Peer review through synchronous and asynchronous CMC modes: A case study in a Taiwanese college English writing course

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*Peer review is an important instructional activity in process-approach English writing classrooms. Although peer review through computer-mediated communication (**CMC**) has been credited as an alternative to face-to-face peer review, the efficacy of online peer review via synchronous **CMC** (**SCMC**) and asynchronous **CMC** (**ACMC**) modes has not been thoroughly explored. The case study examined 30 English-as-a-foreign-language (**EFL**) undergraduate students' engagement in peer review activities, commenting types made by reviewers, and students' perceptions of peer review via **SCMC** and **ACMC** modes. The results revealed that peer review via both online modes, which share unique time- and space-independent features, different from the face-to-face mode, result in students' high engagement and similar commenting types. However, the different nature of time use and interaction patterns between the two online modes still result in some discrepancy among commenting types and among perceptions of peer review via the two modes.*

Introduction

Peer review, an umbrella term used to refer to "peer feedback," "peer response", or "peer editing", (Liu & Hansen, 2003), is an instructional writing activity in which students work together to review and provide comments on each others' writing. In a process-approach classroom students work through multiple drafts and the teacher's comments are no longer regarded as the sole source of information on student writing. Rather, peer feedback is endorsed as an important alternative because it may "enhance a sense of audience, raise learners' awareness of their own strengths and weaknesses,

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encourage collaborative learning, and foster ownership" (Tsui & Ng, 2000, p. 147). The review process enables writers and readers to learn how to evaluate writing components, clarify unclear points, provide suggestions, and correct linguistic errors (Liu & Sadler, 2003).

A wide range of issues related to peer review have been documented in the literature on second language (L2) writing and are accompanied by strong theoretical support (Liu & Hansen, 2002). Previous studies have explored issues on (a) the impact of peer review on writing drafts (e.g., Hedgcock & Lefkowitz, 1992; Nelson & Murphy, 1993; Tsui & Ng, 2000; Villamil & Guerrero, 1998); (b) the effect of trained peer review on student writing (e.g., Berg, 1999; Min, 2005; 2006; Paulus, 1999); (c) students' capacity to identify areas in need of review (Nelson & Murphy, 1992); (d) analysis of peer interaction from sociocultural perspectives (Guerrero & Villamil, 1994; Villamil & Guerrero, 1996; Guerrero & Villamil, 2000); (e) students' perception of the effectiveness of peer response (Carson & Nelson, 1996; Carson & Nelson, 1998; Nelson & Carson, 1998); (f) students' adoptive choice of review from different sources of feedback (Mendonça & Johnson, 1994; Nelson & Murphy, 1993; Paulus, 1999); and (g) peer review through blended communication modes (Liu & Sadler, 2003).

Although many studies have demonstrated that peer review benefits the process of L2 writing, some scholars have held negative stances on the efficacy of peer review in L2 writing because L2 learners lack sufficient capacity to recognize either the rhetorical or linguistic flaws in their classmates' writing (Amores, 1997; Nelson & Murphy, 1992). As Leki (1990) argues, L2 learners usually emphasize strongly their "surface concerns" (p. 9), which may result in vague and unhelpful comments to the improvement of writing quality. Additionally, L2 learners from non-Western cultures may avoid direct criticism to their peers' writing to maintain group harmony (Carson & Nelson, 1996; Saito & Fujita, 2004). More importantly, negative affection may be generated from peer interaction due to reviewers' unfriendly and overly critical comments on their classmates' writing (Nelson & Murphy, 1992).

In addition to these concerns about the efficacy of peer review, a pedagogical problem from the adoption of peer review may arise from the applicable classroom time for peer review activities in traditional class sessions (Amores, 1997; Breuch, 2004; Tuzi, 2004). In Taiwan, for example, many college-level writing courses for non-English majors usually meet once a week for 100 minutes. Limited class time may result in ineffective peer review or decrease the willingness of writing teachers to integrate peer review into classroom sessions.

With the widespread application of computer-mediated communication (CMC) in education in the past decades, peer review through either synchronous or asynchronous CMC modes may hold the promise of easing the pressure of classroom constraints (Belcher, 1999; Honeycutt, 2001). As Breuch (2004) claims, the CMC mode could allow students from different disciplines to connect easily in a virtual space without physical co-presence. Furthermore, written communication in online modes offers "substantive critiques in writing, and [takes] control of various technologies to accomplish writing tasks" (p. 3).

Given the convenient and potentially effective benefits that CMC may contribute to peer review (Hansen, 2006), previous studies have examined how CMC may affect peer review or benefit peer review, with a special emphasis on the comparison between the use of CMC modes and traditional modes for peer review (e.g., Bloch & Brutt-Griffler, 2001; DiGiovanni & Nagaswami, 2001; Liu & Sadler, 2003; Schultz, 2000). In a quasi-experimental study, Schultz (2000) compared the quantity and types of changes in the process of peer review via face-to-face and synchronous modes. The results showed that intermediate and upper-intermediate French students made more specific, micro changes in the online mode,

whereas they made more global changes in the face-to-face mode. Students who received feedback in both modes made most productive changes based on feedback.

A similar study by DiGiovannie and Nagaswami (2001) conducted in classroom sessions emphasized the comparison between types of negotiation and perception of peer review in the face-to-face (**FFPR**) mode and those in a synchronous online mode (**ONPR**) which was conducted in in-class sessions. They found that students used the same categories of negotiation in both modes of peer review but the amount of negotiation was higher in **FFPR** than in **ONPR**. However, students expressed mixed preferences for both modes. The results suggested that **ONPR** allowed instructors to closely monitor peer interaction. The system-saved comments and revisions also benefited the subsequent revision process.

To further understand how different modes may affect student comments, Liu and Sadler (2003) developed a comprehensive coding scheme (i.e., areas, types, and nature) analyzing comments generated from peer review in face-to-face mode (by a traditional group) and in **MOO**[1] (by a technology-enhanced group). They found that although students provided more comments under **MOO** than in face-to-face mode, more revisions were made based on face-to-face comments, than based on **MOO**. However, the students felt that interaction via **MOO** was more affective and appealing than via face-to-face mode.

