USING SYNCHRONOUS ONLINE PEER RESPONSE GROUPS IN EFL WRITING: REVISION-RELATED DISCOURSE

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In recent years, synchronous online peer response groups have been increasingly used in English as a foreign language (EFL) writing. This article describes a study of synchronous online interaction among three small peer groups in a Taiwanese undergraduate EFL writing class. An environmental analysis of students' online discourse in two writing tasks showed that meaning negotiation, error correction, and technical actions seldom occurred and that social talk, task management, and content discussion predominated the chat. Further analysis indicates that relationships among different types of online interaction and their connections with subsequent writing and revision are complex and depend on group makeup and dynamics. Findings suggest that such complex activity may not guarantee revision. Writing instructors may need to proactively model, scaffold and support revision-related online discourse if it is to be of benefit.

INTRODUCTION

As a learner-centered process approach to second language (L2) writing, peer response has been widely adopted and studied since the 1990s (Hyland & Hyland, 2006). The dialogic nature of peer response seems to foster multiple support systems (Hyland, 2000) and communicative behaviors (Villamil & de Guerrero, 1996). L2 research has shown that peer response can increase chances for meaning negotiation and language practice (Lockhart & Ng, 1995; Mendonca & Johnson, 1994), encourage collaborative reading and writing (Tsui & Ng, 2000), and promote writing revisions (Berg, 1999; Mendonca & Johnson, 1994; Min, 2006, 2008; Stanley, 1992). These interactive practices appear to draw upon and enhance interactional and writing skills.

Recently, online peer response has also been used as an alternative to face-to-face (F2F) communication. Online peer response that blends spoken, written, and electronic communication can promote student motivation, participation, and collaboration (Warschauer, 1996, 2002), an awareness of audiences (Ware, 2004), a critical analysis of linguistic, negotiation, and writing features through the use of printouts (DiGiovanni & Nagaswami, 2001), as well as frequent use of peer ideas in revisions (Hewett, 2000; Tuzi, 2004). Applying electronic technologies in L2 writing classes, research has set out to explore such issues as effective uses of synchronous online peer responses and revisions (Hansen & Liu, 2005). While training procedures for improving revision-related discourse have been proposed in composition studies (e.g., Berg, 1999; DiGiovanni & Nagaswami, 2001; Hansen & Liu, 2005; Min, 2006, 2008; Rollinson, 2005; Stanley, 1992), relatively few studies have provided adequate frameworks for describing the nature of L2 interaction in synchronous online peer response groups. To further this research, it is necessary to understand how L2 learners interact in synchronous computer-mediated communication (SCMC).

This study explores L2 students' synchronous online peer response in an EFL writing class. Research on revision-related L2 discourse in SCMC is reviewed as are the ways that revision-related online discourse might facilitate L2 writing and revision processes. A coding scheme (Liang, 2008) is employed in analyzing peer discussions about their writing. The author concludes with suggested strategies for supporting and facilitating synchronous online peer response groups.

LITERATURE REVIEW

L2 Interaction in Face-to-Face and Online Contexts

Interactive processes of L2 peer response have been characterized from two perspectives: (a) meaning negotiation and (b) collaborative learning. Meaning negotiation refers to interactive feedback (e.g., confirmation checks, comprehension checks, clarification requests) that deals with unclear messages. Varonis and Gass (1985) proposed that "the types of linguistic activities that occur in NNS-NNS conversations differ from those in other types of discourse, particularly with respect to the negotiation of meaning when there has been an actual or potential breakdown" (p. 71). During negotiation, L2 learners notice linguistic features and modify messages (Pica, 1996). Long (1996) also suggested that speaking and writing partners in an L2 environment not only provide comprehensible input, but also facilitate learner output through meaning negotiation and error correction. Foster and Ohta (2005) further found that, in L2 peer interaction, modified output in the forms of self-correction and supportive talk was more common than other-correction and meaning negotiation.

Following Vygotsky, sociocultural theorists, such as Donato (1994, 2000) and Swain (2000), have highlighted peer assistance and mutual scaffolding in collaborative dialogues. Van Lier (1996, 2000) has also specified the importance of contingency in collaborative discourse through the concept of "intersubjectivity"—that is, a shared social context for interaction where "participants are jointly focused on the activity and its goals, and they draw each other's attention into a common direction" (van Lier, 1996, p.161). He argues for the ecological value of learners' meaningful actions in social spaces of interaction (van Lier, 2000). De Guerrero and Villamil (2000), for example, had pairs of students role-play as writer and reviewer, helping to give them a sense of personal investment in the peer revision task. Learners may even use an L2 to establish and maintain social relationships while discussing content. By considering social contexts, sociocultural perspectives enrich our understanding of L2 learning, including speaking, writing, and collaborative dialogues.

Text-based SCMC brings with it instant messaging, which leads to similar discourse functions and negotiation sequences to F2F communication (e.g., Blake, 2000; Smith, 2003; Sotillo, 2000). On the other hand, there are some differences: (a) technical actions in various forms of keyboard strokes (e.g., emoticons and punctuations) replace nonverbal cues (e.g., gestures and facial expressions) and paralinguistic features (e.g., pitch, volume, and intonation) (Negretti, 1999); (b) delayed responses to messages allow L2 learners to see and correct errors (Lee, 2001); and (c) lack of turn-taking provokes L2 students' extensive use of communicative strategies for discourse management (Chun, 1994; Sotillo, 2000). Fitze (2006) designed an experiment to compare F2F and written electronic whole-class discussion in two intact classes and found that advanced L2 students utilized a wider variety of vocabulary and communicative strategies (e.g., clarification requests, dis/agreement statements, social formulations, topic managements) in online discussion.

Several L2 studies have focused on communicative features and discourse functions unique to the temporal and spatial context established by SCMC. Analyzing chat discourse in Webchat between English nonnative speakers and native speakers, Negretti (1999) reported that the participants often used explicit and economical strategies in order to manage procedures and tasks, maintain social cohesion, and show awareness of chat features. Using the WebCT chat environment, Darhower (2002) also found that non-native learners and their teachers created a sense of intersubjective communication by means of teasing, joking, and off-topic discussion, as well as accepting, rejecting, and explaining ideas within conversations. While meaning negotiation is the essence of L2 interaction in both F2F and online conversations, researchers have also observed that L2 learners use other interactional strategies, such as technical actions, social formulations, error corrections, and discourse management more frequently than they do in F2F discussions.

