Discussing and Concordancing Online as Language Scaffolding in Academic Writing

Jungts Lin & Chih-Hua Kuo
National Chiao Tung University
dazzle0816@hotmail.com

Abstract

Computer-assisted language learning (CALL) has been used in language education in different forms to facilitate classroom interactions, provide language scaffolding, or to promote learning autonomy. For example, in the online writing situation, peer conferencing and concordancing may serve as language scaffolding for L2 writers in their writing process. The present study explores the interactions among advanced EAP writers in synchronous CMC and their use of corpus resources as scaffolding. Participants were 13 TESOL graduate students engaged in two tasks using an online writing system. In one task, students in dyads discussed online the move structure of the Introduction section of a research article before they wrote their own Introduction. Their text-based interactions were saved and analyzed quantitatively and qualitatively. A questionnaire was administered to access students' attitudes towards the easiness and usefulness of online discussion. In another task, students used the web concordancer to search for expressions of qualification while writing the Results section and then described their searching process. Results show that the students were relatively goal-oriented while collaborating to complete the task. The concordancing task reveals that advanced students can develop effective strategies for cognitively demanding tasks, facilitating autonomous learning.
Key words: Computer-assisted language learning, collaborative learning, language scaffolding

Introduction

Technology alters not only our living styles but also the ways we learn. For example, we can learn through CD players, MP3s, and computers. Among all the educational technologies, computers can more profoundly influence language learning because they can provide aural and visual simulation. The use of computers in language classrooms is called computer-assisted language learning (CALL). The development of CALL theories was in line with contemporary educational philosophy, including the structural / behavioral approach, the cognitive approach, and the socio-cognitive approach (Warschauer & Kern, 2000). The structural / behavioral approach stressed on the production of error-free language by means of repetitive drills. The role of computers was to provide enormous drills and correct answers. However, this approach was criticized by scholars advocating t-he cognitive approach. They believed that language is learned through the operation of the innate cognitive mechanism, so the use of computers aims to offer comprehensible input (Krashen, 1985). As time went by, more linguistic experts advocated the importance of social

interaction and social contexts for language learning. This is the socio-cognitive approach. With this approach, computers play a role in providing an authentic, communicative environment.

Learning language in an authentic, communicative environment can be consummated with the help of the Internet. This learning mode is called computer-mediated communication, or CMC. The definition of CMC varies with different researchers. Hiltz and Turoff (1978), who created the term CMC, held that CMC is a mode of electronic communication, including email, bulletin boards, chat rooms, Internet Relay Chat (IRC), etc. Moreover, Santoro (1995) further described CMC as a mode that facilitates information storage and retrieval. Differently, Howard (1997) did not consider CMC as electronic communication; rather, he emphasized the "networked texts" aspect of CMC. To summarize, CMC allows people to communicate electronically based on text input which can be stored and retrieved.

CMC, an umbrella term, can be divided into synchronous CMC and asynchronous CMC based on the presence or absence of time delay. Synchronous CMC means that people communicate in real time while asynchronous CMC in non-real time. Synchronous CMC includes MSN, MOO (Multi-user Object Oriented text-based virtual reality site), Local Area Network (LAN), etc. Asynchronous CMC includes email, Bulletin Board System (BBS), and newsgroups. In addition to time delay, other textual features, for instance, oral or written language registers, also differentiate synchronous CMC from asynchronous CMC. The present study focuses on the use of synchronous CMC, in the form of online discussion. People discussing through computers, because of physical absence, usually develop strategies to clearly convey meanings or emotions. These strategies can be paralinguistic and graphic (Werry, 1996). The discussants utilize writing conventions like capitalization and punctuation marks to mimic intonation, stress, exclamation, etc. For example, WHAT? / I like it!!!. Moreover, they also create vivid icons to show their emotions such as ^^ (simile) and > < (angry). The synchronous conversations are replete with deictic expressions such as *this one* and *just now* and vocabulary use is usually informal. In general, synchronous CMC is similar to oral language.

CMC seems to have an impact on language learning mainly through collaborative learning. According to Vygotsky (1978), novice learners can facilitate their zone of proximal development (ZPD) with the help of the teacher or other advanced learners. Students discussing through CMC can better think, reflect, and revise the ideas by interacting with others. The conversations in the learning process are considered to be supportive dialogues, leading learners to negotiation of meaning, modified input and output, and acquisition of linguistic knowledge. The whole process is called scaffolding (Wood *et al.*, 1976). In other words, learners who cannot

learn or resolve problems by themselves cooperate with others for scaffolding within ZPD. The importance of scaffolding is that it can raise learners' interest in the task, simplify the task, hold pursuit of the goal, present discrepancies between what has been generated and the ideal approach to solution, control frustration during problem solving, and perform an ideal act on the problem (Wood *et al.*, 1976).

