

A Look into the Nature of Computer Mediated Writing: Does the use of computers in the second language writing class foster greater improvement in writing skills than traditional pen and paper writing?

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1. Introduction

Computers have been used in the second language classroom since the 1960's, originally in an audiolingual context where computer assisted language learning (CALL) was restricted to basic structural practice drills. In the early 1980's computers found a place in second language writing classes at first as a process writing tool because writing teachers and students began to see the benefits of computers and word processing applications for composition such as the ease of editing electronic documents by inserting, deleting, and rearranging text. Also, in the 1980's computers on local networks began to be used for communication especially in the form of email. Since then, computer mediated communication (CMC), where people communicate in textual form via computers, have been used in some second language writing classes and is growing in popularity as a medium in which to teach second language learners how to write in the second language. Its use and effect on writing in the second language has been and continues to be studied and the results and implications of the studies are under debate. The Internet and local area networks (LANs) have further expanded the use of CMC in the second language classroom.

These days many educators in various countries are advocating a greater role for computers in education looking to the Internet as a wealth of information and the ability to communicate easily and instantaneously across great distances. For example Fang & Warschauser (2004) recently published a study on technology and curricular reform in China where they report a large scale program to "modernize" education particularly to incorporate computer, multimedia and Internet technology. In an earlier paper, Warschauser et al (1996) summarize the advantages of computer technology, claiming that computers in the second language classroom help to empower students by giving them the means to take control of their own learning; offering equality in the sense that computers allows users, who maybe reluctant to participate in class discussion, the chance to express their views via CMC; and that

CMC is compatible with current views on language learning where the focus is on using language for communication to express meaning. Along with the potential benefits of computers in education, many researchers have expressed serious doubts stating that some students maybe at a disadvantage because of limited computer access and a lack of knowledge or apprehension towards the use of computers for CMC. As computers are being used more and more in second language writing classes, many questions have been raised regarding the nature of the writing produced by students using computers and how it may differ from traditional pen and paper writing. One of the major questions surrounding the use of computers in second language writing pedagogy and the question that I will focus on in this paper is whether or not the use CMC in the classroom produces better quality writing than instruction by the traditional pen and paper method.

One of the problems in answering the above question is that it is difficult to determine what constitutes "improvement" in writing ability. Casanave (2004) discusses this problem and explains that in order to measure improvement there needs to be a consensus on what "good writing" involves. However, the concept of "good writing" is subjective and even experienced writing teachers have trouble explicitly stating what makes for "good writing." Casanave suggests that writing teachers set the criterion for good writing in assessment rubrics in which they are clearly stated. Also according to Casanave improvement in writing depends on two factors: the quality of writing as outlined by teachers which may include fluency, accuracy, and logical organization of ideas and the development of overall L2 proficiency. Usually it is the writing teacher's main goal to focus on improving the quality of writing rather than overall language ability and there are several approaches that teachers may take depending on the course objectives and the teacher's own views on language and learning. Several general approaches to teaching writing in the second language writing class include: (a) product writing, which focuses on the finished product such as the academic essay; and (b) the process writing approach which focuses on the steps in composition such as generating and organizing ideas, drafting and revising before the finished product.

Research has been inconclusive to determine if students produce better quality writing over time by CMC or by traditional pen and paper. However, I believe there are several features of CMC that give it an advantage over pen and paper writing in helping students to become better writers in the second language. Perhaps the key feature of CMC over traditional pen and paper is that it provides students with a wider audience and it is this authentic interaction which greatly influences the quality of writing. In particular, there seems to be more and more evidence indicating that CMC enhances fluency and the complexity of written language not

only in quantity and quality of text but in a larger variety of language functions and participant roles. Also, in many studies students have generally responded positively to the use of CMC in the second language writing class and it has provided motivation to these students which one would expect to indirectly influence the quality of writing. It seems quite clear that students benefit by the increased interaction with a real audience via CMC. However, along with the benefits there are some drawbacks, such as computer anxiety that some students may feel, which need to be looked at in order to fairly judge the value of CMC in the second language writing class. Also, I will briefly discuss the controversial issues of equality and autonomy as they relate to CMC and the impact they may have on writing and student participation.

