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Linguistic Characteristics in Synchronous and Asynchronous CMC

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With recent advances in computer-mediated communication (CMC), the different modes of CMC should be properly incorporated into the English language curriculum according to its pedagogical goals. This paper investigates the linguistic characteristics of the two CMC modes in small group discussion; synchronous CMC (SCMC, i.e. text-chatting) and asynchronous CMC (ASCMC, i.e. posting on a bulletin board). Linguistic output obtained from Korean EFL student's chatting and postings were compared in terms of quantity and quality. The results show significant differences in two measures of quality–lexical richness and syntactic complexity. The asynchronous nature of ASCMC allows more time to choose appropriate words and complete the task. The expanded time to reflect on postings brought about many topic-related and formal expressions including diverse vocabulary and complex sentences. On the other hand, the synchronous nature of SCMC facilitates immediate responses, which lead to shorter and simpler output in order to keep up with the multi-threaded conversation. These findings suggest that asynchronous CMC may be more effective in promoting a richer lexicon and syntactically more complex output. Pedagogical implications for the design of CMC activities were also discussed to improve linguistic output.

[synchronous/asynchronous CMC/linguistic output/text-chatting/a bulletin board]

I. INTRODUCTION

Computer-mediated communication (CMC), a networking technology, permits two distinct modes of communication, synchronous (real time) or asynchronous (delayed time). Both modes have received a lot of attention for their potential linguistic benefits in educational contexts. Synchronous CMC (SCMC) enables online users to have real-time conversations with other people who are also online via instant messaging. Compared with

face-to-face communication (FFC), it has been reported that SCMC encourages a larger amount of language output (Abrams, 2003; Kern, 1995; Warschauer, 1996), more complex language (Beauvois, 1992; Blake, 2000; Warschauer, 1996) and a variety of communication strategies (Chu, 2006; Smith, 2003; Warschauer, 1996). Asynchronous CMC (ASCMC) is also a popular way to interact online because of its ease of use and convenience. Learners in this mode post their opinions about a topic and comment on other's writings while taking the time to read and write messages. Compared with paper-based journals, e-mail journals are found to produce more output and a greater variety of language functions (Wang, 1993). Though slower, asynchronous computer-mediated online writing can offer the benefits of collaborative learning through many-to-many communication (Warschauer, 1997).

While the two modes are effective tools for facilitating output and positive outcomes such as a greater equity in participation among students, it has been suggested that both SCMC and ASCMC modes have their own distinctive characteristics. They develop quantitatively and qualitatively different linguistic output. Yet, only a few studies to date have compared the SCMC and ASCMC modes. The fast pace of interaction in the SCMC mode was shown to encourage more language output (Hirotani, 2004). The expanded opportunities to reflect on written text in the ASCMC mode yielded more syntactically complex sentence structures (Hirotani, 2004; Sotillo, 2000). No significant differences, by contrast, were found in new vocabulary across the two modes (Pérez, 2003) or in student achievement (Johnson, 2008). However, these studies were too incomplete and unclear to confirm the different characteristics of the two modes in order to implement them in the Korean EFL curriculum. They had mixed results. They have been conducted with ESL learners (Sotillo, 2000), learners of Japanese (Hirotani, 2004) or have not been supported by statistical data (Han, 2003). This study, therefore, aims at observing linguistic output produced by Korean EFL learners in the SCMC and the ASCMC modes so that the linguistic characteristics of the two modes can be better understood and implemented according to their instructional goals.

