ABSTRACT
This paper examines the use of face-to-face peer review (FFPR) and computer-mediated peer review (CMPR) in an Asian English-as-a-foreign-language (EFL) academic writing context. The participants were 33 English majors from a university of science and technology in Taiwan, a new type of school offering 2-year associate degree programs in foreign language studies. Our study contributes to the research on foreign-language-writing collaboration for Chinese learners in two important ways. First, many investigations of FFPR have looked at Chinese learners either in English as a second language (ESL) settings or at 4-year universities. Few have considered Chinese learners at 2-year colleges in EFL contexts. Second, there has been very little documentation of CMPR using annotation features in common word processing software in either ESL or EFL settings (Honeycutt, 2001). This study investigates the attitudes of 2-year college students in Taiwan toward the use of FFPR and CMPR in composition classes. Pedagogical implications are also drawn.

KEYWORDS
Face-to-face Peer Review, Computer-mediated Peer Review, Second Language Writing, EFL Learners.

INTRODUCTION
Writing instruction in English as a second language (ESL) has seen considerable change following the influence of the process approach in the 1980s (Leki, 1992; Raimes, 1991; Reid, 1993; Zamel, 1987). This approach emphasizes writing as a process in which prewriting, multiple drafting, and revising are considered important in helping learners develop their skills. During multiple drafting, peer review is often used to afford learners experience in expression, interpretation, and negotiation of meaning. Such engagement in authentic communicative events offers an optimal opportunity for language learning (Savignon, 1983, 1997). Teachers
typically ask learners to bring drafts of their writing to class where they then work in groups of two to four to read and comment on one another’s writing. This exchange of feedback helps writers to clarify and give form to their meaning in subsequent drafts.

There are several variations of peer review (Grabe & Kaplan, 1996; Zhu, 1994). Learners can read one another’s papers silently or aloud. Partners can be assigned by the teacher or chosen by learners themselves. In some settings, teachers provide a peer review worksheet with guidelines as to what to look for while reviewing another’s text (e.g., content, organization, and coherence). Learners are encouraged to comment not only on the strengths of the text but on its weaknesses as well. The practice of peer review is seen to offer advantages for learners in a variety of ways. Peer response groups may raise learners’ audience awareness, foster collaboration, help learners develop a sense of discourse community, offer ideas and strategies for revision, and, most important, “expose learners to a variety of writing styles” (Grabe & Kaplan, 1996, p. 386; see also Nelson & Murphy, 1993; Spear, 1987).

Peer review has become a common activity for learners of different writing proficiency levels in many first language (L1) and ESL contexts (Grabe & Kaplan, 1996; Nelson & Murphy, 1993; Villamil & Guerrero, 1996). However, very little is known about the use of process-focused peer review activities in EFL contexts. This is especially true for Asian contexts in which teacher-centered classrooms are the norm. In Taiwan, for example, along with relatively large class sizes, teacher-centered grammar-based instruction remains widespread (Wang, 2000). If appropriate and effective classroom practice is to be implemented, further exploration is needed of learners’ attitudes toward learner-centered and communication-based activities such as peer review.

The goal of peer review is to foster an atmosphere of reciprocal teaching between learners. The theoretical basis for the use of peer review in the development of writing skills, both in L1 and second language (L2) development, can be traced to (a) the notion of reciprocal teaching/scaffolding (Donato, 1994; Nystrand, 1986; Spear, 1987) and (b) the communicative approach to language teaching (CLT) (Elbow, 1981; Savignon, 1983, 1997, 2002). Second language writing pedagogy has felt the influence of both perspectives (Grabe & Kaplan, 1996; Reid, 1993). Communication, spoken and written alike, is the central focus of CLT and involves “a continuous process of expression, interpretation, and negotiation of meaning.” (Savignon, 1997, p. 14; 2002, p. 1). The nature of peer review activities highlights this process. The basic insight of reciprocal teaching/scaffolding in the development of writing skills is that learners learn from one another by giving and receiving advice on the content, organization, and language use of their writing. Computer-mediated peer review (CMPR) is a recent innovation in writing instruction. Along with the increasing availability of networked computers, computer-mediated communication (CMC) has gained importance in language teaching, especially in the teaching of composition. This study takes into consideration therefore both FFPR and CMPR.
LITERATURE REVIEW

Peer Review in Language Learning

Numerous reports on the use of peer review in both L1 and ESL settings have explored aspects of peer review activities. These include learners’ reactions and negotiation patterns, teachers’ roles in peer review training, the effects of peer response on learners’ writing, and learners’ attitudes and affective benefits (Berg, 1999; Mangelsdorf, 1992; Mendonca & Johnson, 1994; Nelson & Murphy, 1993; Paulus, 1999; Villamil & Guerrero, 1996; Zhang, 1995). However, the findings are generally inconclusive. While some studies report the positive effects of peer review (Berg, 1999; Mendonca & Johnson, 1994), others show contrary findings (Carson & Nelson, 1996, 1998; Zhang, 1995).

Mendonca and Johnson (1994) investigated peer negotiation in an ESL writing class at a major university in the northern United States. To examine the negotiation patterns of graduate student learners of English working in pairs, they analyzed audio-taped peer review sessions and learners’ written drafts. In addition, posttask interviews were conducted to solicit learners’ perceptions toward the usefulness of the peer review dyads. Five types of peer review negotiations were identified: asking questions, giving explanations, making restatements, offering suggestions, and correcting grammar. The analysis showed that during peer review learners focused on both local and global issues of their writing and that after negotiation they appeared to have a better understanding of its strengths and weaknesses. More important, learners developed audience awareness through peer review activities. The authors concluded that the learners in this study found peer review to be beneficial. In addition, peer review was found to “enhance students’ communicative power by encouraging learners to express and negotiate their ideas” (1994, pp. 765-766).