2. General Characteristics of CMC

CMC can either be synchronous or asynchronous depending on the mode of communication. Internet relay chats (IRC) and local area networks (LANs) are considered synchronous because they allow for real time communication, meaning participants are on line at the same time and can respond within a short time frame. In the second language writing class synchronous CMC are usually set up as “chats” where students log on to a local network, usually in a computer lab. On the other hand, asynchronous CMC such as email, the recipient is not required to be on line and can read the email at any later time. Another type of asynchronous CMC which is sometimes used in second language writing classes is a bulletin board where students can choose a topic and send a message which is posted and others can respond. Warschauser et al claim that email and other forms of asynchronous CMC are more commonly used than synchronous CMC and some typical applications include teacher-student, student-student correspondence, cultural exchanges through “key pals” from other countries, peer feed-backing and group projects. Even though CMC such as email is considered asynchronous, Wang (1993) notes that asynchronous CMC is similar to synchronous CMC since it is often the sender’s perception that the recipient(s) will receive the email message instantaneously and will respond within a short time frame. It is this real time communication factor of CMC which greatly influences the nature of CMC writing as we will see later on.

Before looking at specific research, it is worthwhile to examine some of the literature on CMC because as a form of writing it is rather uncharacteristic of traditional writing and has some characteristics of spoken language. Many, such as Murray (2000) consider CMC to be a unique form of communication in its own right, different from either written or oral communication. Wang likens CMC as mode of written communication similar to how a telephone conversation is a form of spoken

communication with a certain set of limitations. Murray claims that the type of writing produced by CMC, like other forms of written language, naturally depends on the context; however, there are some common characteristics of CMC which resemble spoken language such as the use of simplified registers and the adaptation of strategies to compensate for the inability of written language to convey non-verbal cues which are expressed in spoken language by tone, stress and intonation.

Murray speculates that the use of simplified registers is probably due to certain limitations such as computer access, typing speed, and technical knowledge of hardware and software. Users often employ strategies to reduce typing time and amount of typing such as simplified syntax as in the omission of subject, the use of formulaic phrases, and abbreviations, for example IMO (in my opinion). In order to compensate for the inability to convey stress and intonation, on line participants have adopted certain conventions such as adding additional letters to indicate stress as in "yeeesss," and the use of symbols to convey feelings and emotions. A typical example of this would be the happy face as represented by a colon followed by a dash and a bracket. It's interesting to note that different speech communities develop their own specific abbreviations, symbols and formulaic phrases. For example Lam (2000) points out that there is an Asian version of the happy face, and Matsuda (2002) in his study of a Japanese on line discourse community reveals several "facial expressions" to indicate feeling such as shame and embarrassment.

In regards to organization, CMC messages often lack openings, greetings, and even closings though this depends on the context and the form of CMC. Since most CMC messages identify the sender and usually the purpose of the message, participants probably do not feel the need for such formalities. Also, as noted by Murray, email was initially used in a corporate environment where messages were usually brief and in the form of requests. This attitude towards email seems to have continued on somewhat into the non-corporate world. This is especially true with synchronous communications; however, more asynchronous communications such as email are more inclined to include these formalities because of its asynchronous nature. Another important characteristic of CMC is the tolerance of grammatical mistakes and spelling errors which is probably due to informal nature of CMC in general and the emphasis on the "message" rather than the form.

As with other forms of written language, CMC leaves a permanent record and this influences the nature of CMC discourse. CMC such as email often pertains to multiple threads of discourse since previous emails are either attached or retrievable. Due to this ability to respond to an email by using the 'reply' function which attaches previous email, this eliminates the need to make reference to the previous

email or to summarize the content of previous email(s) in the response. The discourse in synchronous CMC such as chats tend to stick to one topic because as noted by Murray, old messages quickly roll off the monitor giving participants the impression that they are gone and irretrievable.

