CHAPTER 1

INTRODUCTION

CMC and Sociocultural Theory

Since the advent of the first computers in the 1960s, the computer as an increasingly widespread tool has shaped our lives in an unprecedented way. Its impacts are so significant that it was described as “the fourth revolution in the means of production of knowledge,” on the par with the “three prior revolutions in the evolution of human communication and cognition: language, writing, and print” (Harnad, 1991, cited in Warschauer, 1997, p 472). Computer technology has been employed in a variety of fields and its introduction into the language classroom gives rise to the emergence of what is later known as Computer-assisted Language Learning, or CALL.

Since the 1980s, the incorporation of network into CALL presented language education with an important frontier where original interactions with the computer was extended to interactions with other learners all over the world via internet, on either synchronous or asynchronous base. The networked human-human interaction, commonly referred to as Computer-mediated Communication (CMC), offer users the access to communicating with any online community anytime anywhere, making possible many instructional practices that have been rendered infeasible or unaffordable, such as cultural learning and distance learning (Warschauer, 1996b).

In particular, most credited by language teachers worldwide is CMC’s ability to foster interaction with native speakers or among learners (Levy, 1997; Warschauer, 1997), which some researchers (e.g., Anton,1999; Long & Doughty, 2003; Pellettieri, 2000; Swain, 2000) have identified as a crucially important factor in the promotion of a fertile learning environment for language acquisition. This interactive nature is

especially captured by synchronous CMC because it is closer than asynchronous CMC to spoken language (Sotillo, 2000). Synchronous CMC shares spontaneity and freshness characteristic of spoken language and hence, as compared to asynchronous CMC, is more likely to be engaging and animating (Perez, 2003).

The interactive nature of CMC is embraced by more and more language practitioners because in recent years it has become increasingly accepted that learning, including language acquisition, has something to do with social interaction (Mondada, 2004). Many researchers (e.g., Ellis, 1999; Markee & Kasper, 2004; Roebuck, 2000; Young & Miller, 2004), cautioning against the dominance of acquisition metaphor in second language acquisition, started seeing the need to take on broader metaphors that ascribe greater agency to learners and that situate learning in the social context rather than in the brain of individual learners.

The emphasis on social aspect of learning was clearly made by sociocultural theory. Sociocultural theory contends that social interaction forms the basic site of organized activities where learning can take place (Lantolf, 2000; Wertsch, 1998) and that learning is inherently situated in the society and therefore cannot be separated from the social context in which it is embedded (Oxford, 1997).Within the framework of sociocultural theory, all higher mental functions, including language learning, are mediated by culturally crafted artifacts through dynamic and interactive relationships between interpersonal (social) and intrapersonal (individual) planes (Lantolf, 2000; Vygotsky, 1978). More specifically, learners develop cognitive functions in a constant process of advancing through their own zone of proximal development (ZPD) first by interacting with more capable others who could provide scaffolded assistance and then by internalizing the assistance into their own possession of knowledge (De Guerrero& Villamil, 2000; Ohta, 2000). In the process, learners move from reliance on objects or others toward independent problem solving, that is, from object- or

other-regulation to self-regulation (Lantolf and Appel, 1994). In this sense, learning takes place when learners move toward self-regulation as a result of receiving scaffolded assistance from experts.

The task of offering scaffolding is crucially important but not easy, depending on how well the experts understand learners' development as well as how skillfully they can forge appropriate assistance. The way experts establish scaffolding has been a research focus explicitly explored in studies of language teaching and learning. For example, Wood, Bruner, and Ross (1976, cited in Anton, 1999, p. 305) proposed six scaffolding functions to characterize the ideal help that the expert could possibly provide the novice. Anton (1999) examined the discursive devices employed by an L2 French teacher in terms of the scaffolding functions.