Revision-Related Discourse in SCMC

L2 researchers have developed coding schemes to explore revision-related discourse in synchronous online peer response. Adapting Mendonca and Johnson's (1994) descriptive categories, DiGiovanni and Nagaswami (2001) examined L2 students' revision-related discourse based on four major categories— questions, explanations, restatements, and suggestions—in both online and F2F oral settings. They found that the number of negotiations was higher in F2F but that the proportion of agreement or disagreement with ideas or with the organization of ideas was higher in synchronous online peer discussion. DiGiovanni and Nagaswami's (2001) framework, though not exhaustive, provided some key features of negotiating meaning when discussing writing. Taking Halliday's (1994) functional-semantic view of dialogue as a basis, Jones, Garralda, Li, and Lock (2006) divided revision-related discourse into two move types— initiating moves (i.e., offer, directive, statement, and question) and responding moves (i.e., clarification, confirmation, acceptance, rejection, acknowledgement). They found that tutees asked more questions and made more statements in online interaction than in F2F peer tutoring. Specifically, they asked questions to elicit information and evaluation rather than provide explanations.

Jones et al. (2006) further investigated the area of online peer response. They discovered that the EFL students in a first year writing class were more likely to discuss textual issues (e.g., grammar, vocabulary, and style) in F2F sessions, but chose to focus on global concerns (e.g., content, organization, topic, and thesis) and relational communication in synchronous online sessions. Jones et al.'s finding contradicts Liu and Sadler's (2003), in which computer-enhanced groups tended to focus on local revisions, whereas the F2F group covered both local and global revisions. These L2 writing studies suggest different functions of peer comments in the two modes of communication. While DiGiovanni and Nagaswami (2001) and Jones et al. (2006) have put emphasis on interactional dynamics that facilitate collaborative responses, another line of research has turned the focus to revision and has questioned the quality of peer response in SCMC. For example, Braine (2001) and Liu and Sadler (2003) have noted disjointed discourse and off-task messages in simultaneous online composing.

A few investigators have attempted to develop a framework specific to CMC contexts to discuss types of revision-related discourse and areas of revision resulting from synchronous online conferences. Using an electronic whiteboard in synchronous online conferencing, Hewett (2006) examined the types of communicative utterances (e.g., content, form, process, context, and phatic) in her first year English classes. The results showed that half of the talk was for interpersonal connections, interaction facilitation, and workspace discussion. Regarding students' revision-related discourse, 25% focused on content and context of writing, 62% on writing processes and problems (e.g., thesis, supporting ideas, organization), and 13% on formal concerns (e.g., grammar, mechanisms, citation practices). Comparing revision-related discourse and revision changes, she further found that most of the online interactions could be connected with writing and revision. Although none of the students' essay drafts had formal connections related to the synchronous conferences, Hewett's study has shown that synchronous online conferences could result in new writing practices and revision changes in an L1 writing context. Relationships among types of interaction and their connections to revision, however, remain unclear in L2 contexts.

Drawing upon studies on both meaning negotiation and collaborative learning in L2 contexts and in SCMC, Liang (2008) proposed a framework which outlines six major types of synchronous online interaction to explore L2 peer groups' engagement in a summary writing and revision task. They are (a) meaning negotiation, (b) content discussion, (c) error correction, (d) task management, (e) social talk, and (f) technical action. In the 2008 study, the patterns observed across the six groups showed that the total percentage of turns for meaning negotiation, error correction, task management, and technical action was very low and that two-thirds of the turns were spent on social talk and content discussion. This framework seems to be adequate to reveal the relative contributions among different types of interaction. The current study investigates peer response in SCMC through which writing and revision resulting from revision-related discourse or other important interactional processes in SCMC can be traced and considered.

THIS STUDY

As part of a larger research project that explores online interaction impacts on EFL university students' L2 development, this study focuses on the use of synchronous online peer response groups in EFL writing. Specifically, this study asks two questions:

1. What are the different types of interaction in synchronous online L2 discourse?

2. How does synchronous online peer revision-related discourse facilitate subsequent writing and revision?

Course Context

This study involved a sophomore EFL writing course during the fall semester of 2008 at a major university in Taiwan. The course was open to English majors and minors. The course took a process writing approach and focused on expository writing. The goal was for students to help each other write clear and well-reasoned prose. Students used a variety of print and electronic resources to discuss ideas, compose multiple drafts, and edit and revise texts. The class met 3 hours per week for 18 weeks. Course grades were determined by class participation and several writing assignments: an issue paper, annotations and peer comments, exam essays, reflective essays, a book review, and a research paper and presentation. Each assignment was evaluated based on (a) title and thesis, (b) main and supporting ideas, (c) organization and style, (d) word choice and grammar, and (e) editing and revision.

In the class meetings, through both print and multimedia writing prompts (e.g., videos, audio clips, films, artworks, advertisements, etc), the instructor led the class to practice peer response strategies in their discussion about how to improve writing. The class discussions on revision-related strategies were organized around the following topics: (a) reading-writing connections, (b) quoting, paraphrasing, and summarizing, (c) text structures in expository writing, (d) coherence and cohesion, and (e) weak reasoning and errors of logic. Students also participated in synchronous online peer response sessions in a computer lab during the class time as part of the class requirement. They were placed in three groups. The online sessions offered students opportunities to discuss and review peer drafts at different stages of the writing process:

- *Prewriting and Drafting.* There was one 2-hour online session in the second week. Students brainstormed ideas for their issue papers. During the process, students collected all their resources to compose topic sentences and thesis statements as well as to outline paragraphs in their essays. After students posted issue papers in their blogs, the instructor left comments on each student's post.

- *Revising and Editing.* There were four 2-hour online sessions on the 3rd, 6th, 9th, and 13th weeks. Before class meetings, students posted their drafts of annotations in their personal blogs. In class, they shared ideas in drafts by asking questions or by making suggestions and comments about unclear ideas. After each synchronous online peer session, students reviewed the transcripts, left comments on their peers' blogs, and posted their own revised drafts.

- *Presentation and Submission.* There were two 2-hour sessions on the 15th and 17th weeks. The first was a collaborative writing of book review task, in which students reviewed writing strategies and discussed what to write. The second was a research paper presentation task. Students posted their drafts before class. During class, they reviewed ideas and evaluated writing. After that, students compiled and submitted their work for grading.

Participants

The participants for this study were 12 university students (10 females and 2 males) who took Sophomore Composition in the department of English. According to the results of a pre-course questionnaire, three

students had studied English for 8 years and the other 9 students had had more than 9 years of previous English study. Based on their self reports, six students had passed the Intermediate-level GEPT (i.e., a general English proficiency test developed in 1999, commissioned by the Ministry of Education in Taiwan, see Roever and Pan, 2008), and three had achieved the High-Intermediate level. The other three students did not specify or take any GEPT, but their English level was approximately TOEFL CBT 193-250.