Many studies have explored the use of synchronous CMC for language learning (Faigley, 1990; Chun, 1994; & Abrams, 2003). These studies reveal that classroom discussions facilitated by computers motivate marginalized students to be more willing to deliver their thoughts because of a sense of liberty; students are also able to produce more words and to initiate more new topics or elaborate on an existing topic when compared with those in traditional classrooms. In addition to discussion via synchronous CMC, online resources can serve as language scaffolding to learners. A concordancer, which is a computer program that automatically retrieves all occurrences of a word or phrase from a corpus, can be used to help learners search for useful information. Concordancing is often used by researchers to explore the features of a text by analyzing the recurring patterns or structures. For example, it can be used to learn the most frequent collocates of words, grammatical rules, the words typically occurring in spoken or written genres, etc. Although synchronous CMC and concordnacing have many advantages, they are nevertheless challenged for some reasons. The online discussion may be regarded as an inefficient tool to reach consensus when a large group of participants take part in the discussion. Another disadvantage is the occurrence of hostile language, or flaming (Warschauer, 1997). The concordancing task is considered to be inauthentic because the linguistic analysis in corpus-based tasks is not like the tasks that students encounter outside the classroom, so the concordancing task may not be authentic in terms of students' future language use (Chapelle, 2001).

Many studies have investigated the use of CMC in English classes targeting general English; however, little research has explored the effects of e-conferencing on the acquisition of genre knowledge or the design of concordancing tasks as scaffolding to improve advanced learners' noticing of discourse structure. Therefore, the present study attempts to answer the research questions in the following:

(1) Can advanced learners acquire genre knowledge by working collaboratively in online discussion?
(2) How do advanced learners take turns and negotiate meanings during online discussion?
(3) What are their attitudes towards the use of online discussion?
(4) How do they use concordancing for language scaffolding?
(5) Are there any differences between students of different proficiency levels in terms

of turn taking, meaning negotiation, and attitudes towards online discussion?

Methods

The study explores how advanced EAP students acquire genre knowledge via online discussion and web concordancing. There are two rationales. First, it is believed that online discussion on the move structure of an RA section provides necessary interactions for EAP learners to become aware of the communicative purposes and information structure of the section in concern. Second, concordancing tasks designed as problem solving which requires learners to figure out a way by themselves to search a corpus for appropriate information can promote learner autonomy for EAP learners. In addition, what learners conceive for online discussion was investigated in the form of a questionnaire, the results of which can provide pedagogical implications for EAP teachers.

Participants

The participants were thirteen graduate students at a TESOL graduate institute in a university in northern Taiwan. Since they passed very stringent entrance examination to major in TESOL, their English proficiency was considered to be comparatively higher than that of students in other fields. The students were in the first semester of their second year in the master program. As they were preparing to write their theses, these graduate students took an academic writing course aiming at the organization and style of theses and research articles and pertinent academic writing skills. For the study purpose, the thirteen students were paired into 6 dyads, among which one group actually consisted of three students. The textbook used was Swales and Feak (2004) plus a course package containing journal articles on the information structure and language use of various sections of RAs or chapters of theses.

Instruments

The instruments employed in the present study were two components of a self-developed *Online Writing System*, namely *Online Discussion* and *Web Concordancer*. The system was previously constructed (Kuo, 2006) for helping students to write online by providing a friendly and supportive writing environment which integrates writing resources and tools in the immediate writing context.

Online Discussion is intended for promoting peer interactions before writing. Peer interactions in writing provide student writers with a sense of company and engage them in active collaboration (Mittan, 1989).This component of the system is composed of three frames. The upper left frame presents the article selected for online discussion; below this frame is the input frame where the participant keys in his/her ideas; and the right frame shows the complete conversation of the dyad. The

presentation of the selected article can help participants to refer back to the article more easily in the process of discussion and the presentation of the conversation provides participants the opportunity to reflect over what has been talked about in order to facilitate discussion.

Web concordancer is intended for helping students search for authentic language use data from a number of corpora, mainly corpora of journal articles and essays. Since a couple of corpora provided are tagged with moves based on a previous study (Kuo et al., 2006), students can type in a move code to find all occurrences of the move in the corpora. These exemplars provide EAP students who want to learn how to write RAs or theses with great assistance. In this study, students were required to search for expressions of qualification in the Results section of RAs. Given that various expressions can be used as qualification, students must both use appropriate move codes and identify expressions of qualification from the specific contexts of moves in the Results section.