In another study Tuzi (2004) examined **L2** students' adoptive choice of peer comment from oral and electronic feedback sources and the types of responses provided in each mode. A database-driven website which allowed students to post their writing and accept electronic feedback from others was developed as the online system. The findings showed that comments from electronic feedback tended to be at micro levels (clause, sentence, and paragraph) rather than at overall global levels. Although students preferred oral feedback, they made more revisions in response to electronic feedback than feedback from other sources.

The purpose of the study

These studies have explored the differences between face-to-face and synchronous **CMC** modes or revision from asynchronous e-feedback. However, limited studies have specifically investigated the impact of virtual peer review in synchronous and asynchronous **CMC** modes, which appear to have an impact on interactive responses via differences of time and space (Breuch, 2004). Although new forms of online communication can be implemented as a medium for peer review activities, limited studies have thoroughly explored how synchronous and asynchronous **CMC** modes may influence the way students engage in peer activities and the nature of peer comments in different virtual communications. Aiming to bridge the gap in virtual peer review, the current study explores how real-time and delayed-time online communication modes influence students' engagement in peer review activities, what types of comments are made by peer reviewers, and how students perceive peer review activities. Three research questions were generated as follows.

1. How do synchronous and asynchronous **CMC** modes affect Taiwanese students' engagement in peer review activities?
2. What comments are generated from peer review via synchronous and asynchronous **CMC** modes, in terms of the area (global versus local), the type (evaluation, clarification, suggestion, alteration), and the nature (i.e. revision-oriented versus non revision-oriented) of comments?
3. What are Taiwanese students' perceptions of peer review through the two online modes?

Method

Case description

Study setting and participants. This study adopted a case study approach targeting an 18-week, college-level, elective English writing course for non-English majors at a public university in northern Taiwan. This course met once-a-week for two hours. 30 undergraduates – 28 non-English majors and two English majors – comprised of 16 seniors, 10 juniors, 1 sophomore, and 3 freshmen enrolled in this course. Most of the students were from science and technological academic backgrounds and had not taken any college-level writing classes prior to this course. Several senior students gained English writing experience while preparing for a standardized English proficiency test (e.g., **TOEFL**) or standardized aptitude test (e.g., **GRE**).

CMC tools. Two **CMC** tools, **MSN** and **E3**, were adopted as the synchronous (**MSN**) and asynchronous (**E3**) online commenting tools in this writing course. **MSN**, an instant messaging (**IM**) program by Microsoft®, allowed users to send and receive information simultaneously across an Internet connection. Given that it is available free of charge and is convenient to use, **MSN** is commonly used by Taiwanese college students (For detailed description of **MSN**, please refer to http://www.hypothetic.org/docs/msn/general/overview.php.)

    E3 is a Web-based course management system developed by the university where the study was undertaken. Similar to other online platforms, **E3** offers multiple functions which allow instructors to make class announcements, organize course materials, conduct online discussions, give comments and grade students' assignments, manage students' grades, and track students' learning. Through the system, students may access course materials, submit assignments, and communicate with the teacher and other students. To provide interactive activities, **E3**, in particular, supports a peer review function which allows students to be involved in reviewing and giving comments on others' assignments within a specific timeframe. Through the system, instructors may decide whether the review pairings are assigned by the system or are open to students' self-selection. Figure 1 shows a commenting result in **E3** from a peer reviewer.

Figure 1. The commenting tool in E3

Writing cycles and peer review activities. The writing course adopted a process writing approach where students experienced writing through different stages involving brainstorming, multiple drafting, feedback practices, review, and final editing. In the 18-week semester, five writing tasks were assigned. Three of these tasks involved a complete writing cycle comprising steps of (1) in-class brainstorming, (2) first draft posted in E3, (3) peer review in in-class sessions, (4) peer review via **MSN** out of class sessions, (5) second draft posted in E3, (6) asynchronous peer review through E3, (7) instructor's writing comment, and (8) final product submitted in individual portfolios, as shown in Figure 2. The reason that only three writing tasks involved a complete writing cycle was due to the limited class time and the students' willingness to devote their time in this elective course. To adjust the specific course context, the first and third writing tasks only involved two peer review sessions (i.e., in-class and **MSN**). The rest of the tasks involved peer review via three modes – face-to-face, **MSN**, and the E3 commenting board. Thus, the study elicited data from the second, fourth, and fifth writing tasks.

Since the major pedagogical purpose of integrating online peer review activities through **MSN** and E3 out-of-class sessions was to help students receive comments from different perspectives in each writing cycle, the students were asked to work with different peers in the three peer review sessions. After the students completed a face-to-face peer review, they were asked to find a partner (other than the one they worked with in class) to do a mutual peer review via **MSN**. They scheduled mutually available time for the synchronous peer review. While doing peer review via **MSN**, they either exchanged their writing through **MSN** or retrieved their partner's first draft in E3. When referring to a specific writing problem, they usually copied and pasted the text with quotation marks in their text-based communication (See Appendix C for examples).

To conduct asynchronous online peer review in E3, students first submitted their second draft on E3. Then, each student was assigned a peer-review assignment by the E3 system. After reading the peer's writing in the system and typing their comments directly in the system, reviewers and writers could access the comments, as shown in Figure 1.
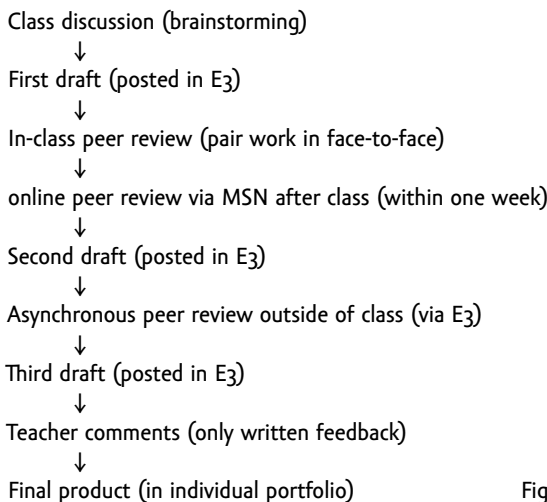
Class discussion (brainstorming)
↓
First draft (posted in E3)
↓
In-class peer review (pair work in face-to-face)
↓
online peer review via MSN after class (within one week)
↓
Second draft (posted in E3)
↓
Asynchronous peer review outside of class (via E3)
↓
Third draft (posted in E3)
↓
Teacher comments (only written feedback)
↓
Final product (in individual portfolio)