At the beginning of the semester, students were also asked to specify which aspects of their writing in English needed further improvement. The results from the questionnaire show that most of the students wished to improve writing skills in global idea development and organization, such as having a clear main idea in the paragraph, developing additional support for main points, writing a good concluding paragraph, and having smooth connections and transitions between sentences. The results of the two questionnaires are in Appendix A.

Revision-Related Discourse Training Procedures

The students were asked to form three groups of four. Both Group 1 and Group 2 were composed of English majors, whereas Group 3 consisted of 2 English majors, 1 Chinese major, and 1 French major. The English majors had taken the author's "Freshman English" course in the fall semester of 2007. In the course, students also formed small groups and discussed electronic and print texts in both F2F meetings and online interaction. Given example sentences, students in small groups had practiced group collaborative skills by negotiating meaning (e.g., "What does this word/idea mean?" "Are you saying ...?" "Do you mean that…"), discussing content (e.g., "I don't understand because…" "A/Another reason for this might be..." "It's not the point. The main point is …") and managing tasks (e.g., "What might be important here...?" "How is this task related to...?"). Students were also asked to correct errors and manage tasks as well as to clarify and comment on messages by using a checklist:

- Is the title or topic attractive?

- Are the words in the essay appropriate?

- Does the essay cover important points of an issue?

- Is the essay written in the writer's own words?

- Does the essay include mistakes in spelling and grammar?

- Does the essay include multimedia aids that serve clear purposes or make the stories more interesting?

In the writing class, students received additional training procedures in the writing process. At the prewriting and drafting stage, the instructor adopted Rollinson's (2005) suggestions: (a) explaining the potential benefits of peer feedback, (b) discussing with students the purposes of peer responses and the role of the reviewer in reader-writer dialogues, and (c) modeling comments and coaching synchronous peer response on sample paragraphs in class. Two F2F teacher-student conferences were held in the 7th and 14th weeks to review and discuss students' writing drafts and peer revision. After each conference, students posted reflections on their blogs. As students progressed toward the later stages of editing, revisions, and presentations, the instructor summarized important writing and revision strategies that had been discussed during class time. To guide revision and possibly facilitate synchronous online peer revision-related discourse, the following list of questions was also posted on the class blog:

- Why are you writing this paper?

- Do the title and keywords forecast an issue or an attitude toward the subject?

- Do the library and Web sources provide sound reasons and proper evidence for the issue?

- Do you share experiences, emotions, or cultures to support your opinions?

- Do you organize the ideas with a smooth connection and transition between sentences?

- Do you quote some words, phrases, or sentences or paraphrase them?

- Do you adopt your peer's opinions?

- Do you polish your language and check grammar (e.g., verb tense, subject-verb agreement, word form, run-on sentence, informal register, etc.)?

- Do you find weak reasoning and errors of logic (e.g., irrelevant, oversimplification, overgeneralization, false analogy, undefined terms, etc.)?

- Do you change your question or problem during the course of study?

Data Collection and Analysis

Through MSN Messenger (tw.msn.com), the EFL university students participated in synchronous online peer response group activities. On their personal blogs, they posted their writing assignments. Data were collected from the online chat sessions, student blogs, and two corresponding writing assignments: the book review and research paper tasks. The following directions were listed in the course syllabus:

- *Book review (Group work).* Provide a brief description of the main ideas and provide an appraisal of the strengths and weaknesses of the book. Your review should include your group members' opinions about the book. It should range from 500-750 words.

- *Research Paper.* Use your annotations to support your points of view by the evidence. Provide the reasons why you choose this issue as the focus of your paper. Write questions on the issue and contrast two or more competing perspectives. Write an 8-10 page research paper (2000-2500 words) with supporting citations in APA format.

During the online sessions, the instructor was present in the computer lab to assist with computer problems and remind students of the task requirements. Otherwise students engaged in group discussions and made progress with the two assignments without instructor participation.

Following Liang's (2008) coding scheme, the author first identified participants' discourse types. The taxonomy of revision-related discourse includes four categories: (a) meaning negotiation, (b) content discussion, (c) error correction, and (d) task management. Additional codes were included to accommodate the (e) social talk, and (f) technical action that were not directly related to student writing. Definitions and examples for each coding category are presented in Appendix B. The units of analysis to describe L2 learners' co-constructed online discourses are "turns." Using the taxonomy, the author and a trained research assistant coded chat data independently and then reviewed all cases of disagreement and resolved differences together. Almost all of the turns included only one type of interaction per turn, but a few turns (less than 10 cases in this study) that included two types of interaction were counted as two turns. $\chi 2$ Goodness of Fit Tests were then performed in order to check for differences across discourse types and groups.

The process of investigating the connections between the chat and subsequent writing and revision was recursive and iterative. For the book review task, students' collaborative texts were examined by the research assistant and the author. We highlighted the words and phrases that were used in the revision-related discourse in each of the three groups' transcripts. For the research paper, students' revision changes between drafts were also highlighted and then their chat transcripts were read to look for signals of relationships between revision-related online discourse and individual students' revised work (for samples, see Appendices C and D).

RESULTS

Book Review

Table 1 shows the number and percentage of turns in the L2 learners' co-constructed online discourse for the book review task. Overall, the three groups produced similar patterns. The rates of meaning negotiation (i.e., comprehension checks, confirmation checks, and clarification requests), error correction, and technical actions were very low; most of the turns were spent on content discussion, task management, and social talk. The results of the $\chi 2$ tests show that there were no statistically significant differences among the three groups for both revision-related and non-revision-related discourse types. In other words, the three groups produced similar proportions of revision-related and non-revision-related discourses.

Table 1. *Revision-Related and Non-Revision-Related Discourse by Groups for the Book Review Task*

Revision-Related	Group1	Group 2	Group 3	*p*
Meaning Negotiation	2 (1%)	17 (7%)	9 (4%)	ns
Content Discussion	115 (37%)	64 (26%)	79 (40%)	ns
Error Correction	3 (1%)	9 (4%)	1 (0%)	ns
Task Management	96 (30%)	73 (30%)	11 (6%)	.000
TOTAL	216 (69%)	163 (66%)	100 (50%)	ns
Non-Revision-Related	Group1	Group 2	Group 3	*p*
Social Talk	96 (30%)	76 (31%)	97 (49%)	.044
Technical Action	3 (1%)	7 (3%)	3 (1%)	ns
TOTAL	99 (31%)	83 (34%)	100 (50%)	ns

On the other hand, there were statistically significant differences in percentage distribution by groups. First, higher proportions of revision-related discourse than of non-revision-related discourse were produced in Group 1 ($\chi 2 = 14.44$, *df* = 1, *p* = .000) and Group 2 ($\chi 2 = 10.24$, *df* = 1, *p* = .001), whereas there was no difference between the two major discourse types for Group 3. Second, Group 3 produced a higher proportion of social talk than did Groups 1 and 2 ($\chi 2 = 6.24$, *df* = 2, *p* = .044). Third, Groups 1 and 2 spent a higher proportion of turns on task management than did Group 3 ($\chi 2 = 17.76$, *df* = 2, *p* = .000).