II. LITERATURE REVIEW

Motivated by the SLA interactionist theory (Long, 1981; Pica, 1987), many CMC researchers postulated that CMC could facilitate second language acquisition in a way similar to face-to-face interactions in a classroom setting. Studies have shown evidence of negotiation of meaning in CMC discourse (Blake, 2000; Pellettieri, 2000; Warschauer, 1998). They have compared synchronous CMC (SCMC) and FFC in a number of ways

and found positive effects of SCMC on learner output. One benefit addressed by previous studies was that the SCMC environment encouraged a greater amount of language production due to its immediate response requirement (Kelm, 1992; Beauvois, 1992; Kern, 1995). Chu (2006) found more use of communication strategies in the SCMC. Additionally, students in the SCMC mode used language that had a lexically and syntactically more complex structure (Chun, 1994; Warschauer, 1996). Based on these benefits, it has been suggested that SCMC should be incorporated into the curriculum to facilitate output, including it as a preparatory activity for face-to-face oral communication.

As the other distinctive mode of CMC, learners can also participate in asynchronous CMC. ASCMC, such as e-mail or bulletin boards, allows learners to take the time to read and write messages. Recent experimental studies have found that ASCMC was also beneficial for language productivity as measured by the number of words produced (Ferrara, Bruner, & Whittemore, 1991; González-Bueno, 1998; González-Bueno & Pérez, 2000; Maynor, 1994; Wang, 1994). Van Handle and Corl (1998) showed that the level and quantity of participation and quality of content was very high in their evaluation of e-mail discussions. Therefore, both SCMC and ASCMC modes can bridge the communication gap for the student with limited linguistic skills by creating a "conversation in slow motion" that allows students time to reflect and compose before communicating (Beauvois, 1992).

It has been claimed that the SCMC and ASCMC modes have different effects on learner output. Generally, the asynchronous mode provides extended planning time, unlimited use of outside resources and an absence of immediate interactants (Abrams, 2003; Kim, 2002). These advantages could allow learners to take the time to read and write longer messages. In SCMC discourse, on the other hand, writing brief messages could allow students to follow the discussion more closely than writing complex messages because attention must be quickly returned to reading other student's comments (Kern, 1995).

To date only a few studies have addressed this issue. Sotillo (2000) found that the two modes were different in regard to discourse functions and syntactic complexity. As the chat mode was closer to face-to-face conversation, its discourse function indicated more various interactional modifications similar to FFC. Syntactically more complex language was observed in the bulletin board mode owing to the expanded time to edit writings. Hirotani (2004) compared three groups of linguistic output over four measures (language output, linguistic complexity, accuracy and cohesiveness) using learners of Japanese after ten-week-long discussions on particular topics in the three different modes; SCMC, ASCMC and FFC. He confirmed greater syntactic complexity in asynchronous discourse and found more language output in the synchronous discourse. However, no significant differences were shown in terms of lexical complexity or cohesiveness. Pérez (2003) failed to show significant differences in the number of new vocabulary words between the two modes

even though raw data revealed a higher number of words in the chat room discussions than in the e-mail messages.

Turning to the Korean EFL context, Han (2003) suggested that SCMC tools will be beneficial for improving language fluency and instant interaction skills, whereas ASCMC tools will be effective for promoting language accuracy and self-reflection/self-correction skills. However, statistical data has not supported her theory.

Previous studies on the comparison of the two modes have not been done completely. They have been conducted with ESL learners (Sotillo, 2000) or learners of Japanese (Hirotani, 2004), have not been supported by statistical data (Han, 2003), or have not used valid measure for analysis (Pérez, 2003). With inconclusive findings, different modes of CMC can not be properly incorporated into the EFL curriculum according to their linguistic characteristics. Therefore, in order to give a better understanding of CMC and its pedagogical implications for the effective use of SCMC and ASCM in the classroom, there is a great need to examine thoroughly the different linguistic characteristics of the two modes considering these limitations.

This study aims to compare the linguistic characteristics of the SCMC and ASCMC modes for Korean EFL learners. Linguistic output to be examined is divided into quantity and quality. The quantity of output is assessed by the number of words and C-units and the quality is broken into three parts; lexical richness, syntactic complexity and accuracy. The research questions for the purpose of this study are as follows:

(1) Is there any significant difference in the quantity of linguistic output between the synchronous and asynchronous CMC modes?
(2) Is there any significant difference in the quality of linguistic output between the synchronous and asynchronous CMC modes?