Tasks and Procedure

Online discussion. The instructor, one of the researchers of the study, gave an orientation lecture at the beginning of the semester, providing necessary background information about genre, genre knowledge, and genre analysis to the students. Before the online discussion session, the students were taught the move structure of the Introduction section, as described in Swales and Feak (2004). The students were then given the Introduction of an RA from the journal of *English for Specific Purpose* for practice of move analysis. The 13 students were paired into six dyads, one of which had three students. Students in dyads cooperated with each other in online discussion in order to identify the move structure of the Introduction section of the article provided based on Swales' framework. The time limit was 20 minutes. Time counting started as any of the dyad made the first submission of input. When the online-discussion task was completed, everyone was given a questionnaire which accessed their perceptions of using online discussion.

Concordancing. The concordancing task was designed as an after-class exercise when the instructor finished teaching the information structure of the Results section and began to focus on the features of language use of this section. Hedging is important in RAs and theses, but students often have difficulty with identifying specific hedging devices, so this exercise was intended as a consciousness-raising task in order to reinforce the notion of qualification and how an expression can be used to qualify a research result or claim. Students first learned three ways, that is, probability, distance, and generalization, to qualify a claim from their textbook, and then were asked to use the web concordancer provided by *Online Writing System* to find at least five examples for each of the ways from the corpus. They were also asked to describe

the searching process by which they found the examples.

Data Collection and Data Analysis

Data collected in the study include the online discussion texts, examples of qualifications, self-descriptions of the concordancing process, and the questionnaires. The online discussion texts were automatically saved in the database of *Online Discussion*. The examples of qualification expressions were written in a homework sheet. The questionnaire, adapted from Gallupe, Bastianutti, and Cooper (1991), contains ten questions, focusing on the easiness and effectiveness of using CMC for a cooperative task. The modified questionnaire is shown in Appendix A1.

The data of online discussion were analyzed to examine the interaction process by which students acquired genre knowledge and the strategies they used to take turns and negotiate meanings. The Rainbow method (Baker et al., 2002 as cited in Laurinen & Marttunen, 2007) and collaborative and non-collaborative speech acts (Laurinen & Marttunen, 2007) were used for analysis.

Rainbow method. This method is used to analyze the argumentative interactions between students. It has seven categories as follows:

1. Explore and deepen: interactions involving counterarguments, argumentative relations and meanings, and any discursive or conceptual deepening of the arguments
2. Argumentation: arguments and counterarguments directly related to a thesis
3. Opinions: opinions stated, requested, and clarified with respect to the topic of debate
4. Task management: management of the progression of the argumentative task
5. Interaction management: interactions that manage the communication between discussants
6. Social relations: interactions managing the students' social relations
7. Outside activity: any interaction not relating to the topic of the given task

Collaborative and non-collaborative speech acts. Further analysis of students' speech acts includes eight categories. The first six categories are collaborative speech acts and the last two are non-collaborative speech acts (Laurinen & Marttunen, 2007):

1. Questions, requests for clarifications and provocative claims: questions and statements presented when one member of the dyad wants to obtain more information on the topic
2. Answering direct questions and responding to issues presented by the interlocutor: counterarguments rebutting the opinion of one's interlocutor, elaborations of the topic in question, clarifications, and explications
3. Maintaining collaborative discussion: statements indicating that the students

monitor their interlocutor's attention and control the flow of discussion with short indirect or direct suggestions

4. Extending thoughts presented by the interlocutor: agreement with the interlocutor's ideas and efforts to extend and develop them further
5. Recapitulations and summaries: statements recapitulating and summarizing previous discussions and conclusions
6. Short positive feedback: acknowledgements showing one is listening to one's interlocutor and has understood the speech turns presented previously
7. Continuing one's own ideas: ignorance of the other speaker's preceding utterance and continuing one's own ideas
8. Unconnected comments and attempts to change the topic: the speaker continues neither the other speaker's nor his / her own ideas but tries to change the discussion topic.

By comparing the frequencies of the various categories, we could understand what speech acts the advanced learners used more often in the discussion. Moreover, turn-taking and meaning negotiation were also analyzed by means of conversational analysis, which the authors had used to analyze the science-major undergraduate students' online discussion on a reading text. The framework of turn-taking includes how the speakers obtain, keep, and yield the floor, and how the speakers deal with unintentional overlaps. The framework of meaning negotiation includes how the interlocutors manage to understand their partners' words and the role that emoticons play in comprehending the discourse.

The data of the questionnaires were analyzed by means of descriptive statistics to understand students' attitudes towards online discussion on average. In addition, students' descriptions about using concordancing to search for expressions of qualification were analyzed in order to understand the cognitive process of online search as scaffolding as well as the difficulties students encountered during the process.

Previous Study

Lin and Kuo (2007) reported the performance of science-major undergraduates with intermediate-level English proficiency in online discussion and their attitudes towards online discussion. The present study follows the previous study in terms of turn-taking, meaning negotiation, and attitudes towards CMC since we would like to know whether English proficiency is a determining factor of the quality and structure of online discussion. The main points of the previous study are summarized as follows.

