciation and demonstrating how to say the target sentence fluently. However, Jin still failed to accomplish it but stammered and felt frustrated. To compare with Pair No. 6, the following illustrated how another expert, Gan of Pair No. 8 guided his partner to say the line for the speaking task.

#### Excerpt 7.5

(During the recording)

Gan: We guess he is a butler of a big house, because his clothes is noble.

Gan: (He pressed the “pause” button of the machine and quietly rehearsed to himself.) And there is a pen in his right pocket, so we think hi is right-handed.

Gan: (He pressed the “pause” button and whispered to Dan) We guess he walks for a long way because his boots are dirty.

Dan: We guess he walks for a long way because (..)he(..) (xxx) is dirty.  
(Gan quietly corrected Dan that “his boot is dirty”).

(F8-8-6)

It could be observed that Gan, the expert, murmured to himself, recorded his line, demonstrated to his partner, Dan, how to say his line, and corrected Dan when he made mistakes on the phrase “his boot is dirty”. Similar to Pair No. 6 in Excerpt 7.4, both experts showed their partners how to say the line by fluently articulating it, and

then corrected their partners when mistakes were found. However, the difference between the two pairs was that Jin failed to finish saying her line while Gan moderately achieved completing his line. One possible reason for Jin's failure might be that Anne, the expert of Pair No. 6, ignored Jin's frustration but kept rushing her to say her line, resulting in Jin giving up the task. Ellis (2003) on scaffolding mentioned that "scaffolding is the dialogic process by which one speaker assists another...[It] involves attending to both the cognitive demands of a task and the affective states of the person attempting the task" (p. 181). From the participants' reactions, it indicates that the help from the expert does not guarantee success if the expert ignores the affective factor of the one who receive the assistance.

From the observations discussed above, it could be concluded that the expert is in charge of summarizing, translating, reading the instructions aloud, designing lines, correcting and demonstrating to their partner. One point worth noticing is that the expert does not guarantee success. Catering to their partner's affective factor is important in the helping process.

### 7.3.2 *The Equal Peers*

Besides the expert role, there were occasions the roles of equal peers appeared. To categorize the participants' types of interaction, Oxford's (1997) label of collaboration (discussed in Chapter 2.2) was used. To categorize participants' contents of discussion, Mercer's (1996) labels of types of talk (discussed in Chapter 2.3.2) were used. Other labels were grounded on collected data. The behaviors of equal peers could be portrayed in situations of discussion and doing the speaking tasks. Figure 7.3 shows the concept tree of this section.

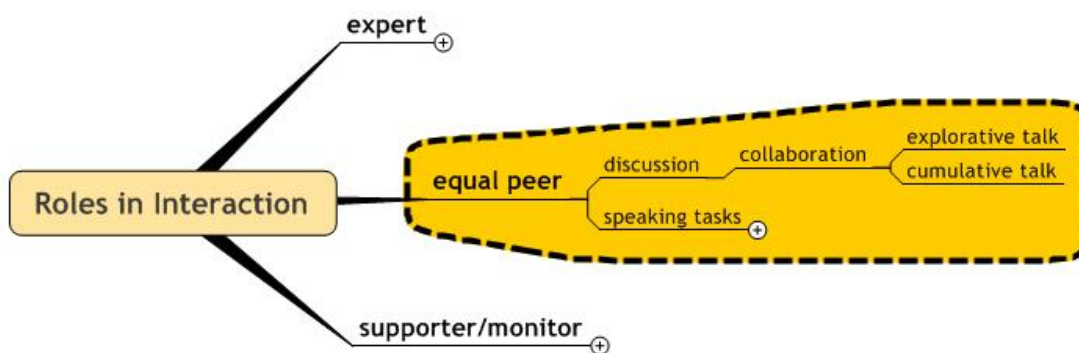


Figure 7.3. The concept tree of the equal peer.

(1) *Explorative talk and cumulative talk.* In situations of discussion, the contents of the participants' dialogue could be distinguished into two types: Explorative talk and cumulative talk. In explorative talk, pair members asked for clarification, made confrontation, or argued for other possible choices in order to construct their answers. The following excerpt portrayed how Pair No.2 gently argued for a possible answer on if the dead man was left-handed during the inference making task of Task 3.

