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DEVELOPING WRITING FLUENCY THROUGH SYNCHRONOUS
COMPUTER-MEDIATED COMMUNICATION

by

Rossana Camacho

A thesis submitted to the faculty of

Brigham Young University

in partial fulfillment of the requirements for the degree of

Master of Arts

Department of Linguistics and English Language

Brigham Young University

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BRIGHAM YOUNG UNIVERSITY

GRADUATE COMMITTEE APPROVAL

of a thesis submitted by

Rossana Camacho

This thesis has been read by each member of the following graduate committee and by majority vote has been found to be satisfactory.

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BRIGHAM YOUNG UNIVERSITY

As chair of the candidate's graduate committee, I have read the thesis of Rossana Camacho in its final form and have found that (1) its format, citations, and bibliographical style are consistent and acceptable and fulfill university and department style requirements; (2) its illustrative materials including figures, tables, and charts are in place; and (3) the final manuscript is satisfactory to the graduate committee and is ready for submission to the university library.

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ABSTRACT

DEVELOPING WRITING FLUENCY THROUGH SYNCHRONOUS COMPUTER- MEDIATED COMMUNICATION

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Master of Art

Drawing from sociocultural theory, this research investigated the effects of synchronous computer-mediated communication (SCMC) in the development of writing fluency. Likewise, the study aimed at confirming previously cited affective benefits linked to SCMC. Measuring fluency in words per 30 minutes, the study compared pre and post-test essay scores of two groups of ESL learners (a control group and a SCMC group) in two intermediate levels. Two evaluation questionnaires were also administered to the SCMC group in order to obtain students' opinions of this technology-based medium, and to analyze change in their perceptions. The SCMC group outperformed the control group in fluency scores, although the difference was not statistically significant. Furthermore, the qualitative analysis found positive results in terms of linguistic and affective benefits derived from this innovative use of computer.

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Chapter One

Introduction

In recent years, language learning and its communicative teaching approach has collided with the fastest growing technology in history: computer-mediated communication (CMC). This combination has allowed the merging of speaking, an interactive experience, with writing, a natural reflective process (Warschauer, 1997). Having the interactional and reflective features of language combined through CMC, the appropriate question left to answer is whether or not this technology-based medium increases ability to develop language. The present research study seeks to partially answer this question by looking at one form of CMC, namely synchronous CMC (SCMC), and the effect it has on writing fluency.

The profession of second (L2) and foreign language teaching has undergone deep transformations in the last twenty years. Concepts such as grammar drills and memorization are not the focus of language classrooms anymore. As opposed to the old methodical approaches, the Communicative Language Teaching Approach (CLT) has introduced drastic changes in teaching practice, bringing dynamic and insightful techniques which focus on fluent communication and interaction (Brown, 1994). One of the most important characteristics of CLT is that it does not limit the study of language to its linguistics description, but takes into account its social, cultural, and pragmatic features. Foreign language learning then, as in learning our first language, is viewed as a “process of socialization” which is brought about by constant social interaction (Warschauer, 1999). Interaction is a major focus in the CLT approach, and the idea of

students engaging in meaningful discourse with their teacher or with peers is a desirable scenario that ultimately leads to language development (Brown, 1994).

The concept of interaction in language learning finds harmony with a recently popular L2 approach, the Vygostskian Sociocultural Theory (SCT). The sociocultural paradigm states that social interaction creates a propitious environment “to learn language, learn about language, and learn through language” (Warschauer 1997, p. 471). SCT claims that student-student and student-teacher collaboration are key for each language learner to advance through what is referred to as the Zone of Proximal Development (ZPD). The ZPD is the gap between what the learner can accomplish by himself/herself and what he/she could accomplish through cooperation with other, more knowledgeable peers (Warschauer, 1997). Likewise, according to SCT, human development is mediated by psychological “tools,” the most important of which is language.

It is the notion of “tools” that allows another branch of second language acquisition, Computer-Assisted Language Learning (CALL), to join the research. Through CALL, researchers are exploring the theoretical and pedagogical prospect of computers functioning as language learning instruments, and the implications for teachers and learners. Moreover, assuming that interaction influences learning, the study of CMC, a sub-branch of CALL, seeks to comprehend its role as a mediating tool, and analyze its efficacy for language development (Darhower, 2000).

Presently, most studies about computers and language have focused on the cognitive aspects of learning (Johnson, 1991). However, as stated earlier, sociocultural and communicative elements have permeated the language classroom, emphasizing the

need for interaction and social development. Despite the fact that computers have served the language learning field well by providing drills, storing, saving, and editing information, very few programs have effectively produce authentic interactive environments that would satisfy SCT requirements, and ultimately result in better language acquisition (Garret, 1991).

Synchronous CMC (SCMC) is one computer application that could integrate the theory with the practice, overcoming the cognitive obstacle. Nevertheless, the growing interest of researchers and educators about SCMC has not been matched by sufficient attention to research and theory. As Warschauer (1997) comments, research about how learners become competent members of a language community, gain cultural knowledge, and develop language and critical thinking skills have not been sufficiently carried out. Therefore, careful analysis focusing on real time sociocollaborative discourses must be a topic that deserves to be at the top of the language learning research agenda (Salaberry, 1999).

Chapter Two

Review of Literature

This chapter will introduce the theoretical framework through which CALL, CMC, and more specifically, SCMC can be viewed and analyzed. Following, the SCMC environment will be explained, and its current research will be described and assessed. Given the fact that writing fluency is at the core of the present research, the term will be explored and defined. Finally, the chapter will conclude with the study's research questions.

Theoretical Framework

As noted above, since the communicative approach emerged, the role of interaction in language learning has been central in second language acquisition (SLA) research. The student-student and student-teacher relationships have been constantly analyzed in hopes of understanding the complex psycholinguistic variables underlying language acquisition (Darhower, 2000). Much of this analysis has been carried out within the interactionist framework. The interactionist paradigm took Krashen's (1985) concept of "comprehensible input" and integrated additional constructs such as output and interaction. Thus, interactionists strive to link input and output in a comprehensive psycholinguistic model of SLA, where language is acquired through the receiving, decoding, and sending of messages (Gass, 1997). According to the interactionist framework, as messages are produced and responded to, interaction and negotiation of meaning takes place (1997). However, the interactionist perspective leaves several unanswered questions relating to issues such as collaboration and competency in

language, gain in cultural knowledge, and production of critical thinking skills.

Therefore, a more encompassing theoretical construct is necessary (Warschauer, 1997).

During the 1980's a number of language acquisition researchers began to integrate the ideas of the Russian psychologist Lev Vygotsky into the language field. Known as the Sociocultural (SCT) theory, this new theoretical framework differs from the interactionist paradigm in that it focuses on social variables of human interaction. SCT considers interaction not as a set of linguistics characteristics of input and output, but as a mediation process for language learning (Warschauer, 1999). SCT operates on the assumption that human development is dependent on social interaction and on the social context in which it takes place. Vygotsky claimed that as collaboration takes place between novices and experts, human development occurs, and it is precisely this social interaction that is the key to learning (Vygotsky, 1978).

A second construct in SCT is the focus on language development and its relationship to thought. Vygotsky divided mental activity into lower mental function (memory, attention, and will) and higher mental function (logical memory, voluntary attention, problem solving, and planning). According to SCT, lower functions can evolve into higher ones through the concepts of mediation and tools. That is, psychological tools can function as mediators between individuals and their intended goals (Vygotsky, 1978). Vygotsky claimed that by being included in the process of behavior, psychological tools can alter the entire flow and structure of mental activity. Mediation, therefore, shapes human activity by achieving higher mental functions and transforming learning processes (Warschauer, 1997). Consequently, initially unfocused learning actions may become adjusted and modified through the use of mediating tools, giving the learner the

possibility of further development (Donato & McCormick, 1994). Examples of potential mediators in second language may include textbooks, visual aids, opportunities for second language interaction, and as Warschauer (1997) suggests, computers.

A third aspect that SCT focuses on is the role of the teacher. Far from being a distant possessor of all knowledge, the teacher is an active participant in the learning process, supporting students until they can operate independently (Vygotsky, 1978). In this regard, Vygotsky introduced the concept of the zone of proximal development (ZPD). The concept of ZPD suggests that learners develop the most when they are confronted with tasks that are just beyond their individual capabilities. Since they cannot complete the task by themselves, the presence of a more knowledgeable and experienced individual supports the learners, bridging the gap between what they cannot accomplish by themselves, and what they can manage with the help of others. This process is known as “scaffolding” (1978).

Even though the social relationship Vygotsky initially described regarding ZPD was concerned with student-teacher relations, SCT also views learner-learner interaction as important. Donato and McCormick (1994) report that peers can engage in collaborative activities that can cause scaffolding until the point is reached in which they can accomplish what they may have not been able to complete individually. SLA studies have demonstrated that learners are able to maintain discourse on their own, achieve intersubjectivity within a given task, and collectively scaffold each other similarly to the way the teacher scaffolds them (Darhower, 2000; Donato et al. 1994).

Computer-Assisted Language Learning

Computer-assisted language learning research (CALL) is an interdisciplinary subject merging the fields of applied linguistics and foreign language teaching methodology (Levy, 1997). CALL is considered to be a subset of SLA research given the fact that the computer-mediated environment is one of many areas in which language learning is analyzed (1997). Historically, CALL technology has mirrored the development of SLA theories over the last 50 years. Consequently, there has recently been a shift from the cognitive and developmental theories to a more social and collaborative view of learning in CALL (Darhower, 2000).

It is in this communicative language teaching era, where context is an essential element, that computers have apparently made a much greater contribution than was previously possible (Beatty, 2003). Consequently, CALL proponents argue that, thanks to computers, students are exposed to larger quantities of text, images, and authentic materials; that they can increase time and efficiency in a given task; and that they are able to assume more responsibility for their own learning (2003).

However, the effectiveness of computers in education is still an unsolved issue. CALL research has not ceased to be “a problematic field... dominated by confusion and uncertainty” (Felix 2005, p. 3). Felix argues that the major factors preventing accurate analysis of CALL is scarce and flawed research. Common shortcomings in CALL studies are uncontrolled outside variables that prevent the identification of strong causal relationships; lack of randomly selected subjects; and invalid and unreliable measuring instruments (2005).

Consequently, the initial eagerness to claim that computers were the key to solving the mystery of language learning has been gradually transformed to a more cautious and analytical process. Through this process, research hopes to answer the question of whether or not learners' interaction with CALL programs is related to subsequent ability in the target language (Ferns & Hedgecock, 2005). Nevertheless, despite all skepticism, computers continue to play an important role in education, and language learning is no exception. Therefore, members of our profession, especially those involved in teaching, must be familiar with CALL research and its implications. Ray Clifford, Provost of the Defense Language Institute, better stated this mandate when he said, "although computers will not replace teachers, teachers who use computers well will replace those who do not" (Garret, 1995, p. 37).

CALL and Sociocultural Theory

As mentioned previously, based on Vygotsky's ideas, language learning occurs through the process of social interaction. Therefore, for the sociocultural paradigm, the importance of computers in language acquisition depends upon the extent to which they can play a role in promoting the kind of social interaction that promotes language learning. It is clear that most computer technology today is defective in its ability to provide the necessary social learning that SCT requires. For example, as Warschauer (2000) points out, given our present technology computers are not generally able to function as "interlocutors" as teachers or peers can. This means that constructs such as ZPD and scaffolding are impossible to produce with only the student and a computer, since they are based on ongoing interaction. Nevertheless, there is a potential area in

which the relationship of CALL and SCT can coexist: Computer-Mediated Communication.

Synchronous Computer-Mediated Communication (SCMC)

Recent research in CALL has divided computer contribution to language learning in two different categories. In the first category, computers act as tutors, fulfilling almost the same role as teacher or other sources of information. The second type of computer mediated instruction conceives of the computer as a set of tools that facilitates language development. Some examples of these tools are word processing programs, databases, and CMC environments (Levy, 1997). In the case of CMC environments, the computer becomes an instrument which provides an area for human communication. Although the machine mediates interaction among individuals, every part of the conversation is produced by humans.

CMC is divided into real-time synchronous CMC, which includes chat rooms and computer networks; and asynchronous CMC, which does not occur in real-time and includes bulletin boards and electronic mail. In any case, both synchronous and asynchronous CMC are valid constructs for socioculturalists, given that computers are used as tools mediating human interaction, which is conducive to language development (Warschauer, 1999).

Synchronous computer-mediated communication (SCMC) is unique in its ability to merge characteristics of both speaking and writing. Through SCMC, individuals communicate by typing keyboard messages into the computer, and simultaneously interacting in real time, as done in oral communication. When individuals engage in SCMC, they are communicating by reading and writing instead of by speaking and

listening. It is this crossroads between the reflective nature of writing and the interactive characteristic of speaking that raises interesting possibilities for language acquisition. In fact, SCMC is viewed by some as a “potential cognitive amplifier” that can help develop both reflection and interaction (Warschauer 1997, p. 472). Thanks to SCMC, human communication can take place in a text-based form, which allows learners to naturally interact with others, while having the advantage of freezing, evaluating, editing, rewriting, and expanding their attention. Consequently, as Warschauer mentions, “students own interactions can now become a basis for epistemic engagement” (1997, p. 472).

The significance of text-based interaction has been underscored before in language learning research with the idea of paper-based dialogue journals (Arbon, 1990; Peyton, 1997). Dialogue journals emerged in the last twenty years as a language teaching strategy to support writing skills. This support evolves from the authenticity and natural interaction of partners engaging in a two-way, unedited, uncorrected written interaction (Peyton, 1997). One of the rationales behind dialogue journals is that “little children seem to intuitively understand the relationship between speech and writing; writing is just written speech. However, by the time children are immersed in public education, the heavy constraints and focus on structure wipe out the purpose, process, and joy of writing” (Arbon, 1990).