1. The participants achieved speaker change by producing adjacency pairs, such as questions and answers. The current speaker maintained the floor by using connectives

and subordinators. The potential next speaker found the point of possible completion from the current speaker's utterance by syntactically judging the subject-predicate completion. The use of filler gave the current speaker more time to organize his / her ideas; however, it also caused interruptions by the interlocutors during the current speaker's silence. Overlaps usually occurred when the potential next speaker misjudged the point of possible completion.

2. Negotiation of meanings occurred frequently. Students used many strategies to negotiate meanings. When one party did not understand the other party's words, s /he would explicitly request clarification, repeat the unclear part, ask for examples, and use vocalization to express confusion. In addition to the content of the discussion, the misunderstanding of emoticons would also need meaning negotiation.

3. The questionnaire survey (Appendix A2) consists of four constructs, including comfort, easiness, opportunity, and idea generation. The college students expressed that to discuss a topic in English in depth through computers was really difficult. They also felt that they had many ideas but were unable to express them all in online discussion.

Results

The present study investigates how EAP students cooperate with their partners online in order to achieve their learning goals, how they take turns and negotiate meanings via synchronous CMC, and how they make use of a web concordancer as language learning scaffolding. Furthermore, students' attitudes towards online discussion were accessed to help language teachers understand whether these activities are effective and helpful.

Argumentative Interactions in Online Discussion

The Rainbow Method was used to analyze students' argumentation in online discussion. Table 1 shows the frequencies of the seven categories and average individual production of each category. These categories occur 309 times in total and each person on average produces 1.83 times. *Opinions* occur most frequently while *Explore and deepen* occurs least. These results indicate that the advanced students could keep up with the topic but did not discuss in depth. For example, in identifying a move in the text, most students indicated where they thought the move is located without discussing the rhetorical function of the move in the specific context or specific phraseology that is characteristic of the move. *Argumentation*, in comparison with *Opinions*, relates more closely to the identification of moves. Although its frequency is far lower, *Argumentation* has the second highest frequency; each student in the online discussion expressed at least three times arguments about the locations of the moves. This shows that the students could focus on applying what they learned

about moves in Introduction to the analysis task.

The frequencies of *Interaction management* and *Task management* are also high, on average 3.00 and 3.23, respectively, per person. This shows that during the non-face-to-face discussion, facilitating interactions between the discussants is as important as smoothing the progression of online discussion, both of which help structure the discussion discourse. Either *Social relations* or *Outside activity* occur infrequently in the online discussion, only one time per person. The one occurrence of *Social relations* per person suggests that probably because of the time constraint of completing the task, the students did not pay too much attention to manage social relations with their partners. However, the one occurrence of *Outside activity* per person suggests that the advanced students could control and concentrate their discussion on the target task.

The analysis of collaborative and non-collaborative speech acts further demonstrates specific types of interaction during the discussion. Table 2 presents occurrences of students' various speech acts. The proportion of collaborative versus non-collaborative speech acts is nearly 80 % to 20%. It means that the students cooperated with their partners for collaborative learning most of the time. The first two categories, *requests for clarifications and provocative claims*, and *answering direct questions and responding to issues presented by the interlocutor*, occur most frequently, having a proportion of nearly 50 %; however, *extending thoughts presented by the interlocutor* occurs infrequently, constituting only 5 %. The results show that students tended to collaborate with each other by directly responding to their interlocutors. The nature of the online discussion is unlike a debate, so students stopped discussing the current topic and moved to another when they both reached an agreement on the current topic. This may be the reason why they did not explore and deepen the discussion by extending thoughts presented by the other party. In cooperation with their peers to achieve their learning goals, students also devoted themselves to maintaining the discussion and giving positive feedback. However, they seldom recapitulated and summarized the discussion. The possible reasons may be that the students might not have a chance to recapitulate or summarize the ideas generated in the discussion given the short period of discussion time or they might think that the system could automatically record their discussions, so they could refer to all the ideas later. As for the non-collaborative speech acts, either *Continuing one's own ideas* or *Unconnected comments and attempts to change the topic*, as a matter of fact, has many occurrences, 34 and 32, respectively. The result suggests that in the online discussion, in which communication is often hindered not only by the lack of facial cues but also by a time lag, students might focus on expressing their own ideas while ignoring others' comments. Students often changed the topic when they wanted

to deliver new information.

> A:[argument] but doesn't that part reviews what has been done before and indicates the gap? The subject of "...detailed analysis" is "different types of academic work"
> B: [attempt to change the topic] I think the second paragraph to the tenth paragraph is doing literature review on CARS model

The frequencies of the argumentative categories and collaborative and non-collaborative categories were counted by two raters. As discrepancies happened, the two raters discussed to reach an agreement.