Table 2 presents the number and percentage of sentences that each group composed after the chat. Groups 1 and 3 composed most of the sentences in the book review based on the discussion content, whereas only 32% of the sentences were adapted into Group 2's book review. It is noted that Group 3 yielded the most social talk among the three groups and incorporated the most content from the chat. As Appendix C shows, Group 3 transferred almost all content discussion into their book review through editing and revision operations, such as spelling and grammar corrections, insertions and deletions of transitions, and sentence combinations and re-arrangements.

Table 2. *Sentences and Percentage of Peer Content in the Book Review Task*

	Group1	Group 2	Group 3
Peer Content	34 (92%)	11 (32%)	32 (97%)
Non-Peer Content	3 (8%)	23 (68%)	1 (3%)
TOTAL	37	34	33

Group 1 also edited and revised most of their content discussion into coherent passages through transitional words (e.g., firstly, thus, besides, etc), while they added an introductory paragraph to the book review. By contrast, Group 2 abandoned many ideas in the chat. Both Group 1 and Group 2 produced

more revision-related discourse than non-revision-related discourse, but yielded different writing and revision outcomes.

Groups 1 and 2 addressed the issue of the reader's role, whereas they showed diverse group dynamics in their discussions. In Group 1, members conversed about the topic by acknowledging, repeating, and revising a prior message. As shown in the following excerpt, SA started the topic about the readers:

SA: By the way, we have to know who are the readers
CE: To interest the readers~
CE: with your own topic!
EA: You need to make your readers be convinced
EA: Some experiences can support your perspective.
SA: You are right
SA: So we have to choose our subject carefully
EA: Also, choose to describe things in objective or subjective way.
CE: And supporting our ideas with some research.
JE: yeah
JE: and try to convince audieane
JE: audience
SA: you really did point out the point
EA: Make readers see what you have found out and feel as your feeling.
SA: Yeah, things that can move us can have stonger impact in our heart

The topic "the readers" was soon taken over by CE. She added, "to interest the readers with your own topic." Another student, OE, also joined the discussion by suggesting "You need to make your readers be convinced. Some experiences can support your perspective." The initiator, SA, then facilitated communication by showing her agreement—"You are right"—and advanced the discussion by connecting with CE's ideas: "we have to choose our subject carefully." In the subsequent turns, the group rephrased and elaborated previous messages to fine tune the language and content of discussion on the topic. Accordingly, Group 1 successfully shared the initiated contexts and incorporated the group's ideas in their book review.

By contrast, Group 2 seems to produce some interpersonal conflicts over discussion content:

CY: first of all, we have to know who are the readers
VI: I think the author tend to pick some good article to teenagers just like us!!!
RY: because all of there aeticles are good examples to us
RY: these
CY: and then make outlines of it
CY: to draft
CY: brainstorming
VI: I do not understand what you mean
CY: I mean before you write an essay
RY: discussing together↑
CY: you have to organize it
CY: do you get it
VI: so…did we discuss what kind of readers of article?
CY: there are some misunderstanding…

One student, CY, initiated the topic of knowing who the readers are. Her group member, VI, took over the topic by joking that they were teenagers, "I think the author tend to pick some good article to teenagers just like us!!!" Another student, RY, picked up on the topic and explained the message. In the subsequent turns, CY refocused the group by suggesting the group should follow the procedures: "and

then make outlines of it," "to draft," and "brainstorming." VI did not seem to appreciate the direction CY was taking; instead she requested for explanations. Even though her group members attempted to negotiate meaning and procedures during the chat, without mutual understanding, the exchange of the meaning of messages did not lead to collaborative peer content. In the end, Group 2 did not address the topic in their book review.

Research Paper

Table 3 shows the number and percentage of turns in the L2 learners' online discourse for the research paper presentation. Like the book review task, the three groups yielded a similar pattern. The rates of meaning negotiation, error correction, and technical actions were very low; most of the turns were spent on content discussion and social talk. The results of the $\chi2$ tests show that there were no differences among the three groups for both revision-related and non-revision-related discourse types.

Table 3. *Revision-Related and Non-Revision-Related Discourse by Groups for the Research Paper Task*

Revision-Related	Group1	Group 2	Group 3	*p*
Meaning Negotiation	9 (4%)	5 (2%)	9 (2%)	ns
Content Discussion	130 (52%)	80 (36%)	116 (30%)	.037
Error Correction	5 (2%)	3 (1%)	3 (1%)	ns
Task Management	13 (5%)	43 (20%)	39 (10%)	.007
TOTAL	157 (63%)	131(59%)	167 (43%)	ns
Non-Revision-Related	Group1	Group 2	Group 3	*p*
Social Talk	57 (23%)	74 (34%)	216 (55%)	.001
Technical Action	35 (14%)	16 (7%)	6 (2%)	.009
TOTAL	92 (37%)	90 (41%)	222 (57%)	ns

There were statistically significant differences in percentage distribution by groups. First, Group 1 produced more revision-related discourse than non-revision-related discourse ($\chi2 = 6.76$, *df* = 1, *p* = .009), whereas there were no differences between the two major discourse types for Groups 2 and 3. Second, compared to the other groups, Group 1 spent higher proportions of turns on content discussion ($\chi2 = 6.57$, *df* = 2, *p* = .037) and technical actions ($\chi2 = 9.47$, *df* = 2, *p* = .009). Third, Group 3 produced a higher proportion of social talk than did Groups 1 and 2 ($\chi2 = 14.16$, *df* = 2, *p* = .001). Fourth, Group 2 spent a higher proportion of turns on task management than did Groups 1 and 3 ($\chi2 = 10$, *df* = 2, *p* = .007).