Figure 2. The writing cycle through different communication modes **49**

Previous studies (Berg, 1999; Min, 2005, 2006) have suggested that training before peer review may coach **ESL/EFL** writers to be effective reviewers. Before the first main writing task, the teacher-researcher demonstrated how to make essay comments by modeling the four-step procedure: clarifying writer's intention, identifying problems, explaining the nature of problems, and making suggestions by giving specific examples (Min, 2005). Also, a guidance sheet was provided in each peer review session (see Appendix A).

Data collection

The data were elicited from various sources including (1) on-line transcripts via both **E3** and **MSN** in the three writing cycles, (2) writing drafts, and (3) two questionnaires. In addition to the online transcripts, students' written work was collected to verify the interactive and commenting content. Two questionnaires were administrated at the beginning and end of the semester. The first questionnaire was designed to gain the students' demographic information and their background experiences in English writing. The second questionnaire was intended to explore students' perception on peer review and the activity through the two online modes (Appendix B).

Data analysis

The framework of data analysis in this study followed case study procedures proposed by Creswell (2007). These procedures involve making a detailed description of the case and its setting, aggregating categories from multiple sources of data, collapsing the categories into patterns, and developing naturalistic generalizations about the case. In addition to the description of the case, categories were aggregated from the online logs and the questionnaire.

First, to identify how the students engaged in online peer review sessions, their online logs (**MSN** and **E3**) were classified into three types of episodes: *on-task, about-task,* and *off-task* (Guerrero & Villamil, 1994), as shown in Table 1.

Table 1. Types of episodes (Guerrero & Villamil, 1994, p. 486)

On-task episodes	An utterance or a group of utterances semantically related in topic or purpose to one discrete troublesource or a series of connected troublesources (as in the case of several errors within one sentence). An on-task episode may be interrupted and continued later in the course of the interaction.
About-task episodes	A segment of conversation in which the participants talk about task procedures, for example, interpreting task instructions, rather than talking about specific troublesources.
Off-task episodes	A unit of discourse in which the participants are not engaged in revising a troublesource and are talking about issues or aspects of their lives unrelated to the content of the composition.

Next, to understand what types of comments were generated in different communication modes, each on-task episode was further coded into 16 categories of comments based on the coding scheme used in Liu and Sadler's study (2003). In the coding scheme, peer comments are identified by areas (global versus local), nature (review-oriented versus non-review oriented), and type (evaluation, clarification, suggestion, and alteration). According to Liu and

Sadler (2003), comments in the global area give feedback relating to "idea development, audience and purpose, [and] organization of writing" (p. 202), whereas comments in the local area are focused on sentence-level errors (e.g., wording, grammar) or editing problems (e.g., punctuation). Revision-oriented comments give directions facilitating revision of a writing problem, whereas non-revision-oriented comments offer positive feedback or post questions related to a reviewed writing passage itself. As for types of comments, evaluation refers to "comments on good or bad features of writing" (p. 202). Clarification is defined as statements searching "for explanations and justifications" (p. 202). Suggestions are comments indicating "the directions for changes" (p. 202). Alteration refers to statements "providing specific changes" (p. 202) (Appendix C shows the codes of the 16 categories of comments used in this study and examples retrieved from the data of the study.)

Two coders independently analyzed online logs. The inter-rater reliability of online transcript coding was 83% in the first round. The disagreement was later discussed with a third coder, the teacher-researcher, and the inter-rater reliability reached 98%.

Finally, the Likert-scale items in the second questionnaire, concerning students' perception of the two peer review modes, were analyzed in descriptive statistics. The open-ended question in this questionnaire was sought for similar themes. These themes were further aggregated and synthesized to reflect the students' perception of peer review via both modes.

Results

Research Question 1: How do synchronous and asynchronous CMC modes affect Taiwanese students' engagement in peer review activities?

Figure 3 shows the percentages of engagement in both SCMC and ACMC modes. As shown in Figure 3, the distribution of *on-, about-,* and *off-tasks* in SCMC demonstrates similar patterns of interaction to those in ACMC. *On-task* episodes dominated peer review in both modes, accounting for 78% of comments in SCMC and 93% in ACMC. *About-task* episodes only account for 15% in SCMC and 5% in ACMC. *Off-task* messages were even lower: 7% in SCMC and 2% in ACMC. The highly engaging on-task discussion showed that despite the lack of instructor supervision, the students were highly focused on the review process and made little effort to simply socialize with others.

While *about-* and *off-task* episodes dominated a small portion of the interaction, the higher percentages of *about-* and *off-task* episodes in SCMC in comparison to ACMC seems to suggest that the different natures of time use between synchronous and asynchronous communicative modes influenced student engagement in the tasks. Due to its delayed-time feature and lack of instant interaction, reviewers usually skipped socialization with others or made inquiries about task procedures but directly engaged in the reviewing process in the ACMC mode. In contrast, the "near real-time interaction" (Breuch, 2004, p. 39) of SCMC, similar to face-to-face interaction, resulted in more social conversation. Even so, *off-task* messages were usually followed by *about-task* utterances concerning how to proceed with the review tasks. Both types of utterances were short and straightforward with fast turn-taking.