Table 1 Analysis of argumentative interactions in online discussion (N=13)

Category	**Frequency**	**Per person**
Explore and deepen	13	1
Argumentation	43	3.31
Opinions	136	10.46
Task management	42	3.23
Interaction management	39	3
Social relations	14	1.08
Outside activity	22	1.69
Total	309	1.83

Table 2 Speech acts of collaboration and non-collaboration (N=13)

Category	Frequency	Per person
Questions, requests for clarification and provocative claims	81	6.23
Answering direct questions and responding to issues presented by the interlocutor	71	5.46
Maintaining collaborative discussion	32	2.46
Extending thoughts presented by the interlocutor	15	1.15
Recapitulations and summaries	7	0.54
Short positive feedback	45	3.46
Continuing one's own ideas	34	2.62
Unconnected comments and attempts to change the topic	32	2.46
Total	317	1.88

Strategies of Turn-taking and Meaning negotiation

During the online discussion, the current speaker usually achieves speaker change by producing the first part of an adjacency pair. An adjacency pair includes asking a question and answering it, or greeting and response to the greeting. The examples are as follows:

> [Asking a question] A: Can you infer the gap from other words or lines?
> [Answering the question] B: Yes. It is on page 27.
>
> [Greeting] A: Hello, how are you today?
> [Response to the greeting] B: So so.

Most dyads did not produce closings at the end of the discussion; this may be due to the classroom context of the discussion, so the system automatically declined any words to be entered when the time of the discussion was up. Before that, the students had not completed their task and therefore did not intend to finish the discussion. However, most of them produced greetings at the very beginning, which may be a signal to show friendliness to their partner and to start the discussion. In addition to the use of the first part of an adjacency pair by the current speaker to signal speaker change, the potential next speaker (the partner) usually found the point of possible completion when a grammatically complete sentence was used; that is, subject-predicate completion. The turn-taking of the online discussion generally abided by this principle and overlaps seldom occurred. This result is different from that in the previous study, in which one party in the synchronous CMC sometimes

grabbed the floor if s/he assumed that the other party finished the utterance, but actually the other party did not; as a result, the non-interactive discourse threads were created (Lin & Kuo, 2007). The possible reason is that the students in the present study usually took the question-and-answer mode in the discussion and most questions were directly answered, which shows the discussion was highly collaborative.

The occurrences of meaning negotiation caused by unclear utterances were rare in the online discussion. One example of meaning negotiation is as follows:

A: Can you infer the gap from other words or lines?

B: Wait a sex.

A: Sex?

B: Sec.

The student who was confused by the other party's words repeated the unclear part with a question mark. This signaled a need of meaning clarification. This confusion was actually caused by misspelling, equivalent to tongue slip occurring in face-to-face communication. The rare occurrences of meaning negotiation may be attributed to students' advanced language proficiency and the frequent use of task management and interaction management. Advanced language proficiency contributes to clear idea expression and helps the other party to comprehend the ideas. The use of task management and interaction management helps both parties understand the progress of the discussion and focus on the discussion topic. Moreover, the online discussion in this study had a clear learning objective, requiring the students to complete a collaborative task. This may imply that the use of collaborative tasks can make online discussion more organized and effective. On the other hand, the use of emoticons did not cause misunderstanding during the discussion but helped students express their feelings and emotions such as @@ (dizziness), ^_^ (smile), and = = (unhappiness).

Students' Attitudes towards Online Discussion

Table 3 shows details about the questionnaire survey, including lowest and highest scores, mean scores, and standard deviations. In general, the mean scores of the ten questions were close. Among the ten questions, Question 7 (How effective was the online discussion to raise your consciousness of the moves and steps in Introduction?) got the highest mean score. However, Question 6 (How effective was the online discussion to discuss the moves and steps in Introduction?) got the lowest mean score. This may suggest that most students agreed that discussing with their peers in the online discussion was helpful for the acquisition of genre knowledge, but online discussion was not an effective medium for discussing moves and steps. On the

other hand, the result that Question 5 (How easy did you feel to discuss an issue in English in the online discussion?) has a pretty high mean score (3.58) while the mean score of Question 4 (How easy did you feel to discuss a question in depth in the online discussion?) is comparatively low reveals that even advanced EAP learners feel it difficult to discuss a question in depth online, although it may be easy for them to carry on a general discussion.