Group 3's social talk shows that they frequently exchanged course information with one another. Group 1 yielded a relatively higher rate of technical actions because they copied and pasted texts from their blog posts to chat. These technical actions feature a series of monologues which are different from the typical simultaneous and sometimes interrupted writing in synchronous online peer discourse:

EA: Abortion: A Serious Challenge between Morality and Women's right
EA: key words: abortion, women's human rights
EA: I search the information on internet database with these words in English way.
        Because I want to know more about the cases and the world trend of abortion.
        By using the keywords, I do find many information and some of them support to
        my opinion.
EA: 1. Women's consideration (Reasons for abortion)
        2. Human rights (Research about the abortion laws)
        3. Looking from another standpoints (the thoughts of those who anti-abortion)
EA: That's the outlines of my paper.
EA: 2. Topics/themes in four annotations and their intended audiences
EA: 1) The first annotation is videos about the opinions of Obama, the
        president-elect in America. He thinks that limit the liberty of abortion may

> harm women's human right.
> Audience: People who care about the relationship between abortion and
> government.

Chat content reveals that all groups tended to focus on the development and organization of their writing over local revision. Specifically, 11 students made revisions in global areas by restating main points and providing supporting sentences. Only six students made revisions in local areas, such as adding, deleting, substituting, and rephrasing words, phrases, and clauses. Above all, Group 1 spent the highest proportion of turns on revision-related discourse and, in particular, on content discussion. However, they either skipped language issues in the peer discussion or left editing and local revisions to individuals to manage, as shown in the following excerpt:

> CE: Do you have coherence between the paragraph?
> EA: Some conjunctions
> SA: I...am not sure about that
> SA: i think i did....吧
> JE: do make the mistake as same as me
> JE: don't
> EA: Well. You can do it better when you looking your sentence again.
> SA: ok
> CE: Check it again!

It is also noted that four students had posted only short drafts or outlines before making their presentations. To fulfill the length of the research paper at the presentation and submission stage, these students focused on adding new paragraphs. For the eight students who had posted full-length papers before the peer response session, the connections between revision-related discourse and revision changes are not apparent. While some portions of their global revisions could be related to revision-related discourse, no local revisions can be textually traced back to the chat.

As shown in Appendix D, WY and RY provided suggestions on CY's paper, while CY sought opinions for developing and refining her writing (CY13). During synchronous online peer response sessions, WY and RY attempted to redirect CY's attention to "pets" as a subject of writing about the issue of animal welfare (WY4, WY9, RY1, RY2, RY3) and CY restated her main points in this paper (CY4, CY5). After that chat, she inserted two paragraphs and three sentences in her revised paper. Among the five insertions, one that she inserted in the first paragraph ties into revision-related discourse (CY4, CY5). For example, revision-related discourse, such as "most of your annotations talk about the stray dog" (WY1) could tie into CY's later comment of, "I think I will put emphasis on dogs" (CY5), and that is actually a revision in the text. There were other possible links, but their connections were not textually traceable. For example, CY added one paragraph (i.e., the third insertion) about her missing dog experience, which might be related to the revision-related discourse (WY3, WY9).

Besides content discussion, Group 2 also spent a higher proportion of turns on task management than did the other two groups. They phrased responses and actions about the writing assignment during the chat:

> CY: i think maybe you can ask more culture shocks in other aspect
> CY: such as food here
> WY: since you are talking about discrimination
> CY: the landscap here,
> RY: the life style
> VI: and after this discussion I have to interview a 外籍新娘 [denizen bride].

Even though group members did ask questions and provide suggestions, the writer, VI, incorporated one new idea—the denizen bride—in writing about the topic "racial discrimination" without exploring it sufficiently in the group discussion. Instead, she used the shared first language (Chinese) to express her actions in carrying out the assignment. Nevertheless, this instance of task management resulted in her expansion of the research paper by adding three paragraphs as a supporting example in which she described her interview with a denizen bride in a local New Immigrant Center for Learning.

DISCUSSION

The following discussion of these results is amplified by insights and findings from research in L2 interaction, SCMC, and L2 writing with respect to relationships between online revision-related discourse and subsequent writing and revision by these twelve EFL students.

Relationships among Different Types of Interaction

Overall, no differences were found in this study among the three groups in two genres of writing based on the revision-related and non-revision-related taxonomy. In terms of revision-related discourse, meaning negotiation and error correction were less frequent than content discussion and task management. Similar to Liang's (2008) and DiGiovanni and Nagaswami's (2001) findings, students in this study tended to focus more on content discussion than on meaning negotiation. As an alternative to F2F feedback, this specific pattern of interaction could be generated due to the temporal and spatial context of SCMC. Regarding non-revision-related discourse, social talk occurred more frequently than technical actions. Specifically, an environmental analysis of the key components of interaction allows us to understand various interactional processes interdependent with linguistic negotiations and their relative contributions to synchronous online peer response.

For instance, in the book review task, students in Group 3 produced the highest proportion of social talk among the three groups while engaging in meaningful content discussion. By contrast, Group 2's meaning negotiation failed to create a shared text and context by achieving mutual understanding beyond repair in the chat. In other words, the nature of online synchronous peer response could not be fully described by previous L2 writing studies that value revision-related discourse and disregard non-revision-related discourse as off-task messaging (e.g., Liu & Sadler, 2003) or simultaneous composing as a communication problem (e.g., Braine, 2001). Despite possible challenges due to the lack of nonverbal cues and turn-taking, certain types of interaction cannot be confined to labels, such as "incoherent discourse" and "communication problems." Largely corroborating the results of Darhower (2002), this study also found that students could co-construct meaning and content while enjoying social talk in dynamic Internet discourse.

It also appears that different compositions of groups generate different proportions of interactions. The study was conducted in a monolingual context with three diverse groups—two groups with only-English majors and one with mixed majors. Among the three groups, Group 3 yielded the largest amount of social talk in both tasks. Since the members in Group 3 were from different departments, they may have felt the need to create a shared social context by exchanging course information and background knowledge. By contrast, Group 1 and 2 spent most of their turns on content discussions or task management probably because they had already established familiarity. Group 2 spent a higher percentage of turns on task management in both tasks. In particular, their chat episodes show non-English codes, such as Chinese characters and other symbols (e.g., ↑). As those found in Negretti's (1999) and Darhower's (2002) studies, they were not used as compensation strategies for better comprehension, but as deliberate strategies for managing chat discourse. Future studies might explore these management moves in synchronous online peer discussions.

Additionally, the nature of the writing task could have influenced the results of the study. In both tasks, participants sought opinions from peers, but the task requirements for the two types of writing were different. The book review task required each group's collaborative writing of a common text. The research paper presentation task asked students to revise individual work. Regarding task implementations, Group 1, for example, spent a higher proportion of turns on task management in the book review, but produced a higher proportion of technical actions in the research paper presentation. With drafts in blogs, Group 1 copied the instructor's guidelines and their writing from the blogs and pasted them on chat screens. As a result, the availability of the two communication tools—blogging and chatting—in the research paper task may have influenced the amount and types of interaction.