Research Question 2: What comments are generated from peer review via synchronous and asynchronous CMC modes, in terms of the area (global versus local), the type (evaluation, clarification,
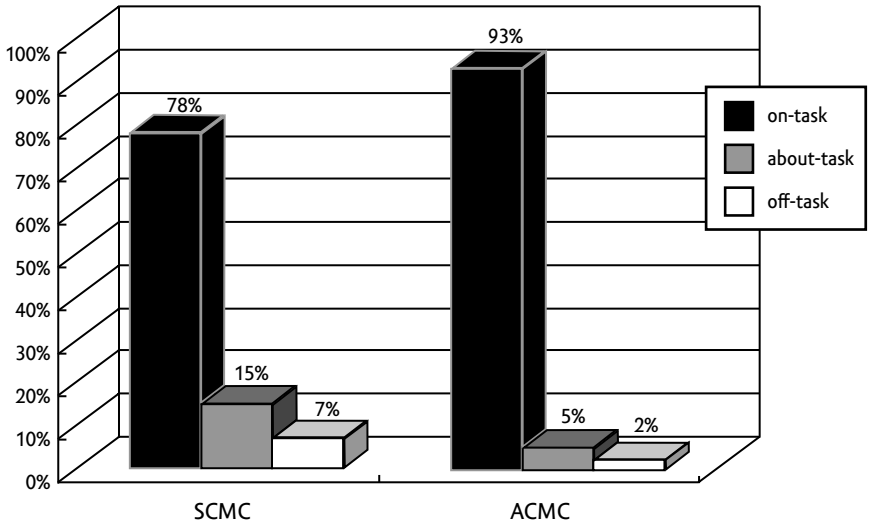
Figure 3. Percentage of engagement in both SCMC and ACMC modes

suggestion, alteration), and the nature (i.e. revision-oriented versus non revision-oriented) of comments?

Figures 4–7 demonstrate peer comments in both **CMC** modes by area, nature, and type. As revealed in Figure 4, the comments in both modes focused more on local than global areas. The asymmetrical distribution is more obvious in **SCMC** than in **ACMC** – 70% of the comments were in the local area; 30% were in the global area in **SCMC.** In **ACMC** global level
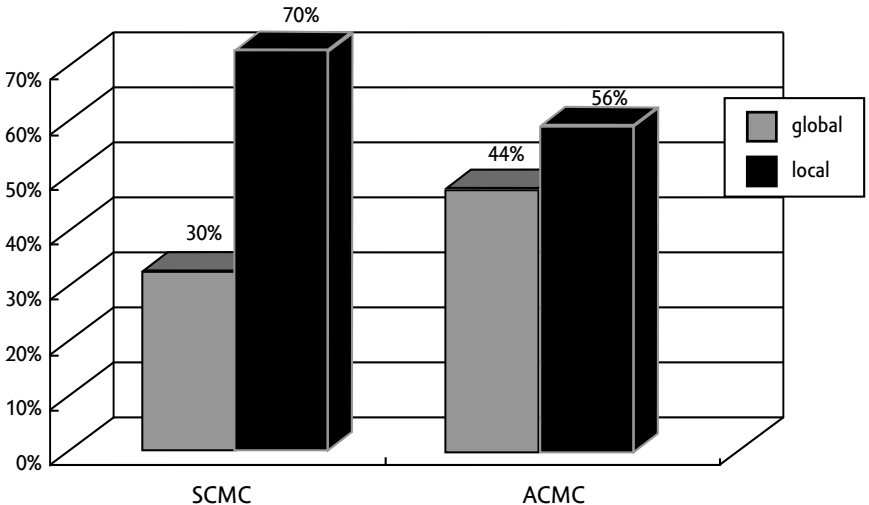

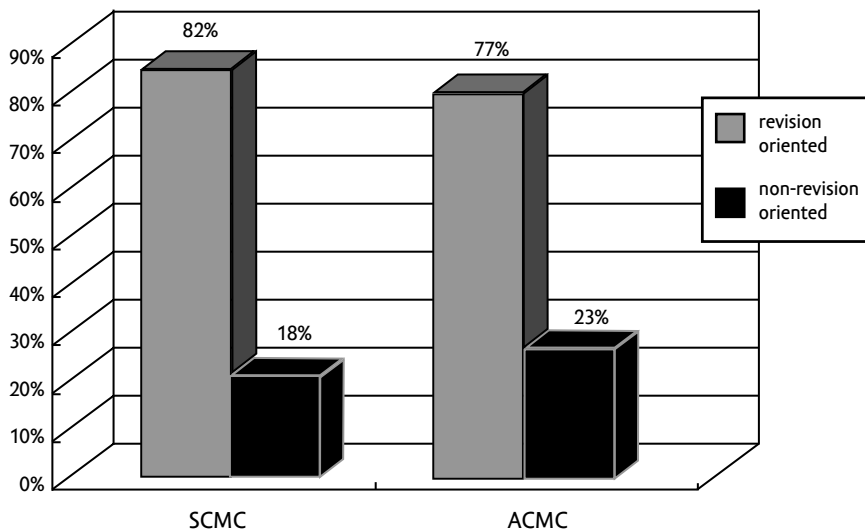Figure 4. Percentage of comments in both SCMC and ACMC modes by areas

Figure 5. Percentage of comments in both SCMC and ACMC modes by nature

comments dominated 44% compared to 56% in the local area. The distribution of comments in both local and global areas reflects the fact that the focus of the students' comments was shaped by the inherently different nature of time use in each online mode.

As illustrated in Figure 5, most comments in both **CMC** modes were review-oriented, dominating with 82% in **SCMC** and 77% in **ACMC**. The results demonstrated that regardless of communication mode, review-oriented comments were the center of peer review activities whereas non-review-oriented comments usually embellished the process of peer editing as an opening to a new editing topic or buffers among various types of review. The results also revealed that peer review was regarded as a means to help writers improve the quality of their writing and reduce writing problems. Thus, review-oriented comments became the core of the peer editing tasks.

Next, as shown in Figure 6, evaluation and alteration were the most commonly used types of comment in both modes. Evaluation comments made up 31% in **SCMC** mode and 41% in **ACMC**, whereas alteration comments made up 33% in **SCMC** and 38% in **ACMC**. On the other hand, clarification was the least used comments in both modes making up just 12% in **SCMC** and 3% in **ACMC**. The results reveal that the students used similar types of comments in both modes, primarily making overall judgments on the quality of a specific writing text and providing specific revision suggestions to writing problems.