III. RESEARCH DESIGN

The present study used a quasi-experimental design to address the two research questions presented above.

1. Participants

Two Freshman English classes participated in this study. For the purpose of this study, each class was randomly assigned to one of two different communication modes: synchronous computer-mediated communication (SCMC) or asynchronous computer-

mediated communication (ASCMC). There were initially 25 to 29 students in each class. Only a few students were found to show significantly higher or lower English ability, most students were intermediate-level learners who had studied English for at least 6 years and had few experiences studying abroad. After excluding extraordinary and missing data, the data of 24 and 22 students were used, respectively, from the SCMC and ASCMC groups.

All students participated in small group discussion using the assigned CMC mode. The small groups were composed of four or five students and remained the same throughout the study. No instructors participated in any small group discussions because this was designed as a learner-centered discussion for motivating learner-to-learner interaction.

2. Procedures

This study was conducted over ten weeks. At the beginning of the course, the SCMC and ASCMC groups were introduced to lesson plans and instructed on the assigned CMC modes. They were also asked to practice their typing in English if need be. All students in both groups participated in five small group discussions in Units 2, 3, 5, 6 and 9 from the textbook in the different communication modes. In order to prepare for the discussion, they received the same lessons including background knowledge, vocabulary, and reading material. They sometimes had the opportunity to practice their listening skills by watching a video. Thus, all the groups were provided with the means to express their opinions on a theme-related topic based on what they had learned.

During small group discussion, both groups used the assigned CMC mode. The SCMC group was asked to use the most available synchronous CMC tool among the various types of instant messengers. Most of them used MSN Messenger or Daum Messenger, which are user-friendly real time chatware. They had the option of using their own name or an anonymous name and had a real-time electronic discussion about the topic.

The researcher designed and opened an internet café at Daum for the ASCMC group. It had a main and sub-group bulletin board in the menu. The main board was used to post the topic by the researcher and the sub-boards were used by members to post opinions and provide comments on other's posts. This division was made to reduce the time necessary to drag the icon and click on their group's postings after looking over all students' postings.

Both groups had twenty-minute long discussions on the same topic. It was difficult in practice to control the time for discussion because CMC activities were done outside the classroom. Nevertheless, a careful structuring of time is very important to compare the two different communication modes. As a way of equalizing the amount of time, the SCMC group was asked to arrange their chatting with members of each sub-group at a convenient time, attend a twenty-minute chat, and submit their chat log the following class. Similarly, the ASCMC group was asked to attend at least twice a week for twenty-minutes of total

log-in time. The estimated amount of writing might be one opinion and two comments on other's writings.

3. Data Collection and Analysis

After small group discussions in the different modes, all output was gathered for analysis. The SCMC group submitted their chat logs and the ASCMC group's writings on the bulletin boards were printed out. In addition, open-ended questionnaires on the use of SCMC and ASCMC were administered at the beginning and end of the experiment to complement the findings gained from the present study. The first one was given in the form of a journal in which students could write freely about their opinions on the use of SCMC and ASCMC. The last questionnaire was provided to examine their final evaluation of each mode and added questions on familiarity with the topic and student's typing skills using a seven-point scale.

Linguistic quantity and quality were analyzed in seven ways as indicated in Table 1.

TABLE 1

Measures of Linguistic Output

Category	Subcategory	Measure
Quantity	1) Word	The number of words
	2) Language Unit	The number of C-units
Quality	3) Lexical Richness	type-token ratio
	4) Syntactic Complexity	(a) clauses per total C-units
		(b) dependent clauses per total clauses
		(c) dependent clauses per total C-units
	5) Accuracy	the percentage of error-free clauses