Excerpt 7.6

(Information on the screen: There is a pen in his right pocket)

Huan: *He might be a left-hander.*

Lin: *Not really. Some people are used to putting it in the right. As for me, if using this hand to write, I will put it in this pocket. How about you?*

Huan: *I don't have preference. It depends on where the pocket is.*

Lin: *So you would like to put it in the opposite pocket or in the same side?*

Huan: *In the same side.*

Lin: *So should he be a right-hander?*

Huan: *Wait. It should be the choice of "there is no clue".*

(F2-7-4)

In this excerpt, Huan first made an assertion that the dead man might be left-handed. Then Lin confronted Huan by giving her personal experience to support her hypothesis. Then Lin asked Huan's personal experience in order to understand if Huan had had the same experience as her. Huan's answer did not support or

challenge Lin's hypothesis. Therefore, Lin asked Huan to make a decision. After Huan said her hypothesis, Lin further asked for clarification by asking Huan, "Should he be a right-hander?" in order to see if this hypothesis was their mutual decision. Then Huan changed her mind and chose a neutral answer. From the participants' dialogue, it could be observed that Pair No.2 co-constructed their inference by confronting each other and taking the partner's opinion into consideration. Their mode of interaction gives an example of how explorative talk works in pairs.

Pair No. 6 is another example of how the equal peer uses explorative talk in their discussion. In making the final decision on the real killer, Jin and Anne were discussing possible motives for the suspect, Mr. Chen's son. Jin first held that the financial problem (mentioned in Newspaper 2 of Scene 5) caused Mr. Chen to sell his antiques. Anne then asked, "Why did someone want to kill Mr. Chen?" Then they clicked on to Scene 1. Anne listened to the sound clip of the butler again and made sure that the police were going to kill him. Therefore, Anne ruled out the butler as the killer. She supported herself by saying, "The butler claimed that he was innocent and that the police were going to kill him." Anne concluded that Mr. Chen's son was the suspect. Jin further elaborated their inference by saying, "It was possible that Mr. Chen had financial problems so that he did not pay the butler. Mr. Chen's son might shot the gun and then washed the gunpowder. But the butler still got the powder." Anne agreed with Jin's guess. However, Jin asked Anne, "Why the son shot the gun?" Anne then modified Jin's inference, saying "It might be that Mr. Chen had financial problem so that he did not give money to his son. Therefore, his son fired the gun at Mr. Chen and the butler. Though the butler had the trace of gunpowder, he did not fire. Somebody might make the butler attach the gunpowder. Or it might be that the butler fired the gun just for self defense." Anne asked Jin which inference

was more credible. Jin said that the motive of self-defense was more likely than the other. Then they made an agreement that Mr. Chen's son was the real killer.

From the description above, it could be observed that Anne and Jin collaboratively constructed their inference. First, Jin provided a reason to explain why Mr. Chen sold his antiques. Then Anne challenged the reason of Mr. Chen's death. Jin did not have an answer. Before making any judgment, this pair decided to stop the discussion and collect more evidence from the previous scenes. After that, Anne took the view that Mr. Chen's son was the killer with supporting evidence from the sound clip. Based on Anne's inference, Jin correlated the information about Mr. Chen's financial problems, the shooter, and the gunpowder in order to make a reasonable inference. However, Jin still was not sure about the motive of the killer and the reason for the gunpowder on the butler's hand. She invited Anne to clarify it for her. Anne then modified Jin's inference, giving a motive to Mr. Chen's son and providing two choices to explain how gunpowder was found on the butler's hands. After that, Anne asked Jin to choose the most likely scenario for the butler. In the end, this pair made an agreement on the identity of the killer with supporting evidence to explain the murder case. (Their inference was the closest to the program's answer.)

The discussion of Pair No. 2 and Pair No. 6 gives examples of how pairs used explorative talk to obtain their well-considered answer. Their discussion process could be labeled as collaboration in Oxford's (1997) category. Their contents of discussion also echoed with Mercer's (1996) indication on explorative talk that "statements and suggestions are offered for joint consideration. These may be challenged and counter-challenged, but challenges are justified and alternative hypotheses are offered".

