＜論文＞

第２言語ライティング評価のための
同期型コンピュータ媒介コミュニケーションタスクの検討

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Examining L2 Synchronous CMC Tasks for Assessment
of Online Language Production

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　本研究の目的は，同期型コンピュータ媒介コミュニケーション（SCMC）の英語使用の特徴を調べ，SCMC タスクが処理可能性理論で扱われている文構造を引き出すかを検討することであった．3組のペアによる SCMC の記録を分析した結果，複雑な会話権取りや大文字の使用などの特徴が観察され，処理可能性理論で扱われている文構造が引き出されたことが示された．処理可能性理論に基づくライティング評価タスクとして利用可能であることが示唆された．

【キーワード】　同期型コンピュータ媒介コミュニケーション　評価　処理可能性理論
　　　　　　　　ライティング　オンライン処理

1. Introduction

　　The development of technology has made computer-mediated communication (CMC) more wide-spread and common in daily life. There are two types of CMC: synchronous CMC characterized as real-time written communication and asynchronous CMC which does not allow people to communicate with each other in real time. Synchronous CMC, which is the focus of this study, "refers to real-time interaction — usually written communication — between people over either a local or a wide area network" (Smith, 2004, p. 370). Similarly, Darhower (2002) stated that synchronous CMC "allows persons in remote locations to communicate with each other in real time by typing messages onto their computer screen" (p. 250). Since two features in the above definitions of synchronous CMC, written communication and real-time communication, are considered to promote noticing of linguistic features while engaging learners in meaningful interactions (e.g., Kern, 2006; Lai & Zhao, 2006; Salabbery, 2000; Smith & Gorsuch, 2004), synchronous CMC has drawn much attention from second language acquisition (SLA) researchers, in particular, those who consider noticing in negotiated interactions in the target language to be vital for SLA. However, previous studies have not looked at synchronous CMC in terms of assessment of

performance. This study attempted to develop tasks for synchronous CMC and analyzed the task performance to examine whether the tasks can be used as assessment tools.

2. Previous Studies on Synchronous CMC

It has been argued that although synchronous CMC is a written type of communication, it has similar characteristics to face-to-face oral interaction (e.g., Darhower, 2002; Kern, 2006). Because of these characteristics, synchronous CMC is considered to allow second language (L2) learners to process the language for a much longer time and at a slower pace (Lai & Zhao, 2006) and to provide learners with the chance to look back to what they have written (Smith & Gorsuch, 2004). Synchronous CMC also pushes learners toward more accurate use of the language (Salaberry, 2000). Thus, it has the potential to promote learners' noticing during meaningful interactions. For example, Kern (2006) argued that CMC provides learners with "the opportunity for social interaction" and "ample opportunity to focus on form and content" (p. 195). Similarly, Salabbery (2000) pointed out the capability of CMC to provide "a natural way to link a focus on meaning with a focus on form" (p. 6). Furthermore, Chapelle (1998) demonstrated that negotiation for meaning in fact occurs in synchronous CMC, although as Kern (2006) pointed out, "the dynamics of interaction (and feedback-uptake relationships) in online environments differ from those in face-to-face interaction" (p. 200). Thus, several researchers (e.g., de la Fuente, 2003; Smith, 2004) have tested the interaction hypothesis in synchronous CMC, with the assumption that synchronous CMC will create a better environment for SLA because it enhances learners' noticing of forms (for the research on interaction in CMC from different perspectives such as discourse analysis or conversational analysis, see Darhower, 2002; Negretti, 1999). In addition, several studies addressed the issue of noticing during synchronous CMC (Lai & Zhao, 2006; Smith & Gorsuch, 2004).

Thus, previous studies have examined synchronous CMC in terms of its role for a provision of acquisition-rich contexts for L2 learners. In addition, the characteristics of synchronous CMC, written communication and online processing, provide another suggestion that synchronous CMC can be used as assessment tools of online processing.