Foreign language learners engaging in the process of writing have to deal with an even bigger list of formal guidelines, such as vocabulary, correct grammar, punctuation, unity, coherence, and conflicting writing styles. It is natural then, that language learners experience high anxiety levels and mental blocks when writing (Peyton, 1997).

Proponents of the dialogue journals recognize that this writing tool attempts to bridge the gap between writing and speaking, and that it “provides a natural means by which [students] can move from a form they already know (oral communication) to a new skill, writing” (Arbon 1990, p. 14).

Connecting dialogue journals with SCMC, Warschauer (1997) proposes that the latter possesses all the advantages of the paper-based journals, and provides even more. He believes that when writing is shared on paper, the reader cannot easily edit the composition while simultaneously interacting with the writer, whereas SCMC can provide immediate feedback through interactions. He concludes that despite the fact that dialogue journals are quite useful for expression, they do not necessarily promote collaboration among learners, which is a key principle for SCT. Thus, thanks to its cooperative characteristic, “the computer mediator feature of online writing has finally unleashed the interactive power of text-based communication” (1997, p. 472).

SCMC – History and Current Research

Curiously, the use of SCMC in language instruction first started in the 1980’s in the English department of Gallaudette University in Washington D C. Its first purpose was to help deaf people interact in written English instead of using American Sign Language (Beauvois, 1997). The concept of electronic networks of interaction was next taken to English composition classes. It was finally Orlando Kelm in 1992, who is given credit as the first person to use SCMC for language instruction (Darhower, 2000).

While doing research at the University of Sao Paulo, and after noticing how much “several Brazilian students enjoyed gathering around a computer terminal...sending electronic messages back and forth,” Kelm (1992, p. 441) recognized the potential of

SCMC as a tool for language learning. Using a synchronous networking program called InterChange, Kelm had his fifteen students of Portuguese, all native speakers of English, engage in synchronous communication once a week for a thirteen-week period. He reports two major categories in which positive results came about through the use of SCMC: 1) the characteristics of students' communication; 2) the language and interlanguage used (p. 443).

Looking at recurring traits in computer communication transcripts, Kelm noticed specific characteristics, such as increased and more equal participation among students, a less stressful and less threatening environment compared to face-to-face interaction, an increased use of the target language, genuine willingness to express personal opinions, and in general, a candid and honest tone throughout the conversations (p.447, 449). Regarding the language used in SCMC, Kelm observed certain practices which may suggest that the interlanguage in action could increase L2 development. For example, Kelm claims that through the Computer-Assisted Classroom Discussions (CACD)s, an equivalent term to SCMC, students showed a better capacity to read large chunks of language, they attempted to use language structures that are usually avoided, and because students were able to see their mistakes and how these mistakes affected communication, they tended to correct their own errors (p. 450). Kelm concluded his study by optimistically stating that "considering the positive aspects of CACDs, the increased use of interlanguage, and the optimistic feedback from student participants, we are anxious to expand synchronic computer networking in the language classroom" (p. 453).

Another optimistic researcher who sees CMC as an excellent tool for language learning is German professor Dorothy Chun (1994). Observing and collecting data from

her first-year German students over a period of two semesters, Chun used the previous mentioned synchronous networking program InterChange to study the functional features of language use in CACDs. Her assumption was that the interaction promoted through SCMC would give students the chance to “generate and initiate different kinds of discourse, which in turn, enhance their ability to express a greater variety of functions in different contexts” (p. 18). Supporting her claims on communicative principles, Chun hypothesized that the reading, thinking, writing, and negotiating skills that learners engage in through SCMC would increase students’ “spoken and written communicative language proficiency” (p. 18). After fourteen sessions of data collection, and using the ACTFL Proficiency Guidelines and Kramersch’s (1993, 1996) revised model of proficiency as her rubric, Chun suggested that CACDs provided an excellent environment where learners could develop discourse skills and interactive competence (p. 28). Analyzing the different kinds of sentences produced in the fourteen sessions of CACD, Chun found a remarkable direct student-student interaction, where learners, not the teacher, took initiatives, constructed and expanded on topics, gave feedback to others, and showed not only comprehension, but also, coherent thought (p. 28). She concluded that SCMC proved to be “an effective medium for facilitating the acquisition of interactive competence in writing and speaking” (p. 29).

Margaret Beauvois (1998) has also studied the potential of SCMC and the use of networked computers as a research and didactic tool (p.198). Aware of the recent linguistic, cognitive, and affective benefits linked to SCMC, Beauvois selected two intermediate French courses and examined student-student and student-teacher interaction in regular classroom settings and in the SCMC environment. Beauvois took

extensive notes documenting oral classroom discussion, giving special attention to code switching and placing some emphasis on quality and fluidity (p. 202). Her concept of SCMC fluidity, which she describes as "a conversational quality of writing complex compound sentences as opposed to simple sentences, and self-revealing disclosure of personal experiences," was measured using her own parameters, Formal Quality (the use of complex compound sentences versus simple sentences) and Content Quality (in-depth versus superficial responses to questions) (p.203). Beauvois concluded that electronic discussions showed superior results in the areas of quantity, quality, and greater student participation than those in oral classroom discussions (p. 212). Similarly, she points out that the SCMC setting provided students the emotional advantage of a low-anxiety atmosphere, where they could more openly and honestly express their ideas, disregarding potentially hindering factors such as color, handicaps, fears, and shyness (p. 213). Finally, she stated that even though SCMC should not replace oral classroom discussion, the electronic environment seemed effective in slowing down the communicative process, bridging the gap between oral and written communication, and more efficiently benefiting students from the language learning process (212).

Following Kelm and Beauvois' steps, Kern (1995) compared his second-semester French students' classroom discussions to their conversations via networked computers. In his study, Kern first used the abovementioned InterChange application for his students to respond to specific class questions, as well as to one another's comments. These InterChange sessions were then followed by oral discussions of the same topic. Kern collected the transcript of students' writing of one InterChange session and one classroom production. He also developed a questionnaire in order to assess students' and teachers'

impressions about SCMC. When examining the data, Kern concentrated on aspects such as quantity of output, turn-taking distribution and focus, discourse functions, morphosyntactic features, and teacher talk/control. Kern concluded that his results supported previous findings regarding the usefulness of SCMC as a tool for language instruction. Compared to oral discussions, he observed that communication via networked computers provided learners with more frequent opportunities to express their ideas, which in turn, led to more language output (p.467). Similarly, Kern found a greater level of sophistication of morphosyntactic features and a greater variety of discourse functions in the electronic discourse (p. 469). Furthermore, according to Kern, the constant student-student interaction generated by SCMC contributed to peer-learning, and consequently, a lower tendency to rely on the teacher. Finally, as previous studies have noted, Kern found that the SCMC environment provided students with added affective benefits, such as reduced communication anxiety and a more equal participation from students (p. 470).

Nevertheless, Kern (1995) also pointed out some drawbacks that the use of CMC introduced, drawbacks which must be taken into account by educators when determining classroom objectives. He observed that “formal accuracy, stylistic improvement, global coherence, and reinforcement of discourse conventions are goals not well served by InterChange” (p. 470). Additionally, he stated that teacher control can be compromised, and that at times, CMC discussions lack coherence and continuity. In conclusion, Kern warned that CMC is not “a panacea for language acquisition, nor is it a substitute for normal classroom discussion,” but that it is an innovating tool capable of restructuring classroom dynamics, and a new environment to use language socially (p. 470).

In his SCMC study, Salaberry (2000) chose to analyze the potential effect of text-based SCMC focusing on morphosyntactic development in Spanish as a Second Language. Salaberry observed that SCMC environments were particularly useful not only to link form and meaning, which is an important principle in L2 instruction, but also to promote goal-oriented processing, a key factor in L2 development. After reviewing the propitious conditions that lead to the acquisition of aspectual differences in inflectional languages, Salaberry proposed that these conditions appeared to be representative of computer-mediated interaction environments in L2 learning (p. 9). He then conducted a pilot study in which four native English speakers studying Spanish at the university level completed three main tasks:

- 1) A 28 item written cloze test.
- 2) A one hour informal interview in which students spoke about their Spanish learning experience.
- 3) One informal computer-mediated exchange, in which the topic was activities that students had done over the week-end.

After analyzing the data, Salaberry concluded that the first signs of change in morphosyntactic development were more clearly identified in the computer-based interaction task than in the face-to-face oral task. He then hypothesized that the aspectual features marked through morphosyntactic means may be more salient in a written format such as SCMC (p. 23). Additionally, Salaberry confirmed previous arguments regarding student-student scaffolding which resulted in classroom learning and second language acquisition (p. 18).

Warschauer (1999) has also proposed that SCMC helps to overcome the contradiction between form and meaning. According to him, by having the text in front of them as they communicate, learners are more aware of the structures they use, which is believed to be critical for language development. Additionally, as opposed to face-to-face interaction, students are able to consult a variety of sources (dictionaries, a text, or another learner) as they write the conversation. Additional benefits in Warschauer's (1999) study are increased language production among ESL learners, increased equality among participants (especially women, minorities, and shy personalities), and reduced stress, as well as the production of more complex language (Warschauer, 1999).

Finally, Karen L. Smith (1990) analyzed 118 fourth-semester Spanish students using SCMC or word processing facilities and compared them to traditional writing classes. Smith analyzed the data and tried to determine the degree of progress between midterm and final exams in each of the following language skills: reading, conversation, listening, and writing (which she divided into ideas and accuracy). Her research showed that whether the computer-based activity was SCMC or word processing, students tended to spend more time on learning activities than those in traditional classroom settings. As a consequence, Smith claimed that computer-users in her study significantly improved their reading skills and their ability to express oral and written ideas. Additionally, contrary to what was expected, the computer-supplemented groups did not experience a decline in oral skills. In fact, Smith observed that computer-use promoted oral communication due to self-design practices that students engaged in, such as reading, composing and brainstorming aloud. In summary, her research showed that computer-based lessons could promote reading and writing proficiency through online activities.

Despite the growing interest in SCMC, there remains much more to be uncovered about this modern use of technology. The limited research which has been published has suggested interesting advantages of SCMC, such as equality of participation, increased and more complex language production, and reduction of anxiety. These studies seem to suggest that there is an important relationship between the competence students demonstrate during SCMC studies and their spoken and writing discourse. In other words, the skills students developed using SCMC as a tool might positively affect their competence in both speaking and writing (Warschauer, 1999). Nevertheless, it is important to acknowledge that even with this research it is not possible to empirically assess the real impact of SCMC technology in language learning in general, nor in foreign language written production, specifically (Ferns & Hedgcock, 2005). The words of U. Felix ring true, “research [regarding the contribution of technology to language learning] today is relatively scarce and lacks scholarly rigor” (Felix, 2005, p. 2). Consequently, if we consider the previous studies championing SCMC we would see that despite their enormous contribution to the field, they are still far from being complete.

In the case of Kelm’s study, for example, he recognizes that his findings are preliminary observations and that future empirical research and comparisons are necessary to strongly determine a causal relationship (1992, p. 447). Similarly, the studies conducted by Kern (1995) and Warschauer (1999) had small samples, lasted for very brief periods of time, and were descriptive in nature, which do not make them appropriate for statistical analysis. Obviously, their results are impossible to generalize. In Salaberry’s (2000) case, he acknowledges his was a pilot study analyzing data from only four students carrying out one time tasks. Consequently, the type of data he collected was

mostly qualitative since it did not allow for inferential statistics (2000, 23). Moreover, the majority of the studies made broad hypothesis regarding multiple variables, did not have control groups, and did not clarify if and how they controlled for extraneous variables, such as age, technology exposure and training, group dynamic issues, and time limitations. Neither did they randomly select subjects nor show control for the feelings and attitudes of the students and faculty in their studies. As it is common in technology related to language research, “it is sometimes forgotten that some or all of these issues are likely to have an influence on research results” (Felix, 2005, p. 16).

Synchronous CMC is still a very young field with relatively scarce, but promising research needing yet to be conducted. There is a need to build on existing analyses, gather data in different settings, replicate previous studies using larger samples, and design new projects that would control for the greatest possible numbers of variables. Nevertheless, we can incorporate the notions that the above mentioned research has already developed, and use them as a valid foundation, connecting CMC to language learning through the SCT paradigm. Future research should engage in more solid, systematic studies focusing on one particular variable which could produce valuable insights about the potential impact of SCMC on specific aspects of language acquisition. Therefore, this study intends to:

- 1) Investigate the relationship between the use of SCMC and writing fluency.
- 2) Confirm claims made by previous research with regards to affective benefits linked to SCMC in the language classroom, such as reduction of anxiety and increased freedom of expression.

Definition of Writing Fluency

As mentioned previously, the arrival of the communicative revolution has brought great changes in the language teaching field. One such change has been an increased interest in the concept of fluency, which has regained popularity among language teachers and researchers. However, even though fluency in a second language is considered important by instructors and students alike, this important concept is far from being well understood. This lack of understanding has led to a variety of definitions covering a wide range of language abilities. It is therefore important for this literature review to provide the reader with a sense of how the term “fluency” has been used in the past, and how the present study will define and measure this concept based on sound research.

To start out, the concept of fluency is difficult to define regardless of language. For instance, when analyzing native language, Fillmore (1979) points out four different parameters that people consider when identifying someone as particularly fluent. First, Fillmore states that we might consider someone fluent if the individual has the ability to produce language at length and with few hesitations. Second, if we value quality over quantity, we might say that a fluent person is one whose language is coherent, complex, and semantically dense. A third kind of fluency might be possessed by someone who has the ability to communicate the right thing in a wide variety of contexts. Finally, Fillmore points out that we may regard someone as being fluent who uses creative and imaginative language, such as jokes, puns, and metaphors.