Interestingly, it is also found that the frequencies of the four types of comments fluctuate more sharply in **ACMC** than in **SCMC**; that is, students emphasized much more on writing evaluation and offering opinions about alteration on specific writing problems than on clarifying ambiguity. It seems that due to the lack of immediate interaction between the reviewer and the writer, clarification become inefficient, especially in the **ACMC** mode.

Finally, Figure 7 illustrates detailed results relating to the percentages of the 16 categories of comments both in the **SCMC** and **ACMC** modes. As illustrated in Figure 7, comments relating to review-oriented alteration in the local area (**LRA**) were used most frequently　**53**

among the 16 categories in the two modes, with 31% in **SCMC** and 37% in **ACMC**, respectively. The percentage of **LRA** in **SCMC** was much higher than the second and third most frequently-used comments: revision-oriented suggestion in the global area (**GRS**, 13%) and revision-oriented evaluation in the local area (**LRE**, 12%). In **ACMC**, **GRS** and **LRE** were also frequently used, which made up 11% and 10%, respectively. In addition to **LRA**, **GRS**, and **LRE**, non-revision-oriented evaluation in the global area (**GNE**) was the second most frequently used types of comments in **ACMC**, which made up 21% but only 8% in **SCMC**.

Compared to these frequently used comments, the rest of the categories accumulatively made up a small portion of comments. Several categories showed very little in only one mode or no comments in either of the modes. For example, revision-oriented clarification in the global area (**GRC**) was not found in **ACMC** and only dominated 1% of **SCMC**. Similarly, revision-oriented clarification in the global area (**GNC**) was not found in **SCMC** and only made up 1% in **ACMC**. Additionally, non-revision-oriented clarification in the local area (**LNC**) comprised 4% of **SCMC** but was not found in **ACMC**. Non-revision-oriented suggestion in the global area (**GNS**), non-revision-oriented suggestion in the local area (**LNS**), non-revision-oriented alteration in the global area (**GNA**), and non-revision-oriented alteration in the local area (**LNA**) were not even found in both modes.

The similar distribution of the percentages of the 16 categories in both modes may reveal that the students tended to provide comparable comments in their review despite differing communicative modes. However, it is noticeable that only three categories showed disparate frequencies. As mentioned, **GNE** comprised 21% of **ACMC** but only 8% of **SCMC**. Non-review-oriented evaluation in the local area (**LNE**) made up 5% in **SCMC** but only 1% of **ACMC**. Similarly, revision-oriented clarification in the local area (**LRC**) was 6% in **SCMC** but only 1% in **ACMC**. The different frequencies in these categories reveal that difference in time use and interaction in both modes, to some extent, resulted in distinct commenting behaviors.

Research Question 3: What are Taiwanese students' perceptions of peer review through the two online modes?

Table 2 shows the results of the second questionnaire concerning students' perceptions of peer review via different modes based on 24 students' responses2. Questions 1 through 6 investigated the efficacy and efficiency of peer review via different modes, including face-to-face, synchronous **CMC** (**MSN**), and asynchronous **CMC** (**E3**) modes. As shown in Questions 1 through 3, regardless of the communication modes, more than half of the students agreed or strongly agreed that peer review via face-to-face (**FFPR**), **SCMC** (**SCMCPR**), or **ACMC** (**ACMCPR**) helped them improve their writing quality (56%, face-to-face; 76%, **SCMC**; and 63%, **ACMC**). However, a large portion of students held neutral attitudes about the efficacy of **FFPR** and **ACMCPR** (44%, **FFPR**; 46%, **ACMPR**) whereas only 21% of the students remained neutral to the effect of **SCMCPR** in the improvement of their writing. However, as Questions 2 and 3 demonstrate, few of the students (4% and 12%, respectively) perceived that **SCMCPR** or **ACMCPR** was not helpful in improving their writing.

In terms of convenience and efficiency, as shown in Questions 4 through 6, 74% of the students perceived that **FFPR** was efficient (48% agree and 26% strongly agree) whereas 52% of the students (35% and 17% in SCMC; 48% and 4% in **ACMC**) agreed that peer review via either **MSN** or **E3** was convenient and efficient. However, quite a high percentage of the students remained neutral on the convenience and efficiency of **SCMCPR** (39%) and **ACMCPR** (30%). The results from Questions 4 through 6 suggest that **FFPR** was credited as
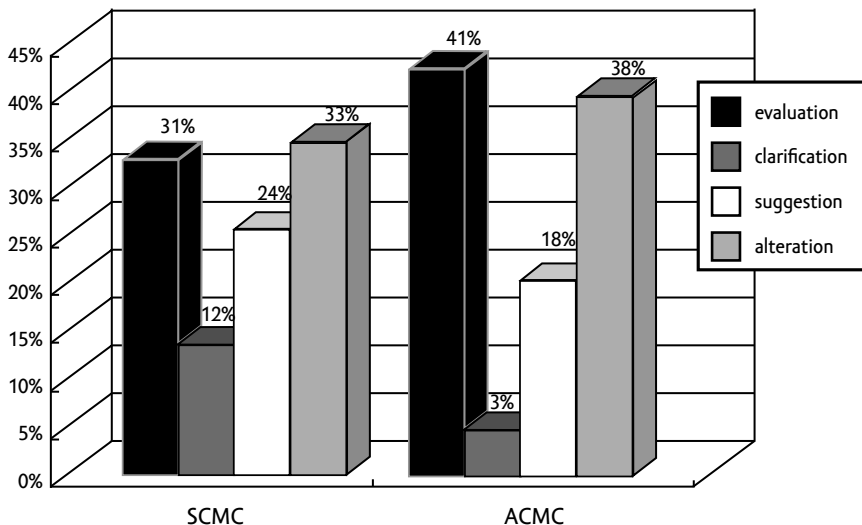
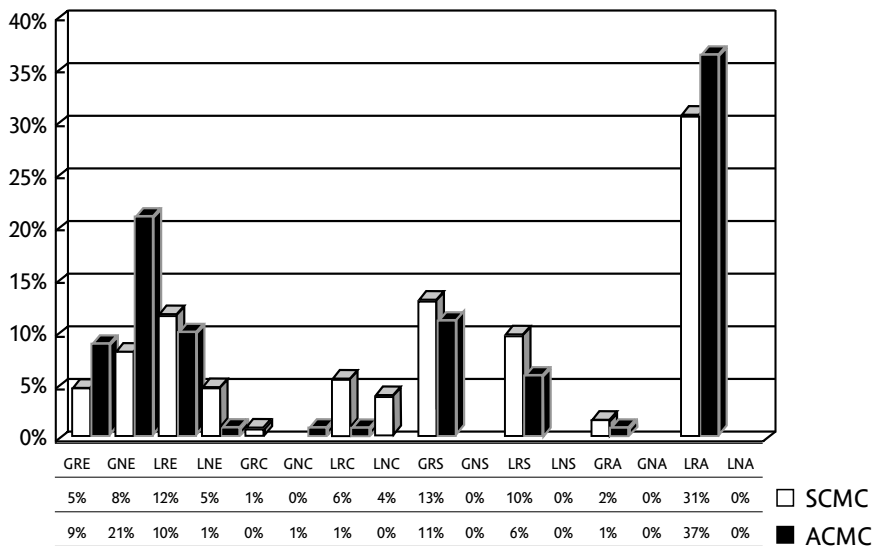Figure 6. Percentage of comments in both SCMC and ACMC modes by types