Berg (1999) examined the effect of peer responses from ESL learners who received peer review training on revision types and writing quality. The results showed that revised drafts from trained peer response groups contained more macrolevel changes such as changes in the content and meanings. Learners who had received training achieved higher scores on their second drafts than did those who did not. These findings suggest that peer review used with guidance can help ESL learners to improve their writing.

Other studies have similarly shown peer review to positively influence ESL learners’ writing (Mangelsdorf, 1992; Nelson & Murphy, 1992; Stanley, 1992). However, other studies have challenged those findings. Zhang (1995), for example, explored the “affective advantage” of peer feedback in ESL writing classes, advantage in terms of being more writer supportive and less text appropriating than using other means (Clifford, 1981; Elbow, 1973; Purves, 1984). To determine whether L2 learners felt such affective advantages, Zhang reexamined the use of peer review in ESL classrooms. The participants in this study were 81 ESL learners from one private college and one state university in the western United States. All learners were exposed to teacher-, peer-, and “self-directed” feedback types (1995, p. 214). ESL learners were found to “unequivocally” have a strong
preference for teacher feedback as opposed to peer feedback, with learner-centered self-feedback the least popular option. Zhang concluded that the use of peer review in ESL classrooms should be carefully examined by teachers since the affective advantage of peer feedback that has been found in L1 settings does not necessarily apply to ESL learners. Zhang also advised teachers to take learners’ cultural backgrounds into consideration when adopting the use of peer response groups in class.

Several reasons have been suggested for ESL learners’ seemingly unfavorable attitudes toward peer review and the failure of peer feedback in L2 settings to guide learners toward effective revision. First, since learners have to give comments on their peer’s writing during peer review, some students might not feel comfortable doing so face-to-face (Spear, 1987). Second, since they are still developing their own writing proficiency, ESL learners may not trust their peers’ response (Paulus, 1999). This might explain why some studies have found that ESL learners prefer teacher feedback to peer response. It may also be the case that peer review is experienced as a threat to the learners’ concept of positive face or their positive self-esteem (Brown & Levinson, 1987; Scollon & Scollon, 2000), and that they therefore may tend to avoid it.

Eighty-six percent of the participants in the Zhang (1995) study described above were from Asian backgrounds. The suggestion has been made therefore that the findings may have particular significance for teachers of Asian ESL or EFL learners. Because of what is sometimes claimed to be a relatively higher value placed on group over individual achievement in Asian culture, speculation has been made that Asian learners may feel especially uncomfortable commenting on one another’s writing. They would therefore potentially have unfavorable attitudes toward peer review. Accordingly, Carson and Nelson (1996) proposed that learners from what they term “collectivist” cultures, including Taiwan and the People’s Republic of China (PRC) “are more concerned with effects of their actions to others” (p. 1); learners from Western countries, on the other hand, are seen to value individualism and “function more often for the benefit of the individual writer than for the benefit of the group” (p. 2).

It may well be the case that individualism is advantageous when learners doing peer review are expected to state their own ideas and opinions. If so, to the extent that a group of learners may be said to share identifiable attributes, their different cultural backgrounds may need to be taken into account in judging reactions to peer review activities and feedback. In a subsequent study, Carson and Nelson (1998) looked specifically at cross-cultural issues in peer group interaction. Participants included three speakers of Chinese and eight speakers of Spanish from an advanced ESL writing class at a large US urban university. They found that both Spanish and Chinese learners valued the teacher’s comments over those of their peers and preferred feedback “that identified problems in their drafts” (p.113). However, learners from different cultural backgrounds were seen to have very different types of interactions as well as views on peer review activities. During peer review sessions, Chinese ESL learners “frequently refrained from speaking because of their reluctance to criticize their peers, disagree with their
peers, and claim authority as readers” (p. 127). While the Spanish learners’ interactions were “task oriented,” the Chinese focused on “maintain[ing] group harmony” (p. 127). In other words, Carson and Nelson found the Spanish learners to be more active in pointing out the problems in their peers’ writing for revision. The Chinese learners on the other hand tended not to criticize others’ work and not to disagree with them. Accordingly, they concluded that peer response groups in a classroom in which the majority of learners are from what they considered to be “collectivist” cultures may not be as effective as those in a setting where learners are from cultures that value individualism.

**Computer-assisted Language Learning**

The trend toward computer-assisted language learning (CALL) and computer-mediated communication (CMC) in language learning have influenced the teaching of writing in both L1 and L2 settings. More and more writing teachers have started conducting classes in networked computer labs or incorporating writing activities that engage learners with the use of computers (Warschauer, 1996). Computer-mediated peer review (CMPR), for instance, is one of the activities used to enhance learners’ L2 writing. With networked computers, learners can do peer reviews online anywhere at anytime. Learners exchange drafts and feedback via email and communicate with one another through the use of interactive software programs. Not only can CMPR offer flexibility for both teachers and learners, it may also reduce psychological pressure on learners who do not like to give feedback in face-to-face situations. Depending on the kind of software used, CMPR could be used synchronously during regular class time or asynchronously at the convenience of the learners (see DiGiovanni & Nagaswami, 2001; Savignon & Roithmeier, 2004).

To date, several studies have been conducted to examine CMPR in L1 and ESL writing classes in which researchers assert the advantages of CMPR. (Brown, Nielson, & Sullivan, 1998; Dean, 2001; DiGiovanni & Nagaswami, 2001; Skinner & Austin, 1999). Among them is an increase in learner motivation due to the new medium of expression. Colomb and Simutis (1996), Kelm (1992), Kern (1995), and Warschauer (1996) have all reported that the use of computers increases learners’ motivation in second or foreign language writing.