The list of definitions gets longer and more confusing when discussing non native fluency. In an informal survey conducted by Freed, Segalowitz and Dewey (2004), first-

year undergraduate students enrolled in a course on language and society defined fluency in terms such as producing language “quickly and smoothly,” “perfectly,” and “being bilingual.” Six educated adult English native speakers gave similarly broad answers, and used descriptions such as “putting together meaningful and understandable sentences readily and easily,” “faster rate,” “better grammar,” and “richness of vocabulary” (p. 277). Unfortunately, the professional literature does not do a better job at defining this popular term. Schmidt (1992) refers to non native fluency as an “automatic procedural skill,” and states that fluency relies on procedural knowledge, or knowing how to do something (p. 358). By describing fluency as a skill, he emphasizes the performance aspect of carrying out a task in real time, rather than just knowing how something is to be done. Another description of nonnative fluency was proposed by Lennon, (1990) who said that we often use the concept of fluency in two categories: a broad and narrow sense. In the broad sense, fluency functions as global ability. If somebody is “fluent” in this sense, it means that this individual is placed at the highest point on a scale that measures command of a foreign language. In its narrower sense, Lennon states that fluency refers to one of the many characteristics of oral proficiency, such as “relevance, appropriateness, and pronunciation.” The emphasis of this sense seems to be on “native-like rapidity,” and its goal is moving away from the “slow, uneconomical, and confused” language production by the language learner (1990, 390).

In addition to identifying these two common definitions of general fluency, Lennon also observed that much more importance is placed on fluency in oral performance, as opposed to written performance, where correctness is the primary objective. However, Lennon remarks that theoretically, the principles of oral fluency can

also be applied to writing, and refers to writing fluency as a “vital need” (1990, p. 391). Supporting Lennon’s statement about the definition of fluency across skills, Wolf-Quintero, Inagaki, and Kim (1998) stated that just as fluent speakers can be analyzed on how fast they talk, and how coherent and complex their language is, the same could be said about second language writers “who may be considered fluent if they can produce written language rapidly, coherently, appropriately, and creatively” (p. 13).

Given fluency’s multiple definitions, it is only logical to have a variety of fluency measures as well. Historically, the most common way to measure fluency has been by looking at frequency measures; that is, to count the number, length, or rate of production units. Production units include words, sentences, T-units, clauses, and phrases (Chenoweth et al., 2001). A second technique of measuring fluency has been to focus on the length of production units by counting the average number of words contained in each of them. These are called fluency ratios, and include measures such as words per minute, T-unit length, and clause length. In their analysis of L2 writing development, Wolf-Quintero et al. (1998) suggested that ratios appeared to be the best measures of writing fluency, given that these measures tend to highly correlate with students’ proficiency. Other fluency measures, which in some studies have been used as measures of accuracy or complexity rather than fluency, include the average length of complex nominals in T-Units, the average length of complex nominals per clause, and some error-free measures, like the total number of words within error-free units, words within error-free clauses, and number of words per error-free T-unit, or words per error-free clause (Wolfe-Quintero et al., 1998). Despite its multiple definitions and measures, fluency continues to liberally appear in numerous articles and discussions on L2 writing, and to be used by

both readers and writers as though it were already widely understood and in no need of any further explication (Bruton & Kirby, 1987).

After having carefully reviewed how fluency has been used in numerous other studies, and not having found a viable and universal definition for this term, the present research decided to adopt Wolf-Quintero et al. (1998) definition, which states that fluency is “a measure of the sheer number of words or structural units a writer is able to include in their writing within a particular period of time” (1998, p. 14). Likewise, given the strong evidence which proposes ratios as the best measure for fluency (Wolf-Quintero et al., 1998), and in order to avoid confounding effects between fluency, complexity and accuracy, the present study decided to quantify fluency as the total number of words written in 30 minutes. However, being aware that any word count increase in any CALL study might be attributable in whole or in part to an improvement in students’ typing skills, rather than to a significant development of students' writing fluency, the present study controlled for this variable administering three different typing tests, a pre, a mid-semester, and a post-test, which will determine if typing speed is a significant variable to consider in the analysis of the results.

Research Questions

The main research question of this study is:

- Does the use of synchronous Computer-Mediated Communication (CMC) improve writing fluency in English as measured by words per 30 minute?

Supporting questions aimed at confirming affective benefits linked to SCMC are:

- What are student and teacher attitudes toward the SCMC program?

- Do students believe that SCMC in their writing class improves the quality of their writing and typing skills?
- Do students prefer to use SCMC over handwritten journals?
- What did students like about SCMC?
- Do students believe that SCMC helps them improve their English in other skills?
- Is the GoogleChat program easy to use? What are some of the drawbacks to the particular program?
- What are some recommended improvements for the SCMC activity?

CHAPTER THREE

RESEARCH DESIGN

In recent years, synchronous computer-mediated communication (SCMC) has become an innovative use of computer technology in the language classroom. Several studies analyzing the impact of SCMC in language development have found potential benefits, among which we find probable positive effects on students' writing ability. In order to answer the question of this study about whether the use of synchronous computer-mediated communication (SCMC) improves writing fluency in English, the research was designed in the following manner.

Subjects

One-hundred and twenty-four students from low and high-intermediate courses (levels 3 and 4) in ten writing classes at the English Language Center (ELC) at Brigham Young University (BYU) were used in this research. There were fifty-seven students in the low-intermediate class (level 3), and sixty-seven students in the high-intermediate class (level 4). Two classes from each level served as a control group, leaving the other three classes as the experimental group. Despite the fact that intact classes were used, all the subjects were assigned randomly to the different classes once the students' levels were determined by the ELC placement test at the beginning of the semester. Furthermore, classes were randomly assigned to either the control or treatment groups.

Instruments

Several types of instruments were used to gather data in this study: a demographic questionnaire, three typing tests, two writing tests, and student and teachers' evaluations of synchronous SCMC.

Demographic questionnaire

The demographic questionnaire was given to participants at the beginning of the study, within the first and second week of the semester. The purpose of the questionnaire was to obtain the following information from each subject: name, age, sex, nationality, native language, marital status, level at the ELC, experience using computers, and amount of time spent chatting in English and in the subjects' native language. (See appendix A for the complete questionnaire).

Typing test

Typing tests were administered at the beginning, in the middle, and at the end of the semester in order to control for keyboarding experience and to assess typing performance. The typing test was given using the typing program *All the Right Type*, a commercial keyboarding software already used at the ELC computer laboratory. The test required students to type a third-grade reading passage containing 289 words in a period of five minutes. Once the five minutes ran out, the software automatically stopped the test and recorded the students' typing speed in number of words per minute, and their accuracy in percentages. The same reading passage was used in the three tests in order to avoid differences in level of difficulty (See appendix B for typing passage).

Writing tests

The writing tests consisted of two 30-minute impromptu essays, which served as the pre and post-test for this study. Timed impromptu essays have become increasingly popular as this form of direct writing assessment has been included in major standardized tests required in academic programs in English speaking countries. There is no question that timed essays present several limitations in the assessment of students' writing, such

as artificiality of the testing situation, restriction of the writing process, and inaccurate choices of topic prompts (Wolcott 1998, p. 34). Nevertheless, this form of direct assessment is still considered a valid tool that provides relevant information about a student's ability to generate and organize ideas while using the conventions of standard written English (Educational Testing Service pg. 1-3, 1996). Furthermore, timed essay tests provide two other valuable insights about a student's writing skills that are particularly relevant for this research: "first they give a measure of the student's fluency and ability to produce English quickly; and second, they provide an indication of the students' ability independent of other sources" (ELC Writing Handbook pg. 24, 2007).

In the case of this study, the two 30-minute essay tests were part of a battery of tests already used by the ELC. The first 30-minute essay is generally administered each semester during the first week of classes to place and/or promote incoming and continuing international students into accurate level classes. The second test is administered during the last week of the semester and is a component of the ELC Level Achievement Test (LAT), which determines if students move up to a higher proficiency level. Both tests require students to type their essays using word-processing software at the ELC's computer laboratory. While taking the test, students are not allowed to use the spell or grammar checker function. Likewise, both tests are proctored and outside materials (bilingual dictionaries, translators, etc.) are not allowed.

The 30-minute essay tests require students to produce an essay in response to an assigned prompt. The prompts are produced by trained ELC faculty members and are part of a two-year rotation pool. The writing prompts are designed to give students the opportunity to develop and organize ideas, and to express them in proper English. The

topics are non-technical in nature, requiring appropriate tasks for each level. The prompts are brief, simply worded, and they contain vocabulary that is fitting for the students' level. In addition, prompts are accessible regardless of linguistic, cultural, or educational background, and are adequate in that they allow students to plan, structure, and write their essay in the time given. In the case of the present study, it is important to note that even though the topic prompts for the pre- and the post-test were different, two faculty members of the Linguistics Department at Brigham Young University who specialize in writing assessment reviewed the prompts and determined that they were equivalent in difficulty level and in choice of skill (e.g. narration, description, classification, etc). Furthermore, to ensure the equivalency of the prompts, a split-half design was used for both tests. Through this design, students were randomly assigned one of two topics for the pre-test, and later given the second topic in the post-test. After each testing period, the total number of words in each essay was counted using the word count option in the word processing program. Misspelled words were not counted.

Student and teacher evaluations of SCMC

An evaluation questionnaire was administered at the beginning and end of the study as a qualitative component to the experiment. This qualitative component of the study intended to obtain students' opinions about synchronous computer-mediated communication (SCMC) and to compare the results with previous research underlining its affective benefits, such as low-anxiety levels, increased level of motivation for using the target language, a stronger sense of camaraderie among peers, and an increased freedom of expression (e.g., Beauvois, 1992; Kelm, 1992; Kern, 1995; Warschauer, 1997).

The SCMC survey was created and reviewed by the researcher, by Megan Palmer, a teacher at the ELC, and by Dr. Diane Strong-Krause, professor at BYU. To begin the process of validation, two students from level 3 and two students from level 4 in the control group reviewed and answered the survey questions. Changes were made in order to make the survey more understandable, and it was then reviewed by BYU's Second-Language Writing Research Group and their input was used to produce an improved version. This improved version was reviewed by two level 5 students from the ELC. They were asked to interpret what the different questions meant and discussed potential ways in which they could answer. The students both pointed out lack of clarity with one of the items, and therefore, this particular question was changed again. Finally, the modified survey was reviewed one last time by Dr. Strong-Krause and by the researcher.

The two surveys, pre- and post-, used in the study consisted of the same items in order to measure change. The first eight items of the questionnaire were statements regarding the enjoyment of using SCMC, face validity of SCMC, facility of use of SCMC medium (GoogleChat), student effort, and student participation. The students were asked to rank the statements using the following Likert scale: 1 = Strongly Disagree; 2 = Disagree; 3 = Agree; and 4 = Strongly Agree.

Questions 9 through 12 consisted of multiple choice questions, which asked students to compare handwritten journals and the SCMC environment. Question 9 asked students to identify which task they felt led to greater improvement in their writing, and question 10 asked them to identify which activity they liked better. Question 11 asked students which skills they believed could be improved by using SCMC, and provided

them with the following options: none, listening, speaking, reading, and grammar. The last item in the multiple choice section asked students about their chatting experience.

Questions 13 through 15 were free response. First, students were asked what they enjoyed best about SCMC. Question 14 asked students what problems they had encountered while using GoogleChat. The last question asked for suggestions in order to improve the “chatting” program (See Appendix C for complete survey).

In addition to the student surveys, a teacher questionnaire with five questions was distributed asking the teachers about their experience with the program and suggestions for general improvements. The teacher questionnaire was not meant to measure change of attitudes and consequently, it did not undergo any validation process. For the complete surveys, see Appendix D.

Procedures

At the beginning of the study, the 30-minute essay pre-test was given to every student as part of the usual level verification process at the ELC. In addition, students in both experimental and control groups took the demographic questionnaire and the first typing test. During the second week of the semester, students in the treatment group completed the first student evaluation survey of SCMC. This group was also trained on SCMC using GoogleChat, a web-based application for communicating in real time. This training took place as part of their normal writing schedule. Beginning the third week of the semester, students in the treatment group initiated the SCMC treatment. This treatment consisted of a total of 18 SCMC sessions which were carried out twice a week within an eleven-week period, each session lasting approximately 20 minutes.

The sessions required students to get together in groups of two and to communicate by typing keyboard messages into the computer, simultaneously interacting in real time. Since each teacher knew the proficiency and personality of his/her students, it was their responsibility to pair students up at the beginning of each session. To ensure that the SCMC activity remained a controlled and productive classroom activity, students received a prompt asking three to five questions, which had the purpose of limiting students' conversations to a specific topic, and keeping them on task. To make certain that students had sufficient knowledge of vocabulary and grammatical structures to carry out meaningful conversations, the majority of the topics of each session were created to match the students' writing or listening/speaking curriculum. Furthermore, given the fact that GoogleChat automatically saves conversations in a searchable archive, teachers had access to students' chats and could monitor their behavior and language use. This compelled students to stay on task, avoid the use of their native language, and limit the use of abbreviations, emoticons, and slang to the minimum.

After the 30-minute essay pre-test, the demographic questionnaire, and the first typing test were administered, students in the control group received normal classroom instruction. They were allowed to use the computer laboratory once a week on average for typing exercises or essay writing activities, but without participating in SCMC sessions. In order to have additional data that could be helpful when comparing groups, all five teachers in the control group were randomly observed four times during the semester and their class activities were recorded. Teachers in the experimental groups were also randomly observed twice during the semester.

A second typing test was given to students in both control and experimental groups during mid-term exams. Then, at the end of the semester, the 30-minute essay post-test and the last typing test were administered to both groups. Additionally, the second survey evaluating SCMC was filled out by the treatment group after the last SCMC session. Perceptions from the 1st and 2nd survey were compared to check for similarities and changes. Finally, teachers in the experimental group were given the questionnaire evaluating their experience with SCMC and asking for suggestions for future improvement.