With the growing popularity of sociocultural theory, more and more language acquisition researchers start paying attention to the role of social interaction and social context. CMC presents an alternative context for social interaction; however, most discussions in literature on CMC practices were based on traditional analyses of discourse functions, syntactic complexity, or turn length/ number. Few efforts have been perceived to look at the social-cultural dimension of CMC interaction or to examine the very context of CMC itself. Therefore, the current study aimed to incorporate a sociocultural framework into examinations of CMC practices by investigating interactions during synchronous tutoring sessions with sociocultural constructs of scaffolding and cognitive stage of regulation. The tutoring sessions presented as a context for social interaction in the form of collaborative learning. By this, the tutees were to appropriate assistance from the tutor into their own possession and thus advance toward the developmental stage of self-regulation.

Purpose of the Study

It is inherently interesting to look at CMC context because it is novel and appears promising for language learning and teaching. The purpose of the study was to discover the influences brought about by such context on the processing of our tutoring sessions and to examine the interactive features emerging from the tutoring communication. More importantly, we were interested in the learners' developmental movement in their interlanguage system throughout the tutoring in terms of their cognitive stage of regulation.

Research Questions

There are three research questions that the study intended to address:

(1) How does synchronous CMC mode affect the processing of tutoring sessions in a college-level EFL writing course?

(2) What interactive features emerge from the online tutoring communication?

(3) How do EFL learners shift their regulatory stages during the tutoring sessions?

Significance of the Study

As a pioneering effort to incorporate a sociocultural view of learning, the study was expected to offer an alternative avenue other than traditional cognitive theory to examine CMC discourse and to explore CMC's potential for forming a fertile environment for language acquisition. In contrast with analyses of linguistic features in most CMC literature, the sociocultural constructs of scaffolding and regulation used in the present study were hoped to make more holistic and richer our understanding of CMC practices. In addition, it was hoped that the study could illuminate the interplay among errors, scaffolding, and interlanguage development and thus help language practitioners better understand what kind of assistance to offer

and how to offer it to learners at different cognitive stages of regulation.

Organization of the Thesis

The thesis, except chapter 1, consists of four chapters. In chapter 2, we review existing literature related to CMC and sociocultural theory in detail, bringing about the need to combine the two themes by examining CMC interaction from a sociocultural perspective. In chapter 3, we propose the method of the study, including setting, participants, online system, and the means for data collection and analysis. In chapter 4, we display the results in response to the research questions. The thesis ends with chapter 5 where we discuss and summarize the study findings as well as mention implications deriving from the findings.

CHAPTER 2

LITERATURE REVIEW

The review addresses two main themes: computer-mediated communication and sociocultural theory. Each encompasses several subthemes and is discussed with reference to language teaching and learning. A combination of the two themes is presented at the end of the review as a gap statement for the present study.

CALL Overview

Technological advances have brought about enormous impacts on education, especially on theories and practices of language teaching and learning (Hanson-Smith, 2001). Among the related variety of technological innovatives in history such as microphone audio/videotape and projector, computers so far appear to be the most significant of all. Computer-assisted language learning (CALL) has been forming a new trend, which could be defined as “the search for and study of applications on the computer in language teaching and learning” (Levy, 1997, p.1) or “learners learning language in any context with, through, and around computer technologies” (Egbert, 2005, p.4). CALL itself is interdisciplinary, in relation to disciplines of educational technology, computer-supported collaborative learning, artificial intelligence, computational linguistics, corpus linguistics, and computer-assisted assessment (Chapelle, 2001). It made its debut in the 1960s, became a profession with the emergence of devoted conferences and journals in the 80s, and flourished through the 90s up to date. Detailed CALL history was documented by Chapelle (2001). As noted by Hanson-Smith (2001), technological advances have coincided with or driven revisions in the theory and practice of SLA, which in turn direct the way CALL is applied. Kern and Warschauer (2000) elaborated on this phenomenon from three

time-sequenced approaches: structural, cognitive, and sociocognitive approaches. In line with structuralism, mainframe-supported CALL programs during the 60s and 70s consisted of grammar and vocabulary tutorials with the emphasis on formal accuracy and drill practices. In the 80s, cognitive approach to CALL supported by microcomputers started shifting agency to learners self. Learners constructed knowledge through autonomous exploration on the software package at their own pace, proficiency level, and personal styles. Since the 80s, computers under sociocognitive approach moved into a networked era. Original dynamics from learner's interaction with computers was shifted to interaction with other humans via networked computers, either on local or global basis. From a functional view, Crook (1994) described the computer role at these three phases respectively as a tutor, a constructor, and a toolbox. More details about recent development and application of CALL could be found in Liu, Moore, Graham, and Lee's (2003) thorough review from 1900 to 2000.