	GRE	GNE	LRE	LNE	GRC	GNC	LRC	LNC	GRS	GNS	LRS	LNS	GRA	GNA	LRA	LNA	
SCMC	5%	8%	12%	5%	1%	0%	6%	4%	13%	0%	10%	0%	2%	0%	31%	0%	☐ SCMC
ACMC	9%	21%	10%	1%	0%	1%	1%	0%	11%	0%	6%	0%	1%	0%	37%	0%	■ ACMC

Figure 7. Percentage of the 16 categories of comments in SCMC and ACMC

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Table 2. The students' perception of peer review in different modes

	SD	D	N	A	SA	mean	Stand. Dev.
1. Peer review via face-to-face mode helps me improve my writing quality	0%	0%	44%	52%	4%	3.6	0.6
2. Peer review via MSN helps me improve my writing (SCMC).	0%	4%	21%	63%	13%	3.6	0.8
3. Peer review via E3 helps me improve my writing (ACMC).	4%	8%	46%	42%	21%	3.2	0.9
4. Peer review via face-to-face mode is convenient and efficient.	0%	13%	13%	48%	26%	3.9	0.9
5. Peer review via MSN is more convenient and efficient. (SCMC)	0%	9%	39%	35%	17%	3.6	0.8
6. Peer review via E3 is more convenient and efficient (ACMC)	0%	18%	30%	48%	4%	3.4	0.9
	F2F		**MSN**		**E3**		
7. In what mode do you get most feedback?	38%		33%		29%		
8. Which mode do you like most?	33.33%		33.33%		33.33%		

Note: 1. The result was based on 24 students' answers on the second questionnaire.
2. SD=strongly disagree, D=disagree, N=neutral, A=agree, and SA=strongly agree.

a more efficient mode than the online modes although **FFPR** was usually conducted with limited class time.

Questions 7 and 8 further explored the students' perceptions of the three modes. As shown in Question 7, 38% of students felt that they received most feedback via **FFPR**. This percentage was not surprisingly high compared to 33% in **MSN** and 29% in **E3**. Interestingly, all three modes received identical levels of preference from the students, as revealed in Question 8.

Three major problems emerged from the responses from the first open-ended question, *What problems have you experienced while doing peer review in online modes?* First, the students reflected that they could not communicate with their dyads effectively and clearly in **SCMC** mode. (All student answers shown here were translated by the author.)

"When expressing my points or indicating writing errors, I can't make myself clear. Or I can't easily clarify some ambiguous questions since I am not quite sure what others' questions are." (**S**3)

"When my partners' opinions are not quite clear, I may misunderstand their meaning." (**S**27)

"Communication is difficult. It is not very convenient." (**S**30)

"It's hard to make my partner understand my words clearly." (**S**8)

"I can't describe the problem in detail." (**S**16)

Another problem was rooted in the text-based nature of communication in online modes. **56** Online peer review was undertaken in written-based communication. Typing was the major

means of interaction. In real-time communication, the speed of typing may affect interlocutors' willingness to engage in the peer activity.

"The communication speed is slow because it's always more difficult to type my opinions than to say them." (**S**25)

"The interlocutor's typing is very slow. The whole process takes a long time." (**S**8)

"My slow typing affects the speed of communication." (**S**2)

"Typing is exhausting." (**S**14)

Finally, although the rationale in using online peer review was to involve the students in more peer review activities outside of the classroom environment, scheduling online meeting times was problematic.

"It is hard to schedule a mutually available time with my partner."(**S**20)

"I can't find my partner online." (**S**22)

"Sometimes when we scheduled our time, my partner did not show up." (**S**27)

These problems resulted in ineffectiveness of online peer review. However, in comparison to **FFPR**, the lack of direct face-to-face interaction in online peer review may sidestep the embarrassment associated with evaluating others' writing errors. As **S**17 stated in his questionnaire, "In the face-to-face mode, people are cautious about pointing out others' mistakes, whereas online, I just point out any writing problems without hesitation." Another student, S8, made a similar observation, stating that "Although online peer review takes a lot of time, we can discuss detailed problems without hesitation and give authentic feedback".

Interestingly, although **ONPR** was criticized as a time-consuming activity, the text-based interaction shown in computer screens or recorded online logs allowed writers to review others' comments in the interactive process or after the peer review session. Furthermore, in both **SCMC** and **ACMC** modes, reviewers had more time to read others' writing and formulated constructive comments on others' writing. As **S**20 highlighted, "We have a lot more time to review others' writings and we can concentrate more on providing feedback. Online peer review is more helpful for writing."