The equal peers in other discussion sections just briefly talked and then agreed

with each other. Sometimes they collaboratively accumulated shared information in order to achieve a task. Little confrontation or challenge was found. This kind of talk was labeled by Mercer's (1996) as cumulative talk. In the following excerpt, for example, Pair No. 1 was also in the inference-making task as the situation of Excerpt 5. First, they discussed the meaning of the word "right-handed" Pon originally misunderstood the word "right" as "left"; however, he seemed to remember something and then corrected himself. Wei just agreed. Then Pon offered his inference again. Wei agreed without any doubt.

Excerpt 7.7

*Pon: Right-handed, seems to be left hand.*

*Wei: Left-handed.=*

*Pon: =left-handed.*

*Wei: is it? I didn't see it very clearly.*

*Pon: just a minute. It just said before that it is "right pocket". The word "right", I remember right, should be right hand, not left-hand.*

*Wei: So it might not be true. He is right (xxx).*

*Pon: You think about it. Right pocket should be here. And if he is left-handed, he had to take that from there. It would be too troublesome. He surely would directly put it into [here.]*

*Wei: [so he] is a right-hander.*

*Pon: So he should be right-hander.*

(F1-7-3)

In this excerpt, Wei in this discussion played as a listener and agreed with Pon's inference without any confrontation. Wei just supported Pon's opinion by repeating Pon's conclusion. On the other hand, Pon adjusted his understanding to the word "right" through the talk to Wei. At the first glance, this kind of talk seemed to save time and avoid disagreement and hurt to the pair's rapport. However, cumulative

talk has disadvantages that first, peer talk lacks the richer contents; second it might decrease a pair's awareness, resulting in hindering pairs from advancing further. For example, in an inference-making task, Shen in Pair No.4 thought the dead man was a butler, based on his noble clothing; however, her partner Lee thought that he might a businessman. Lee's reason was that a butler was equal to a servant, thus it was impossible for him to wear noble clothes. Shen held that a butler was nobler than a servant. Quickly they decided to tick both items of "a businessman" and "a butler" on the screen (F4-7-1). Their discussion was very short, and they easily solved their conflict by keeping both side's opinion. Their strategy fulfilled the task's demand in a short time; however, the lack of further elaborations supporting either one's own opinion and the fear of confrontation might have cost them the chance of exploring further to where the pair members could only reach by their joint effort.

As for the decrease of the pair's awareness, Pair No. 5 provided a good example. In the discussion on the gunpowder clue, Du asked his partner Gou which hand had the gunpowder on the back. Gou told him that the "right hand back" had the powder and clicked back to previous scenes to check the information again. Then Gou told Du that "left hand palm" also got the gunpowder. Du did not reconfirm the information on previous scenes but just trusted Gou's report (F5-13-1). However, the clue that the program provided was "left hand back" and "right hand palm". And the mistake of getting wrong information here resulted in this pair's difficulty in their final decision on reasoning who the real murder was. From their process of accessing information, it could be observed that Du just accepted what Gou provided without doubt. This approving and trusting behavior might save participants' time; however, it might decrease pairs' awareness on significant details.



(2) *Collaboration and Role-changing*. In doing the speaking tasks, the role of equal peer was observed to have behaviors of collaboration and role-changing. I did not further subdivide the contents of participants' talk in labels of explorative or cumulative talk, since the design of the speaking tasks did not target at rich discussion as how other discussion tasks did.