Skinner and Austin (1999) conducted research on synchronous computer-mediated peer conferencing. Computer conferencing, designed as a prewriting activity, involved 22 reportedly East Asian ESL learners using synchronous chat to communicate in groups on assigned topics. They found that by using online conferencing, learners formed a virtual community for communication. This not only offered a new means of communication but also helped learners reduce their anxiety in speaking and writing in a second language. Kern (1995) similarly reported the motivational benefits of computer use in foreign language learning, including increased learner expression, reduced “anxiety related to oral communication,” and creation of “a collaborative spirit among learners” (p. 461). Of considerable significance, learners in this study who were often unwilling to participate in face-
to-face discussion interacted more “actively” with peers during computer conferencing sessions (p. 470).

Huang (1998) also suggested that FL writing teachers incorporate computer-mediated (CM) activities such as CMPR into their classrooms in order to create “variety in classroom activities” and to “provide a non-stress environment for learners who are shy or overly concerned about their oral language proficiency” (p.2). DiGiovanni and Nagaswami’s (2001) research on synchronous CMPR in ESL writing classes at a community college in the US led to similar recommendations. They compared the face-to-face and online interactions of 52 ESL learners and analyzed those interactions by adapting the negotiation categories presented in Mendonca and Johnson (1994). For their online interactions, learners in this study used *Norton Textra Connect*, a software program for split screen electronic communication. A split screen protocol features character-by-character transmission rather than whole message transmission, allowing learners to view drafts ‘letter by letter’ as they are being produced in one window while simultaneously producing feedback to the writer in another window on the computer screen. DiGiovanni and Nagaswami found that more than half of the participants who used the split screen protocol felt that CMPR was more comfortable and interesting than FFPR and, important, felt that they did better reviewing online.

Although research shows CMPR may have positive effects on learner motivation, it is worth noting that CMC is very different from face-to-face communication and could generate different types of interactions which might affect the effectiveness and quality of feedback. As noted above, CMPR may be conducted synchronously (for example, chat, ICQ, MUDs, etc.) or asynchronously (email, listserv discussion list, etc.), depending on the software used. The medium used for communication could affect language and language use in terms of style, coherence, etiquette, message length, and other features (Herring, 2002a).

**RESEARCH QUESTIONS**

This study examines the use of face-to-face and asynchronous computer-mediated peer review in academic writing classes at a university of science and technology (UST) in Taiwan offering 2-year associate degree programs in intensive language study. In recent years, the number of learners enrolled in this new type of school has increased dramatically. The goal of the study reported here was to investigate the perceptions and attitudes of learners in this particular setting toward FFPR and CMPR and to determine whether CMPR as used in this study might be a good supplement to FFPR in writing classes. The specific research questions are the following:

1. How do learners in a UST react to face-to-face and computer-mediated peer review?
   1.1 Do learners in a UST feel they benefit from doing face-to-face peer review?
   1.2 Do learners in a UST have generally favorable attitudes toward computer-mediated peer review?
2. What are the learners’ perceptions concerning the annotation features of CMPR used in this study?

METHOD

Setting and Participants

The participants were 37 English majors, 12 males and 25 females, at a national university of science and technology in Taiwan who comprised two intact classes in academic writing taught by two different teachers in the spring 2002. Learners who enroll in this kind of program have heterogeneous English learning backgrounds, but, to be admitted to the program, all must pass a nationally standardized entrance exam which evaluates their English proficiency. Therefore, although learners’ English learning backgrounds may differ, the learners in this study had attained a similar level of language study. While most traditional English departments at universities in Taiwan focus on English literature, the English department in this particular setting emphasizes the teaching of English for practical use. The primary objective of the program is to prepare learners for working in an environment in which English is the primary means of communication. There are three major tracks in the program: business and technical English, English interpretation and translation, and English language teaching. Advanced Writing I, II, III, and IV are required courses for students in all three tracks. Each level requires one semester to complete and has different themes in different tracks. The department incorporated peer review activities as one of the assignments for all levels of the writing courses.

Of the total of 37 participants, 18 were from a senior writing class (IV) taught by an English native speaker, and 19 were from a junior writing class (II) taught by a nonnative speaker of English with a Master’s degree in TESOL from an American university. Although the focus of instruction for the two classes differed somewhat, both teachers used peer review to enhance learners’ writing skills. In the senior writing class, students learned academic writing skills, including paraphrasing, quoting, and synthesizing outside sources. The students were required to complete two research papers during the semester. The teacher in the junior class structured the class based on instruction in different writing modes or genres (e.g., comparison and contrast, definition, classification, and argumentation). The students in this class were required to write short essays on assigned or self-selected topics.

Procedure

The researchers first sought approval for doing this study from the chair of the English department at the UST. They then informed instructors of junior or senior academic writing classes via email of the purpose of this research. Two instructors in the department were willing to help by seeking volunteers in their classes. Neither instructor had ever used computer-mediated peer review in their instruction and were interested in trying it for a semester. During regular class hours, the teachers told the EFL learners of the purpose of the study, requesting voluntary
participation. All of the learners in both classes agreed to participate and were assured that their expression of personal preferences for any type of peer review mode in the survey would in no way affect their grades.