Data Analysis

The data collected using the procedures described above were gathered and taken to the Brigham Young University Statistical Department. The demographic information and pre-test results were analyzed through t-tests to ensure that the sample was similar in demographic characteristics and in writing fluency level. A multiple analysis of variance (MANCOVA) was performed for the purpose of establishing whether the SCMC treatment had any effect on students' writing fluency. A second MANCOVA was done in order to analyze each individual section in both control and experimental groups, and explore the variability within them. To avoid ambiguity, the present study refers to *section* as a separate group of students who were taught by one specific teacher.

Similarly, the qualitative data were analyzed through means and standard deviations, and statistical significance was determined from a t-test. Because multiple t-tests were performed, a significance level of $p < .01$ instead of $p < .05$ was used in the analysis. Open-ended questions were tabulated and categorized according to similar

responses. Lastly, teacher responses were analyzed for potential benefits, drawbacks, and improvements that could be made for future SCMC studies.

In addition to the previous analyses, both pre- and post-tests were holistically single-rated using the TOEFL Test of Written English (TWE) rubric. Furthermore, ten percent of these tests were also double rated to ensure inter-scorer reliability. The holistic scoring was performed to ensure that both pre- and post-exams were students' honest attempts at writing, eliminating any possibility that participants would write nonsensical string of words, thereby increasing their words per minute score. As expected by the high-stake nature of both tests, all the essays constituted students' efforts to complete the exams with attention to meaning and organization, as well as mechanics.

Chapter Four

Results and Discussion

Research has suggested possible benefits from using synchronous computer-mediated communication (SCMC) in the development of L2 writing. Such research has pointed out writing fluency as one possible area of growth, and therefore, the question arises whether the use of SCMC improves writing fluency in English. In this chapter, the results of the statistical analysis, as well as the qualitative evaluation performed on the data gathered for this study are presented and discussed. Demographic data and information regarding the equivalency of the sample are presented first, followed by the descriptive statistics and the results of the multiple analyses of covariates (MANCOVA). Finally, the qualitative data are presented.

Demographic Information

As described in Chapter Three, subjects in this study included one-hundred and twenty four students from low and high-intermediate level courses (levels 3 and 4) at the English Language Center (ELC). In order to determine if there were any statistically significant differences between the control and the experimental groups in terms of their demographic characteristics, means and standard deviations were computed from the data collected in the demographic surveys. Statistical significance between groups was determined from a t-test with a significance level of $p < .01$. The t-test performed on the demographic data found no statistically significant differences between the two groups' gender, age, semester at the ELC, hours of computer use per week, number of hours spent chatting in native language per week, and number of hours spent chatting in English per week (see Table 1).

Table 1: T-test Analysis Based on Demographic Survey

Variable Name	<u>Control</u>		<u>Experimental</u>		<u>Difference</u>	
	Mean	<i>s.d.</i>	Mean	<i>s.d.</i>	t-Test	P-value
Gender	0.56	0.50	0.51	0.50	0.56	0.58
Age	25.40	7.71	26.42	6.02	-0.85	0.40
Semester	1.96	0.94	1.97	0.87	-0.04	0.97
Hours of Computer Use (per week)	17.54	13.34	17.34	15.58	0.08	0.94
Hours Spent Chatting in Native Language (per week)	3.18	4.82	3.76	5.41	-0.61	0.54
Hours Spent Chatting in English (per week)	3.78	6.67	2.77	4.42	1.06	0.29

Furthermore, with the purpose of comparing the writing fluency of both groups, the means and standard deviations of pre-test scores were computed, and a t-test was performed in order to analyze whether the different results were statistically significant. As can be seen in Table 2, there were differences in students' fluency scores at the beginning of the study, with the control group scoring on average 29.3 more words in the pre-test than the experimental group. Broken down by level, level 3 control students typed an average of 7.37 more words per 30 minutes than the experimental group, while level 4 control students typed an average of 52.86 more words than the experimental group in the same time.

Table 2: Descriptive Statistics for Pre-Test Scores

<u>Source</u>	<u>Group</u>	<u>Level</u>	<u>Mean Score</u>	<u><i>s.d.</i></u>
Group	Control		303.54	92.31
Group	Experimental		274.24	90.48
Level	Control	3	274.67	72.44
Level	Experimental	3	267.30	85.49
Level	Control	4	332.42	102.10
Level	Experimental	4	279.56	94.78

Nevertheless, as Table 3 illustrates, the t-test performed on the pre-test found no statistically significant differences between the groups, which suggests that both groups had a similar level of writing fluency at the beginning of the study.

Table 3: T-test Analysis for Pre-Test

<u>Source</u>	<u>Level</u>	<u>df</u>	<u>T-test</u>	<u>P-Value</u>
Group		122	1.74	.08
Level	3	55	.34	.73
Level	4	65	2.13	.03

Descriptive Statistics

The subjects described above were tested using a pre and a post 30-minute essay in order to analyze their writing fluency, as measured by the number of words per 30 minutes. The data were organized by both level and group. Table 4 shows the overall descriptive statistics in the form of means and standard deviation for each level and group.

Table 4: Descriptive Statistics

<u>Source</u>	<u>Group</u>	<u>Level</u>	<u>Mean Gains</u>	<u>s.d</u>
Level		3	68.9231	14.3501
Level		4	79.9610	14.0312
Group	Control		63.5135	15.6027
Group	Experimental		85.3707	12.5916
Level-Group	Control	3	59.1052	22.0243
Level-Group	Experimental	3	78.7410	18.3422
Level-Group	Control	4	67.9217	22.2335
Level-Group	Experimental	4	92.0003	17.2183

As can be seen in Table 4, the experimental groups of both levels have consistently higher gains than the control groups. The level 3 experimental group gained

an average of 19.64 more words in 30 minutes than the control group, while the level 4 experimental students gained an average of 24.08 more words than their counterparts in the same time. In the end, the experimental group as a whole gained on average 21.86 more words in thirty minutes than students in the control group. The significance of these gains is next discussed.

Inferential Statistics

As explained previously, a multiple analysis of covariance (MANCOVA) was performed to know whether or not the gains presented by the experimental group were statistically significant. For this study, the level of significance was set at $p < .05$. Typing test scores, along with scores in the writing pre-test were used to control for typing ability, which was concluded to be a non significant variable.

Table 5: Results of Multiple Analyses of Variance by Treatment, Level, and Words per 30 Minutes

<u>Source</u>	<u>Df</u>	<u>F-Ratio</u>	<u>P-Value</u>
Level	1	0.30	0.6036
Group	1	1.18	0.3189
Level*Group	1	0.01	0.9154

The results in the MANCOVA show that there was no significant difference between the groups or any of the interactions. From these data, no claim can be made that SCMC caused any difference in the students' ability to write more fluently.

However, in order to deepen the analysis of the above mentioned results, a second MANCOVA was performed, which examined the differences between individual sections. As mentioned earlier, the present study refers to *section* as a separate group of students who were taught by one specific teacher.

Table 6 shows how much variability there is among sections in both experimental and control groups. In level 3, for example, there is a difference of 53.33 words per 30

minute gain between the two control sections, while the experimental group shows a difference of 63.67 words comparing the lowest and highest gain among the three sections. In level 4, the gain difference between the two control sections is of 33.09 words per 30 minutes, while the difference between the lowest and highest gain among the experimental sections is of 51.89 words per 30 minutes. Furthermore, it is interesting to note that even the same individual teaching two sections in either the control or experimental group present very different gains. In level 4, teacher 7 students gained 123.96 words in his morning section, while his afternoon students only gained 79.36, a 44.6 word difference. Similarly, teacher 8 students gained only 50.30 words per 30 minutes in her morning section, while her afternoon students gained 83.39, a 33.09 word difference.

Table 6: Average Gain in Words per 30 Minutes by Individual Teacher

<u>Teacher</u>	<u>Group</u>	<u>Level</u>	<u>Mean Gains</u>	<u>s.d.</u>
Teacher 1 C	Control	3	34.67	19.81
Teacher 2 Q	Control	3	88.00	23.41
Teacher 3 D	Experimental	3	68.18	22.32
Teacher 4 M	Experimental	3	52.43	22.33
Teacher 5 P	Experimental	3	116.10	22.60
Teacher 6 AM	Control	4	50.30	22.57
Teacher 6 PM	Control	4	83.39	20.85
Teacher 7 AM	Experimental	4	123.96	19.13
Teacher 7 PM	Experimental	4	79.36	20.55
Teacher 8	Experimental	4	72.07	19.11

Qualitative Data

As mentioned in Chapter 3, two identical surveys were administered the second week of the experiment, and again the last week of the semester, after the last SCMC

session. Both surveys consisted of fifteen different items, which included eight 4-point Likert Scale questions, four multiple choice items, and three free-response questions.

Table 8 below compares the first section of both surveys (questions one through eight) through means and standard deviations.

Table 7: Student Responses Regarding Perceptions of SCMC

Statement	Survey #1 Second Week		Survey #2 Last Week	
	Mean	<i>s.d.</i>	Mean	<i>s.d.</i>
1. I enjoy “chatting” on the computer in English out of class.	3.08	.78	3.10	.89
2. I enjoy “chatting” on the computer in my writing class.	3.48	.60	3.23	.75
3. “Chatting” in English helps me write better.	3.32	.64	3.15	.68
4. “Chatting” helps me write more.	3.28	.65	3.11	.70
5. “Chatting” in English helps me improve my typing skills.	3.51	.56	3.29	.72
6. The “Google Chat” program is easy to use.	3.38	.65	3.42	.79
7. I try to write my best in English when “chatting” in class.	3.32	.74	3.19	.68
8. “Chatting” in class encourages me to participate more than in regular class discussions.	3.11	.70	2.96	.80

The results in the table show that the overall responses for each of the first eight statements were overwhelmingly positive with respect to the use of SCMC in the classroom. Most students agreed with statements regarding the general ease, enjoyment, and academic use of the program. The table also shows that while questions 2, 3, 4, 5, 7, and 8 suffered from a small decrease in the mean of the students who agreed with the statements, students, for the most part, did not get tired of the process. There was no statistically significant change in student perceptions of this type of instruction.

Questions nine and ten dealt with students’ preference between handwritten journals and chatting. It is interesting to note that over half of the students who took the

survey believed that handwritten journals improved their writing more than using SCMC, but over 67% in both surveys liked using SCMC better. Table 7 shows the results in percentages.

Table 8: Preferences Comparing Handwritten Journals and Chatting (SCMC)

Question	Survey 1		Survey 2	
	SCMC	Journals	SCMC	Journals
9. Which helps you improve your writing more	45%	55%	47%	53%
10. Which do you like better?	67%	33%	70%	30%

As stated earlier, SCMC studies have claimed that chatting not only improves writing skills, but may also help develop other English language skills (Chun, 1994; Kelm, 1992). Table 9 shows the answers to question 11, which asked which skills students believed that SCMC helped them improve. Only one person in each survey believed that SCMC did not help them in any skill, while the rest of the students believed that at least one of their English skills was improved through the process of chatting. Interestingly, over half of the students felt that SCMC improved their grammar, and one third of them chose reading as the second most prevalent choice. This is perhaps attributable to the nature of chatting, where students spend significant time reading, and even correcting their partners' comments.

Table 9: Which skills has "chatting" helped you improve?

	None	Listening	Speaking	Reading	Grammar
Survey 1	1.4%	5.5%	27.4%	37.0%	57.5%
Survey 2	1.4%	5.5%	26.0%	34.2%	53.4%

Free Response Results

Question 13, "What do you like best about chatting?" had many different responses, but they largely fell under four main categories. First, students enjoyed SCMC

because they liked chatting and learning from and about their classmates. It seemed that in general, students enjoyed the human interaction component of the SCMC environment, component which, according to the Sociocultural Theory, is necessary for learning. One student wrote, “I like that we can help each other in our writing and that we can learn more from each other.” Furthermore, some students felt that their class became more unified.

Second, many believed that SCMC improved their English skills (grammar, reading, and speaking) or typing skills. This response supports answers to question eleven, where students expressed that the benefits of SCMC went beyond writing skills. Third, students enjoyed being able to freely express their opinions. One student wrote, “I think chatting is more comfortable than speaking. I can think what I’m going to tell before... I can express my opinion more than speaking.” Finally, students also enjoyed the topics and prompts, and expressed this in Survey 2, once they had had time to work and get comfortable with the program. Table 10 below shows tabulated responses to question 13. For a full listing of responses see Appendix E: Free Response Results.

Table 10: Student Answers for Question 13

What do you like best about chatting?	Survey 1	Survey 2	Total
Enjoy Chatting with Classmates	29	25	54
Improves English skills and typing skills	24	23	47
Ability to Freely Express Opinions	15	26	41
Topics	4	17	21
It's Fun	5	6	11
Negative Comments about SCMC	1	2	3
Technology Use	0	2	2

Table 11 shows the groupings for question 14, “What problems did you have using GoogleChat in class?” Most of the answers to this question fell under a “self-

improvement” category. The majority of students felt they could type faster, could make fewer typing mistakes, could remember their password with less difficulty, and could learn how to use the chatting program better and in less time. Other problems students commented on were trouble with slow computers, overall dislike of the GoogleChat interface because it either was not user-friendly or it did not have the most advanced technological gadgets, and font size of the program, which can be made larger. Overall, this analysis shows that students had only a few problems, many of which could not be fixed without changing the computer software altogether.