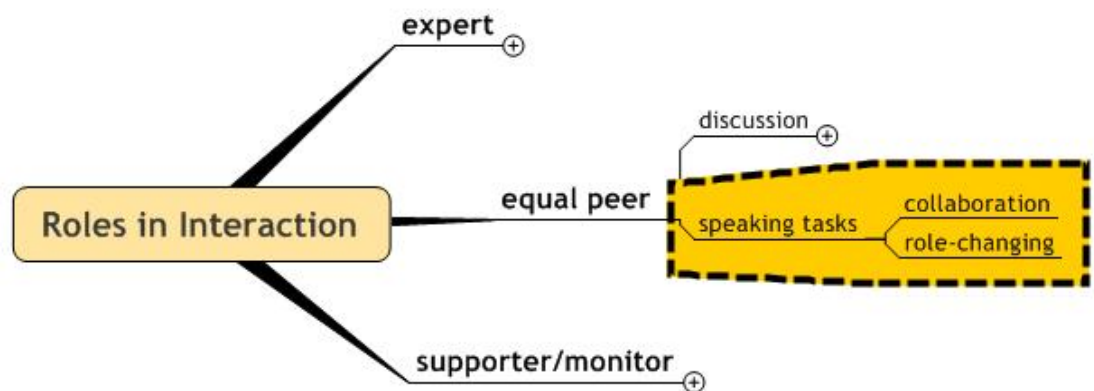


Figure 7.4. The equal peer in the speaking task

First, on collaboration in the speaking tasks, pairs had to make dialogues or sentences according to the clues of the program. Pairs could take time to do the rehearsal before formally recording the contents into the tape recorder. As for the behaviors of collaboration, pair members were observed to contribute their knowledge in order to achieve the recording task. This can be frequently observed in Excerpt 7.8 when Pair No. 1 rehearsed for the speaking task of Task 4.

Excerpt 7.8

Wei: *Go to the desk. Take the=*

Pon: *=take the candle [and light]*

Wei: *[candle and] light the wax wax.*

Pon: *No, "light" this thing.*

Wei: *"light" means light.*

Pon: *Yes, "light" this thing and burn that.*

Wei: Light a , what is this?

Pon: *Click and see.*

(Pon clicked the picture and heard the sound.)

Pon: Light the match, and drip drip the wax on, on=

Wei: =on the (.) hand=

Pon: = *on the, on the finger.*

(Then Wei noticed the use of the word “hand” and “finger”. But he agreed to use the word finger.)

(Formal recording)

Pon: *Go to the desk:: Take the candle:: Light the match:: and drip:: drip wax on the hand*

(F1-8-4)

In this excerpt, it could be observed that participants were collaboratively constructing the sentences the task demanded. Wei first began the sentence and then Pon continued the other half of it. In the process, Pon and Wei also monitored each other on the thing they had to light and on the word “finger” and “hand”. Neither Pon nor Wei played the leading role of line designer. This pair could be observed as equally contributing to the formal recording sentence. This excerpt might illustrate the point discussed in Chapter 2 that how “a shared understanding through language” played its role in symmetrical pairs collaborative learning peer (Wegerif & Mercer, 1996). Lantolf (2000) also pointed out that “learning can emerge in the absence of a recognized expert. Expertise can be collaboratively constructed in the talk that occurs among learners who share the goal of working out a linguistically-base solution to a problem”. That was to say, the role of equal peers could mediate each other with the contribution of their own expertise.

Besides peers' collaboration in working out linguistic solution, it could also be observed how equal peers used the strategy of repetition to continue their construction of target sentences. In Excerpt 7.9, Pair No. 5 was rehearsing the sentences they were going to record.

Excerpt 7.9

(During the rehearsal)

Du: Go to the desk(2.0)

Gou: *Because he wants to take the things on the table.*

Du: Take the match. (...) match, take it, light the candle; light (.) candle.

Gou: Light the candle. Go to desk. Take the match. light the candle. Light the candle.(3.0)

Du: drip wax. wax is wax (..)the candle burns and becomes wax.

Gou: on (3.0) his hand.

Du: On it might be okay. On (2.0) on what I don't know. On the hand, on the hand. So start to record, bye bye.