Discussion

The characteristics of synchronous and asynchronous modes shape peer response

Breuch (2004) identifies three characteristics of online peer review – time, space, and interaction – as the distinguishing features from traditional peer review. As shown in the results of the study, these characteristics of the two online modes affected students' engagement and commenting categories. On the one hand, online peer reviews via **SCMC** and **ACMC** displayed similar commenting patterns. First, the peer review centered mostly on on-task interaction. Little *off-task* or *about-task* interaction was involved. Second, comments generated from both modes centered on a revision-oriented nature in the local area. Third, the distribution of the frequencies of the four types of comments were similar in both modes, where evaluation and alteration were commonly used but clarification only made up 12%   **57**

in **SCMC** and 3% in **ACMC**. Fourth, several commenting categories (**LRA**, **GRS**, and **LRE**) were found to be the most frequently used ones in both modes, and four commenting categories (**GNS, LNS, GNA,** and **LNA**) were not found in either mode. These similarities seem to imply that students show similar behavior and concerns in online peer review regardless of the mode used.

On the other hand, different nature of time use in synchronous and asynchronous modes unavoidably resulted in a degree of variety in student engagement and commenting foci. As shown in the results (Figure 3), more off-task or about-task interactions were found in **SCMC** than in **ACMC**. In terms of commenting area, the delayed-time feature in **ACMC** allows students to focus on both global and local writing problems while commenting in **SCMC** tended to center more on the local than on the global area. As for the nature of comments, although non-revision-oriented comments were not major concerns in the reviewing process, it is found that non-revision-oriented evaluation in the global area (**GNE**) was much higher in **ACMC** than in **SCMC** (21% versus 8%, respectively). Excerpt 1 provides an example of **GNE** in **ACMC** mode.

Excerpt 1

> I think it's a nice article. I didn't know of Kevin Garnett before, but I began to like him after reading the article [**GNE**]. However, I think you can reorder the paragraphs [**GRS**].... (**S**27, 2007/04/28)

As shown in Excerpt 1, **GNE** occurred at the beginning of comments brought out a revision-oriented comment (**GRS**). Although **GNE** may not effectively help writers revise their drafts, it functions as a friendly opening to lower the tension when reviewers bring out critical comments in the process of peer review.

Reviewing foci on multiple drafts

In this study, the students were trained to review both global and local writing problems based on the same review guidelines provided at the beginning of each writing cycle. Furthermore, they were instructed to give comments centered on content in the first draft and form in the second. However, the results show that review via **SCMC** (the first draft) focused more on local problems whereas review via **ACMC** (the second draft) emphasized evenly on both global and local writing problems.

Interestingly, the findings are inconsistent with the assertion that peer responses in either **SCMC** or **ACMC** focus more on form than on content and organization in comparison to face-to-face comments (Bloch & Brutt-Griffler, 2001; Braine, 2001; Hewett, 2000 Liu & Sadler, 2003; Sullivan & Pratt, 1996). The inconsistency may result from the fact the online systems adopted in the study differ from those in previous studies. However, the inherent features of both online modes may have greater impact on the students reviewing foci on multiple drafts than the training and instruction to guide their commenting.

Benefits and limitations of peer review in both modes

Carson and Nelson (1996) found that in face-to-face peer review, Chinese students "tended to avoid criticism of peer's work and avoid disagreement with comments about peers' or their own writing" (p. 1). As shown in the study results, some students also indicated that they

were cautious about direct correction of others' writing errors in face-to-face peer review. However, the lack of direct face-to-face interaction in online peer review activities helped relieve this tension. Consequently, student reviewers felt more comfortable providing sincere and authentic feedback in online **CMC**. In this sense, online peer comments may be more effective than face-to-face peer review for writers to gain virtual feedback from their peers.

However, compared to face-to-face oral interaction, the text-based nature of both online modes does limit the efficacy of peer review. Although the delayed-time element in the **ACMC** mode allows students to take sufficient time reflecting on others' writing problems, the lack of instant or no interaction confines the opportunities for negotiation between reviewers and writers over writing problems. As shown, few comments relating to clarification were found in **ACMC** peer review. The lack of negotiation may result in reviewers' misinterpretation of a writer's intended meaning, may cause them to skip ambiguous writing problems, and ultimately lead to providing useless or unhelpful comments.

In contrast, peer review via **SCMC** requires rapid turn-taking and high typing speed in order to engage in the concurrency of online interaction. Furthermore, since most of the students chose to use English in the on-line peer review activities, their communicative competence was highly challenged as they attempted to express meaning clearly in the back-and-forth interaction. The results, in line with previous studies (Liu & Sadler, 2003; Sullivan & Pratt, 1996), showed that the exhaustive nature of typing in **SCMC** and the students' slow typing speed caused difficulty in keeping up the discussion. Additionally, their English competence resulted in misunderstandings and false interpretations in the online interaction, especially without the auxiliary of facial expression as in face-to-face communication. The difficulty dominating the pace and meanings in **SCMC** may diminish the efficacy of peer review.

Conclusion

The study examined students' engagement in peer review via **SCMC** and **ACMC**, their commenting categories, and the students' perception of peer review through the two modes. The results revealed that both online modes, sharing unique time- and space-independent features, which are different from face-to-face modes, facilitate peer review activities by engaging students in on-task oriented interaction, providing revision-oriented comments, and eliciting authentic and reflective feedback. However, the different time and interaction between the two online modes resulted in discrepancy of commenting behaviors, efficacy, and preference of peer interaction.

Three limitations were observed in the study. First, the lack of data sources from face-to-face peer review as a reference confines the results and the interpretation of the students' holistic experience in peer review activities. Future studies may examine how **EFL** students experience mixed communication modes involving face-to-face, **SCMC** and **ACMC** modes. Second, peer review activities via both modes were undertaken in different drafts. The study aimed at exploring the inherent natures of both online peer review but did not allow making a statistical comparison between the two modes. Finally, the lack of follow-up interviews in each writing cycle failed to provide an in-depth understanding of students' experiences in both modes.