Table 3 Analysis of the questionnaire (N=12)

Question	Lowest Score	Highest Score	Mean Score	Standard Deviation
1	2	4	3.17	.83
2	1	5	3.50	1.17
3	2	5	3.25	.97
4	1	5	2.67	1.23
5	2	5	3.58	1.08
6	1	4	2.58	1.00
7	1	5	3.75	1.06
8	1	4	3.25	.97
9	2	5	3.33	.98
10	1	5	2.83	1.19

Use of Web Concordancing as Language Scaffolding

The web concordancing task in the present study is different from those used in the traditional way. Traditional concordancing tasks ask students to key in a word or phrase in concern and observe and synthesize from the concordance lines lexical or grammatical usage patterns or collocations. The web concordancing task designed for this study is cognitively more demanding because students had to first understand the meaning and function of qualification as well as types of qualification. In other words, they acquired genre-related knowledge (that is, how certain expressions are used to qualify a claim in the Results section of research articles) from textbooks. They further used the concordancer as an aid to search for more examples from authentic texts. The practice involves making judgments about whether an expression is qualification and what type of qualification it is. In students' reflections, most of them expressed that this task was difficult. Two of them indicated that the most difficult part of the task was to identify expressions of *distance* as qualification while one expressed that identifying the examples of qualification was hard. The reason that the identification of *distance* was difficult was that the definition of it was a little abstruse for them, so even though being provided with the definition and examples in the

textbook, they felt less confident in the instances they found from the web concordancing lines.

Although identifying examples of the three types of qualification was not as easy as the students thought in the beginning, they developed some strategies for the task. Some students made use of synonyms to explore possible expressions of qualification. For instance, when searching for examples of *distance*, one student keyed in *restricted*, a synonym of *limited*, a word offered by the textbook as an example of qualification, in the hope of finding example sentences containing *restricted* and using this word as qualification. Another strategy was to depend on the neighboring context. Since concordance lines provide only one-line context for each occurrence of the word (or move code in this case), they often could not provide enough contextual information for deciding on whether it is an appropriate example of qualification. Therefore, as the students described, they used the neighboring context of a concordance line, which provided semantic and discourse information, to identify the three types of qualification. Although using synonyms could facilitate identification of expressions of qualification, students meanwhile found that colloquial synonyms might not be helpful because the vocabulary in research articles was typically formal. Additionally, more than one student expressed their uncertainty about the correctness of the examples they found. One student suggested that it would be *greatly helpful* to have peer discussions because they could compare and share what each other found. Thus, it seems peer discussion can play a role here as a platform for students to exchange information and share concordancing experience in their learning process.

Comparison between Advanced Students and Intermediate-level Students

The previous study (Lin & Kuo, 2007) and the present study both analyzed turn-taking, meaning negotiation, and students' attitudes towards online discussion. Meaning negotiation occurred frequently in the college students' online discussion. When they had confusion, they used several strategies for the purpose of clarification, such as repeating the unclear part, requesting examples, explicitly asking more clarification, and using vocalization to show confusion. Nonetheless, the students in the present study seemed capable of successfully exchanging ideas, causing little confusion for further negotiation. Emoticons were used more frequently in the previous study than in the present study. In both studies they had positive effect on revealing the speakers' feelings and emotions, helping their interlocutors interpret their thoughts more precisely, except in one case of meaning negotiation in the previous study which was caused by misunderstanding the emoticon 囧. The students in the previous study showed more desire to maintain and obtain the floor. They would maintain the floor by using subordinators and connectives although the effect was insignificant because they seldom used these devices at the end of the utterance to

signal incompletion of ideas. They also often completed the present speakers' utterance to obtain the floor. For example:

A: The children's grades are affected.

B: **because** the world of games is so wonderful.

When both parties wanted to hold the floor, overlaps happened. However, the students in the present study were good at judging the point of possible completion by grammar and mutually complying with the principle. Furthermore, the use of a filler can give the current speaker more time to think about what to say. It occurred more frequently in the previous study than in the present study with a ratio of 58 to 3. It may be that the higher the students' language proficiency is, the less often they use fillers. The occurrence of a filler may result in the loss of the floor, however. This can be one of the reasons why few overlaps occurred in the present study.

In terms of attitudes towards online discussion, Table 4 shows the mean scores of the common items in the previous and the present study. Comparing the mean scores of the present study with the equalized scores of the previous study shows that EAP students who have higher English proficiency had higher scores than science-major college students in all items, revealing that English proficiency contributes to at least the easiness of using English in online discussion. For specific items, it can be observed that although most science-major college students felt it easy to express ideas online, they felt it difficult to discuss a question in English or to discuss a question in depth. In contrast, although most EAP students felt it easy to discuss a question in English, they still regarded it difficult to discuss a question in depth. This seems to imply that to these graduate students who major in English, the difficulty of online discussion lies not in the use of the English language but in the fact that in-depth discussion in an online discussion situation is by nature difficult. On the other hand, analysis of their interactions reveals that the undergraduates frequently negotiated meanings in online discussion; this implies that they may not be able to express their ideas clearly, although they might be able to express their ideas. The results above suggest that the learners' level of English proficiency should determine, or constrain in a sense, the quality of online discussion.