**Face-to-face peer review**

Since both instructors had had learners do face-to-face peer review (FFPR) before the time this study was conducted, the researchers interviewed both instructors via email to better understand the overall context and how FFPR sessions had been conducted. In both classes, learners were required to write three drafts for each writing assignment. Most often, teachers asked learners to bring in their first draft and paired learners for the exchange and review of each other’s drafts. In reviewing the first two drafts, learners were asked to focus on global features of their peer’s text (e.g., content, organization, and coherence). Afterwards, the learners themselves checked the local features of their own text before submitting a final draft. In the junior class, learners selected their own partner. However, the teacher encouraged learners to work with a different person for each peer review session during the semester. Learners in the senior class, on the other hand, were assigned to a partner. According to the instructor, learners’ ability level was the most important criterion for selecting a partner for each learner. As Instructor two (T2) said,

I pair them by ability level. Sometimes good with good, poor with poor, but usually good with poor, or good with mediocre ability. Rarely good with good, because there aren’t enough good ability students to go around, but then again it isn’t fair to always put someone who has good writing ability with someone who isn’t as good. It’s hard. I will also consider their personalities and their gender to some degree-making sure they can get along and the males won’t dominate the females—but their ability level is always the first consideration.

Even though both classes had experience with peer review dyads in which learners focused on the global issues of writing, the procedures for conducting peer review sessions were somewhat different. In the senior writing class, due to time constraints and the length of written assignments, most peer review sessions were conducted by learners outside of class. The learners reviewed an assigned peer’s draft by following the instructions on the peer review worksheet provided by the teacher. In addition to pointing out the strengths and the weaknesses of their peer’s writing, learners were required to give suggestions for revision. To track the activity and to facilitate learners’ future revision, the instructor also required learners to provide written feedback, which was typically reviewed by the instructor before being given to the peer. In the junior writing class, since most written assignments were no more than two to three pages long, learners conducted all peer review sessions in class. The teacher also provided peer review guidelines (worksheets) and expected learners to give written feedback.

Initial email correspondence with the instructors suggested that they had similar concepts of face-to-face peer review activity. The following excerpts from the
email exchanges between the researchers and the two instructors are indicative of the teachers’ rationale:

peer review helps learners to realize some common errors which might happen to their classmates and to themselves as well. Also, by correcting others’ papers, learners will have better ideas about essay organization … . Learners learn to trust their peers’ correction, instead of relying heavily on teachers’ feedback. (QUE01/T1)

I want them to internalize the peer review process so they can use it with their own papers when no peer is available … when it [peer review dyad] works out right because when a learner has the right peer feedback at the right time a breakthrough in improving his/her writing can occur. (T2)

**Computer-mediated peer review**

Since none of the learners had had prior experience with computer-mediated peer review (CMPR), researchers cooperated with instructors to set up the activity. In the senior class, most regular class hours were used for one-on-one teacher-learner conferences in the instructor’s office; learners did not typically work together in class. Therefore, the instructor suggested having learners do CMPR outside of the class as an assignment. Since CMPR in this study involved only email and simple annotation features in common word-processing programs, learners could easily complete their tasks asynchronously at home or in the computer lab at school. To guide them initially, the instructor asked learners to email their drafts as an attachment and provide their feedback directly on their peer’s computer draft using “Track Changes” in Word as shown in the examples below. Learners then emailed the draft with feedback to the peer. In the junior-level class, the teacher agreed to adopt CMPR during regular class sessions, scheduling them in a networked computer lab. The procedures of CMPR were the same as those used in the senior class. Both classes adopted CMPR during the second half of the semester. During CMPR, the learners read the drafts and typed the feedback on the computer. There was no exchange of printouts or paper-based feedback.

The major feature of “Track Changes” is to document every change made in a text, including questions, comments, insertions, and deletions. By using “Track Changes,” learners were able to insert feedback adjacent to a problematic sentence or paragraph. These changes automatically appeared in a different font color along with a text box. As can be seen in the following examples, feedback can be interwoven in the texts or shown in text boxes in the margin. (Colored font has been replaced here with italics). Depending on the version of Word, the feedback may appear in a different place. For example, in Word XP, the comments and deleted words are highlighted in a small text box in the margin.

Example 1

In 2001, according to the estimate of the economic prosperity center of National Statistics Bureau, the average income of each rural farmer in 2000 is two thousand four hundred and thirty four renminbi. In addition, provinces like Qui-Zhou,
Xi-Cang, Gan-Su, Quing-Hai, Yun-Nan, Some readers might not know where the places are, please add more information to make it clearer to your readers. The average income is lower; especially in Qui-Zhou province, the average farmer’s earning is only one thousand one hundred and thirty six renminbi.

Example 2

(It would be better to start with your T.S., and also reveal your main idea first, so reader can probably know what you gonna talk about in your paper, and continue to read it) Many elementary schools’ English teachers in Taiwan face a serious problem: students do not like to read. A survey (investigating Taiwan’s children’s reading interests) conducted by Lin shows children’s favorite extracurricular activities are: watching TV (73.4%), playing games / chatting (63.1%), reading informal readers (49.5%), and playing video games (49.3%).

Example 3

Teachers should take reading picture books as an interest, rather than a purpose of test, otherwise will eliminate students’ reading motivation. Arousing children’s desire of reading will prepare them to read more in their lifelong time. (could you explain more why teachers “should” take reading picture books as…) Seems like you don’t have a strong conclusion. You can add one or two more sentences restated about “picture book” (which is your main idea) and the three characteristics to conclude the paragraph and this paper.

p.s. the information and examples in the paper are very good. I suggest you can add more examples and explain how the three characteristics work together when you extend this paper from 5 to 8 pages.