The quantity was calculated by the number of words and C-units. C-units are "isolated phrases not [necessarily] accompanied by a verb, but they have a communicative value" (Crookes, 1990, p.184). As C-units include elliptical utterances which are prevalent in CMC discourse, they seemed more accurate than T-units for analyzing the amount of output produced in the CMC modes (Abrams, 2003). Quality was assessed for lexical richness, syntactic complexity, and accuracy. Lexical richness was determined by type-token ratio (Warschauer, 1996). As it is affected by the length of the passage, the same total number of words was taken from each learner for analysis (Abrams, 2003). This study set 9 tokens, the shortest output during the discussion, as this number. Syntactic complexity was established by three indices: (a) clauses per total C-units (C/CU), (b)

dependent clauses per total clauses (DC/C), (c) dependent clauses per total C-units (DC/CU) (Sotillo, 2000; Wolfe-Quintero, Inagaki, & Kim, 1998). Accuracy was assessed if each clause was lexically and syntactically accurate and was defined as the percentage of error-free clauses in relation to the total number of clauses (Foster & Skehan, 1996; Tajima, 2002).

Finally a statistical analysis was conducted to find out whether there were significant differences between the SCMC and ASCMC modes. To answer the two research questions, the means of the SCMC and ASCMC groups were compared for each measure using *t*-tests.

IV. FINDINGS AND DISCUSSION

1. Quantity of Linguistic Output

The first research question addresses whether there is a significant difference in the quantity of linguistic output between the SCMC and ASCMC modes. Table 2 shows the number of words and C-units of linguistic output for the SCMC and ASCMC groups and the results of the *t*-tests. As indicated below, the SCMC and ASCMC groups produced different amounts of linguistic output, but no significant differences were found in the number of words (p = .115) or C-units (p = .107). This result was not consistent with Hirotani (2004), which found more output from the SCMC discourse.

TABLE 2

Quantity of Linguistic Output in the SCMC and ASCMC Modes

	Mean		T	Df	Sig.
	SCMC	**ASCMC**			
Words	79.25	97.56	-1.607	44	.115
C-Units	13.57	11.16	1.647	44	.107

(p <.05)

There were several reasons the SCMC group did not outperform the ASCMC group which were frequently mentioned in the transcripts and open-ended questionnaires. First, some students in the SCMC group were overwhelmed by the rapid message scrolling as noted below.

(1) SG: Why cyworld obsession is bad?
HB: I just said topic about cyworld;
JH:. .= =
HB: um
MH: JH doesn't want this topic
JH: . . .. my typing is very slowly

In contrast to ASCMC, synchronous chatting requires that students be good typists. This, however, was a challenge to JH in (1) excerpt. He first used emoticons (==) to express his opinion due to his slow typing skills. This was misunderstood by MH ('*JH doesn't want this topic*'). Finally, he showed his frustration in keeping up with the conversation. Including JH, less than half of the students in the SCMC mode reported being able to type in English, but not very fast. Cech & Condon (1998) pointed out this weakness of SCMC, "typing at a keyboard for most people is more time consuming than is speaking" (p.257).

Second, the conversation in the SCMC modes was sometimes interrupted by two or three remarks made at the same time, which caused students to lose chronological information.

(2) BS: i'm a only son
AR: in Korea, man used to carry heavy thing
MJ: heavy?
MJ: what's that?
BS: so I was given my consin's toys
MJ: kkk
BS: car, doll, , ,
MJ: say that heavy thing, AR.
JH: . . .

In excerpt (2), separate conversations from two students, BS and AR, were popping up on the screen at almost the same time. MJ asked the question ('heavy?', 'what's that?') and showed an immediate response ('kkk') trying to follow two diverse conversations. JH, however, couldn't keep track of the conversation and remained silent. Hahn (2007) pointed out that the time pressure in SCMC might pose overlaps or interruptions during the conversation. Moran (1991) argued that students may be frustrated with "divergent monologues" in the middle of discussion. The students in this study also reported that they were unable to identify where certain messages started and ended.

(3) JH: Sometimes, I failed to identify who was going on the screen and where his or her

conversation started and ended. As a result, the discussion on the computer might be tangled with unidentified phrases or words and finally get lost in the conversation.