(F5-10-17)

From this excerpt, it could be observed that the equal peers took turn to continue their target sentences by repeating their partner's phrases such as "take the match" and "light the candle". Using this repeating strategy, pairs seemed to involve in the same thinking line and gradually obtained the whole picture. Lantolf (2000) mentioned that repetition was a mediating strategy which frequently took place in peers' collaborative dialogue. Also, though repetition did not immediately contribute to new contents, it still could scaffold learners in ways of maintaining "their focus of attention, to think, to evaluate, and from that point possibly construct new forms" (Lantolf, 2000, citing DiCamill and Anton), and serves as "a socio-cognitive tool for accomplishing the task" (Ellis, 2003, p. 190). Besides collaboration, it was also observed that the relationship of expert-supporter between pairs might change into equal peers during the speaking tasks. Under this situation, the supporter acted from

passively following the expert's guide to actively providing his or her own opinions. However, it was interestingly to observe that the expert did not seem to be prepared to enter their new equal relationship but just behaved the other way. The following description on Pair No.4 and No.6 might illustrate this situation more clearly.

In the speaking task, Shen of Pair No.4 was discussing the instructions and the sentence clues with her partner Lee. Shen quickly figured out what they had to do. Usually the explanation of the instructions and the orientation of how a task should be done was taken care by Lee, the expert. Thus Shen's active participation was quite different from how she behaved in previous tasks (mainly as a monitor and a supporter). After listening to Shen's explanation, Lee did not discuss with her but asked the researcher if they had to find out the killer in this task. I simply told Lee "not now". Shen also said it was still too early to decide and then reminded Lee that the contents of this reporting task were in the previous inference-making task. Then they continued their recording task (F4-8-1).

From this description, it could be observed that Shen initiated the recording task by discussing the instructions and the sentence clues actively. However, her partner Lee, who used to be the expert, did not respond to Shen but turned to the researcher and asked a digressive question. I was quite sensitive to Lee's behavior; thus I used two words to finish her question in order to avoid taking the role of the expert and thus weakening Shen's function. It was interesting to observe that Lee suddenly turned to me and asked the question when Shen began to act as an expert or an equal peer for the first time. Thought at that time I was not quite sure about this interpretation, it became clearer when the same situation happened again in another recording task.

In Task 5, Pair No. 4 had to make imperative sentences according to provided clues. At first they were stuck for a while. Then Shen gently brought up one possible sentence: To drip the wax on the hand. Lee did not respond to Shen but just smiled and ignored her suggestion. Lee then suggested to skip this task. Shen did not disagree. But before they entered to the next task, I intervened and gave them some clues in order to complete this recording task. Then Lee made her sentence “light the candle”. Shen thought the word “take” should be used first. So Lee said “take the match and light it”. Then Shen thought that “it” referred to the candle, while Lee thought “it” referred to the match. So Lee said the sentence again: “Take the match and light it; second, light the candle; third, ...” Shen was helping Lee to make the third step when Lee suddenly turned to the researcher and asked if the liquid dripping from the candle was called “wax” in L1. The researcher confirmed her answer. And Lee again asked the researcher how to say “wax” in English. The researcher said the screen had the answer (F4-10-2-11).

In the description above, Shen at first was an equal peer by initiating the construction of one target sentence. Shen’s behavior was quite different from how she often acted as a passive supporter in previous tasks. However, at this point, Lee did not discuss Shen’s version of the target sentence but wanted to skip the recording task. Then after the researcher gave clues to this pair, Lee was the one who made the target sentences while Shen was the one who monitored and adjusted Lee’s sentences. After three rounds of making the target sentences, Lee suddenly turned to the researcher instead of first consulting her partner, Shen. Lee seemed unwilling or unprepared to be Shen’s equal peer but instead sought a higher authority.

Besides Pair No.4, similar behavior was also observed in Pair No. 6 when they conducted the task of giving orders (Task 5). From the participants’ behaviors in

Task 4 and Task 5, it might be inferred that (1) The speaking task was a chance for pair members who were used to playing a supporter or a monitor to become an equal peer, (2) the pair member who used to play as an expert might be unwilling or unprepared to adjust his or her role into an equal peer, and (3) the expert used strategies of ignoring the partner's opinion, suggesting to skip the task, or consulting with a more capable expert (i.e. the researcher) in order to maintain the expert role in their partner relationship. As for the first inference, the speaking tasks did not have the only-one correct answer but demanded participants to create their own contents. This might cause the learning situation in which the expert could not quickly get the answer but needed to take more time to think, which left space for the supporter to express their opinions and thus had the chance to become an equal peer. However, from the excerpts, it could be seen that the expert was not accepting a new equal peer. Psychological reasons are unknown so far; but this behavior might cost pairs chances to listen to a peer member's opinions. For example, when I intervened to give clues to Pair No.4 before they skip Task 5, Lee, the expert, was very surprised at the fact that my clues were similar to her partner's earlier suggestion (F4-10-4). Also, during a later discussion task, Lee again did not try to listen to Shen's opinion but just expressed that she herself really did not know the answer and then skipped the discussion (F4-12-3). This process caused this Pair to miss many details and thus they were unable to produce a final answer for the whole program.