3. The effect of CMC on the quality of writing in the second language classroom and related issues

3.1 Fluency versus Accuracy

A number of studies have looked at the characteristics of second language CMC and the various factors which influence the quality of writing. Many studies are consistent in that they indicate the interaction of an authentic audience as provided by CMC promotes greater fluency in writing such as a larger quantity of writing accompanied by the use of more complex language forms. However, this increase in fluency seems to come at a cost: a loss in accuracy as indicated by a relative increase in grammatical errors. In a study conducted by Li (2000), she looked at different factors and how they might influence the emails of her second language learners. She compared the characteristics of her students' emails with and without audience interaction, structured and unstructured writing tasks, and different writing tasks in terms of rhetoric. Her research results are consistent with other studies in that as the complexity of writing (as measured in sentence length, subordinate structures, and lexicon usage) increases, the number of grammatical errors also increases. Li argues that an increase in the use of complex sentences and lexicon, even though it may be accompanied by an increase in errors is considered positive since it indicates an improvement in writing fluency and that the students are more engaged in their writing. She further claims that a willingness to experiment with new language in writing is considered an important step for overall improvement. In the analysis of the effect of different variables on quality of written language on her students' emails, Li found a higher level of complexity in the writing in an expository writing assignment versus a narrative, interaction versus non-interaction, and unstructured versus structured writing assignments. In other words, according to Li students produced the best writing in terms of complexity when they wrote email assignments which were expository or argumentative in rhetoric, when they were required to interact with other students by having to respond to several of the other students' writings and when they were given freedom to select their own topics.

Li concludes that peer interaction via email or LANs leads to greater sophistication in L2 writing. Also, she concludes that students produced more sophisticated

language in unstructured tasks where the students had more control over the writing task. This ties into the idea that networks empower students by giving them more control over their writing. However, she concedes that there is a correlating increase in errors: "It seemed that interaction with a peer audience helped the students to generate more complex and sophisticated use of written language but, at the same time, the grammatical accuracy of their language suffered." (p. 240) Also Li suggests the more instant or real time nature of email probably contributes to an overall increase in errors versus traditional paper and pen due to time constraints in writing. These time constraints are probably a result of a number of different factors such as limited access time to computers, typing speed and the students' own conception that they have to respond quickly.

Coniam & Wong (2004) reported similar findings in a study of a group of Hong Kong junior high school students' EFL writing comparing CMC in Internet relay chat versus a pen and paper control group. The interesting thing in this research project is that students were told to focus on a specific grammar point when writing (one finite verb/clause). A comparison of writing samples from both groups indicated that the CMC group demonstrated a greater mastery of the grammar point in a simple context; however, the overall number of grammatical errors was more than the pen and paper group because the CMC group used more complicated structures and thus made more error regarding the specific grammar point.

An email project set up by Liaw (1998) in which she had students from different EFL classes in her Taiwanese university send each other emails while remaining anonymous to each other, showed similar results: a perceived increase in the amount and complexity of writing accompanied by an increase in the number of grammatical errors. Liaw notes, however, that the increase in grammatical errors did not hamper communication and students did not ask for clarification.

In spite of the enthusiasm of the above studies in regards to increased fluency and sophistication of second language writing via CMC, the relative increase in grammatical errors is a concern because students may not feel the need to pay attention to form since it is widely acknowledged that grammatical and spelling mistakes are generally accepted in CMC. This could be a problem if students carry these habits into other genre or rhetoric of writing, such as academic writing, which are more formal and less tolerant of errors. The tolerance of grammatical errors is one of the factors that contributes to the perception that CMC is informal in nature. This perception may in turn contribute to other problems second language learners face when writing in the second language particularly with rhetoric, genre and appropriateness.

3.2 Rhetoric, genre and appropriateness

One of challenges L2 students have in writing in the second language is with rhetoric, genre and appropriateness. Many linguists are concerned that this may be even more problematic for L2 learners with CMC because of its informal and instantaneous nature. Because of the informal nature of email messages, McPherson & Murray (2003) note that many L2 learners have difficulty recognizing genre in email and need explicit instruction. They cite students who have been criticized or shunned for having less than fluent English and by not recognizing the genre of the discussion. On the other hand, L2 writers are often welcome to participate if they participate in the genre of the discussion in spite of a lack of fluency. Others suggest that students have difficulty with the rhetoric required for CMC for specific purposes and that CMC, such as email, are often inappropriate for a particular situation, possibly causing misunderstandings.