Table 11: Student Answers for Question 14

What problems did you have using Google Chat in class?	Survey 1	Survey 2	Total
Problems with Self	13	9	22
Problems with Classmates	7	6	13to
Slow Computer	2	4	6
Problems with GoogleChat Format or Font	5	4	9

Table 12 shows the results of question 15, “What could be improved in the ‘chatting’ program?” Again, many of the answers to this question fell under a “Self-improvement” category. Several students wrote about the fact that they could have put greater effort to improve their English when using CMC in their classroom. They also reported that they could have improved their typing and writing skills while using the interface. Surprisingly, some students reported that they believed feedback and grading would improve the chatting program, too. Other students wrote that they wanted more freedom to pick their partners or topic. In the first survey, several reported that their classmates did not stay on topic and that made the program difficult for them. Within the *Other* category students responded that they would have preferred to have photos, use

Skype instead of GoogleChat, chat with native speakers or the teacher, and to chat with more than one person at a time.

Table 12: Student Answers for Question 15

What could be improved in the “chatting” program?	Survey 1	Survey 2	Total
Self-Improvement	27	10	37
Other	9	11	20
Topics need improvement	3	8	11
Time (Less or More)	4	5	9
Choice (Partners and/or Topic)	1	7	8
Grading/Feedback	2	5	7
Classmates need improving	5	0	5

Teacher Questionnaire Results

Overall, teachers enjoyed their experience using SCMC. Many tried using different ways to use the prompts in the classroom by introducing tasks and having feedback sessions after the chatting sessions. With the exception of one, the teachers of the experimental sections expressed that they would use SCMC in their classroom again. One teacher “felt that this was a good use of class time.” Some teachers responded that they thought the students enjoyed it because they were able to build a closer community of learners and help each other to correct grammar and spelling in a relaxed setting.

One drawback that teachers found when using SCMC was the difficulty of scheduling the computer lab. It was difficult to schedule computer time due to the fact that so many classes were using the program twice a week. They also reported problems with having students sign-in, which led to wasted class time. Also, teachers found that it was difficult to pair students up because their students would come to class late.

Similarly, one teacher pointed out that “some of the students didn’t seem to put in much

effort.” As for improvements, teachers said that the lab scheduling could be improved, and that teachers needed more ideas on how to motivate their students to put their best effort when using the program (see Appendix F).

Chapter Five

Conclusions

The purpose of this study was to discover if the use of synchronous computer-mediated communication (SCMC) increased writing fluency in the ESL classroom. In addition, the study explored the attitudes and perceptions of students and teachers towards SCMC and if and how these perceptions changed throughout the course of a semester. The study was meant to provide a more solid theoretical lens through which SCMC and its claimed benefits could be viewed and analyzed, given the popularity of this technology-based tool in the language teaching field.

To accomplish this purpose, the research was conducted with one-hundred and twenty-four students representing levels 3 and 4 in ten writing classes at the English Language Center (ELC). Three classes from each level incorporated the SCMC environment as part of their writing program, while two received traditional classroom instruction. The instruments used to gather data included a demographic questionnaire, three typing tests, two thirty-minute impromptu essays, and student and teachers' perception surveys of SCMC. After the collection of data, the demographic information and pre-test results were analyzed through t-tests to ensure that the sample was similar in demographic characteristics and in writing fluency level. Following this, the completed essays and typing tests were scored and a multiple analysis of covariates (MANCOVA) was used in calculating the effectiveness of SCMC. Also, a second MANCOVA was performed in order to more deeply analyze the development of both experimental and control groups, and their individual sections. In addition, the data from the student surveys was classified and analyzed through means and standard deviation to measure

change. Finally, the teacher responses were also classified and analyzed for potential benefits, disadvantages, and suggestions that could be made for future SCMC studies and classroom applications.

As discussed in Chapter 4, the average gain scores for the SCMC group in both levels were consistently higher than those of the control group. However, despite the evident gains, the differences in words per 30 minutes were not great enough to reach significance (.05). Since the proper unit of analysis in this study was the group and not the individual learner, the variability in scores among the sections was too great to show an identifiable pattern (see Table 6). Given the limited numbers of sections, and the number of participants within some of these sections, the average gains did not prove large enough to reach significance.

However, though the results were not significant, this should not discourage the use of SCMC in developing writing skills. This is especially true given the overwhelmingly positive results obtained in the qualitative portion of the research. Data obtained from the surveys indicates that students unequivocally believed that SCMC is an enjoyable, easy to use, and academically useful tool to develop writing skills, and in particular, writing fluency. As previous research has found (e.g. Beauvois, 1997; Cummings, 2004; Kelm 1992; Warschauer, 1999), the present study concluded that students liked the technological and innovative element that SCMC brought to the classroom, and that they felt the program challenged them to “think and type fast” in a “fun” way. Moreover, the comparison of the two surveys indicates that these perceptions remained positive throughout the course of the semester. Ultimately, the qualitative data shows that students experienced very little trouble using the SCMC interface, liked the

different topics and tasks they carried out using the program, and more importantly, they felt SCMC helped them develop not only writing and typing ability, but other skills such as grammar and reading.

The data from the surveys also confirmed important benefits pointed out by previous research regarding the affective advantages that SCMC brings to the ESL writer. For instance, one of the most cited benefits attributed to SCMC in the literature has been the low-anxiety atmosphere that this computer-based setting provides (Beauvois, 1997; Kern, 1995; Warschauer, 1999). Anxiety in the language classroom, specifically anxiety related to communication apprehension, is a common denominator for students, regardless of cultural or linguistic background (Tittle, 1997) As Horwitz et al. (1986, pg. 128) point out “any performance in the L2 is likely to challenge an individual’s self-concept as a competent communicator and lead to reticence, self-consciousness, fear, or even panic.” Moreover, the literature has repeatedly shown a negative correlation between anxiety and classroom achievement, which makes this topic a high priority concern for both teachers and researchers (Tittle, 1997). SCMC has recently emerged as an environment where students are under neither time pressure to communicate, nor have the psychological stress of negative evaluation, making it possible for them to openly and honestly express their ideas (Warschauer, 1999). The reduced communication anxiety is evident in the present analysis as students reported comments such as “there are no pressures, so I can produce better,” or “you can relax and write about some subject with someone who is in your same level.”

This low-anxiety setting generated by SCMC has been said to promote greater freedom of expression and increased participation (Kelm, 1992; Kern, 1995; Warschauer,

1997). For instance, Kelm (1992) found that students in his research enjoyed the freedom and ability to use the target language in a communicative way, and that their participation increased immensely compared to a regular class discussion. According to Warschauer (1997), SCMC is able to promote this ease in communication because 1) it reduces the disadvantageous position in which students find themselves due to social factors (such as race, gender, and status related issues); 2) it lessens the impact of negative nonverbal evaluation; 3) it allows students to communicate with their peers at their own time and pace. An important number of students surveyed naturally made the comparison between oral language production in the classroom and in the SCMC setting, and expressed that they felt more comfortable when chatting as opposed to speaking because they could say “whatever they wanted,” while at the same time having time to think and plan, and therefore feeling more confident in their contribution.

Another affective benefit linked to SCMC in the literature, and perhaps the most salient in the present study, was the development of a greater sense of camaraderie among students. Participants reported that they enjoyed chatting with and learning from their peers. They felt this computer-mediated interaction allowed them to get to know one another better, and as a consequence, their class became more unified. Beauvois (1997) notes that as students participate in the synchronous sessions, a special bonding emerges among them, which allows them to create a “community of language-speakers on the network” (pg. 61). Darhower (2000) mentions that building such a community is considered a desirable condition for foreign language development because as students perceived themselves as belonging to a group, their affect and motivation are enhanced, and a positive attitude towards learning is triggered regardless of initial motivation. This

networking community, as any other learning community, exhibits high interdependency and reciprocity, and focuses on cooperative and collaborative learning (Schwier 1999). Students reported experiencing these traits as they made comments like “I can talk with my classmates and I can learn more about them, and get to know them better. We can share our points of view in different topics;” or “I like that we can help each other in our writing and we can learn more from each other.”

Besides the affective advantages linked to SCMC found in this research, the qualitative data also shows an additional linguistic benefit which has been likewise noted in previous studies: the constant negotiation of meaning that takes place during chatting sessions. In this regard, Chun (1994) claims that SCMC provides a setting where writing can be enjoyed and where students are able to negotiate meaning through checking and rechecking what their peers write. Kelm (1992) states that during SCMC sessions students are compelled to read messages, think about the issues raised, and produce appropriate answers. According to him, this process increases their higher-order thinking and their capacity to communicate in the target language. Supporting these researchers’ comments, a student in the present study stated “I like to know different opinions from other students...that helps me learn from them.” Another one expressed “the thing [I like] is that I have the possibility to discuss serious topics.” A third student said “sometimes, I can receive different ideas or aspects that I never thinking before...after chatting, I got more ideas from others.” Evidently, despite the fact that understanding did not come immediately at times, students felt that the SCMC environment provided opportunities for them to generate and expand on topics, give feedback to peers, and develop discourse and interactive skills.

As has been shown, the qualitative data provided solid information which points out that students' overall perception of SCMC is overwhelmingly positive. Nevertheless, the surveys also show some concerns that are important to take into account, the first one being lack of student effort. Kern (1995) reports that despite the increased motivation and positive attitude that students generally have when using SCMC, some students in his research lacked seriousness when using the program. Similarly, a teacher in the present study reported that "some students did not seem to put in much effort," and that some of them had only written very few entries the whole semester. This teacher also expressed his concern about these particular students not benefiting from the exercise as much as they could have. Furthermore, some students also pointed out that they would have liked more freedom to pick partners because previous partners had not stayed on topic and had made the activity difficult. Given the possibility of some students not being actively engaged in the SCMC activities, Kelm reminds us of the need for constant "shadow leadership" on teachers' part in order to ensure maximum learning benefits (1992 p. 448).

A second concern found in the survey data was a certain degree of difficulty understanding and getting used to the synchronous program. Even though most students were familiar with GoogleChat, a small number of participants did report having problems remembering user codes and passwords, connecting to the program, and signing-in to their accounts. As one teacher in the study mentioned, all these issues created a lack of flow in lesson plans and wasted class-time. Kelm's (1992) words ring true when he stated that SCMC takes time; time to sign-in, time to log-in, and time to log-off the computers. It also takes time for some students to get familiar with this new technology, which can be problematic for classroom management and cohesion when the

majority has already mastered its basic functions. Finally, it also takes time and considerable effort from administrators to work out logistical issues, such as scheduling the computer lab for the SCMC sessions, while giving other classes and skills equal access to computer technology and its benefits.

Suggestions for Further Research

A study such as the one described here could be improved in several ways. Regarding its design, an important improvement would be to increase the length of the study in order to better assess the linguistic benefits that SCMC can bring to the ESL writer. Given that SCMC sessions are not intended to replace classroom instruction, but they are rather meant to function as a complement to writing pedagogy, this technology-based medium is subject to time constraints. Ideally, as Kelm (1992) has suggested, a synchronous session should last one hour and a half. However, given the way ESL programs are designed, this amount of time is very unlikely to be scheduled. Therefore, eleven sessions lasting only twenty minutes each might not be enough time to produce significant, lasting changes. Longitudinal studies are consequently necessary to more effectively study the evolution of writing abilities produced by SCMC, in this case writing fluency.

A second suggestion regarding the design would be to more closely monitor SCMC discourse development throughout the study. Results from the pre and post-tests were of great importance to the present analysis. However, much information regarding students' writing progress, such as lexical choice and language complexity, which could give the research a more complete picture of learners' development, is readily available

through the GoogleChat automatically saved transcripts. Undoubtedly, researchers should take advantage of this important option.

One final design change for subsequent analysis is in connection with the actual sessions themselves. Wanting to make students write as much as possible, the researcher conceived the synchronous sessions to take place between two students at a time.

However, as the qualitative data showed, pair sessions resulted at times in students' frustration when their particular partner lacked interest or did not seem to make enough effort. This could be resolved by creating bigger groups, which could increase interest and motivation, while lessening the effects of students' apathy.

Concerning the instruments, one important suggestion is to replace the typing test used in the present analysis. Typing ability was an important variable which needed to be controlled due to the possibility of being confused with writing fluency. In order to measure typing skills, the researcher used the typing program *All the Right Type*, a commercial keyboarding software already used at the ELC computer lab. Despite the fact that this particular software achieves its objective of providing drills aimed at developing typing fluency, its testing capabilities were not adequate for the present study. Failure to record and or save students' scores, and difficulty in the downloading process of the results were among some problems experienced. A more professional, user-friendly program could save further research valuable time and effort.

One of the most important suggestions for future studies is with regards to the measurement of variables. The present study analyzed the potential relation between SCMC and writing fluency. In order to present a solid theoretical foundation on which to base the research, it was necessary not only to analyze SCMC as a language learning tool,

but to explore the concept of writing fluency as well. As was mentioned in Chapter 2, this last concept proved to be extremely difficult to define, and even more difficult to operationalize. Words per 30 minute was finally selected as the fluency measure for the study based on the fact that measurement ratios such as this have proven to be the most reliable in L2 writing (Wolf-Quintero et al., 1998). However, there are other ratio measurements that have been strongly linked to fluency, which individually, or combined with words per 30 minutes, might be more sensitive and therefore more effective in the calculation of writing fluency. Such measurements include T-unit length, error-free T-unit, and clause length (1998). It would be important to use these measures in subsequent analysis to better understand the concept of writing fluency and its relationship to SCMC.

One final suggestion for future research is concerning the size of the sample. As mentioned in Chapter 4, although the sample used in the present study was adequate for statistical analysis, the number of sections, as well as the number of students within those sections was not enough to provide conclusive results regarding the effects of SCMC on writing fluency. Despite the fact that most of the language learning research uses intact groups which are subject to administrative constraints, further analysis should try to use a larger sample size, more specifically, a larger number of sections, and if feasible, maintain the number of participants within sections as high as possible.