Like precedent technological tools used in education, the computer with its powerful functions seems to present language educators with another promise for success in language teaching and learning. It has widely been applied in various contexts for grammar training (Pellettieri, 2000), skills acquisition (Abrams, 2003b; Chun, 1994; Payne & Whitney, 2002; Schultz, 2000; Sotillo, 2002) as well as for research (Egbert, Chao, & Hanson-Smith, 1999). The wide application has given rise to a need for guidelines for sound CALL pedagogy or course design. Egbert, Chao, and Hanson-Smith (1999) identified eight conditions for optimal language learning environment based on SLA theory against which CALL classrooms should be established. Similarly, Doughty and Long (2003) provided methodological principles and pedagogic procedures for task-based language teaching in the context of distance learning.

In addition to pedagogical applications, critical evaluations are being made on the use and effectiveness of CALL. For example, early CALL research was mostly conducted to compare learning outcomes achieved through computer-assisted classrooms with those obtained in traditional classrooms (Kern, 1995; Warschauer, 1996b). Salaberry (1996) critically analyzed pedagogical uses of CALL applications from three perspectives: theoretical foundations of CALL design, empirical research that measures pedagogical effectiveness of CALL, and technological capabilities of computers. Chapelle (2001) proposed six useful criteria to evaluate appropriateness of CALL task: language-learning potential, learner fit, meaning focus, authenticity, positive impact, and practicality. Based on these criteria, Susser and Robb (2004) further developed a detailed checklist for evaluating ESL/EFL instructional web sites.

With the popularity of CALL, heated debates were seen over aspects of computers. Higgins and John (1984, cited in Hanson-Smith, 2001) in the 80s and early 90s debated over whether the computer was master of or slave to the learning process. To caution against pervasive over-reliance on CALL, Clark (1994) distinguished media from method and argued that the computer was merely a medium that delivers methods to learners. Similar stance was held by Kern and Warschauer (2000) , indicating that the computer, like many other technological tool used in teaching, did not in and of itself bring about improvements in learning.

In spite of some questioning voices, CALL has been taking on increasing importance and brought about fundamental changes in at least four aspects of educational processes: a). innovative research technologies, b). new procedures for the assessment of students' learning profiles, c). a new rationalization for the preparation and management of teaching resources, and d). an extended resource/ reference database for the students (Salaberry, 1996, p15). Its power and potential was cogently described by Warschauer (1998) "…50 years after the computer was

invented, we do not have old language learning plus the computer, but we have different language learning" (p.760).

Given the brief CALL background, it is then logical to narrow down the scope to the first of the two main themes in the report--- computer-mediated communication (CMC). Featuring the use of networked computers, CMC constitutes one branch of significance in CALL arena. Whereas CALL has traditionally been associated with self-contained, programmed applications such as tutorials and simulations, CMC represents a new and different side of CALL, where human-to-human communication is the focus. The following sections provide a review of CMC background with reference to language education.

CMC in Language Education

CMC can be defined as "the communication that takes place between human beings via the instrumentality of computers" (Herring, 1996, p1) or more specifically as "use of computer systems and networks for the transfer, storage, and retrieval of information among humans" (Santoro, cited in Salaberry, 1996, p.17). Based on the nature of time, a distinction is commonly drawn between synchronous (real-time) and asynchronous (time-delayed) CMC. An overview of CMC was offered by Herring (1996), including its history and key issues.