Though participants' behavior in the examples above failed to demonstrate a collaborative interaction, their behaviors were still valuable when contrasting with the concept "intersubjectivity". Lantolf (2000) has discussed this term in that

Human communication becomes intersubjective when interlocutors undertake not only to share a perspective with regard to the reference of their talk but it also allows for the taking of the other person's perspective and the suspending

of one's own, at least temporarily, in order to value the other person's perspective. Importantly, in coming to value the other person's take on things, one also comes to understand and even critique one's own perspective (p.85).

From this passage, elements of intersubjectivity included: To share a perspective, to allow for the taking of partners' sharing, and to suspend and critique one's own perspective. Contrasting with the used-to-be expert described above, their behaviors included ignoring partner's opinion, suggesting skipping the task, and seeking for authority. Identifying these opposite behaviors might let teachers be more sensitive to learners in their interaction

### 7.3.3 The Supporter/Monitor

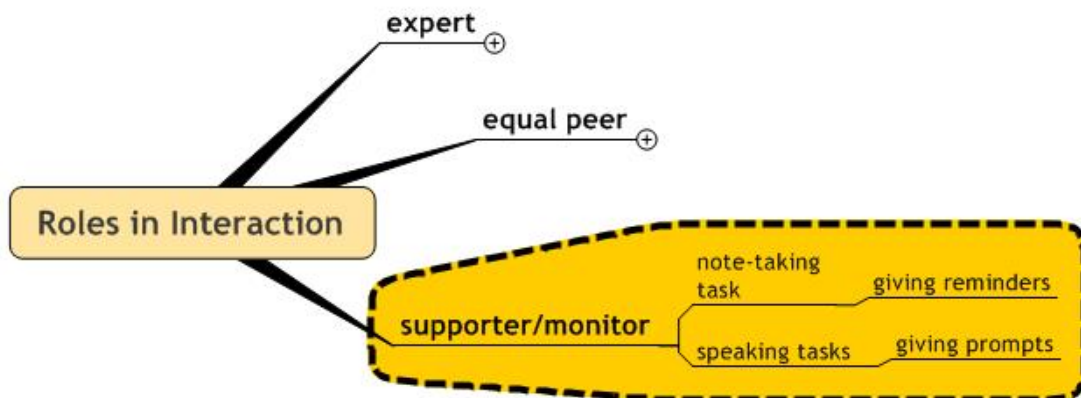


Figure 7.5. The concept tree of the supporter.

The supporter/monitor was the third role observed in participants' interaction. Unlike the expert role, who initiated and guided the task, the supporter/monitor gave reminders and prompts during tasks. Though this role acted passively, it still had its function in many valuable aspects. First, in giving reminders, the following example demonstrated how participants helped their partners. In a note-taking task, Wei in Pair No.1 wanted to type a phrase on dirt. However, his partner Pon pointed out that

he should type a phrase about clothes instead. Then Pon volunteered to do the typing and moved his seat over. Wei at this time acted as a monitor, focusing Pon's product, especially on punctuation and spelling (F1-6-3, F1-6-4). From Pair No.1's interaction, it could be observed that when one partner was in charge of typing (first Wei, then Pon), the other one also participated in ways of monitoring the contents and grammatical-level errors. In other words, the role of monitor helped his partner avoid mistakes. This finding echoed with other researches that "all learners have strengths and weaknesses that emerge in peer collaboration and that...learners at some point or other require mediation and peers are able to provide much of this" (Lantolf, 2000).