Implications for Teaching

As mentioned previously, students and teachers both responded favorably to using SCMC in the language classroom. Teachers commented that SCMC is a “fun way” for students to use writing, and reported that they are very likely to use this technology-based environment again. Students perceived that chatting improved their writing and typing

ability, as well as other skills, such as reading and grammar. Even when they believed that handwritten journals were better at improving their writing, over half of the students surveyed preferred to use SCMC over handwritten journals because they enjoyed interacting with their peers, felt that they were able to express freely, and approved of the topics that were used in class. Moreover, the GoogleChat program was, for the most part, easy to use, and even though there were a few problems connecting and logging-in, the program proved to be well suited for the task. Nevertheless, in order to further improve the SCMC use in the classroom and possibly enhance its language learning benefits, the present study offers the following suggestions:

Scheduling

One of the main problems that teachers found was the scheduling of computers. With several classes participating in the study and all of them reserving computers for the duration of the entire class time, it was difficult for other skill areas and teachers to schedule lab times. One way to solve this problem, as suggested by a teacher, would be to “pair up writing classes that want to use SCMC twice a week, and have one class use the lab during the first half, and a second class during the last half.”

Task-based prompts

The qualitative data showed that the pedagogical capabilities of SCMC are perceived to be enhanced when students are engaged in task-based activities. One teacher occasionally introduced task-based assignments and found that when she did this, it reminded students of the academic and scholarly value of “chatting.” Salaberry (2000) has stated that in order to achieve specific educational goals through the use of this electronic communication medium, it is necessary to produce and implement task-

objectives effectively. For example, he suggests that after the interactive writing sessions, which require students to focus primarily on meaning, teachers may shift learners' attention to form by having them identify specific grammatical items, correct their own errors, identify peers' mistakes, and summarize the discussion in essay form. Kelm (1992) has also suggested the integration of task-based activities in the synchronous environments, such as solving riddles, role playing, treasure hunts, and play-writing.

Feedback

Many students commented on the need for teacher feedback. They claimed that if feedback were to be given, it would prevent many of their classmates from going off topic. They also wrote that it would help them improve their accuracy, a significant concern of several students. One teacher found that after the students "chatted" about a given subject, it was important to debrief with the students about the topic. He also stated that if he noticed a particular lexicon or syntax error in his students' conversations, he would address it in the classroom, providing prompt feedback to their writing. Another teacher also gave students feedback through finding model SCMC conversations and then putting them on an overhead. The students would then read the dialogue as if it were a conversation to analyze the discourse and the conversation.

More freedom of choice

Some students felt that they were limited in that they were given specific topics to address in each session, and stated that it would be beneficial to have a free topic once in a while. Similarly, students reported they would like more freedom to choose SCMC partners. It is this researcher's opinion that given appropriate training and monitoring,

these small concessions might increase students' level of motivation and sense of community.

These results are only a few suggestions based on reviews from teachers and students. In the end, it is up to the teacher to determine how to implement SCMC in the classroom effectively:

Bridging the gap between theory and classroom practice can strongly be supported by intelligent uses of technology. But this will not be accomplished unless and until teachers themselves take the initiative to think through what the technology should be able to do for them and for their students and make their needs known. (Garrett 1991, p. 95)

Conclusion

The recent appearance of new electronic communication mediums such as SCMC, has presented L2 teachers and researchers with a vast spectrum of possibilities, as well as new challenges for language development. Viewed through the sociocultural lens, SCMC and its ability to link learners, while engaging them in meaningful discourse and critical thinking, is viewed as an ideal setting for promoting L2 development. However, as Warschauer (1997) mentions, when evaluating any computer-assisted language learning environment, it is crucial to distinguish “potential from reality” (p. 477). It is therefore necessary to continue designing studies, such as the present one, which can shed more light on the affective, cognitive, and linguistic benefits which derive from this innovative tool. As research continues to provide specific and reliable data regarding SCMC, the language teaching community will be better informed to make important

decisions regarding the technologies which will promote real skill development in language learners.

References

- Arbon, B. J. (1990). *The effect of dialogue journals on ESL students' writing anxiety and their writing fluency and complexity*. Provo: Brigham Young University.
- Beatty, K. (2003). *Teaching and researching computer-assisted language learning*. New York: Longman.
- Bruton D. L., Kirby D. R. (1987). Written fluency: Didn't we do that last year? *The English Journal*, 76 (7), 89-92.
- Beauvois, M. (1997). *Computer-mediated communication (CMC): Technology for improving speaking and writing*. In M. Bush (Ed.), *Technology enhanced language learning* (pp. 165-184). Lincolnwood, IL: National Textbook Co.
- Brown, D.H. (2001). *Teaching by principles: An interactive approach to language pedagogy*. New York: Addison Wesley Longman.
- Chenoweth N.A. & Hayes, J.R. (2001). Fluency in writing: Generating text in L1 and L2. *Written Communication*, 18, 80-98.
- Chun, D.M. (1994). Using computer networking to facilitate the acquisition of interactive competence. *System*, 22(1), 17-31.
- Cummings, M. (2004). Because we are shy and fear mistaking: Computer mediated communication with EFL writers. *Journal of Basic Writing*, 23(2), 23-48.
- Darhower M.L. (2000). *Synchronous computer-mediated communication in the intermediate foreign language class: A sociocultural case study*. Pennsylvania: University of Pittsburgh.
- Donato, R., & McCormick, D. (1994). A sociocultural perspective on language learning

- strategies: The role of mediation. *Modern Language Journal*, 78 (4), 453-464.
- Felix, U. (2005). Analyzing recent CALL effectiveness research-Towards a common agenda. *Computer Assisted Language Learning*. 18(2), 1-32.
- Ferns, D. & Hedgecock, J. (2005). *ESL composition, purpose, process, practice*. Lawrence: Erlbaum Publications.
- Fillmore, C.J. (1979). On fluency. In C. Fillmore, D. Kempler, & W.S.Y. Wang (Eds.), *Individual differences in language ability and language behavior* (pp 85-101). New York: Academic Press.
- Freed, B.F., Segalowitz, N., Dewey, D.P. (2004). Context of learning and second language fluency in French. *Studies in Second Language Acquisition*, 26, 275-301.
- Garret, N. (1995). ICALL and second language acquisition. In V.M. Holland, J.D. Kaplan, and M.R. Sams (Eds.) *Intelligent language tutors*. Mahwah, NJ: Erlbaum.
- Gass, S. (1997). *Input, interaction, and the second language learner*. Mahwah, NJ: Erlbaum.
- Horwitz, E., Horwitz M., and J. Cope. 1986. Foreign language classroom anxiety. *Modern Language Journal*, 70, 1, 125-132.
- Johnson, P. (1991). Second language and content learning with computers: research in the role of social factors. In P. Dunkel (Ed.), *Computer-assisted language learning and testing: research issues and practice* (pg. 61-84). New York: Newbury House

- Kelm, O. R. (1992). The use of synchronous computer networks in second language instruction: Preliminary report. *Foreign Language Annals*, 25(5), 441-454.
- Kern, R. (1995). Restructuring classroom interaction with networked computers: Effects on quantity and characteristics of language production. *The Modern Language Journal*, 79(4), 457-476.
- Lennon, P. (1990) Investigating fluency in EFL: A quantitative approach. *Language Learning*, 40, 387-417.
- Levy, M. (1997). Theory-driven CALL and the development process. *Computer Assisted Language Learning*, 10 (1), 41-56.
- Peyton, J.K. (1993). *Dialogue journals in the multilingual classroom: building language fluency and writing skills through written interaction*. Norwood, NJ: Ablex Pub. Corp.
- Salaberry, R. (1999). CALL in the year 2000: still developing the research agenda. *Language Learning and Technology*, 3(1), 104-107.
- Salaberry, R. (2000). L2 Morphosyntactic development in text-based computer-mediated communication. *Computer Assisted Language Learning*, 13(1), 5-27.
- Schmidt, R. (1992). Psychological mechanisms underlying second language fluency. *Studies in Second Language Acquisition*, 14, 357-385.
- Schwier, R.A. (1999). *Turning learning environment into learning communities: Expanding the notion of interaction in multimedia*. World Conference on Educational Multimedia, Hypermedia, and Telecommunications, Seattle, WA: Association for the Advancement of Computers in Education.
- Smith, K.L. (1990). Collaborative and interactive writing for increasing communication

- skills. *Hispania*, 73(4), 77-87.
- Tittle, Matthew. (1997). *The effects of foreign and second language students' irrational beliefs and anxiety on classroom achievement*. University of Illinois.
- Vygotsky, L.S. (1978). *Mind in Society*. Cambridge, MA: Harvard Univ. Press.
- Warschauer, M. (1997). Computer-mediated collaborative learning: Theory and practice. *The Modern Language Journal*, 81, 470-481.
- Warschauer, M. (1999). *Electronic literacies: Language, culture and power in online education*. Mahwah, NJ: Erlbaum Associates.
- Warschauer, M., & Kern, R. (Eds.). (2000). *Network-based language teaching: Concepts and practice*. New York: Cambridge University Press.
- Wolcott, W. (1998). *An overview of writing assessment: theory, research, and practice*. Urbana, ILL: National Council of Teachers of English.
- Wolfe-Quintero K., Inagaki S., & Ha-Young K. (1998). *Second language development in writing: Measures of fluency, accuracy and complexity*. Hawaii: Second Language Teaching and Curriculum Center.

APPENDIX A
Demographic Survey

First Name:	Last Name:
Country of Origin:	
Native Language:	
Age:	Gender: M F
Marital Status: Single Married Divorced	
Level at the ELC (circle one): 3 4	
Semester at the ELC (not including vacations): 1 st 2 nd 3 rd 4 th 5 th 6 th	
How many hours a week do you use a computer? _____	
How many hours a week do you “chat” on the computer using your native language ? _____	
How many hours a week do you “chat” on the computer using English ? _____	

APPENDIX B

Typing Passage

Tarantula is the common name for a hairy and often very large spider. Like all spiders, tarantulas are invertebrates, animals without backbones, and have a hard exoskeleton for support. Tarantulas come in a variety of colors from a light tan to black and range in size from 2.5 to 10 cm in length with leg spans reaching from 8 to 30 cm. Tarantulas are carnivores (meat eaters). Their diets, which vary depending on where they live, may include beetles, crickets, fish, frogs, grasshoppers, lizards, mice, snakes and other spiders. The largest tarantula in the world is big enough to attack and eat small birds. Tarantulas spend most of their time hiding, but when they hunt, it is usually at night. They do not use webs like most other spiders. Instead, they pursue or ambush prey. Once caught, tarantulas use their venomous fangs to paralyze their prey or their powerful mouthparts to crush it. Then they ingest digestive juices to dissolve the victim's inner flesh into a liquid-like mass that can then be easily sucked out. Sometimes tarantulas wrap their prey in silk for a later meal. There's something about the spider form that makes them seem dangerous or threatening. Tarantulas are, however, harmless to humans. They bite humans only when threatened. Their venom just causes redness, swelling and a mild pain, something like a wasp or bee sting, in humans. Spiders, including tarantulas, are overall beneficial creatures. They help to control insects that destroy crops or carry diseases. They are important in the food chain of other creatures such as birds, scorpions, lizards, snakes, wasps and other tarantulas. In some parts of the world they are eaten by humans. Their venom is used to make medication for muscular diseases.

APPENDIX C
GoogleChat Survey

First Name:	Last Name:	Teacher:	Level:
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For each statement below, choose the answer which best describes you in your writing class.

Statement	<i>Scale</i>			
	Strongly Disagree	Disagree	Agree	Strongly Agree
1. I enjoy “chatting” on the computer in English out of class.	1	2	3	4
2. I enjoy “chatting” on the computer in my writing class .	1	2	3	4
3. “Chatting” in English helps me write better .	1	2	3	4
4. “Chatting” helps me write more .	1	2	3	4
5. “Chatting” in English helps me improve my typing skills .	1	2	3	4
6. The “Google Chat” program is easy to use.	1	2	3	4
7. I try to write my best in English when “chatting” in class.	1	2	3	4
8. “Chatting” in class encourages me to participate more than in regular class discussions.	1	2	3	4

9. Which helps you improve your writing more? (Circle one.)	Handwritten Journals	“Chatting”
10. Which do you like better? (Circle one.)	Handwritten Journals	“Chatting”

11. Which skills has “chatting” helped you improve? (You can circle more than one.)	None	Listening	Speaking	Reading	Grammar
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Please answer the following questions.

12. Have you ever “chatted” on the Internet before? (Circle one.)
If yes, when and how often have you chatted on the computer?

Yes	No
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13. What do you like best about “chatting” in class?

14. What problems did you have using Google Chat in class?

15. What could be improved in the “chatting” program?

APPENDIX D
Teacher Questionnaire

1. Please describe your experience using CMC in your classroom.
2. Do you plan on using CMC in a future writing class? Why or why not?
3. What are the benefits of using CMC in the classroom?
4. What are some drawbacks to using CMC in the classroom?
5. What could be improved?

APPENDIX E
Free Response Results – Question 13

Survey #1 – What do you like best about chatting?