Revision-Related Discourse and Student Writing and Revision

Further analyses have shown that the relationships between online peer discourses and subsequent composing and revision actions are complex and dynamic. In linking group participation in revision-related discourse with writing outcomes, one sees that certain types of synchronous online peer interaction facilitate subsequent writing and revision, though admittedly this depends on the group's co-constructed interactional context for coherent discussion and communication.

For example, in the book review task, Groups 1 and 3 were able to engage in revision-related discourse and undertake discourse-related revision. With reference to the amount and type of interaction, a large proportion of social talk in Group 3 did not interfere with their joint construction of meaning and content, whereas the negotiation of meaning in Group 2's discourse did not facilitate meaning generations or more adoption of peer content into subsequent writing. A further comparison of the chat discourse between Group 1 and Group 2 also shows that differences in the quality of their peer interaction (i.e., collaborative efforts on reaching mutual understanding) led to different writing outcomes, despite similar amounts and types of interaction. Inspired by sociocultural researchers, such as de Guerrero and Villamil (2000) and van Lier (1996, 2000), the author suggests that students' engagement and shared perspectives in the collaborative process of reaching intersubjectivity may impact subsequent writing and revision.

In the research paper presentation task, students' revision-related discourse focused on talking about writing procedures and assignments or requesting and providing information, which could facilitate individual students' developing and refining ideas in writing. Accordingly, most of the students made global revisions. These findings appear to correspond with the results of Jones et al.'s (2006) study, but differ from those found in Liu and Sadler's (2003) research. There are possible reasons for the differences observed. It may be that synchronous online conferencing does not allow time for correcting errors or clarifying meanings in writing as compared to other forms of electronic peer response, such as peer comments on blogs and Word documents. It does, however, allow instant support (Hyland, 2000) and more dynamic communicative behaviors (Chun, 1994; Fitze, 2006; Villamil & de Guerrero, 1994) for expressing opinions and developing ideas. Given differences in individual competence (e.g., L2 proficiency, content knowledge, and group skills) and task requirement (e.g., short essays versus long research papers), certain students may not be able to adopt peers' suggestions in revision.

In this study, revision-related discourse in the two writing tasks facilitated students' writing and revision of alternative positions to varying degrees, but groups that differed in quantity and types of interaction may have influenced the collaborative writing and revision process. In the book review task, two out of the three groups incorporated most of the content discussion in the chat into subsequent collaborative writing texts. By contrast, in the research paper task, a relatively lower proportion of revision could be textually linked to revision-related discourse. Specifically, no surface formal revision could be connected with the online discourse but some of the idea development changes were related to revision-related discourse, which echoes Hewett's (2006) findings. Other revision changes could also result from the writer's own decisions and from other sources stimulated by the other types of interactional processes within their groups.

CONCLUSION

Using peer response groups in EFL writing enables students to collaboratively brainstorm, share, and review texts. Synchronous Web technology adds a valuable tool for facilitating and recording the dynamics of group interaction. On the other hand, there are possible reasons why synchronous online peer response groups might be fun, but not very effective. The revision-related and non-revision-related discourse taxonomy used in this study can give an overall view of online interaction from which instructors can proceed to make task implementations more consistent and the results correspondingly stronger. For example, writing and revision processes can be improved by asking students to concentrate on revision-related discourse and to play down non-revision-related discourse. However, the results of this study have also shown that the relationships between revision-related discourse and discourse-related revision are not straightforward. If we consider the ecological nature of online interaction, we will encourage students to make meaningful use of overall online interactional features in the collaborative process for better composition and revision.

To maximize learner-centered, collaborative opportunities for L2 learning, writing, and communication, training procedures and support systems should be employed according to group interaction and task performance along with students' progress in the writing process. Modeling peer response strategies at the beginning of the course can prepare students at different L2 proficiency levels for online negotiation and discussion. Training should focus on connecting students' prior experiences with current writing pedagogy. During the revising and editing process, teachers might draw attention to student variation and group interaction. Chat transcripts and selected episodes can be reviewed to help less experienced students learn diverse ways of interaction and locate revision-related discourse. At the presentation and submission stage, while students might feel under pressure as writing tasks are developed into final products, they still need to demonstrate a range of communicative strategies in order to accomplish various learning goals. To revise their writing after the peer response session, these L2 writers can continue the process of negotiating with various resources and audiences either inside or outside the writing class. In short, revision-related online discourse in small-group synchronous writing tasks can provide potentially useful pedagogical insights and tools for the teaching of writing.

APPENDIX A. Student Demographics and Writing Concerns

Group	Group 1				Group 2				Group 3			
Student	SA	JE	EA	CE	CY	WY	RY	VI	BY	ON	JU	DI
Gender												
Male										√		√
Female	√	√	√	√	√	√	√	√	√		√	
Major												
Chinese											√	
English	√	√	√	√	√	√	√	√	√	√		
French												√
Prior English Study												
8 years or less			√			√					√	
9 years or more	√	√		√	√		√	√	√	√		√
GEPT												
Intermediate		√	√	√			√		√	√		
High-Intermediate	√				√	√						
MSN Use												
Frequent user	√	√	√		√		√	√	√	√		√
Non-frequent user				√		√					√	
Writing Concerns												
Title			√	√					√			
Topic sentence		√	√	√	√							√
Thesis statement		√		√	√					√		√
Main idea	√	√		√	√	√				√		
Additional support	√	√		√		√		√	√	√	√	
Conclusion	√	√	√		√		√	√				√
Off-topic message												
Paragraph unity	√	√			√		√			√		
Logic point			√	√	√				√		√	
Transition		√	√		√		√	√	√			√
Paraphrasing					√							√
Word order							√				√	
Spelling								√				
Run-on sentence	√											
Vocabulary choice						√	√	√	√		√	√
Punctuation					√				√			
Grammar		√	√						√		√	√
Editing and revision		√			√			√				√
Style			√	√	√					√		
Catching readers		√		√	√					√		√

APPENDIX B. SCMC Interaction Analysis Framework

Content Code	Descriptions	Examples
Meaning Negotiation	Participants check understanding, ask for confirmation, or probe for explanations of messages.	**SA: baby's psychological problem** **CE: It's psychological problem of women** JE: i agree with SA **CE: Do you mean that I should develop baby's psychological problem?** CE: Then I can try. **SA: no**
Content Discussion	Participants propose thoughts, elaborate or make comments and suggestions on messages.	**WY: i think you can find other aspects of this issue** **WY: why this is not legal in some of the countires** **WY: that must have its reason** **RY: That's a good suggestion!**
Error Correction	Participants make target-like reformulations of all or part of incorrect messages.	CY: you've mentioned that the keywords you used to search **WY: sorry, that is adaptation not adaption** VI: thanks a lot WY
Task Management	Participants talk about task procedures and assignment requirements	**JE: the most important thing is you need to paraphrase them in your own ideas** **JE: did you do that?(attacking)** **SA: (i can feel that** **SA: it's hard to say it over here**
Social Talk	Participants check attendance, signal presence, inform acknowledge, or express humor	**BY: hahah** **ON: JU???** **DI: great she's back** **ON: come out come out wherever you are~~**
Technical Action	Participants use chat room commands or online tools, or copy, paste, or link messages.	JU: I give you a web DI: i should have researched more in the sex center **JU: http://intermargins.net/**

Note. The target sentences are in bold.