A question Bloch (2002) was trying to answer was if students in a graduate level EFL course could use email in their communication with the teacher (Bloch) that uses the correct rhetoric and is socially appropriate for the situation. He examined the emails he received from students and identified four main types of rhetoric: phatic communications (communications for the purpose of maintaining personal relationships), making excuses, asking for help, and making formal requests. He concludes by stating: "The students in this study seemed to intuitively understand that email is more than just language; the ability to send and receive messages provides a writing context where relationships can be negotiated through written language. Thus to be successful, email users requires more than just fluency; it always requires the ability both to express oneself using a variety of language forms and rhetorical strategies as well as to know when it is appropriate to use these different forms." (pp. 131-132)

My personal opinion is that some of the examples Bloch provides seem to be inappropriate in the sense that the messages are too casual considering it is students communicating with the teacher, though we have no way of knowing the classroom atmosphere or the teacher-student relationship in this case. Also, since the students in this study are "graduate level EFL students" then we can assume that they are quite proficient communicators in English. More research is necessary in this area, especially with lower and intermediate level students.

3.3 Participant Roles and Language Functions

Several studies comparing second language writing via CMC and pen and paper

revealed that the computer mediated writing through chats and email led to a greater number of language functions and participant roles. This result may be attributed to authentic interaction, the speed of communication and potentially liberating effect CMC may have on participants because of its informal nature and autonomy participants feel.

In a 1993 study, Wang compared the language functions, for example, reporting, predicting, responding to questions, thanking and complaining found in dialogue journals written between a teacher and students in both an email and pen and paper context. She found that the number of language functions produced in the computer group and the overall quantity of writing were greater than that of the pen and paper group. Wang lists several possible explanations for why the students and the instructor wrote more in the email environment. One them is that email made the process of communication between the students and the instructor easy and convenient because they did not have to coordinate a time to meet and did not have to deal with paper work. The ease and convenience of email probably contributed to an increase in the quantity of writing. Another explanation is that email provided the opportunity for quick responses which helped to engage the instructor and the students and maintain interest. The instructor commented in an interview that this flow of communication supported topic recycling and stimulating discussions. Another advantage of the quick response time is that it fostered more questions as Wang notes: "Possibly due to the students perception of the speed of communication that when it is sent it is immediately received by the recipient. This fosters question asking since people want a quick response to questions." Also Wang considers the informal nature of email communication and its orientation to oral communication provided encouragement since students did not have to closely follow rules that are required in formal writing. In short, according to Wang (and her study), the increase in language functions and quantity of writing found in the computer group was a result of the ease and perceived immediacy of email communication which promoted informal discourse where both the students and instructor were more engaged in the communication exchange.

A related topic is the development of social roles that participants adopt in the interaction between correspondents. Abrams (2001) investigated the development of social roles of interaction in learner-to-learner collaborative tasks in both traditional paper-to-pen journals and synchronous CMC and found that both writing contexts revealed the same participant roles which she identified as speaker, scolder, respondent, commenter, informant, questioner, creator of in-group identity and knower. However, in the CMC context, she identified four additional roles of attacker, challenger, supporter, and joker. Abrams suggests there are three reasons for these

additional roles. First, the immediacy of CMC may have a liberating effect on students because the quick response allows for participants to adjust roles in response to criticisms, etc. For example, the role of supporter, which was found only in CMC, could be due to the immediate nature of CMC where one is more likely to respond on someone else's problem knowing that that person presently has those feelings. A second explanation could be the fleeting nature of written responses on the computer screen: as each new message is added older messages quickly scroll off the screen. The third reason for the presence of mostly more aggressive roles is anonymity of on line users which is greater than other forms of written communication since users don't have to worry about people trying to identify their hand writing and the fact that chat rooms can have a large number of participants. Abrams concludes that CMC can help learners adopt a wider range of participant roles and develop interaction skills that enable them to negotiate participant roles; however, the anonymity of users occasionally results in emotionally charged personal attacks from one participant to another via CMC called flaming which Abrams gives the reason for as, "...due to a lack of fear of recognition, and the ability to act out other personae than one's own, since there is no personal consequence to making social and interactional transgressions hidden behind the screen." (p.500)

This last point and the topic of participant roles bring up wider issues relating to the concept that CMC promotes student autonomy and equality. Both of these concepts are generally considered to be positive features of CMC and are factors which contribute to the quality of writing found in CMC. However, there is some dispute over the benefits of autonomy and equality as the above quote indicates. An in-depth discussion of the controversies surrounding autonomy and equality is beyond the scope of this paper; however, I will briefly discuss the issues involved as they do relate to interaction and potentially effect the quality of writing found in CMC.