Difficulty in coordinating chatting times is a clear disadvantage of SCMC. Synchronous chatting requires students to be online at the same time. Since students have various and tight time schedules, some absences were noticed during SCMC activity.

Figure 1 and 2 illustrate the number of words and C-units of linguistic output for the SCMC and ASCMC groups through the five small group discussions. These figures help to follow changes in the amount of linguistic output and identify the differences between the two groups.

FIGURE 1

Number of Words for the Two Groups throughout Discussions

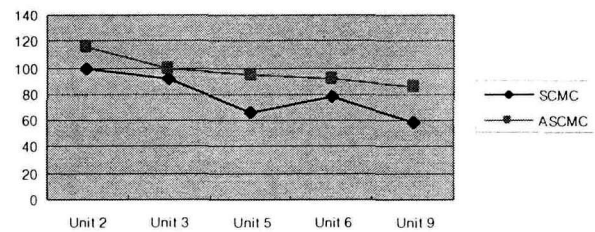
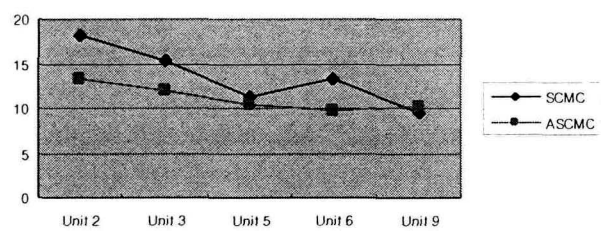


FIGURE 2

Number of C-Units for the Two Groups throughout Discussions



A detailed comparison of linguistic output between the two groups shows noteworthy tendencies that are discussed below. First of all, it is contradictory to expectations that linguistic output from both groups decreased over the five discussions, compared to overall improvement in previous studies. This decrease could be explained by the fact that there seemed to be a novel effect at the beginning of the course. Being new to most of the students, there could have been an initial wave of enthusiasm over the introduction of small group discussions through computers in the class. All students in this study were freshmen.

Their efforts in school work and themselves could have gradually decreased as they preferred to participate in another extracurricular work in their fist year of university.

Another difference between the two groups is that the amount of output in the ASCMC group showed remained constant over the five discussions, whereas that in the SCMC group fluctuated a little. These results imply that students in the ASCMC mode feel more comfortable preparing opinions for discussion boards owing to the extra time they had and that those in the SCMC mode were more likely to be affected by other variables like, for example, the topic or the atmosphere among the students. Their participation varied depending on these variables.

A third tendency is that both groups showed contrasting results in the number of words and C-units. That is, the number of words was higher in the ASCMC group, whereas the number of C-units was higher in the SCMC group. These results might be related to the units of analysis. As shown in the measures of linguistic output, C-units are defined as "isolated phrases not necessarily accompanied by a verb." In the SCMC discourse, more phrases or short messages were found which increased the number of C-units.

In summary, the present study did not find any significant difference between the SCMC and ASCMC modes with regard to the quantity of linguistic output. Concrete reasons for this were presented from their transcripts and open-ended questionnaires.

2. Quality of Linguistic Output

The second research question examines whether there is a significant difference in the quality of linguistic output between the SCMC and ASCMC modes. In order to answer the question, written data obtained from the two modes was evaluated for lexical richness, syntactic complexity and accuracy. Table 3 shows a richer lexicon and more syntactically complex output in the ASCMC mode (p = .000*). The ASCMC group also produced more accurate output than the SCMC group, it was not statistically significant.

TABLE 3
Quality of Linguistic Output in the SCMC and ASCMC Modes

		Mean		*t*	*df*	*Sig.*
		SCMC	*ASCMC*			
Lexical richness		5.25	6.80	-2.463	44	.018*
Syntactic complexity	C/CU	1.23	1.55	-6.136	44	.000*
	DC/C	.14	.27	-5.861	44	.000*
	DC/CU	.19	.44	-5.385	44	.000*
Accuracy		45.1	47.68	-.47	44	.641

Chat logs and transcripts revealed significant differences between the two modes with respect to lexical richness and syntactic complexity.