APPENDIX C. Book Review Linking to Revision-Related Discourse

Excerpt of SCMC Interaction	Excerpt of Book Review
JU: from these student essays, we can know how to revise our problems	From these student essays, we can know how to revise our problems. Just like our discussion in class before, we compare two articles and then we can notice which one is better. And when this book talks about paintings, it would give us many paintings for students to practice. It provides students with essays, which encourage students to write as good as them and sympathize with them since they make similar mistakes. What's more, this book is endowed with vivid illustrations helping readers understand its words. Its wording and typesetting are impeccable with different colors and sizes of words. We think in the book, it provides many question to think after reading the article. And it is very important because we can realize some points which we ignore before. We find that the questions the book provides after the article are the key point.
BY: yeah	
BY: and when this book talk about paintings	
BY: it would give us many paintings	
BY: for students to practice	
JU: just like our discussion in class before, we compare two articles	
JU: and then we can notice which is better	
DI: It provides students essays, which encourage students to write as good as them and sympathize them since they make similar mistakes.	
DI: This book is endowed with vivid illustrations helping readers understand its words.	
DI: Its wording and typesetting are impeccable. With different colors and sizes of words.	
BY: yeah	
BY: because sometimes we do not know how to use words well	
DI: here he is	
JU: I think in the book, it provide many question to think after reading the article	
ON: haha	
ON: hi~everybody~	
ON: I am here~~~	
JU: it is important because we can realize some point which we egnore before	
ON: so what's now?	
DI: have discussed a lot~~~	
DI: i'll give u our record and	
DI: u could tell us about your thoughts	
ON: thanks for yor kindness	
BY: you have to write the article	
DI: we then discuss~~	
BY: haha	
ON: oh haha	
JU: welaom	
JU: welcome	
BY: ok le us continue	
ON: THNAKSSS!!!!!!!!	
ON: ok	
JU: ok	
ON: go ahead	
JU: I had talked about the question after the article	
BY: so what the bad points do you think of this book?	
JU: I find that the question the book provide after the article is the key point	

Note. The words used in both the SCMC interaction and the book review are highlighted.

APPENDIX D. Revision in Research Paper Linking to Revision-Related Discourse

Excerpt of SCMC Interaction	Excerpt of Book Review
WY1: most of your annotations talk about the stray dog	1st Insertion In my issue paper, I will put my emphasis on dogs by using some news articles, film clips and journal articles to provides some useful information and thus support my points.
CY1: ok, don't read the avove	
CY2: above	
WY2: and what kind of thing they will encounter	
CY3: i will talk each annotation briefly	
WY3: maybe you can find some other things about dog to explain why you want to talk about animale walfare	2nd Insertion It happened with "101 Dalmatians," when people caved in to their kids and bought Dalmatians, and then found out they were not as cute as they had thought before. Then, Dalmatians got dumped at animal shelters. It happened with "Babe" –so cute, so smart, so not suited to many owners. Dump them at the animal shelter. To ban on that kind of movies is impossible. The government and the movie makers should appeal to the idea of adopting dogs from animal shelters. It's a lot cheaper than buying a dog from pet shops. If so, the owners of puppy mills will not make so profits. Thus the mother animals will not be compelled to death.
WY4: recently, more and more people would cast physical abusement upon their pets	
CY4: I've used a film clip, a piece of news, a wikipedia resources, and a research paper	
WY5: this kind of law, animal welfare, can give them a chance to survive	
RY1: well. I think that some welfare are just suitable for the "pets"	
WY6: umm that is useful	
WY7: what do you think about my opinion, CY	
RY2: but not all the animals	
WY8: or do you have any questions	
CY5: i think i will put emphasis on dogs	3rd Insertion The above film clips remind me of my dog - Dodo. In March this year, my little dog was missing because my mom did not pay attention when she took Dodo out for a walk. As soon as I knew about it, I burst out crying, and was anxious whether Dodo was safe or not. I was afraid she would be bullied by bad guys or other dogs or even worse, dead. Fortunately, a nice woman saw it on the street and took her home. Upon seeing the flyer which I spend a lot of time on the street pasting them alone the road, she called me and gave Dodo back to us. After that, I pay much attention when I take her out, because she is already a member of our family. How will you feel when your family member get lost and never come back?
RY3: some people are just worry about their pets	
CY6: because i use the movie dogs trend to start my essay	
CY7: and then bring the topic to animale welfare	
WY9: yes i mean some dogs people keep in house also have this problem	
WY10: ok, that is find	
CY8: usually, i search in English	
WY11: fine	
CY9: and i also quote some sentences from the annotation	
CY10: it is for sure!	
CY11: umm...i think this is the end of my presentation	
CY12: thanks	
RY4: fine	4th Insertion Do they have souls or consciousness?
WY12: it is good	
CY13: do you have any ideas about my issue paper?	5th Insertion To continue the question, "Do animals have souls or consciousness?"
RY5: did you try to find some laws of animal welfare to support the opinion?	
CY14: umm... i remember it mentions a little in it	
RY6: It's an interesting topic haha	

Note. The words used in both SCMC interaction and the revised research paper are highlighted.

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REFERENCES

Berg, E. C. (1999). The effects of trained peer response on ESL students' revision types and writing quality. *Journal of Second Language Writing, 8,* 215-241.

Blake, R. (2000). Computer mediated communication: A window on L2 Spanish interlanguage. *Language Learning & Technology, 4* (1), 120-136. Retrieved from http://llt.msu.edu/vol4num1/blake/default.html

Braine, G. (2001). A study of English as a foreign language (EFL) writers on a local-area network (LAN) and in traditional classes. *Computers and Composition, 18*, 275–292.

Chun, D. (1994). Using computer network to facilitate the acquisition of interactive competence. *System, 22*(1), 17-31.