Example 4

Teachers can go through the cover page and the first page first without revealing the points and the outcome of the story. Then students will become very curious to find out what is happening next and start to read (2001). You can add one more sentence to conclude (summarize) this paragraph. Ex, “so the first characteristics of picture book, “picture”, can…..” The second characteristic that picture books functions to arouse children’s interest is the ‘pattern’. You can explain what “pattern” means here first. To give an easy and clear explanation will make readers understand what you say in this paragraph. Picture books are patterned with repeated phrases, rhythms, and refrains that can appeal students to start reading.

Example 5

In this character of this story, Guloong is a painstaking, intelligent, responsible and paying deep love for his lover and family. Therefore, there is a special holiday is called “Qixi” (七夕) to commemorate their love. Does Qixi relate to this topic? According to these three descriptions, “Cowboy” could be commented with different meanings because different countries, culture or nations. 我覺得 cowboy
Data Collection and Analysis

To investigate the EFL learners’ perceptions of both FFPR and CMPR, a questionnaire was developed that included three parts: a biographical section, 30 items using a 5-point Likert scale (5 indicating strongly agree and 1 strongly disagree), and 5 open-ended questions. The biographical section asked for learners’ previous major and English learning experience. The 30 Likert-scale items were designed to measure learners’ attitudes toward both peer review modes as well as specific features of CMPR, including “Track Changes,” and “reading drafts and offering feedback on the computer.”

The two EFL instructors distributed the questionnaires to the participants together with an informed consent form. All 37 participants remained anonymous. Since both instructors allowed learners to fill out the questionnaire during the regular class hours or teacher-student writing conferences, there was a 100% return rate. However, four questionnaires had incomplete responses and were excluded from data analysis.

The 30 Likert-scale items were tested for reliability coefficients (Cronbach’s alpha). Responses to the 30 items were then coded and imported into SPSS for descriptive statistics analysis. For the purpose of analysis, responses to items that were phrased negatively were transposed. To determine whether learners’ answers to an item significantly differed from the mid-point of the scale (3), all responses were submitted a one-sample t test with the hypothetical mean score of 3 and a confidence interval of 95%.

In addition to the Likert-scale items, five open-ended questions were developed. The purpose of these questions was to elicit reasons for an expressed preference for a certain peer review mode that may not have been captured by the Likert-scale items as well as to identify the benefits and problems learners experienced. Learners’ responses to each open-ended question were read, major topics identified, and similar topics or opinions grouped together to form categories. The first four open-ended questions were designed to elicit detailed information about the problems and benefits learners experienced during both FFPR and CMPR. In the final question, three ways of doing peer review (i.e., FFPR, CMPR, and a combination of the two) were juxtaposed. In their responses, learners were directed to indicate their preference and give reasons for it. The rationale for including the option of a combination of the two peer review modes was to better understand learners’ perceptions of how peer review activities should be conducted. In this study, CMPR was based mostly on written communication; few verbal exchanges were involved. Ong (1977) convincingly argued that a person’s visual and vocal senses complement each other to foster superior intellectual development. To promote such an advantage, Schultz (2000) suggested that “the verbal character-
istics” of FFPR such as oral discussion and “the visual characteristics” of CMPR such as typed comments be used in combination to benefit foreign language learners the most (p. 141). Given that the learners in this study had already experienced both FFPR and CMPR, the option of “the combination of the two modes” was included. In the discussion that follows, learners’ responses to the open-ended questions are organized according to the advantages and disadvantages of both FFPR and CMPR.

RESULTS

The reliability coefficients for the 30 Likert-scale items are presented in Table 1. According to Sax (1989), a reliability coefficient of more than .6 is required for a self-designed text or survey. The CMPR and features (including Track Changes, font color, and spelling and grammar checks) of CMPR scales achieved alphas of .69 and .71, respectively. The alpha for the FFPR scale was a less than satisfactory .50. The FFPR was the scale with the fewest number of items. The coefficient could perhaps have been improved if the number of items in this scale had been increased (Henning, 1987).

Table 1
Reliability Estimation for the Questionnaire Items

<table>
<thead>
<tr>
<th>Categories</th>
<th>Item numbers</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face-to-face peer review</td>
<td>7 (1, 5, 9, 13, 17, 21, 25)</td>
<td>.50</td>
</tr>
<tr>
<td>Computer-mediated peer review</td>
<td>10 (2, 6, 10, 11, 14, 18, 22, 26, 24, 28)</td>
<td>.69</td>
</tr>
<tr>
<td>Reaction to features in CMPR</td>
<td>13 (3, 4, 7, 8, 12, 15, 16, 19, 20, 23, 27, 29, 30)</td>
<td>.71</td>
</tr>
</tbody>
</table>

Cronbach’s alpha for the total of 30 items = 0.80

Learners’ Perceptions of Peer Review

The descriptive statistics in Table 2 show learners had favorable attitudes toward face-to-face peer review ($M = 3.95, SD = 0.41, t = 13.29, p < 0.01$). Items 1, 9, and 25 had a mean score higher than 4, indicating a high agreement among learners. More than 82% of learners agreed that peer review helped them improve their writing and should be used in writing classes. In addition, as many as 92% of the learners agreed that they benefited from reviewing their peer’s writing. This last finding may reflect what Grabe and Kaplan (1996), Reid (1993), and Spear (1987) have argued, namely, that peer review can boost learners’ confidence as a second language writer because they can see other learners also make mistakes and struggle with the writing.