Interaction with Classmates

- To share my ideas and learn from my students if they want to discuss seriously.
- I can know more about my classmates.
- I can check how fast my typing and we can share our thought with classmates.
- I like because I can learn about my classmates. Also, I learn more vocabulary because sometimes my partner writes something that I don't know. So I ask and I learn in the best way, because I learn in English.
- I can understand my classmates better and the best is that I can practice my grammar because use grammar in my speak is harder than write.
- Talking with classmates so easy to write and to make good friendship.
- I can have fun with my classmates.
- That I can share my opinion with my classmates and know them.
- That you can talk in English about a topic. And after all see the have they can know each other quickly and better.
- I can improve relationship with my classmates.
- I like the best when chat with my friends.
- I like that we can help each other in our writing and we can learn more from each other.
- We can chat with other classmates and talk about the article. Sometimes, I can receive some different ideas or aspect that I never thinking before. After the chatting, I got more ideas from others.
- Group discussions
- I think, chatting is class helps us to be more friendly and to learn others creative ideas.
- I love the computer so the best for me is to type with my friends.
- I like the topics for us. This form permitted us to think and a way specific. By other way I like to talk with my friend in class.
- I like chat with someone in English.
- I like to talk to other classmate's friend.
- I can know more my classmates
- I have opportunities to know better my classmates. I improve my speed about thinking in English.
- When we chatting with other people. I think we have to think about grammar and sentence. Just very useful to me, if I don't continuously use the chat.

Improves English/Typing Skills

- I like chatting because it helps me to type fast everyday. Can know more about vocabulary. I can know about my classmates.
- Write. I need more practice. I need and want to typed very fast. I like so much English and I need for my MBA.
- Chatting helps my writing skills and typing.

- I like because I can learn about my classmates. Also, I learn more vocabulary because sometimes my partner writes something that I don't know. So I ask and I learn in the best way, because I learn in English.
- I can understand my classmates better and the best is that I can practice my grammar because use grammar in my speak is harder than write.
- It could give us more choices to improve speaking as well as writing.
- Chatting is helping me my writing skill and grammar.
- Write as fast as I think, that's the best challenge for me about this activity.
- I like to chatting because help me to improve my grammar.
- It could improve my grammar and speaking skill, if I had good partner (who has good skill). Typing speed
- I get to read other students vocabulary words. I am able to do my best answer certain questions from/asked by other students.
- I like chatting because it helps me to know more about the homework teacher give me. It help me type faster.
- I like that we can help each other in our writing and we can learn more from each other.
- It helps me to improve my writing. Also, my skills and know my classmates.
- Use English in chatting. Otherwise almost native language.
- I like to practice writing fast and thinking fast.
- Practice for writing skills.
- Because you writing for sometime reading after. It helps you to improve your English because you try to take your best.
- Practice Write
- I like because I improve in my typing. Also, I learn more grammar, writing, and reading. Other thing is never in my life I use this program, "I love."
- It's a funny way to learn. It's different and lets us develop writing skills and typing skills.
- We can improve typing skills and grammar.
- Improve typing speed.
- When we chatting with other people. I think we have to think about grammar and sentence. Just very useful to me, if I don't continuously use the chat.

Fun Activity

- I have fun with this.
- Because it is fun, too.
- You can practice your writing class in a fun form.
- It's a funny way to learn. It's different and lets us develop writing skills and typing skills.
- But, like because doesn't looks like a class and a fun thing to do, and the time goes fast.

Expression of Ideas

- I feel free to express my opinion with my classmate.
- We can talk easily. Sometimes direct speaking makes me use short and incomplete sentences.
- I think chatting is the best way to share information each other.
- I like because I can say whatever I want to say.

- We can chat with other classmates and talk about the article. Sometimes, I can receive some different ideas or aspect that I never thinking before. After the chatting, I got more ideas from others.
- I like to chat with someone, because I can reply his questions with thinking immediately.
- To share our opinions in chatting.
- To share if my friend about everything.
- Relax, practice typing, and know my classmates more.
- I think chatting is more comfortable than speaking. I can think what I'm going to tell before. Chatting so I can express my opinion more than speaking.
- Ok, I can share my thoughts about whatever topic and things and express my ideas clearly.
- The things that like are because I have possibilities to discuss very serious topics.
- I like because it is And we can share ideas and opinion about determined topics.
- I can know another students opinion more exactly.

Topics

- All classmates must focus on chatting with topic.
- That you can talk in English about a topic. And after all see the have they can know each other quickly and better.
- I like the topics for us. This form permitted us to think and a way specific. By other way I like to talk with my friend in class.
- The different topics. According to the topic I can explain more, but sometime I cannot find the word to express my ideas.

Negative

- I don't like chatting now because I'm not used to chat in English.

Survey #2 – What do you like best about chatting?

Interaction with Classmates

- I like subject we chat about it is interesting and I like chatting with friends in class.
- Talking with classmates.
- Chatting helped close to classmate.
- I can know better my classmates.
- It is a relax time where you can know your classmates better. You can see your writing mistakes better.
- I can know about my classmates thinking and personality. I can be more closer with my classmate.
- The topics, and have the opportunity to talk with all my classmates.
- To know others in "chatting" and I can fix my mistakes in Google Chat so I can remember later.
- I can know my classmate better. I can practice writing through thinking what I write.
- I can learn about my classmates.
- What I like the best is change ideas with my classmates online.

- I can talk with my classmates and I can learn more about them, and get to know them better. We can share our points of view in different topics.
- I can know more and better my classmates.
- Through "chatting", I can close to my classmates, and I and my classmates who come from different countries can exchange culture. And also I can learn different writing style and improve my grammar.
- I could have opportunities to know about classmates better than before.
- The topic. Understanding. Conversation between friends. Have fun.
- I can know my classmates opinions and think.
- We can talk with some classmates that sometimes they don't participate too much in class.
- I like to know my classmates and the thought they have. Practice typing skills. I can improve my grammar and writing.
- Sometimes it's really interesting to hear other classmates thought and I can think it helps me to know more about my classmates.
- The opportunity to know better our classmates.
- The best thing is that I could discuss with my classmates.
- In the class time, we do chat with classmate about one topic and we become more friendly with classmate than before.

Improves English/Typing Skills

- It is a relax time where you can know your classmates better. You can see your writing mistakes better.
- I have improved my writing skills as fast writing and grammar spelling.
- Because helps us improve our grammar and typing skills and use technology.
- I can know my classmate better. I can practice writing through thinking what I write.
- It improve my typing and I can gain more ideas from chatting my classmates.
- There are many topics, therefore, students can improve their knowledge and skill that think fast there are good for IBT.
- Through "chatting", I can close to my classmates, and I and my classmates who come from different countries can exchange culture. And also I can learn different writing style and improve my grammar.
- It was given good opportunities to write some sentences in English for me. It helped me to improve my typing skill and speaking skill in English.
- Totally using words and practice typing.
- That you can relax and write about some subject with someone that is in your same level, and they can help you with grammar and spell words correctly.
- If I chatting I try to write as fast as I can so typing skill is more improve.
- All the right type practice.
- Chatting in class encourages me to participate more than in regular class discussions. Chatting speed!! I accomplished 50 WPM. First of all, it could be improved basic position of fingers. And we can practice typing, so we can conversation with native.
- Practicing typing in English right away.
- Because when I chatting with a classmate I try to writing better because I know the other person is writing in the same time. Because that I think help me to improve my spell a little more. I think it is more psychological, but really help.

- It is a good way to learn how to write fluency. Help me to improve the brainstorming about whatever topic.
- Try to make long sentence during chatting.
- I like to know my classmates and the thought they have. Practice typing skills. I can improve my grammar and writing.
- Helps with spelling. We can discuss a lot of different kind of topic.

Fun Activity

- Sometimes I have fun.
- It is just a difficult activity and we have fun.
- I like to discuss and exchange ideas and opinions. I like computer and chat so I really enjoy this at class because I can practice and have fun.
- It's enjoyable and fun.
- The topic. Understanding. Conversation between friends. Have fun.
- It is dynamic. I can enjoy and it make different the days.

Expression of Ideas

- I like different topic to talk about in class. I like to see and to know different opinion form the other students that helps me learn from them.
- Specific ideas about different learners.
- Specific ideas about different learners.
- Share opinion about the subject that our teacher give us.
- It is a relax time where you can know your classmates better. You can see your writing mistakes better.
- I can organize my thoughts I want to say compared with speaking, chatting makes me easy. Even if I had wrong spelling and incorrect grammar, I can fix it instantly.
- I like to discuss and exchange ideas and opinions. I like computer and chat so I really enjoy this at class because I can practice and have fun.
- I like when my partner takes the topic seriously. I like when we are given an interesting topic that makes me think a lot. Finally, I appreciate receiving other classmates' opinions.
- I like when my partner takes the topic seriously. I like when we are given an interesting topic that makes me think a lot. Finally, I appreciate receiving other classmates' opinions.
- I can talk with my classmates and I can learn more about hem, and get to know them better. We can share our points of view in different topics.
- I can think in English and then type out.
- That you can relax and write about some subject with someone that is in your same level, and they can help you with grammar and spell words correctly.
- Chatting in class encourages me to participate more than in regular class discussions. Chatting speed!! I accomplished 50 WPM. First of all, it could be improved basic position of fingers. And we can practice typing, so we can conversation with native.
- I become know that some people ho use expression and how does say... dialogue.
- We can talk with some classmates that sometimes they don't participate too much in class.
- Using computers and expressing my opinion.

- Feel comfortable, feel easy to participate.
- Chatting helps me share ideas.
- Sometimes it's really interesting to hear other classmates thought and I can think it helps me to know more about my classmates.
- I can know someone's opinion. I can increase my grammar skills.
- It is interesting. I enjoy it-topics, every time different people, I can see their opinions.

Topics

- I like subject we chat about it is interesting and I like chatting with friends in class.
- I like different topic to talk about in class. I like to see and to know different opinion form the other students that helps me learn from them.
- I think the time is free time. I as some topics to classmates how they think. Its interesting to figure out their thought.
- Share opinion about the subject that our teacher give us.
- Discuss about good subject. Talking with classmate.
- The topics, and have the opportunity to talk with all my classmates.
- I like the chatted topic. We always have different topic in class. Sometimes I cant think of the answer, but my partner can give me different thinking.
- There are many topics, therefore, students can improve their knowledge and skill that think fast there are good for IBT.
- The topic. Understanding. Conversation between friends. Have fun.
- The subject because we have a way to think and write. Chat with partners using the computer.
- I like when we have a topic and we write some things about the topic. And other themes to write about the topic. But sometime partner is the chatting to use more time and don't write enough.
- Sharing with another theme with different topics.
- Helps with spelling. We can discuss a lot of different kind of topic.
- It is interesting. I enjoy it-topics, every time different people, I can see their opinions.

Negative

- Nothing
- Unfortunately, I don't enjoy chatting gone the computer in class. Some partners of mine didn't focus on chatting.

APPENDIX F
Free Response Results – Question 14

Survey #1 – What problems did you have using Google Chat in class?

Lack of Skills (Spelling/Technology/ Typing)

- Maybe, when I try to write something, and I can spelled but I learn about this too.
- Typing error, speed
- My typing is so slowly.
- Sometimes the knowledge how to use it.
- I am not good at computer operancy.
- Not to much, the thing is I'm not very good using computers so the problems, which I have before are for that reason.
- There is no problem about Google program. But I have some problem because of my tardy typing speed.
- I need to write fast
- I don't know how to make a group of chatter.
- Any problem, just sometimes I forget my password
- I didn't use Google chat, so I don't know.
- I don't have problems with Google chat. I just have with my chat language that sometimes. I want to type like a chat. For example, using emotions or short words but just that is my problem.
- I don't type very fast.
- I'm finding difficulties because the keyboards are different from those I use to type with.

Problems with Classmates

- Sometimes classmate doesn't focus on chatting.
- My partner typed wrong grammar so I didn't understand what he supposed to say.
- When I chat with classmates, sometimes we misunderstand each other and both of us don't really know about our homework. We can't discuss and learn more.
- Sometimes I can't understand what the other person wants to say.
- Some people type fast and some don't

Problems with the GoogleChat Interface

- The window to write is too small, so is difficult to read the message.
- He letter is small. A chatting screen is to smaller than MSN messenger.
- I think the problem with Google Chat is word size because it's size too small to me.
- Small size.
- I think word is very small. I want to be changed bigger words.

Slow Computer

- Chatting systems are a little bit slow. So it is annoying me sometimes.

Log In Problems

- Sometimes it doesn't log-in on Mac.

Survey #2 – What problems did you have using Google Chat in class?

Lack of Skills (Spelling/Technology/ Typing)

- The most important thing for me is that I cannot make sure if my writing and spelling are correct or not. Sometimes I get frustrated because I don't know how to spell some word and I don't know if I used it in a correct form.
- At the beginning everything is difficult. I this topics was hart to use to the program and use passwords and new environments.
- Go in is so difficult and rest is good.
- I am slower (typing skills).
- Need to check dictionary.
- My chatting is very slow because usually I wrote not correct word so I need to enough time for change word.
- Sometimes spelling.
- It is not easy to type words quickly.

Problems with Classmates

- Nobody knows how to write English expressions rightly. Time is short.
- Some friends don't care me but typing what he wants to say when 3 people in same chatting I couldn't join the chatting.
- Some classmates are too slow to chat with or didn't pay attention to topics.
- Limited time. Topics are boring (sometimes). The speed of my different classmates to type sometimes we spend or waste time waiting for the answer.
- It was boring and some classmates were really slow with their typing.
- I don't have any problem. It is just boring when I have to talk with someone that I don't know very well.
- Some student don't chat about topic in class time. I was angry, but I didn't.

Problems with the GoogleChat Interface

- I think the interface is not very friendly.
- There's no an tool-program for chatting only. Moreover, the user-interface of Google Chat is too uncomfortable.
- Sometimes program did not work.
- Well first of all don't work the Gmail but this is because the Gmail had a problem.
- Google chat style is boring.

Slow Computer

- Sometimes it doesn't work with no reason.
- Yesterday, I had problems with the computer. But I didn't have any problems with Google chat This program is easy to use.
- Sometimes internet doesn't work well.
- Sometimes I cant connect Google Chat.

Log In Problems

- Sometimes it didn't work. I couldn't login.
- I think sometimes it is a little difficult to sign in.