3.4 Autonomy and Equality in CMC

As mentioned in the introduction, Warschauser et al claim that the autonomy provided by CMC allows students to take the initiative in their communications in the second language. Also mentioned is the related concept of equality in which participations who may be disadvantaged in face to face or in class discussion have a greater opportunity to participate in CMC. These two factors give students a higher level of freedom, one in which they are able to take risks and develop their particular voice or identity. Warschauser et al also state that autonomy and equality may create problems such as flaming. Also, the concept of equality itself has been challenged in a number of studies from many different points of view ranging from the inequality of computer access, the reluctance of some students to use computer

technology and power hierarchies that may develop within a discourse community. In short the issue surrounding autonomy and equality in CMC are complex and opinions vary. Here is a brief look at some of the issues and points of view.

Casanave (2004) lists the main three main benefits of CMC in the classroom as: (a) greater equality for participants, who may be apprehensive in the classroom, to participate in classroom discussions via CMC; (b) access to a vast amount of information through the Internet; and (c) providing a good forum for feedback and discussion which in turn provides writing and reading practice. As potential drawbacks, Casanave mentions that there is often resistance from some students and teachers to use computers for various reasons including an apprehension towards technology and an apprehension by some students to participate in LAN chats. Also, the use of computers may not conform to the teachers' or students' idea of traditional learning, and power hierarchies sometimes arise in discourse communities through CMC conflicting with the claim that CMC provides a level playing field. Another controversy relating to autonomy is the development of one's "voice" or identity through CMC. Usually considered a positive development in writing, certain characteristics of CMC may contribute to participants taking on altered or extreme personalities.

Other issues which are in contrast to the general enthusiasm towards CMC in the second language writing class include the digital divide between first world countries who are well connected versus third world countries which lack the necessary infrastructure, equipment and finances to hook up. This inequality is discussed by Warschauser (2000) who also notes that the predominant use of English on the net as compared to other languages may be considered oppression by some. As time goes by we can expect these equalities to diminish somewhat as computers become more commonplace; however, further discussion of these issues is beyond the scope of this paper.

In a graduate seminar where students were required to contribute several postings a week on a asynchronous newsgroup, Belcher (1999) observed that many non-native speakers who were generally quiet in classroom discussions contributed substantially in the newsgroup often demonstrating their high knowledge and useful insight into class readings. She endorses the idea that CMC is "the great equalizer" in which students who are possibly disadvantaged in the classroom are given equal opportunity to participate on line: "The most significant outcome of the new discursive environment of our newsgroup, as we have seen in the postings cited, was that voices - not anonymous, but clearly, and to all appearances, confidently self-identified voices - which were never or seldom heard in class were heard online."

(p.264) In a similar study, Kamchi-Stein (2000) reported that non-natives speakers contributed more to a web based bulletin board type discussion about class related topics than natives speakers where as the reverse was true in the in class discussions.

In Belcher's class, she acknowledges that this "miniutopia" only empowered those who logged on: "Unfortunately, if the newsgroup was utopian in many respects, it was a limited-access utopia. Five out of the seventeen students in the class never contributed to the online conversation. Of these five; perhaps surprisingly, three were NSEs and two NNSEs. Possibly less surprisingly, four of the five were woman. Numerous observers of the Information Highway have pointed out how relatively few female travelers there are on it and have described the discomfort many women experience in male-dominated e-space." (p. 264) It's seems quite clear that some students are apprehensive to participate in CMC. This issue will be discussed further in the next section "motivation vs. apprehension".

In an earlier mentioned study, Fang and Warschauser investigated technology and curricular reform in China. The push towards the use of technology is in the belief that technology will allow students to benefit from the information available on the Internet, and take advantage of multimedia for autonomous and classroom learning. However, several difficulties were encountered with the introduction of this technology. In China, classes are traditionally teacher based where a good teacher is considered a good lecturer and multimedia runs contrarily to cultural norms and beliefs. Also, a student centered approach using computers required much more work for the teachers, such as dealing with a large number of emails from students, many of whom already have heavy work loads with little support. Furthermore, some teachers were apprehensive to learn new technology and use it in the classroom. Also, contrary to the purpose of student empowerment, some teachers used technology in the classroom to maintain or amplify traditional ways.