3. Processability Theory

The processability theory proposed by Pienemann (1998, 2003) posits that the SLA process involves the acquisition of psychological processing procedures and proposes five processing procedures, which are implicationally related, defining the six stages of L2 development. Table 1 summarizes the five processing procedures and their resultant structures (for detailed description of each procedure and structure, refer to Pienemann,

1998; Sakai, 2008).

The processability theory has been applied to L2 studies in such areas as interlanguage variation (Tarone & Liu, 1995), form-focused instruction (Pienemann, 1984, 1989; Spada & Lightbown, 1993), interaction studies (Mackey, 1995, 1999; Mackey & Philp, 1998; Sakai, 2000), and L2 assessment (Mackey, Pienemann, & Thornton, 1991; Pienemann & Johnston, 1987; Pienemann, Johnston, & Brindley, 1988). The studies of Mackey, Pienemann, and Thornton (1991), Pienemann and Johnston (1987), and Pienemann, Johnston, and Brindley (1988) examined oral tasks for assessment based on the processability theory; however, as far as I know, little research has been done on written tasks for assessment.

Table 1 Target Structures and Developmental Stages

Stage	Processing procedures	Question	Word order	Negation
6	Subordinate clause procedure		Cancel-Inversion	
5	S-procedure	Aux-2nd		Do-2nd
4	S-procedure	Pseudo-Inversion / Yes/no-Inversion		
3	Phrasal procedure	Do-Fronting / WH-Fronting	Adverb-Fronting	don+V
2	Category procedure	SVO?	SVO	no / no+X
1	Word/lemma	words?	words	Words

4. Research Questions

The following research questions were posited for this study: (a) What characteristics will be observed for synchronous CMC? and (b) are the structures targeted in the processability theory elicited through the tasks?

5. Method

5.1 Participants

The participants for this study were 5 Japanese-speaking learners of English (3 females and 2 males) and 1 Lithuanian-speaking learner of English. Table 2 shows the personal information of the participants. They made three dyads. The relationship of the members in each dyad was friends; that is, they knew each other well. Dyad 1 (a mixed-L1 dyad) consisted of 1 female Japanese (Junko) and 1 female Lithuanian (Layla). They were graduate students and showed high proficiency in English. Although the TOIEC IP score was not available for Layla, she was a teacher of English in her country and spoke English well in previous personal communications. She had studied intercultural communication in

Japan for three years. Dyad 2 (a high-proficiency dyad) consisted of 2 female Japanese speakers (Mai and Sayo), who had shown relatively higher TOIEC IP scores. Dyad 3 (a low-proficiency dyad) consisted of 2 male Japanese speakers (Haruki and Toshi), who had obtained relatively lower TOEIC IP scores.

Table 2 Participants

Dyad	Name	Sex	Age	TOEIC IP
Dyad 1	Layla	F	NA	NA
	Junko	F	24;4	790
Dyad 2	Mai	F	20;3	770
	Sayo	F	20;2	825
Dyad 3	Haruki	M	21;6	500
	Toshi	M	21;10	595

Notes. All names are fictitious; NA= not available.

5.2 The Software and the Setting

Three computers were connected to each other on the Internet: one for the researcher and the other two for participants. The two computers for participants were placed separately so that the participants in a dyad would not talk to each other directly.

For this project, participants performed tasks in pairs using *Windows Live Messenger Version 8.0. Windows Live Messenger* is a freely available chat program for those with hotmail accounts. The first advantage for the use of *Windows Live Messenger* is the ability to perform a synchronous type of communication (chat) which will provide students with opportunities to negotiate for meaning, to be pushed toward more accurate, appropriate, and coherent utterances, and to give corrective feedback. The software makes it possible for more than two persons to connect with each other. Thus, during the chatting between students, the instructor can monitor the chat logs on his or her own computer. The second advantage is that chatscripts are obtained through the "save" function, and Salaberry (2000) pointed out that "given that electric exchange of most types can be saved and archived, both learners and teachers have the opportunity to analyze their own scripts at any time after the CMC sessions has occurred" (p. 8). For this project, the chatscripts more easily provide data for analysis as compared with oral interaction, which needs to be transcribed for detailed analysis. Although the advantage of the software is that multimedia information can be dealt with, only textual information was utilized so that participants could be expected to focus on the writing performance.