Darhower, M. (2002). Interactional features of synchronous computer-mediated communication in the intermediate L2 class: A sociocultural case study. *CALICO Journal, 19* (2), 249-277.

Donato, R. (1994). Collective scaffolding in second language learning. In J.P. Lantolf & G. Appel (Eds.), *Vygotskian approaches to second language research* (pp. 173-193). Norwood, NJ: Ablex.

Donato, R. (2000). Sociocultural contributions to understanding the foreign and second language classroom. In J. P. Lantolf (Ed.), *Sociocultural theory and second language learning* (pp. 27-50). Oxford University Press.

de Guerrero, M. C. M., & Villamil, O. S. (2000). Activating the ZPD: Mutual scaffolding in L2 peer revision. *The Modern Language Journal, 84*(1), 51-68.

DiGiovanni, E., & Nagaswami, G. (2001). Online peer review: An alternative to face-to-face? *ELT Journal, 55*(3), 263-272.

Fitze, M. (2006). Discourse and participation in ESL face-to-face and written electronic conferences. *Language Learning & Technology, 10*(1)*,* 67-86. Retrieved from http://llt.msu.edu/vol10num1/fitze/default.html

Foster, P., & Ohta, A. S. (2005). Negotiation for meaning and peer assistance in second language classrooms. *Applied Linguistics, 26*, 402–430.

Halliday, M. A. K. (1994). *An introduction to functional grammar* (2nd ed.). London: Edward Arnold.

Hansen, J. G., & Liu, J. (2005). Guiding principles for effective peer response. *ELT Journal, 59*(1), 31-38.

Hewett, B. (2000). Characteristics of interactive oral and computer mediated peer group talk and its influence on revision. *Computers and Composition, 17,* 265-288.

Hewett, B. (2006). Synchronous online conference-based instruction: A study of whiteboard interactions and student writing. *Computers and Composition, 23*, 4-31.

Hyland, F. (2000). ESL writers and feedback: Giving more autonomy to students. *Journal of Language Teaching Research, 4(1),* 33-54.

Hyland, K. & Hyland, F. (2006). Contexts and issues in feedback on L2 writing. In K. Hyland & F. Hyland (Eds.), *Feedback in second language writing: Contexts and issues.* New York: Cambridge University Press.

Jones, R. H., Garralda, A., Li, D. C. S., & Lock, G. (2006). Interactional dynamics in on-line and face-to-face peer-tutoring sessions for second language writers. *Journal of Second Language Writing, 15*, 1-23.

Lee, L. (2001). Online interaction: Negotiation of meaning and strategies used among learners of Spanish. *ReCALL, 13*(2), 232-244.

Liang, M. Y. (2008). SCMC interaction and EFL writing revision: Facilitative or futile? *Proceedings of E-learn 2008* (pp. 2886-2892). Chesapeake, VA: Association for the Advancement of Computing in Education (AACE).

Liu, J., & Sadler, R. W. (2003). The effect and affect of peer review in electronic versus traditional modes on L2 writing. *Journal of English for Academic Purposes, 2*, 193–227.

Lockhart, C., & Ng, P. (1995). Analyzing talk in ESL peer response groups: Stances, functions, and content. *Language Learning, 45*(4), 1-51.

Long, M. H. (1996). The role of the linguistic environment in second language acquisition. In W. Ritchie & T. Bhatia (Eds.), *Handbook of second language acquisition* (pp. 413-468). New York: Academic Press.

Min, H-T. (2006). The effects of trained peer review on EFL students' revision types and writing quality. *Journal of Second Language Writing, 15,* 118-141.

Min, H-T. (2008). Reviewer stances and writer perceptions in EFL peer review training. *English for Specific Purposes, 27,* 285-305.

Mendonça, C. O., & Johnson, K.E.(1994). Peer review negotiations: Revision activities in ESL writing instruction. *TESOL Quarterly 28,* 745–769.

Negretti, R. (1999). Web-based activities and SLA: A conversation analysis research approach. *Language Learning & Technology, 3*(1)*,* 75-87. Retrieved from http://llt.msu.edu/vol3num1/negretti/index.html

Pica, T. (1996). Do second language learners need negotiation? *International Review of Applied Linguistics, 34*(1), 1-19.

Roever, C., & Pan, Y-C. (2008). GEPT: General English Proficiency Test. *Language Testing, 25*(3), 403-418.

Rollinson, P. (2005). Using peer feedback in the ESL writing class. *ELT Journal, 5(*1), 23-30.

Smith, B. (2003). Computer-mediated negotiated interaction: An expanded model. *The Modern Language Journal, 87*(1), 38-57.

Sotillo, S. (2000). Discourse functions and syntactic complexity in synchronous and asynchronous communication. *Language Learning & Technology, 4*(1), 82-119. Retrieved from http://llt.msu.edu/vol4num1/sotillo/default.html

Stanley, J. (1992). Coaching student writers to be more effective peer evaluators. *Journal of Second Language Writing, 1,* 217-233.

Swain, M. (2000). The output hypothesis and beyond: Mediating acquisition through collaborative dialogue. In J. P. Lantolf (Ed.), *Sociocultural theory and second language learning* (pp. 97-114). Oxford: Oxford University Press.

Tsui, A. B. M., & Ng, M. (2000). Do secondary L2 writers benefit from peer comments? *Journal of Second Language Writing, 9*(2), 147-170.

Tuzi, F. (2004). The impact of e-feedback on the revisions of L2 writers in an academic writing course. *Computers and Composition, 21,* 217-235.

van Lier, L. (1996). *Interaction in the language curriculum: Awareness, autonomy and authenticity.* New York: Longman.

van Lier, L. (2000). From input to affordance: Social-interactive learning from an ecological perspective. In J. P. Lantolf (Ed.), *Sociocultural theory and second language learning* (pp. 245-260). Oxford: Oxford University Press.

Varonis, E. M., & Gass, S. (1985). Non-native/non-native conversations: A model for negotiation of meaning. *Applied Linguistics*, *6*(1), 71-90.

Villamil, O. S., & de Guerrero, M. C. M. (1996). Peer revision in the L2 classroom: Social-cognitive activities, mediating strategies, and aspects of social behavior. *Journal of Second Language Writing, 5*(1), 51-75.

Ware, P. D. (2004). Confidence and competition online: ESL student perspectives on web-based discussions in the classroom. *Computers and Composition, 21*(4), 451-468.

Warschauer, M. (1996). Comparing face-to-face and electronic discussion in the second language classroom. *CALICO Journal*, *13*(2), 7-26.

Warschauer, M. (2002). Networking into academic discourse. *Journal of English for Academic Purposes*, *1*(1), 45-58.