Second, in giving prompts, the role of supporter used short questions to move discussion forward. In the following excerpt, Pair No. 4 was discussing a dialog for a recording task. Lee, the expert, was the main line-designer, while Shen, the supporter, provided prompts to stimulate their discussion.

Excerpt 7.10

Lee: *So you have to ask "who is dead". And I have to say "it is ..."*

Shen: *Dead*

Lee: *Dead. D-E-A-D.(She checked the pronunciation with her ED).*

Lee: *Dead. Then =*

Shen: *=When, so what would you answer?*

Lee: *( check previous scene) It's a raining afternoon. Raining after? Could we say that?*

Shen: *Afternoon, it might be. What are we answering? Go to the first question=*

Lee: *=Who is dead?*

Shen: *And your answer?*

Lee: *It's a knock(...)knock(...)wait, let me see it again. (check the previous scene.) It's a knock on the door. Or "it's a man" rather. "A man." Shall we say that, the short answer?*



Shen: (...) *Is that person a client?*

Lee: *I don't know, just it's a man. A man (5.0) He is a man? Do we use "a"?*

Shen: *In this way "he" is male.*

Lee: *He is a man.(5.0) A man is dead. and "when" means what time.*

Shen: *It means what time?*

Lee: *A raining afternoon. (Check the previous scene). A raining afternoon.*

Shen: *Might be. The place is?*

Lee: *Where. It's a raining afternoon. And then Where is Holm's home.*

(F4-4-7)

In Excerpt 7.10, Shen, the supporter, used two kinds of prompts in their discussion (as bold lines). First, she used prompts such as “so what would you answer?”, “what are we answering”, “and your answer?” to invite the expert, or to surrender her authority and let the more fluent one, Lee, voice their target lines. After Lee said her lines, Shen gave her opinions and approval. This “stepping-aside” behavior might save the pair time disagreeing with each other. Also, Shen used prompts such as “when,” “it means what time?”, “the place is?” to move their discussion forward. These phrases were actually the task clues (in L2), which were provided on the screen. Though Shen just used L1 to repeat these clues, her behavior led the pace of their discussion. To sum up, the supporter might be less fluent than Lee in using L2 to generate their target phrases; however, the supporter still could support their partner in terms of inducing the more capable partner’s lines and giving anchors of task clues during their discussion.

#### 7.4 The Participants’ Viewpoints

In the previous section, I discuss the roles that the participants played during their interaction. The analysis is based on data collected through my observation. However, the participants’ perceptions are not fully revealed. In this section, the

participants' viewpoints on the process of interaction are presented through data collected in an interview. Three themes are discussed: Emotional feelings, pair members' relation, and the size of a working group.

#### 7.4.1 *The Participants' Emotions*

In conducting the CSCL program in this study, several tasks demanded the participants to have pair discussion in order to generate a convergent agreement. When asked about the feelings in pair discussion, Pair No. 5 had a conversation with me as follows.

##### Excerpt 7.11

Du: *I did not know what to say to Gou.*

Gou: *Our tacit understanding was not enough.*

The researcher: *Aren't you in the same class?*

Du: *But after class, we seldom play or do homework together. After class, I like to tease Gou, so that Gou might not get used to working with me.*

(I<sup>3</sup> 5-7)

From the excerpt, this pair seemed both to perceive that they did not have a tacit understanding of each other. Du also supported this point by admitting that his behavior of teasing Gou in their daily lives might cause them to feel awkward when it came to interaction for tasks in the program. It seems that this pair viewed tacit understanding as an important element in the interaction. Also, Lee of Pair No. 4 in the interview said, "The whole process of doing the program was not that smooth,

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<sup>3</sup> "I" stands for fieldnotes of Interview. The first code refers to the pair number; the second code refers to interview sections.

because our opinions were not quite the same...For example, in the inference-making, I thought the dead man was a business man, while Shen thought that he was a butler (I 4-5)". Lee's expression might indicate that when she encountered the situation in which her partner held different opinions from her, she felt stuck. Interestingly, the inference-making task, which Lee mentioned actually allow the participants to make multiple choices as a record of their temporary presumption. However, Lee seemed to expect her partner to have a convergent decision in that task in order to move on smoothly.