5.3 Procedures and the Tasks

All the participants except for Layla took TOEIC IP tests. About one month later, each

dyad took part in the experimental tasks in the laboratory. The session for each dyad took about 45 minutes. The session consisted of six tasks: informal talk, two Spot-the-Difference tasks, two picture description tasks, and one argumentative task. The tasks and the instructions were shown in Japanese to participants using Internet Explorer.

The first task was an informal talk. The task was characterized as a two-way, divergent, open task. Participants were asked to talk about themselves (e.g., their hobbies and self-introduction) in English for about five minutes. The second series of tasks used in this study were Spot-the-Difference tasks. Two speakers look at different pictures respectively and are required to find several differences by asking questions to each other. The task was characterized as a two-way, convergent, closed task. Two sets of the pictures used in Hamanaka (2004) were utilized for this study. Participants were asked to find eight differences in ten minutes for each picture set. The third task was the picture description task used by Sakai (2008). It was characterized as a one-way, convergent, closed task. One participant (the describer) was shown one picture and was asked to describe it to a partner in English. The partner was asked to identify the picture from nine pictures. After the describer explained about four pictures, they were asked to switch their roles. A time limitation was not set for this picture description task. The final argumentative task was a two-way, convergent, open task. Participants read the statement "University students must not work part-time jobs because they have to focus on studying" and were asked to discuss this issue in English in ten minutes.

6. Results and Discussion

6.1 Characteristics of Synchronous CMC

Analyses of their recorded protocols showed that the textual interactions produced (a) opportunities for negotiation for meaning, (b) complex turn-taking (that is, a mixture of several conversational flows), and (c) other characteristics unique to SCMC (e.g., the use of capitalization for emphasis, the use of emoticons).

Excerpt 1 shows the protocol from Dyad 1. Layla made a clarification request "3 what?" in line 1053 as to Junko's statement of 1051 "No, I see three." As to clarification requests, Dyad 1 used them in other contexts as well; and one instance of a clarification request was observed in Dyad 3.

Excerpt 1 from Dyad 1

1050	Layla	and a can on the one of them
1051	Junko	No, I see three.
1052	Jayla	A dog in on the chair.
1053	Layla	3 what?

1054	Junko	three chairs.
1055	Junko	That's the difference!

The next excerpt was also derived from Dyad 1. Junko made a clarification request "Sorry, what does it mean by rubish [rubbish] ?" in line 1100, which was in response to the utterance by Layla in line 1097, "can you see rubbish [rubbish] bins?" Junko made a confirmation check by writing "selling machine?" in line 1101. To Layla's response in line 1102, Junko again made a clarification request "litter?" in line 1103. Like the first excerpt, this example also shows that interactional negotiations happened in synchronous CMC. In addition, this excerpt shows that turn-taking systems were complex: That is, plural flows of interaction happen at one time. Because of the time gap between writing messages and sending the written messages, the interlocutor may start another topic, and the writer's responses may show up a few turns later.

Excerpt 2 from Dyad 1

1097	Layla	can you see rubish [rubbish] bins?
1098	Junko	Where?
1099	Layla	right side
1100	Junko	Sorry, what does it mean by rubish [rubbish] ?
1101	Junko	selling machine?
1102	Layla	no, litter
1103	Junko	litter?
1104	Junko	I see a juice box.

Excerpt 3 derives from Dyad 2. The task was the picture description task. First, both of the participants started utterances without capitalization of the first letter. Second, they used capitalization to place emphasis or make a contrast as in "the woman is near the door IN THE TRAIN in my picture." (1035) and "they are talking about TENNIS!" (1040). Non-use of capitalization at the beginning of a sentence was found in Dyad 1 (Layla and Junko) as well. The use of capitalization for emphasis or contrast was observed in Dyad 1 (Layla and Junko) and Dyad 3 (Haruki).

Excerpt 3 from Dyad 2

1033	Sayo	can you see train?
1034	Mai	yes, there is train and a woman is standing in front of the train.
1035	Sayo	the woman is near the door IN THE TRAIN in my picture.
1036	Mai	it's first differece [difference] ! is there cat on a bench?
1037	Sayo	no. there is a dog in my picture. this is a difference too!