As Table 3 shows, when asked if they liked to do computer-mediated peer review, learners did not express very strong agreement ($M = 3.52, SD = 0.41, t = 7.25, p < 0.01$). The mean score (3.12) of item 24 was not significant. Although as many as 67% of the learners liked to use “Track Changes” when providing feedback on the document (Item 26: $M = 3.81, SD = 0.76$), only 46% said they wanted...
to continue doing CMPR in the writing class. The same percentage of learners (46%) chose not to agree or disagree (Item 11: $M = 3.33$, $SD = 0.77$). Overall, learners had less favorable attitudes toward CMPR than toward FFPR.

Table 2
Learners’ Perception of FFPR (N = 33)

<table>
<thead>
<tr>
<th>Scale one</th>
<th>$M$</th>
<th>$SD$</th>
<th>$t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>I benefited from doing face-to-face peer review in writing classes.</td>
<td>3.95</td>
<td>.41</td>
<td>13.29*</td>
</tr>
</tbody>
</table>

Individual items

1. Face-to-face peer review (FFPR) helps me improve my writing. | 4.15 | .71 | 9.29* |
5. In general, FFPR is a waste of time. | 1.90 | .68 | 9.24* |
9. I benefit from reviewing the writing of my classmates. | 4.06 | .75 | 8.15* |
13. I would rather have only the teacher review my writing, no peer review. | 2.27 | .91 | 4.59* |
17. The feedback from my partner is not useful for revising my subsequent drafts. | 2.33 | .92 | 4.14* |
21. Reviewing my classmates’ drafts gives me a different insight on the topic of the writing assignment. | 3.79 | .93 | 4.88* |
25. I think FFPR should be used in writing classes. | 4.15 | .79 | 8.31* |

*p < .01

*Table 3
Learners’ Perceptions of Computer-mediated Peer Review (N = 33)

<table>
<thead>
<tr>
<th>Scale two</th>
<th>$M$</th>
<th>$SD$</th>
<th>$t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>I like to do computer-mediated peer review in writing classes.</td>
<td>3.52</td>
<td>.41</td>
<td>7.25*</td>
</tr>
</tbody>
</table>

Individual items

2. I like to do computer-mediated peer review (CMPR). | 3.45 | .71 | 3.67* |
6. Computer-mediated peer feedback is not useful for revising subsequent drafts. | 2.36 | .89 | 4.08* |
10. I like to give feedback on my partner’s draft in Word document. | 3.60 | .86 | 4.03* |
11. I want to continue doing CMPR in writing classes. | 3.33 | .77 | 2.46** |
14. I feel relaxed and comfortable when giving feedback on the computer. | 3.42 | .66 | 3.67* |
18. Giving feedback on the document is easy. | 3.63 | .96 | 3.79* |
22. I feel that feedback on the document is confusing. | 2.45 | .61 | 5.07* |
24. I do not like to do CMPR in writing class because I cannot talk to my partner in person while giving feedback. | 2.87 | .82 | 0.84 |
26. I like to use “Track Changes”/“Font Color” when providing feedback on the document. | 3.81 | .76 | 6.11* |
28. Feedback on the document is easy to understand. | 3.57 | .75 | 4.40* |

*p < .01, **p < 0.05
Learners’ Reaction to Features of CMPR

The features of CMPR examined in this study include: exchanging drafts via email, Track Changes, font colors, spelling and grammar checks, the nature of typed feedback on the drafts, and reading drafts on the computer. Thirteen items were designed to investigate what features learners found helpful when doing CMPR and what features they found difficult to use (see Table 4).

Table 4
Reactions to Features of CMPR (N = 33)

<table>
<thead>
<tr>
<th>Item</th>
<th>M</th>
<th>SD</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.</td>
<td>3.70</td>
<td>.68</td>
<td>5.85*</td>
</tr>
<tr>
<td>7.</td>
<td>3.94</td>
<td>.65</td>
<td>8.19*</td>
</tr>
<tr>
<td>15.</td>
<td>3.67</td>
<td>.92</td>
<td>4.14*</td>
</tr>
<tr>
<td>19.</td>
<td>2.08</td>
<td>.63</td>
<td>10.68*</td>
</tr>
<tr>
<td>23.</td>
<td>3.72</td>
<td>.67</td>
<td>6.19*</td>
</tr>
<tr>
<td>27.</td>
<td>2.36</td>
<td>.85</td>
<td>4.25*</td>
</tr>
<tr>
<td>29.</td>
<td>4.00</td>
<td>.93</td>
<td>6.14*</td>
</tr>
<tr>
<td>4.</td>
<td>2.36</td>
<td>1.01</td>
<td>2.77*</td>
</tr>
<tr>
<td>8.</td>
<td>3.15</td>
<td>1.09</td>
<td>-0.79</td>
</tr>
<tr>
<td>12.</td>
<td>2.55</td>
<td>1.00</td>
<td>2.60**</td>
</tr>
<tr>
<td>16.</td>
<td>2.33</td>
<td>.95</td>
<td>4.00*</td>
</tr>
<tr>
<td>20.</td>
<td>2.52</td>
<td>.97</td>
<td>2.68**</td>
</tr>
<tr>
<td>30.</td>
<td>2.66</td>
<td>.77</td>
<td>2.46**</td>
</tr>
</tbody>
</table>

*p < 0.01, **p < 0.05

Table 4 shows most learners felt that “Track Changes” was very convenient for giving feedback (Item 17: $M = 3.94, SD = .65, t = 8.19, p < .01$) and that exchanging drafts via email was efficient (Item 29: $M = 4, SD = .93, t = 6.14, p < .01$). In addition, learners generally think the spelling and grammar checks are useful, and typing feedback right after/next to problematic sentences and paragraphs is helpful and easy to read. However, when asked if reading drafts on the computer is difficult, most learners chose to remain neutral (Item 8: $M = 3.15, SD = 1.09, t = -0.79$, not significant).
Responses to Open-ended Questions

Face-to-face peer review

The major advantage learners associated with FFPR was that they were able to talk with peers during the review session, which enabled them to seek clarification and negotiate meanings to avoid misunderstanding. Most learners found that this not only eased the peer review process but that it also made the peer review more effective because many found speaking more efficient than writing. One learner wrote, “I can discuss my problems with my peers in detail. Through this face-to-face process, I always get useful suggestions from my peer.” In addition, some learners mentioned that when encountering complicated ideas or disagreement, they liked to discuss in their native language. A senior learner wrote, “My partners and I can directly point out each other’s weak points in our writings. Oral feedback is more efficient to me than written feedback. When I felt it’s difficult to talk in English. We preferred to speak Chinese … .”