Besides, Ho of Pair No. 3 expressed his anger to his partner, Yi. When they were asked about what kind of characteristics a pair member should have, Ho quickly said, "He should not behave like how he did, and he should not talk so loudly (I 3-5)". Ho privately told me that he was kind of angry at Yi's arguing with the researcher and showing strong reluctance to conducting speaking tasks. (Yi's behavior was discussed in 4.8.2.) Though the researcher during the program managed to persuade Yi into completing all the tasks, Ho still had a negative feeling toward Yi's behavior.

From these three members' interviews, the participants mentioned that (1) The awkward feeling might come from the lack of a tacit understanding, (2) Different opinions among the participants might cause a sense of lack of progression, and (3) The partner's unwillingness to collaborate might make the participants feel angry.

#### *7.4.2 Characteristics of Expected Partners*

Before the interview, I intended to understand what kind of feelings the participants had toward their partners during the interaction. However, during the interview, I could feel that selected pairs might not be well-prepared to reveal their

true feelings to each other. Therefore, I decided to use an indirect way by asking the question: What kinds of characteristics an ideal pair should have? This question was meant to let the participants project their inner feelings, including both satisfying and unsatisfying ones. The followings are the participants' responses.

Excerpt 7.12

"Pairs doing this project should have the characteristics of open-mindedness. Otherwise, the pair might have quarrels in situations such as who should record the lines first in the speaking task" (I 2-5).

"Those who work collaboratively are able to do this program, even if they were not acquaintances.... We were not very familiar with each other, but we still could work together. When working together, sometimes one partner needs to give different opinions" (I 4-7).

"Pair members should have good friendships, so that the process of doing the speaking task would go smoother....and they can cooperate together" (I 3-5).

"If two members work together, it takes their tacit understanding. If they do not have that, their opinions could not be integrated (I 5-9)

"The pair should at least be acquaintances, since there are many tasks which demand collaboration" (I 7-6).

"Pairs should have mutual understanding, especially when one needs the other's help. If the pair members are strangers, their communication would not be smooth in situations such as the job assignment" (I 9-6).

From the participants' opinions, it could be noticed that these key words appeared in the excerpt: Open-minded, collaboration, friendship, tacit understanding, and mutual understanding. These words were viewed by the participants as important

characteristics in pair work. Some of the participants also pinpointed some tasks (such as the speaking task) to illustrate how these characteristics were demanded in doing the program. From the participants' feedback, it could be inferred that tasks designed in this program managed to create the need for collaboration in pair work. Besides, the expectation on an ideal working partner from the participants' viewpoint indicated that a pair with characteristics of open-mindedness and tacit understanding could meet the demand on collaboration.

### 7.5 Summary of Chapter 7

In this chapter, the first research question on design insights and principles is answered in three aspects: The teacher's support, the instruction, and language support. In addressing the second research question on the participants' interaction, three roles were identified: The expert, the equal peers, and the supporter/monitor. First, the expert, when encountering the instruction on the screen, usually summarized, translated, and read aloud it. When doing the speaking tasks, the expert designed, corrected, and demonstrated the lines for their partners. However, one point to note is that the expert's help did not always guarantee success if their partner's emotional factor was ignored. Second, the equal peers were identified having two patterns of talk in their discussion of contents. These two patterns were explorative talk and cumulative talk. Explorative talk generated well-considered decisions, while cumulative talk failed to have rich contents and also decreased pairs' awareness. The equal peers while working on the speaking tasks were observed to construct expertise for linguistic solution. Also, they were observed to use the strategy of repetition to continue their construction of target sentences. However, in the relationship of equal peer, the used-to-be expert was observed to have unwillingness to adjust to their new

position, resulting in moving away from intersubjectivity. Finally the supporter/monitor was in charge of giving reminders and prompts for their expert. This behavior helped to give anchors during the discussion.

Besides the three roles, the participants' viewpoints on their process of interaction were revealed in the interview, including their emotional feelings and their expectations on an ideal partner.

In the next chapter, I make a conclusion based on the results of three cycles of implementation and the patterns observed in the participants' interaction.