Another point regarding the notion of equality is the belief that all participants are equal in the sense that they cannot be judged easily on physical, social or other features that may handicap them in face-to-face communication. This concept of equality has been challenged by Matsuda (2002) in his study of a Japanese online discourse community. By the analysis of Japanese language features, Matsuda claims that a power hierarchy was firmly in place in a TESOL (Teaching English to Speakers of Other Languages) discussion group among Japanese English teachers within three months. Matsuda claims that this hierarchy developed on the basis of the amount of knowledge the participants had on the subject of TESOL. In other words, participants who demonstrated a higher level of knowledge in the field in the

online discussions were given higher status. The power relationship that typically developed was that of teacher-learner and this was reflected in the discourse and the use of humble and honorific language forms found in Japanese.

Another so called advantage of CMC is its ability to disguise the writer, allowing the writer to develop his or her writing skills, take risks, and develop voice. It is precisely this feature that Casanave is critical about in that the anonymous nature of email or LAN chats may encourage students to exceed the normal boundaries and assume a kind of detachment from reality or take on multiple identities; possibly schizophrenic identities that they would not normally do in other situations. In a semester long email exchange between a hearing-impaired student, a colleague, and herself, Casanave was taken aback by the discussions that the three had through the email exchange. On one hand she was impressed by the language produced by this student which often contrasted the shy, polite student in person; however, she found the contrast to be rather eerie: "As my colleague said, after a semester of email exchanges, he forgot that Shuuichi was a young, undergraduate deaf student. But as satisfying as these written interactions were, something was missing. Yes, the email interactions brought out an identity of our student that we could not have imagined. Yet we were left after this intensive electronic interaction not having any idea who Shuuichi was, and I am guessing he had little idea who we were. We were not present in each other's interaction; we could not see who we were communicating with. Later, when I reviewed the printouts of our communications, I was astonished at the amount of language that Shuuichi produced and received, but I was disarmed by the distance I felt from him as a person." (p.164-5)

In contrast, Lam (2000) views CMC as a powerful tool that could give second language writers the opportunity to explore and develop their identities through on line communication with peers. In her study of an immigrant Chinese teenager's CMC with a group of mostly second language learners of the same age, she found that the teenager gained much confidence, improved writing skills and motivation. She concludes that the non presence of physical or social cues as in face to face communication, the adoption a nickname(in many cases), and the textuality and temporality in IRC, offers participants the opportunity to take risks and experiment with their identities. She also believes that the use of "World English" on many web chats is less intimidating than English taught in ESL classes.

Above was a brief discussion on some of the issues surrounding the concepts of autonomy and equality as they relate to CMC. As we can see these topics are controversial and opinions vary as to how much autonomy or equality CMC gives students over traditional paper and pen writing if indeed it does at all. Also opinions

vary as to how these concepts may benefit or disadvantage students in second language writing. Generally linguists view autonomy and equality as positive characteristic of CMC and have a positive influence on developing the writing skills of second language learners; however, it is by no means an overwhelming consensus. In order to evaluate the role and use of CMC in the second language classroom it is important for instructors to understand the issues surrounding autonomy and equality in CMC to make responsible decisions in the classroom.

3.5 Motivation versus Apprehension

A number of studies clearly indicate that the use of CMC in the second language writing class is a motivating factor for the majority of students. What is also clear is that some students may be apprehensive to participate in CMC activities such as email exchanges or LAN chats for a number of reasons. Students who fail to participate for legitimate reasons, such as a lack of experience or knowledge about using computers for CMC, and / or anxiety resulting from the use of technology, may be unfairly disadvantaged.

In several studies, students generally responded positively to the use of CMC in the classroom. The main contributing factors seem to be the authentic meaningful interaction students engage in with a real audience and that students generally view computer skills as useful for their future. Several studies have taken advantage of the potential stimulus of authentic interaction through email exchanges among peers. Liaw (1998) set up a project where students from one of her EFL classes corresponded with students from another EFL class. What made this project successful was that the participants were unknown to each other. Stimulated by curiosity, especially in the mixed gender pairings, Liaw claims that the majority of students responded positively to the email exchange and indicated that they enjoyed the intrigue of corresponding to a “mystery” partner, the opportunity to improve computer and typing skills, and they felt that their writing ability improved due to the ability to edit and revise their writing on the computer. Also, students felt that corresponding with another L2 student provided a stress free environment. However, not all students were enthusiastic about this email project as they cited problem with computer access and were discouraged when their partner failed to respond or respond in a timely manner.