Topics

- The only problem is that the themes are boring.
- At the beginning everything is difficult. I this topics was hart to use to the program and use passwords and new environments.
- Limited time. Topics are boring (sometimes). The speed of my different classmates to type sometimes we spend or waste time waiting for the answer.
- It was boring and some classmates were really slow with their typing.

APPENDIX G
Free Response Results – Question 15

Survey #1 – What could be improved in the “chatting” program?

Self-Improvement

- Speaking and grammar. Maybe I chat with a student who has good information about grammar so I can learn when he speaks with me. Type fast.
- What can I do react in informal situation.
- Typing skill
- Grammar, typing skill.
- Grammar
- Writing, grammar, reading.
- I could get some writing skills expression using in the normal life from partners.
- I can organize my thoughts while typing.
- Read and write faster, see the other grammar that the other person has and fix my own grammar.
- Reading, typing
- I improved my grammar and spelling.
- I think I can improve my writing, grammar, and speaking because I used it when I chat.
- My grammar
- Typing speed and communicating skills in English.
- I think I can improve my thinking in English.
- I can improve typing and writing skill fast.
- I could improve my chatting speed.
- I can improve my grammar, spelling and use new words. Also, I improve my speed typing.
- I can improve grammar
- Spelling. I want to improve my spelling Google message will check my spell and I think that good.

Choice of Partner/Topic

- Give to students easy topics to chat about it. No specific texts.
- To have more people talk to different friends or classmates.
- I think that in class we would chat about everything. Not only about homework because being to be board. We can talk about our like and influences of everyday here improve.
- chatting about anything subject
- Maybe we can chat with Americans like study buddies. Something likes that.
- After school. Whenever, wherever. What makes it possible to chat with classmate in English?
- Probably, we can use this chatting program with American students like for one day a week, like study buddy for internet.
- Everything is on. But chatting with classmates sometime boring. I like chatting with now people. Usually with girls.
- More people talking at the same time and teacher can participate in the conversations.

- Don't use more than 2 people in a conversation because with three people it gets very confusing.
- I think sometimes we should be able to talk with someone that we choose and groups chat with everybody would be fun.

Different Technology

- The users could have photos or their profiles.
- I think it would be great to see the other person (webcam)
- The program is good. Nobody knows how to make the screen bigger. It would be good to teach it to them.
- To be more update. I mean that use a better program to chat like messenger on Skype.
- The chatting screen need have bigger one because it's too small to notice some message.
- More practice and use some different chatting methods together.

Length of Time

- Give us more time. Use as students. We should be more serious about it.
- Use more
- More practice and use some different chatting methods together.
- After school. Whenever, wherever. What makes it possible to chat with classmate in English?
- I think if you like fro my personal opinion; we need to practice more than 2 days.

Grading/Feedback

- First, we have to be graded it to make it more serious. If everybody thinks it will be graded.
- In my case, I will practice sentences in English and I know that someone understand or not understand my sentence.
- Maybe a feedback about our chats.

Improving of Topics

- Give to students easy topics to chat about it. No specific texts.
- sometimes free topics and topics more interesting
- Interesting topic. Give the students a prize for the best couple chatting together and print it out to show the other student. That could be stimulating the other students to work hard or take the chatting seriously.

Survey #2 – What could be improved in the “chatting” program?

Self-Improvement

- Speed typing and grammar.
- Typing speed and thinking in English quickly.
- My typing and writing skills could be improved.
- Communication skills, speed typing, and grammar.
- Typing speed and speaking skill.
- In my situation, I need to prepare time to talk about chatting topic.

Choice of Partner/Topic

- Mr. McCollum to be partner of maybe 3 students so during the semester each student would have had the opportunity to chat with him 3 or 4 times and they would improve their grammar, fluency, skills, spelling, and academic words.
- Different topics, and discussions group that help us to talk about different topic.
- It's a really good program. I think it helps in many ways to improve English skills. For improvement, I would recommend that the teacher needs sometimes let us write more and give us more academic topics.
- I think to spend more time writing but all depends with how I'm chatting with because, sometimes the partners are so awkward and don't write anything.
- Groups of 3 and more than 1 prompt at the same time.
- The subjects maybe you can choose one between 3 subjects. Why? Because sometimes I don't have nothing to write about it.
- We can chat with study buddy in other states, or other students in other sites like a competition for internet.
- Change partner everyday. I thin kids not good chatting often with short time. But having enough time focusing is better (once a week).
- Try chat with more than one person. The window a little more big.
- Sometimes we need to talk with three people because we were chatting same people. We need to many opinion.
- Maybe more time and some time free topic.
- I think this program is good, but it will be better if we write email or letter to improve our grammar. Also, to change with other student or classmate the journal to make my own life with other.
- During this semester I wasn't able to chat with some classmates and with other classmates I chatted a lot. I think it is good to talk with everyone. Some topics were difficult to talk about for 20 minutes.
- Free conversation. Free shooing of patterns. A little bit more time.
- Free topics. Be able to choose partner.
- Better topics: Interesting topics.
- Teacher should make various topic. Our topic which was we used is usually to monotonous. Too boring too stereotype. So that make me bored and discourage me to participate.
- more social topics to discuss.
- More organized prompt. And different way (everyday same way is too boring.)
- It could be free subject sometimes and not so often. Begin honest, I am already sick of chatting with specific subject.
- There should be more options that we can choose the subject

Different Technology

- If I have poor typing skill. Chatting program would help to improve my typing skills, bit typing game or exercise is better way to improve typing skill.

Length of Time

- I think we would do it less often and use the time to do something different like a research or practice more typing.

- Mr. McCollum to be partner of maybe 3 students so during the semester each student would have had the opportunity to chat with him 3 or 4 times and they would improve their grammar, fluency, skills, spelling, and academic words.
- More time. Se we can be able to share our thought and feeling online.
- Change partner everyday. I thin kids not good chatting often with short time. But having enough time focusing is better (once a week).
- I think that I want to more time because it is good change for practice. Chatting time is increased more than before.
- Maybe more time and some time free topic.
- Free conversation. Free shooing of patterns. A little bit more time.

Grading/Feedback

- Interesting topic. Give the students a prize for the best couple chatting together and print it out to show the other student. That could be stimulating the other students to work hard or take the chatting seriously.
- We need teachers to chat by computers. I want teachers to attend it together in order to check English grammar or spelling.
- Audit. In my opinion, I think that the content of our chatting need to be modify because that will help us know how to use correct sentence and grammar.
- I thin kit is goof if the students can receive a feedback of them conversations. For example, receive by email or in class some evaluation of proofreads because sometimes I don't know what I need to improve.
- Teachers can give us feedback about our chatting skill. Also, after chatting we can discuss how to use some correct sentences for some situation or prompt.
- Feedback.
- I want to have a feedback because for me looks like a wasting time that I like because I am tired. I want to choose that person that I will talk to. Free subject.
- I hope if our teacher check our conversation it will be more useful. 8 students are came chat about useless topic.

Improving of Topics

APPENDIX H
Teacher Questionnaire Results

Level 3

1. Please describe your experience using CMC in your classroom.

I had a very pleasant experience using CMC in my classroom. After the first couple of sessions the students knew what to do and just started doing it when they got to class.

2. Do you plan on using CMC in a future writing class? Why or why not?

I will probably never teach another writing class, but if I ever did, I would definitely consider using it. My decision would depend on what the findings are about it. If it is found to be helpful, I would definitely plan on using it again.

3. What are the benefits of using CMC in the classroom?

I always looked forward to the days that we were doing CMC. I got a chance to get to know the students through their conversations with their classmates. It was not strenuous for me as the teacher, nor for the students. It created a relaxed atmosphere for all of us. I believe everyone enjoyed it, including me. I noticed the students correcting each other's spelling and grammar. I was always available to answer grammar, usage, and spelling questions for them if they wanted help.

4. What are some drawbacks to using CMC in the classroom?

Sometimes it was hard to get them to take the assignment seriously and to keep them on task. This may not turn out to be a big problem, though, because maybe it is just as beneficial for them to communicate about whatever they want to as it is to communicate about the assigned topic. Some of the students didn't seem to put in much effort. Some wrote one- or two-word entries the whole semester. These students may not have benefitted from the exercise as much as they could have. Once in a while, a student seemed to have trouble signing in to the gmail account.

5. What could be improved?

Maybe there could be some kind of instruction sheet that is read to them from time to time (or every time) reminding them of the purpose of the exercise. I reminded them once in a while how important it was to work hard at it and exert some effort.

Level 3

1. Please describe your experience using CMC in your classroom.

I used CMC on Monday and Thursdays in my writing 3 class. I used the prompts that Rossana created based on the listening/speaking topics. I also created some of my own prompts based on the topics we were discussing. One type of prompt that seemed to be effective in my class was when I had students brainstorm in pairs about their upcoming papers. I also gave students participation points for using CMC. I looked at their conversations while they typed, and usually looked through them after the sessions (especially for the first half of the semester). I then would give students feedback on their conversations: grammatical, lexical, pragmatic, or even just to re-communicate my expectations about not using abbreviations or intentional poor English. I found that these feedback sessions were useful for the students and they were able to improve their “chats”.

2. Do you plan on using CMC in a future writing class? Why or why not?

I plan on using it in my class in the future. I think that it is a fun and new way for students to use writing. I also think that it is a great pedagogical tool.

3. What are the benefits of using CMC in the classroom?

I think that it increased their ability to write and communicate. Students had to learn how to negotiate meaning with each other. I believe that this interactive approach gave students the opportunity use and enhance what they know about the English language.

It was student-centered.

I liked using the CMC program in my class because my students had the opportunity to participate in live writing discussions. Overall, I think that my students enjoyed chatting with each other. It seemed to build a rapport among my students.

4. What are some drawbacks to using CMC in the classroom?

Sometimes the computer had problems logging in.

5. What could be improved?

Give teachers many ideas on how to use CMC so it does not become monotonous to the students

Give feedback (I would show my students good and poor examples of chats and also made them accountable for their time)

Give students a free topic once or twice in the semester

Sometimes I had students accomplish tasks in their groups, and that seemed to motivate them in their writing.

Level 4

1. Please describe your experience using CMC in your classroom.

Twice a week I selected (or got from Rossana) a set of questions about a particular topic. (Topics often came from students' LS classes or a topic related to what we were studying in writing class). For 20 minutes twice a week, students would chat about the topic and questions with a partner.

As students wrote, I would move around the lab and look over their shoulders, observing what they wrote. I would then write sample sentences/phrases based on common spelling, vocabulary, or grammar errors that I saw. Then, when the 20 minutes were up, as a class we would review the phrases and discuss why they might be wrong and how they could be improved. When it was a grammar problem (such as verb tense or preposition), generally someone in the class knew the right answer (sometimes even the student who made the mistake, but was typing too quickly to use the correct grammar), but when it was an issue of vocabulary or phrase use (such as things that students hear, and then try to use in writing but do not know the spelling or appropriate use), I generally had to point out how to improve the sentence and provide a justification and additional example.

2. Do you plan on using CMC in a future writing class? Why or why not?

I felt that this was a good use of class time, especially if I can provide feedback on common language problems that I see in their chatting. However, lab time in the computers is frequently difficult to arrange. Perhaps we need to pair up writing classes that want to use CMC twice a week, and one class can use the lab during the first half, and a second class during the other half.

3. What are the benefits of using CMC in the classroom?

It does provide some error correction (though I am not sure if this makes a difference). One of my students was absolutely convinced that CMC improved his fluency, without any prompt from me that such might be a possible side-effect of the activity. However, whether it improved fluency or not, I do think it helps students feel more comfortable typing with a computer, especially if they have not used one much before. Additionally, it helps create a more integrated classroom rapport among students since they get a chance to know each other through the prompt questions.

4. What are some drawbacks to using CMC in the classroom?

It does take up class time (and lab time), but if I didn't do CMC, I'd do journal writing anyway. Another disadvantage is that it requires a partner. This is a problem for two reasons. First, my 8:15 class suffered from many chronically late students, so as they trickled in, one-by-one, I had to pair them into groups of three, then two, then three, as available partners showed up. I'm sure that it made the experience difficult for those who started a conversation, only to have it interrupted by a new partner, or when a partner left.

The pair work was also a problem when there was a classmate that others did not want to chat with (due to being very slow, or being a personality that the other classmates did not like and did not want to chat with for 20 minutes). For these reasons, I never strongly enforced the "you can only chat with your assigned partner" rule. Sometimes some students would be chatting with 3 or 4 classmates at a time, though most of them kept focused on one partner per session.

5. What could be improved?

I would have preferred if all of the chat window text was large enough for me to easily read as I looked over their shoulders. It would have made it easier for me to analyze their writing without having to make my presence so obvious to them while they were writing.

And many of my students mentioned that they would have enjoyed chatting with me (the teacher/expert) on occasion. I'm not sure how I feel about this since it would have prevented me from observing them and providing feedback, but maybe I could join in on a partnership once a week and use that conversation for my error discussion.

Level 4

1. Please describe your experience using CMC in your classroom.

Overall, the experience was enjoyable. The stable nature of the scheduled routine was a benefit. The fluency of the students seemed to improve.

2. Do you plan on using CMC in a future writing class? Why or why not?

If scheduling allows and results of the study provide evidence that CMC is a benefit to writing, then I would definitely consider using it in a future writing class.

3. What are the benefits of using CMC in the classroom?

The stable schedule was a benefit. The consistent use of the computer lab was a benefit.

4. What are some drawbacks to using CMC in the classroom?

Technology does not always work. We had some days when a few of the students had trouble signing in to their accounts. That resulted in some lost time. It was a lot of work to monitor to see if the students were staying on task and avoiding inappropriate chatting.

5. What could be improved?

Is there a way to do this that wouldn't be interrupted with sign-in difficulties?