1038	Mai	are there two groups of boys?
1039	Sayo	yes. one of them are talking about baseball. what about you?
1040	Mai	they are talking about TENNIS! and how about the other boys? one of them is pointhing [pointing] his friend's hair.
1041	Sayo	yes. the boy in the left side is pointing the other.
1042	Mai	ok it's same! is there man who is drinking?

The fourth excerpt shows the use of emoticons such as ":)" and "^^" as in lines 1009 and 1010. In this excerpt, Mai expressed emphasis by writing the same letter several times like "soooo" in 1012.

Excerpt from Dyad 4

1009	Mai	good morning:)
1010	Sayo	good morning^^
1011	Sayo	how are you?
1012	Mai	soooo fine! how about shiho?

The first research question was: What characteristics will be observed for synchronous CMC? To sum up, the protocols suggest that synchronous CMC provides opportunities for negotiation for meaning, similarly to oral interactions. On the other hand, results show that synchronous CMC has its unique characteristics such as complex turn-taking, the use of capitalization for emphasis, and the use of emoticons.

6.2 Processability Theory Analysis

Next I examined whether the tasks can elicit the targeted structures successfully so that the tasks can be used as assessment tools for online written production. Table 3 shows the results. In all, the results showed that all the structures targeted in the processability theory (see Table 1) were observed in the protocols of the three dyads.

In Table 3, two instances were observed for Stage 6; however, the structure index was cancel inversion (attempt). In the picture description task, Toshi wrote, "the woman is asking the boy what sports do you like to play." In this case, he did not use quotation marks for the part *what sports do you like to play*. It was difficult to judge whether he intended to write *The woman is asking the boy, "What sports do you like?"* or *The woman is asking the boy what sports he likes to play*. Second, in the picture description task, Sayo wrote, "... the baby is pointing to it and ask 'what is it?' to his mother." In this case, she used quotation marks and her production was not considered to be an indirect question. Nevertheless, it is possible to argue that the tasks provided Toshi and Sayo opportunities to apply the Cancel-Inversion rule.

Table 3 *Processability Theory Analysis*

	Dyad 1		Dyad 2		Dyad 3	
	Junko	Layla	Mai	Sayo	Haruki	Toshi
Stage 6						
Cancel-INV (attempt)				1		1
Stage 5						
Aux-2nd	3	2	3	2	1	2
don't+V	2	3	2	1	7	5
Stage 4						
Pseudo-INV	3		2		1	1
Yes/No-INV	14	17	6	5	1	1
Stage 3						
ADV	1	1		1	2	
Do-Front	3	5	1	1	1	
WH-Front		1				
Stage 2						
SVO	57	30	49	48	41	41
SVO?	4	3	1	2	1	1
Stage 1						
Formula	2	1	2	2		
Formula?	1	2		1		2
no	2	6	4	3	4	3
no+X		2	1			
words	63	64	14	16	20	15
words?	14	17	4	4	1	3

The second research question was: Are the structures targeted in the processability theory elicited through the tasks? The results suggest a positive answer to this question.

7. Conclusion

This study developed tasks for synchronous CMC and analyzed the task performance to examine whether the tasks can be used as assessment tools.

I would like to point to a few pedagogical implications on the basis of the results of this study. First, synchronous CMC can be used for assessment of L2 learners' performance, in particular, in terms of the processability theory. The scripts of synchronous CMC reduce the teachers' and researchers' burden of transcribing the recorded performance. Second, synchronous CMC helps increase the opportunities to communicate in the target language for L2 learners. The necessary and sufficient condition is that L2 learners have PCs with Internet access. For example, teachers can give assignments of synchronous CMC to their students and tell them to submit the chatlogs later. Third, the tasks can be varied by substituting new pictures for the Spot-the-Difference tasks and the picture description

tasks and new propositions for discussion. Thus, teachers and researchers can adjust the levels of the tasks according to L2 learners' proficiency.

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