Learners also reported several problems in these sessions. They often did not have enough time to read and comment on each other’s writing. They typically rushed through a review without fully explaining the problems they found or the questions they had. Some also found it difficult to come up with specific suggestions in a limited time. One learner wrote, “I could not immediately provide a suggestion to the problem of my partner’s paper … if time is limited, could not explain all the problems I found in the limited time.” In addition, many learners felt uncomfortable pointing out their peer’s problems face to face. Some indicated that they would avoid identifying problems in other’s writing and try to encourage their peers in order to maintain a harmonious relationship. Sometimes, instead of specifically pointing out problems, they would suggest adding more details: “while I do face-to-face peer review, I wouldn’t really criticize my peer’s writing. I would rather encourage him/her to get more detailed information. This attitude would sometimes harm the writing progress of my peer. In short, the Chinese people’s attitude-harmony might hinder writers from progress.”

Computer-mediated peer review

Learners reported two major advantages of CMPR. First, CMPR offered more flexibility than FFPR. Many indicated that since they and their partner did not need to be logged on to the computer at the same time, they could read and comment when convenient and at their own pace. Learners were able to take time to reflect on their ideas and rehearse responses to their partner. The use of “Track Changes” also made the reviewing process easier. Learners could edit and revise their feedback easily, and most learners found typing more convenient than handwriting. One learner wrote: “I think the benefits are as follows: it’s easy to change any points I think not appropriate. It’s easy to add whatever I want to express. It’s clear to see my point to my peer’s paper.” It seems that being able to edit feedback on the computer was a real benefit for learners since typed feedback could be changed anytime before being forwarded to the author.

In addition, most learners reported that they felt more comfortable and less
pressure giving feedback on the computer. In CMPR, they did not have to face their peers, and, consequently, many seemed to worry less about their peers’ reactions. One learner wrote, “We can say what we want and express our thoughts directly.” Another stated, “while giving feedback [on the computer], I feel free to say anything I wanted to say without worrying about my peer’s reaction.”

CMPR is not without disadvantages. As explained above, the opportunity for oral discussion was considered a major benefit of FFPR. Accordingly, the lack of verbal communication in CMPR was seen to be one of its drawbacks. One learner stated, “Some problems you face [during peer review] may be very complicated and you cannot explain very clearly [without talking to your peers].” Other problems cited relate to the use of email. A number of learners complained about the uncertainty of email transactions. A learner from the senior class wrote, “my peer once mistyped my email address, and of course, I did not get my feedback;” another commented, “The mail might be lost while sending it to my partner, and it could be due to mail to the wrong address . . . .”

The time delay in email also presented a problem for some. Some learners reported that their peers took advantage of this and failed to provide timely feedback: “my partners have excuses to give my feedback late” and “I waited a long time for the feedback but no one sent anything to me.” In addition, some learners found reading drafts on the computer uncomfortable: “difficult to read drafts on the screen. Feel my eyes with fatigue,” and “it was too hard to read things from the computer screen directly. My eyes would be extremely sore . . . .”

In response to the final open-ended question, 24 out of the total 33 (72%) said they preferred a combination of face-to-face and computer-mediated peer review. They felt that the two review modes could be used to complement each other. Of those learners who favored a combination of both peer review modes, many suggested that CMPR should be followed by face-to-face discussion. By so doing, they would be able to comment on each other’s drafts on the computer at their own convenience and also have a chance to negotiate meanings and ask questions about the feedback they received. One junior learner wrote, “I prefer a combination of the two because I can read the feedback from CMPR first and then ask my peer about some questions in my paper face-to-face.” Another stated, “A combination would be great. Doing online peer review first, then discuss [with peers] face-to-face. While doing FFPR, we could talk in our native tongue. This would make the whole communication process easier and clearer.”

**DISCUSSION**

Responses to the Likert-scale items suggested that although learners accepted both peer review modes, they had more favorable attitudes toward FFPR than CMPR. There was strong agreement with statements such as “Face-to-face peer review (FFPR) helps me improve my writing,” “I benefit from reviewing the writing of my classmates,” and “I think peer review should be used in writing classes;” whereas statements on CMPR such as “I like to do CMPR” and “I want to continue doing CMPR in writing classes” showed only moderate agreement. Responses
to open-ended questions suggested some of the reasons for learners’ preference for one mode over the other. Being able to discuss with peers was the most generally acknowledged benefit of FFPR. In contrast, lack of oral discussion was the most common drawback mentioned for CMPR. Although the learners found CMPR to offer several advantages such as flexibility in scheduling for review and a new means for editing feedback in the document, learners still considered oral discussion during peer review sessions to be critical. Given that peer review is a highly interactive activity in which learners constantly interpret and negotiate the meanings of one another’s writing, speaking appears a more efficient mode and one that in many instances can prevent misunderstanding. In FFPR, learners not only provided written feedback, but they also had chances to clarify ideas and exchange opinions with peers. On the other hand, in CMPR, learners had to rely only on feedback on the document itself, something they considered a serious drawback.