Table 4 Mean scores of previous and present surveys

Item	Previous Survey (range of score 1-7)	Equalized score*	Item	Present Survey (range of score 1-5)
2	4.09	2.92	1	3.17
3	3.83	2.74	2	3.50
4	3.79	2.71	3	3.25
5	2.66	1.90	4	2.67
6	2.66	1.90	5	3.58

N of previous survey = 34, N of present survey = 12

* Scores from the 7-point Likert scale were equalized to the scores of 5-point Likert scale

Discussion and conclusion

The advanced students expressed ideas and arguments related to the topic and used strategies to facilitate interaction and smooth the progression of discussion. These results suggest that the students were able to keep up with the topic and obtain interactive competence through the discussion (Chun, 1994). In addition, the advanced students highly collaborated to manage the task by mainly responding to their partner's questions and requests. The ability of giving feedback from students themselves is considered one of the benefits that students can get by communicating via CMC (Chun, 1994). In comparison with the undergraduate students, the advanced students seldom had overlaps in turn-taking and meaning negotiation. The few overlaps show that the online discussion of advanced students is more similar to face-to-face interaction, in which few overlaps or gaps occur (Black, *et al.*, 1983). On the other hand, the advanced students seem to follow more closely the electronic etiquette by scarcely interrupting others' utterances. Since overlaps seldom occur, the chance of misunderstanding or confusion about others' utterances reduces, followed by the reduction of meaning negotiation. Moreover, advanced students are more able to convey their thoughts with accurate words and phrases and describe more their own ideas clearly, so they rarely cause misunderstanding of meanings. The result corresponds to another result that the advanced students felt it easier to discuss in English than the undergraduate students. The differences in the quantity of overlaps and meaning negotiation between advanced students and undergraduate students imply that peer conference online in which teacher interference reduces is suitable to students with higher language proficiency. Additionally, the goal-oriented

characteristic of the advanced students is another advantage to allow them to discuss online.

The present study found that some advanced students developed their own strategies when using the web concordancer to resolve the problems encountered. Therefore, with cognitively demanding tasks, students can develop their own specific learning strategies. However, it was also found that even advanced students might have difficulty in using the web concordancer to complete challenging tasks such as those involving linguistic realization of discoursal or generic functions. The result suggests that students should probably be given guidance when working towards autonomy. Collaborative learning is an alternative when autonomy may not work well. In online peer conferencing, students can deal with the difficulties in cooperation with peers (Vygotsky, 1978).

Although the present study has a small number of participants, which is its limitation, the results are still meaningful. It shows that collaborative learning is likely to be successful with a group of students who have high-level language proficiency. Because they own the language edge, the meaning of their words can be expressed more precisely. They also understand their interlocutor's words without much difficulty. They do not have to spend much effort and time in meaning negotiation during the discussion; as a result, they can focus more on the topic or task. Although most of them may still regard it difficult to discuss a question in depth in the online situation, they do agree that online discussion is an effective way to raise their awareness of the moves of a genre. Pedagogically, therefore, teachers may need to find out ways to enable students to discuss a topic in depth such as providing topic -related information, types of argumentation, or linguistic expressions. In addition, a more qualitative approach may be taken, for example, interviewing students or using think-aloud, to further explore both the process and effects of different types of online interaction.

References

Abrams, Z. I. (2003). The effect of synchronous and asynchronous CMC on oral performance in German. *The Modern Language Journal, 87*(2), 157-169.

Berge, Z. & Collin, M. (1995). *Computer mediated communication and the online classroom in distance learning*. Cresskill, NJ: Hampton Press.

Baker, Michael, Andriessen, Jerry, Qiugnard Matthieu, Van Amelsvoort, Marije, Lund, Kristine, Salminen, Timo, Litosseliti, Lia, & Munneke, Lisette. (2002). A framework for analysing pedagogically-oriented computer mediated debates: Rainbow. *Cahiers de recherche/Research Report IC-3-2002*. Universit´e Lumier`e Lyon 2,´ Equipe Interaction & Cognition.

Black, S. D., Levin, J. A., Mehan, H., & Quinn, C. N. (1983). Real and non-real time interaction: Unraveling multiple threads of discourse. *Discourse Processes, 6*(1), 59-75.

Chapelle, C. A. (2001). *Computer applications in second language acquisition*. Cambridge University Press.

Chomsky, N. (1957). *Syntactic structures.* The Hague: Mouton.

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

Egbert, J., Chao, C., & Hanson-Smith, E. (1999). Computer-enhanced language learning environments: an overview. In J. Egbert & E. Hanson-Smith (Eds.), *CALL environments—research, practice, and critical issues* (1-13). US: Alexandria, Virginia.

Faigley, L. (1990). Subverting the electronic workbook: Teaching writing using networked computers. In D. Baker & M. Monenberg (Eds.), *The writing teacher as researcher: essays in the theory and practice of class-based research*. Portsmouth, NH: Heinemann.