(4) *SCMC*

HJ: if I have cancer
HJ: I give my all money to my son
HJ: and and if my son buy a 사기꾼약
HJ: I will eat it
HJ: but if my son doesn't buy 사기꾼약
HJ: I don't eat it

(5) *ASCMC*

SJ: Hi~! My name is SJ. Let me discuss now. Do you now on-line game? For example, Lineage, World of Warcraft and Mu etc.. There is 'level' in this games. Beginning step is very easy and interesting. But level goes up, it becomes very difficult. . .(continued)

In the excerpts above, the two groups showed a significant difference in lexical richness. Student HJ in the SCMC mode (4) was repeating the same pattern, with a limited vocabulary. He employed his L1 when he didn't know the proper English word. Although some students were observed to negotiate the meaning of obscure words by using requests or clarification questions as Pérez (2003) showed, it didn't lead to a significantly richer vocabulary. By contrast, student SJ in the ASCMC mode (5) added new information through various kinds of words and structures. Asynchronicity allows students unlimited time to prepare for postings and enables them to use richer vocabularies and learn words they didn't know before.

Similarly, significantly more syntactic complexity was found in the ASCMC mode than in the SCMC mode as shown in (6).

(6) *SCMC*

KM: in my case I obsessed with soap opera.
YS: wow
YS: me too
KS: soap opera?? What is soap opera?
YS: drama
KM: it is very interesting
YS: I think so too
PB: I'm stick game too.

(7) *ASCMC*

RS: To be addicted to one is good, but much addiction is to spoil you. If you are only addicted to one, you are indifferent to the others. For example, when / / /

PT: I think you used word 'addict' as a such meaning that a person who is very interested in something and spends a lot of their free time on it. / /

In the excerpts above, the synchronous chatting script consisted of shorter sentences and fewer embedded clauses. Students in the SCMC mode had to adapt themselves to the fast pace of conversation, so they chose to use only simple structures and more phrases. By contrast, most of the asynchronous postings were fairly long and included more subordinate and embedded clauses. Students in the ASCMC mode were able to employ subordinate clauses and transitions in their writing because they were allowed more time to work on their postings and to consult outside resources.

This difference supports Pena, Schaff, Martin and Gay (2001) who found asynchronous communication to be more formal in nature, task-related, and self-reflective while synchronous communication was more interactive and less task-oriented. Thus, in the ASCMC mode students expressed more opinions and delivered more topic-related information which resulted in the dominance of long messages. The SCMC mode showed more support and personal information exchanges which led to shorter messages.

This syntactic difference can be explained by task type. Park (2004) found that students in asynchronous online writing produced larger amounts of language output in information-exchange activities, whereas they produced written output of higher syntactic complexity in opinion-exchange tasks. Considering that this study used opinion-exchange tasks on all topics, the ASCMC group might have shown significantly higher syntactic complexity than the SCMC group.

Results from the present study show that there was no significant difference in accuracy between the two modes. A close look at student's transcripts and postings prove it; both revealed grammatical errors.

(8) *SCMC*

TJ: i think this topic is very difficult.

GH: But I'm sure that boy and girl act different

BJ: I think boy have was treated masculine gender

GH: It's not just there instinct

NJ: i agree

TJ: boy and girl . . . boy are straight

BJ: Masculine gender is include in home culture

(9) *ASCMC*

GM: Parent generation is clearly exist differences of gender. For example, male work in company for his family, but female work in house and bring up child. In our generation, however, there is no difference of gender. In our generation, our parent teach equal boy and girl. So our accept no differences of gender. But there is only one difference. That is instinct of gender. Boy is handsome looked by girl. Girl is beautiful looked by boy.