Despite the limitations, several pedagogical implications may be drawn from the results. First, online peer review in either synchronous or asynchronous modes may serve as an alternative out-of-class peer review activity in writing courses which may be constrained **59**

by limited in-class time. Second, although online peer review may have induced negative responses due to their time-consuming and exhausting typing (**SCMC**), or lack of variety in interaction natures (**ACMC**), students may still benefit from the multidimensional and virtual feedback generated from both online modes. Third, the different interactive natures of **SCMC** or **ACMC** modes seem to benefit different stages of drafting. As shown here, the **ACMC** mode can be effective for content and organization whereas **SCMC** may be beneficial for form correction. Hence, an appropriate order to arrange peer review via **ACMC** in preliminary drafts and in **SCMC** in later drafts would likely improve the overall review process.

Notes

1. According to Liu and Sadler (2003), **MOO**, multi-user objective-oriented domains, is an online chatroom which allows users to have real-time conversations with other users logging into the same **MOO** environment through the Internet.
2. Only 24 students responded to the second questionnaire. The results, thus, was obtained based on the 24 students' responses.

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Acknowledgements

Appendix A

Peer editing checklist

Evaluation items	Needs work	Good	Out-standing
CONTENT AND ORGANIZATION:			
1. Does the topical sentence clearly state the major theme of this writing?			
2 Are the controlling ideas precise, specific, and adhered to topic?			
3. Are there enough supporting ideas to develop the paragraph(s)?			
4. Do the transitions help connect the ideas in a logical and easy-to-follow way?			
5. Does the concluding sentence sum up the main ideas or restate the main ideas in different ways?			
6. Are unfamiliar terms explained or defined?			
LANGUAGE USE			
1. Grammar is correct • Subject-verb agreement • Fragments • Run-ons (sentences joined incorrectly) • Verb forms and tense • Pronoun • Articles			
2. Spelling is correct.			
3. Word choice is appropriate.			
4. Connecting words are properly used.			
✻ Indicate any sentences you don't understand:			
✻ Overall, which part of the writing you like most? Why?			
✻ Which part needs to be improved?			

Appendix B

Questionnaire II – Peer review in different modes

In this course, you experience peer review through three types of modes: face-to-face, **MSN** (synchronous), and **E3** (asynchronous). Please rate your perception of peer review and the modes used for the activities with the five scales: **SD** = Strongly disagree; **D** = disagree; **N** = neutral; **A** = agree; **SA** = strongly agree

Peer review via face-to-face mode helps me improve my writing quality	SD	D	N	A	SA
Peer review via MSN helps me improve my writing quality (SCMC).	SD	D	N	A	SA
Peer review via E3 helps me improve my writing quality (ACMC).	SD	D	N	A	SA
Peer review via face-to-face mode is convenient and efficient.	SD	D	N	A	SA
Peer review via MSN is more convenient and efficient. (SCMC)	SD	D	N	A	SA
Peer review via E3 is more convenient and efficient (ACMC)	SD	D	N	A	SA
In what mode do you get most feedback?	F2F		MSN		E3
Which mode do you like most?	F2F		MSN		E3
What problems have you experienced while doing peer review in online modes	F2F		MSN		E3

Appendix C

The coding categories and examples of each code
(adapted from Liu & Sadler, 2003)

Area/type/nature	Code	Examples
Global/review/ evaluation	GRE	• The essay indeed contains some great point about the distinction about the two essays, but it is too short. (ACMC)
Global /non-review/ evaluation	GNE	• From her essay, we can easily find out the difference between two movies. It contains good comparison. (ACMC) • I feel the overall structure of the essay is quite good (SCMC)
Local/review/evaluation/	LRE	S1: I found that "thirst" seems to be odd, because what I found from the dictionary is somewhat different from what you wrote. S2: OK, "dream" is OK. (SCMC)
Local/non-review/evaluation/	LNE	Hello, your article is so clear that you don't use difficult grammar. (ACMC)
Global/review/clarification/	GRC	S1: I want to know why you talked about her mother. S2: because I'll also talk it to my mother to let her support me to travel around the world alone.(SCMC)
Global/non-review/ clarification/	GNC	S1: Is my topic sentence clear? S2: Where is the topic sentence? S2: The first sentence. (SCMC)

Area/type/nature	Code	Examples
Local/review/clarification/	LRC	S1: In this sentence, "Besides, the lyrics in Jay's songs contain diverse things, including kong fu, environmental protection and history." Is it "including"? I usually use "include". I am not sure. S2: I will check it. S1: What I mean is "lyrics include…" Or you want to express other meaning? S2: I want to express "including". S1: Ok, I am not sure. (SCMC)
Local/non-review/clarification/	LNC	…."performing by different ways"… What does "performing" mean? (SCMC)
Global/review/suggestion/	GRS	Maybe you can [summarize] the above points and put more your opinion in the last paragraph. (ACMC)
Global/non-review/suggestion/	GNS	No example
Local/review/suggestion/	LRS	"He has a full family". You may further describe how his family lived happily after. It is more concrete. (ACMC)
Local/non-review/suggestion/	LNS	S1: "he can 'go' back to the past." S2: Oh, by the way, may I ask? S1: ? S2: Is there any different with "go" and without "go"? Back and go back? S1: Oh, oh.. They are the same. I made a mistake, sorry! S2: Then, it means that they can be used? S1: yes. S2: Then, I don't have to change. S1: Yeah. (SCMC)
Global/review/alteration	GRA	S1: For example, u can add some feeling for being a tutor, like "Tutor is a way not only to make money but also pass knowledge for students." S1: So being good tutor is a basic work ethics like this, to conclude the whole article S2: Oh~that right! S2: You give me a really useful advice. You should leave 5 [spaces] before every paragraph. (ACMC)
Global/non-review/alteration/	GNA	No example
Local/review/alteration/	LRA	S1: you may write, "prevent it in advance." S2: Oh, I see. So, "that his father can know what will happen in the future and prevent it in advance."? S1: Yeah. (SCMC) Maybe it is better to change "is" to "are". (ACMC)
Local/non-review/alteration/	LNA	No example