In a similar project, Fedderholdt (2001) set up a cultural exchange between her EFL students in Japan and EFL students in Denmark where the students compared culture and lifestyles via email. Fedderholdt found out through a questionnaire and interviews that communication with a foreign “key-pal” provided the students with

motivation for writing in English for several reasons. As with Liaw's projects, the students found communicating with non-native speakers to be less intimidating and in fact many students commented that they were inspired by their key-pal's writing and this provided motivation in the form of a challenge to improve their own writing. The students also commented that the project helped familiarize them to the use of computers which they felt as beneficial to their futures.

A number of other studies also indicate that the majority of students were motivated by the authentic interaction offered by CMC. Both Belcher and Kamhi-Stein required their TESOL graduate level native and non-native speakers to contribute a number of postings on a LAN chat regarding feedback to assigned readings. Each author found that the LAN chat favored non-native speakers who tended to contribute less in class discussions and students generally commented that they thought the LAN chat was a useful part of the course. However, as noted earlier in Belcher's research, several participants failed to participate. Their reasons for not contributing were rather vague but perhaps it could be due to the shame they may have felt because they lacked computer skills and / or they were apprehensive to technology in general.

The apprehension by some participants to log on may also be attributed to "computer anxiety" in that they perceive a computing situation as a threat. According to Matsumura and Hann (2004) there may be several reasons for computer anxiety ranging from fear resulting from a lack of knowledge of hardware and / or software to the general distrust of technology. They claim that the effect of computer anxiety is as follows: "...individuals high in the computer-anxiety trait are more vulnerable to stress, tension, and apprehension when interacting with computers and are thus more likely to experience anxiety state reactions than individuals who are low in the computer anxiety trait" (p.404) In their study they determined that there was a correlation between the degree of computer anxiety as determined by a questionnaire and a student's choice of feedback in an EFL writing class. Students who were prone to high computer anxiety chose feedback by a face-to-face meeting with the instructor whereas students who expressed a positive attitude towards computers preferred feedback via email. Students also had an option to post their essays on a bulletin board to receive feedback from both classmates and the instructor. Students who chose to post their essays showed much improvement from the first draft to the final product showing that receiving indirect on line feedback had a positive effect on improvement in essay writing. However, what is revealing is that few students chose to post their essays indicating students seemed to be uncomfortable with the idea of their writing available for public viewing and critique.

If used properly, CMC can play an important role in motivating students which usually results in students becoming more engaged in their writing resulting in larger quantity and higher quality writing. As the above studies indicate, students were stimulated by the authentic interaction as provided by CMC. However, not all students were motivated or participated in the above studies indicating they may have apprehensions thus these student were at a disadvantage. In the classroom at the beginning of the term instructors should get a feel of their students' attitude towards computers and provide options so that if CMC is used in the class, students who may suffer from computer anxiety are not unfairly disadvantaged.

4. Conclusion

The question of whether or not CMC helps students to improve and produce better quality writing than traditional pen and paper is a difficult one to answer. I personally believe that if used properly, CMC can be a valuable tool in the second language writing class that has a number of advantages over pen and paper which could result in improvement superior to pen and paper. The underlying factors that differentiate CMC over pen and paper writing are authentic interaction with a real audience, the instantaneous nature of CMC and possibly the ability to easily edit text on screen. There are a number of characteristics found in the writing students produced in the studies cited that indicate a higher quality of writing as compared to writing produced in similar activities using pen and paper. Although it is difficult to define "improvement" in writing, several studies indicate that CMC promotes greater fluency which can be considered a positive indication of improvement. Although there is a reported corresponding loss in accuracy, fluency is still considered positive since it indicates students are writing in greater quantity, and taking risks to use new forms and lexicon and generally producing more sophisticated language. Also the studies indicate that students use a greater number of language functions and participant roles in CMC discourse. This again can be contributed to authentic interaction and instantaneous nature of CMC though it has been noted that many of the participant roles that were found to be unique in CMC were mostly aggressive in nature and may result in messages which are potentially offensive to other participants.

Other factors mentioned which may indirectly influence the quality of writing produced in CMC are the concepts of student autonomy, equality and motivation. Each of these may have a positive or a negative impact on the quality of CMC writing and / or student participation. Opinions vary among scholars in the field ranging from some who believe that CMC is an "on line utopia" in which members who may be disadvantaged in class discussions are able participate equally in class-

related online chats as opposed to some who correctly point out that some students may decide not to participate due to the nature of the on line discourse, limited computer access and / or computer anxiety. Motivation is also a potentially powerful influence on the quality of writing in CMC and students in various studies cited authentic interaction with the teacher, a classmate, or a key pal as the main motivating factor along with the use and practice of computer skills which many students viewed as a valuable skill for their future.