This result did not support Han's (2003) suggestion that asynchronous CMC could improve language accuracy owing to self-reflection and self-correction skills. This may be because of the student's low proficiency in English. Both groups reported that they often made spelling errors, deleted their work and made syntactic corrections. They reported being conscious of grammar. However, students in this study, who had a limited knowledge of grammar, were exposed to a lot of defective language and formal accuracy is not improved by on-line communication alone (Kern, 1995). Student's responses support this interpretation;

(10) BJ (SCMC): I'm not sure if it is grammatically right.

(11) GM (ACMC): Sometimes, I found my English grammatically wrong, but I didn't know how to correct it.

That is, in the absence of corrective feedback, low-intermediate students were uncertain whether their English was correct or not. This uncertainty could discourage the students in both groups from producing more accurate English.

Figures 3 to 7 show the quality of linguistic output from the SCMC and ASCMC groups during the five small group discussions. As noted above, the two groups demonstrated drastic differences in the measures of lexical richness and syntactic complexity, but not in terms of accuracy.

As shown below, a slight decrease was seen in lexical richness. This is consistent with the drop in quality seen in Figure 1 earlier page. However, a slight increase was noted in the measures of syntactic complexity and accuracy. This increase might demonstrate CMC's advantage of expanded written awareness by having students work visible before them on the computer screen. As a result, their syntactic complexity and accuracy began to improve very slightly.

FIGURE 3

Lexical Richness for the Two Groups during Discussions

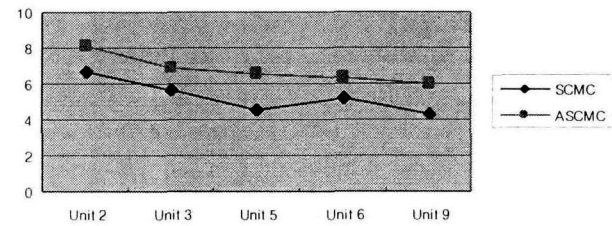


FIGURE 4

C/CU for the Two Groups during Discussions

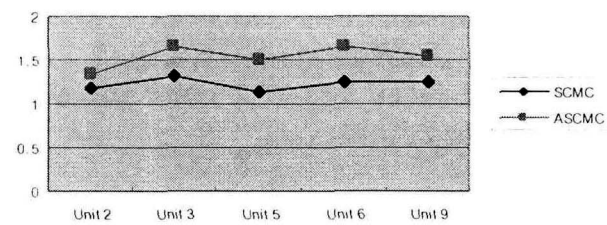


FIGURE 5

DC/C for the Two Groups during Discussions

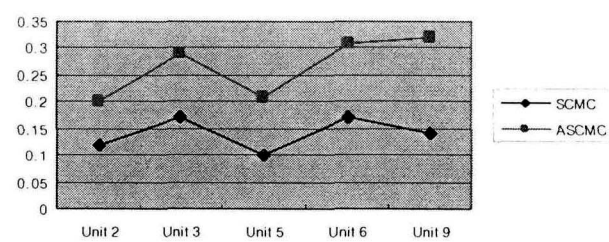


FIGURE 6

DC/CU for the Two Groups during Discussions

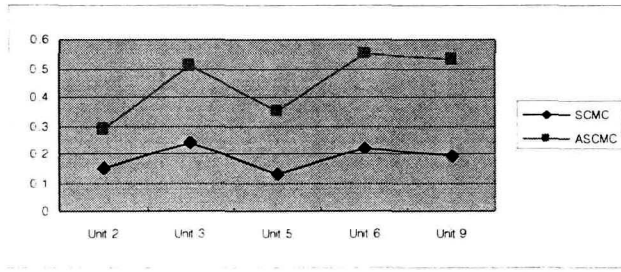
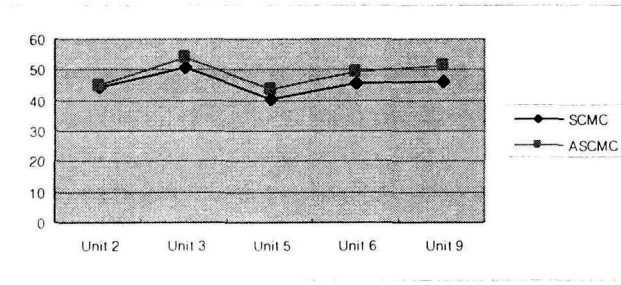