These findings should not be interpreted to mean that CMPR is not useful and should not be used in writing classes. Many special features such as “Track Changes” and “spelling and grammar checks” were found to be helpful and convenient. Moreover, many learners indicated that they preferred typing instead of writing while providing feedback. This finding is contrary to that of Huang (1998) who found typing skill to be an obstacle in CMPR for Chinese learners. These learners at a university of science and technology even found typing to be more efficient and convenient than handwriting.

Although learners’ attitudes were more favorable toward FFPR than toward CMPR, many found it somewhat stressful to review others’ work face to face. They were afraid that in pointing out their peer’s problems they might hurt the other’s feelings or even damage their friendship. Some said that they would not critique and identify problems directly in order to maintain a friendly relationship. These findings corroborate those of Carson and Nelson (1996, 1998) that Chinese learners often avoid discussing problems and disagreeing with peers in order to maintain harmony. However, more research is needed to know whether this is a uniquely Chinese trait or whether learners from Western cultures behave in the same way. The second author of this research report has gathered substantial anecdotal evidence of peer pressure to maintain harmony and consensus among 18- to 20-year-old university students in the US, whether in full class, small group, or one-on-one discussion of each other’s writing. In addition, it should be noted that proper training is important before having learners do peer review. Teachers should explain the purpose of peer review and let learners know that their responsibility is to offer honest feedback in an effort to help their peers. In this way, learners may feel less pressure while pointing out problems in their peers’ writing.

The fact that most learners in this study found FFPR helpful suggests that a concern for harmony did not prevent the activity from being productive. Most learners had positive attitudes toward peer review in general and acknowledged its value in helping them to revise subsequent drafts. Many suggested that they would like to do CMPR first and then have face-to-face discussion with a peer. By
doing so, they could read and comment on each other’s draft at their own pace and also have a chance to ask questions and clarify ideas. They saw a combination of the two modes as a way to make peer review activities more efficient and effective.

Several pedagogical implications can be drawn for EFL writing instructors in Taiwan, especially for those teaching at universities of science and technology. CMPR should not be used alone in the writing class due to its main limitation: lack of oral communication. Since peer review is a highly interactive activity, oral discussion is more efficient than written communication. Its advantage is clear even if such discussion should take place in the learners’ L1. However, in light of comments from the learners as to their preference for speaking Chinese in class—a finding that appears to reflect a more general tendency of Taiwanese learners to favor the use of Chinese in English classes (Wang, 2002)—classroom research is needed to understand the reasons for and the extent of Chinese language use and to identify ways in which more advanced-level learners, in particular, can be encouraged to speak English. Teachers might consider combining both FFPR and CMPR to make peer review sessions more productive. For example, since time constraints are an issue common to many classes, teachers could have learners do CMPR outside of classroom and then allow time for face-to-face sessions during regular class hours.

This study is not without limitations. First, all the participants were from the same national university of science and technology. The small sample size does not allow generalizations to EFL learners in universities throughout Taiwan. Research with a larger sample drawn from different universities is needed to confirm our findings. Second, learners’ responses elicited from a questionnaire with Likert-type items and open-ended questions may or may not be as accurate or complete as those gathered by means of in-depth face-to-face interviews. Third, since the participants were recruited from two classes taught by different teachers, there is a possibility that learners’ perceptions of both FFPR and CMPR were influenced by the instructional objectives and styles of their teacher.

Future research on peer review in EFL settings could well examine how learners’ perceptions toward both face-to-face and computer-mediated peer review are affected by such variables as teaching style, assignment types, learners’ age, and English learning experience. In order to reap the benefits of a process approach to writing, can they learn to focus on the global features of a text, things like content, organization, and coherence, as well as on the more familiar sentence-level grammatical structure? In addition, since the findings of the present study suggest that both FFPR and CMPR are best used together, future research could investigate the advantages of various combinations of the two modes. Given the communicative nature of peer review, by documenting learner interactions in both face-to-face and computer-mediated sessions, future research could also explore how students negotiate meaning.

The present study yields encouraging results. It shows peer review to be a highly communicative language activity that can be used successfully in an EFL context in Taiwan. The learners in this study not only had favorable attitudes toward the
experience, they found peer review helped them with their writing. These findings do not support the suggestion that peer review may not work well for learners with a Chinese cultural background (Carson & Nelson 1996; 1998). Moreover, research findings related to learners in ESL contexts might not be an accurate representation of peer review in EFL contexts. Although the learners in this study reported experiencing pressure in pointing out problems in one another’s writing, the advantages offered by peer review activity in general seemed to outweigh the drawbacks. Peer review appears to be a means of increasing learner communication in writing classes, offering ideas and strategies for revision, and promoting a sense of discourse community (Grabe & Kaplan, 1996; Nelson & Murphy, 1992; Spear, 1987). Most important, peer review may reduce learners’ apprehension of writing in a foreign language and increase their confidence as EFL writers.

NOTES

1 The Norton Textera Connect software supports file sharing, discussion, editing of word-processed documents inside learners’ word processor. It has both real-time and asynchronous discussion features, private messaging, and group talk.

2 These 2-year programs follow a 5-year junior college program (a combination of high school and the first 2 years of college). A detailed description of these 2-year programs and of their English language goals is provided in the discussion of the research design that follows. The appendix to this article outlines the formal education system in Taiwan.

3 Email exchanges between the researchers and the teachers are identified by teacher.

REFERENCES


APPENDIX

The formal education system of Taiwan (adapted from Wang, 1999, p. 7)

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