In my experience teaching second language writing classes to university students in Japan, students are usually unmotivated and generally are just “going through the motions” and produce as little as possible with very little thought on the content. University and high school students understand that the only audience that they are writing for in most cases is the teacher and write according to what they perceive the teacher wants. CMC provides students with an authentic audience and for perhaps the first time while writing in the second language, the pressure is on for them to create meaningful messages and exchange information. CMC is not unique in providing students the opportunity to communicate with a authentic audience via second language writing; surely there have been pen pal exchange programs and the use of peer editing and feed backing are central to the process writing which has been the dominant approach to writing in the second language classroom over the last twenty years. However, the instantaneous nature of CMC adds another dimension: a greater sense of urgency to communicate because students feel less distance from their interlocutors. The ability to send and receive messages instantaneously from a peer, in most cases, is a key motivating factor which results in students being more engaged in their writing.

While CMC offers many advantages to students in the second language writing class, teachers should understand the issues surrounding the use of CMC in the second language writing class and realize that CMC may not help students reach certain course objectives, for example in a formal context such as academic writing. It's clear from the studies that CMC is useful to help students improve writing fluency; however, improvement in fluency has been shown to come at a trade off in the form of a lack of accuracy. This lack of accuracy may be compounded by the informal nature of CMC and the general acceptance of grammatical errors in CMC. As mentioned earlier, Bloch's advice in recommending a variety of email activities including more formal email messages may help students become more aware of issues surrounding rhetoric and email that is socially acceptable for a variety of contexts.

Also, teachers need to determine their students' feelings towards the use of

computers and their feelings towards participating in email exchanges or LAN chats. Teachers need to be on the alert for students who maybe apprehensive or suffer from computer anxiety. As recommended by Murray and others, training courses on how to open new email accounts, compose and send messages are necessary if CMC is going to be a part of the writing class. One would expect issues such as computer access and software user problems to diminish as computer and internet technology become more common place; however, since the majority of the research on CMC use in the second language writing class only takes into account high school and university students, more research is required to determine the attitude of middle aged language learners on the use of CMC in second language classes in which they are enrolled in.

In short, I believe the use of CMC could play a valuable role in helping students improve the quality of their writing; however, because there are many differences between CMC and traditional pen and paper writing CMC should be used to complement the writing class rather than replace pen and paper altogether. CMC can be a valuable tool to help students develop fluency and creative activities such as cross-cultural email exchanges with EFL students from another country which can help to give students a real audience for their writing and stimulate their interest in writing in the second language. If CMC is used in the second language writing class, the instructor should understand the issues surrounding CMC and determine students' attitudes and experience using CMC at the beginning of the course. Proper planning and guidance are required in order for all students to benefit from the potential CMC can offer in the development of their writing skills in the second language.

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[抄 録]

This paper investigates some of the issues surrounding the use of computers for the development of second language writing skills in the second language writing class. In particular, I would like to address the question of whether computers offer any advantages over traditional pen and paper writing. Studies have shown that computer mediated communication (CMC) such as email or LAN chat facilitate fluency and quantity of writing; however, there is a corresponding loss of accuracy. Computers can be used as a valuable tool in the second language writing class; however, instructors should be aware of some of the pit falls and limitations of CMC and use computers in conjunction with traditional pen and paper writing.

本論文は、第二言語学習者ライティングクラスにおける記述技能を発達させるためのコンピューターの使用にまつわる問題の一部を調査いたします。特に、コンピューターが従来のペンと紙文書に勝る利点を提供するかどうかの問題について述べております。調査は電子メールまたはLANチャットのようなコンピューターを媒介としたコミュニケーション (CMC) が書く流暢さと量を促進することを示しました。しかし、こういった方法は正確さには損失がみられます。コンピューターの使用は第二言語ライティングクラスにおいても有効な方法として使うことができます。しかし、指導者はCMCの限度と落とし穴についていくつか気づいていなければならず、従来のペンと紙文書とともにコンピューターを使うべきだと思われれます。