FIGURE 7

Accuracy for the Two Groups during Discussions



It is also noteworthy that linguistic output hit its lowest point in Unit 5 for most measures. This was in the middle of course when most students were released from some of their responsibilities at school or started to turn their attention to mid-term exam preparation. Shortly afterwards, linguistic output increased again in the discussion for Unit 6. This might be due to the instructor's encouragement: right after the mid-term exam, instructors presented students with their mid-term report on linguistic output for the previous three discussions and encouraged them to participate in the following discussions more actively. This result suggests that incorporating CMC into student's evaluations encourages students to actively participate in discussion.

In summary, this study found significantly more lexical richness and syntactic complexity from linguistic output in the ASCMC mode. This result might be due to time allowance and topic-related interaction.

V. CONCLUSION

Previous studies on CMC have shown greater linguistic benefits in a comparison with FFC modes. Studies typically involved synchronous CMC. It has recently been claimed that both asynchronous and synchronous CMC are powerful tools that provides dynamic learning environments. In order to incorporate these two modes into an English curriculum effectively, their differences in linguistic characteristics need to be exploited for pedagogical purposes. Thus, this study examined the different features of linguistic output in the SCMC and ASCMC modes in small group discussions. For this purpose, linguistic output obtained from Korean EFL student's chatting and postings was compared in terms of quantity and quality. The quantity was defined as the number of words and C-units and quality was measured for lexical richness, syntactic complexity and accuracy.

The results showed significant differences in some measures of quality, lexical richness and syntactic complexity, between the SCMC and ASCMC modes. That is, as the asynchronous discussion allowed more time to complete the task, students seemed to try to choose more appropriate vocabulary and better control what to write. The extended time to reflect on their work led to many topic-related and formal expressions including diverse vocabulary and more embedded sentences in their discourse. On other measures, however, differences between the two modes were insignificant. Consequently, this study supports the suggestion that asynchronous CMC is more effective in promoting a richer lexicon and syntactically more complex output.

Students in the SCMC mode were found to face some difficulties in their discussions. These difficulties were mostly related with the limited time. For example, student's who were slow typers couldn't keep up with the conversation when trying to give feedback or opinions. The typing requirement is important because many students have never learned to type in English. It was also noted that two or three messages popped up on the screen at the same time, which distracted student's attention and caused them to lose the chronology of the discussion. In addition, coordinating chatting time was a big challenge for most students because they were all busy with different schedules and less motivated to study hard in the first year of University. As a result, these difficulties might have negatively impacted attitudes towards the use of SCMC and discouraged students from producing more linguistic output.

Considering student's initial enthusiasm to the use of SCMC, improvement in the design of CMC activities could allow students to concentrate on the task and enhance interpersonal communication. First, students must be required to master typing skill ahead of SCMC activity. Second, they could be instructed to follow the guidelines of

synchronous small group chatting or one moderator within every group could be assigned the responsibility of maintaining the discussion by orchestrating member's opinions.

All Korean EFL students' strong awareness of grammaticality was evident in the CMC-based activities. Because of students low level of proficiency they felt uncertain of their grammar so errors were seen in their final product. In order to help improve accuracy, issues on how, what and who can give corrections should be further investigated in future studies

Noting that synchronous and asynchronous CMC modes have distinctive characteristics, differences in linguistic output between the two modes should be fully exploited. To provide further information for the effective use of each mode, other variables should be considered to re-evaluate the findings from this study. For example, task type or the group size could be manipulated to examine if either condition increases or decreases linguistic output.

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Examples in: English
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