Hiltz, S. R. & Turoff, M. (1978). *The network nation: Human communication via computer*. Norwood, NJ: Ablex

Howard, T. (1997). *A rhetoric of electronic communities*. Greenwich, CT: Ablex.

Hyland, K. (2003). New technologies in writing instruction. In J. C. Richards & K. Hyland (Eds.), *Second language writing* (143-176). UK: Cambridge University Press.

Krashen, S. (1985). *The input hypothesis*. New York: Longman.

Kuo, Chih-Hua (2006). “Designing an Online Writing System: Learning with Support,” presented at 2006 JALTCALL Conference, Sapporo Gakuin University, Hokkaido.

Kuo, Chih-Hua, Chang, Ching-Fen, Lin, Mei-Hung, and Lin, Bing-Hung (2006). “A Corpus-based Approach to EAP Materials Development,” presented at 2006 EUROCALL conference, Granada, Spain.

Lin, Jungts-Ts and Kuo, Chih-Hua (2007). CMC-based Discussion on Essay Writing, presented at 2007 JALTCALL conference, Waseda, Japan.

Laurinen, L. I. and Marttunen, M. J. (2007). Written arguments and collaborative speech acts in practicing the argumentative power of language through chat debates. *Computers and Composition, 24*(3), 230-246.

Mittan, R. 1989 The peer review process: harnessing students’ communicative power. In D. Johnson, D. Roen (Eds.), *Richness in Writing: Empowering ESL Students* (207-219).New York: Longman.

Santoro, G (1995). What is computer mediated communication? In Z. Berge & M. Collins (Eds.), *Computer mediated communication and the online classroom in distance learning*. Cresskill, NJ: Hampton Press.

Swales and Feak (2004). *Academic writing for graduate students: Essential tasks and skills*. University of Michigan Press.

Vygotsky, L. S. (1978). *Mind and society*. Cambridge, MA: Harvard University Press.

Warschauer, M. (1997). Computer-mediated collaborative learning: Theory and practice. *The Modern Language Journal, 81*(4), 470-481.

Warschauer, M. & Kern, R. (2000). Introduction: Theory and practice of network-based language teaching. In M. Warschauer & R. Kern (Eds.), *Networked-based language teaching: Concepts and practice* (1-19). UK: Cambridge University Press.

Werry, C. C. (1996). Linguistic and interactional features of Internet Relay Chat. In S. C.Herring (Ed.), *Computer-mediated communication: Linguistic, social and cross-cultural perspectives* (47-63). Amsterdam / Philadelphia: John Benjamins.

Wood, D., Bruner, J. and Ross, G. (1976). The role of tutoring in problem solving. *Journal of Child Psychology and Psychiatry 17* (2), 89-100.

APPENDIX

Appendix A1

Questionnaire (the present study)

Question	**1**	**2**	**3**	**4**	**5**
1. How easy did you feel to express ideas in the online discussion? 1=not easy at all, 5=very easy					
2. How easy did you feel to understand the ideas your partner expressed in the online discussion? 1=not easy at all, 5=very easy					
3. How easy did you feel to negotiate meaning in the online discussion? 1=not easy at all, 5=very easy					
4. How easy did you feel to discuss a question in depth in the online discussion? 1=not easy at all, 5=very easy					
5. How easy did you feel to discuss an issue in English in the online discussion? 1=not easy at all, 5=very easy					

6. How effective was the online discussion to discuss the moves and steps in Introduction? 1=not effective at all, 5=very effective					
7. How effective was the online discussion to raise your consciousness of the moves and steps in Introduction? 1=not effective at all, 5=very effective					
8. How effective was the online discussion to help you learn how to write Introduction? 1=not effective at all, 5=very effective					
9. Do you like to use online discussion as peer conferencing before you write an assignment? 1=strongly disagree, 5=strongly agree					
10. Do you prefer online discussion to face-to-face discussion on a writing task? 1=strongly disagree, 5=strongly agree					

Appendix A2
Questionnaire (the previous study)

Question	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1. How comfortable were you using the electronic discussion? *1=very uncomfortable, 7=very comfortable*							
2. How easy did you feel to express ideas through electronic discussion? *1= not easy at all, 7= very easy*							
3. How easy did you feel to understand the ideas your partner expressed through electronic discussion? *1= not easy at all, 7= very easy*							

4. How easy did you feel to negotiate meaning during electronic discussion? *1= not easy at all, 7= very easy*							
5. How easy did you feel to discuss a question in depth through electronic discussion? *1= not easy at all, 7= very easy*							
6. How easy did you feel to discuss an issue *in English* through electronic discussion? *1= not easy at all, 7= very easy*							
7. Did you feel you had sufficient opportunity to express your ideas during electronic discussion? *1=very little opportunity, 7=ample opportunity*							
8. Did you feel you had more ideas not expressed yet in electronic discussions because of using English? *1=strong disagree, 7=strong agree*							