CMC, which has existed in primitive form since the 1960s and become widespread since the late 80s, is probably the single most influential computer application to date on language teaching and learning (Warschauer, 1996a). Language learners are for the first time allowed for direct access to communicate with other learners worldwide or speakers of the target language 24 hours a day, 7 days a week, from school, home, or anywhere there is a computer connected to network in either asynchronous or synchronous mode (Cummings, 2004; Warschauer, 1996a).

Synchronous CMC employs real-time chat rooms or virtual space such as *InterChange* (Kern, 1995; Schultz, 2000) or MOO (Sheild& Davies, 2000) while asynchronous mode draws on time-delayed media such as e-mail (Gray & Stockwell, 1998; Itakura, 2004) or electronic bulletin board (Zeiss & Isabelli-Gracia, 2005). The variable of time delay presents the two modes with different pedagogical values and has led some researchers to compare learning outcomes achieved by the two in terms of discourse functions, syntactic complexity (Sotillo, 2000) and quantity of generated discourse (Abrams, 2003b, Perez, 2003). All in all, with the unbounded connectivity and interactive nature, CMC is heavily deployed in language classrooms to facilitate collaborative experiences (Freiermuth, 2002; McAlister, Ravenscroft, & Scanlon, 2004; Simpson, 2005, Zahner, Fauverge, & Wong, 2000), skills acquisition(Abrams, 2003b, Chun, 1994; Payne & Whitney, 2002; Schultz, 2000; Sotillo, 2002), and cultural learning (Gray & Stockwell, 1998; Itakura, 2004; Kern, 1996, Zeiss & Isabelli-Gracia, 2005). Also, the interactive nature has laid CMC applications on firm theoretical foundations of interaction hypothesis and meaning negotiation (Pellettieri, 2000; Swain, 2000).

The increasing popularity of CMC in language education is not surprising due to its exclusively empowering features (Warschauer, 1997). Integrating researchers' analyses, we could conclude the features of CMC as follows: a). unparalleled access to information databases (hypertext/media links) (Salaberry, 1996;Warschauer, 1997), b). time- and place-independence (Opp-Beckman, 2002; Warschauer, 1997), c). permanent and flexible nature of text (allowing for transmitting, storage, reflection, and edition)(Gray & Stockwell, 1998; Sotillo, 2002), d). authentic audience and tasks(Gonzalez-Bueno, 1998, Zeiss & Isabelli-Gracia, 2005), e). enhanced motivation in learners (empowerment for the shy, slow or the minorities; identity reformulation) (Darhower, 2002; Kern, 1995; Lam, 2000), f), student-centered classroom (teacher'

reduced authority)(Beauvois, 1998a, 1998b; Gonzalez-Bueno, 1998), and g). increased access to collaborative learning (expert-novice interaction or native speaker-nonnative speaker contacts) (Freiermuth, 2002; McAlister, Ravenscroft, & Scanlon, 2004; Simpson, 2005). By contrast, debilitating features of CMC were also identified, for instance, a). a lack of paralinguistic cues (e.g, tones and gestures) (Chun, 1994) b).sequential incoherence (McAlister, Ravenscroft, & Scanlon, 2004), c). off-topic messages (Gonzalez-Bueno, 1998), d). defective language (low formal accuracy)(Kern, 1995), and e). direct or confrontational style (e.g., flaming or profanity) (Abrams, 2003a; Herring,1994). Interestingly, CMC environment appears to be a double-edged blade not only because there are both facilitative and debilitative features but also because some of the debilitative features are generated as a result of the appearance of the facilitative features (Kern, 1996; Gonzalez-Bueno, 1998). For example, off topic messages and flaming come from learners' increased freedom for discourse initiation and instructor's reduced roles (Gonzalez-Bueno, 1998).

CMC has been employing a new kind of literacy which is different from and more than conventional reading and writing, or e-literacy (Simpson, 2005). Given that an estimated 85% of the electronically stored information worldwide is in English (Shetzer & Warschauer, 2000), the importance of acquainting oneself with e-literacy is underscored, especially for the purpose of English learning. Some studies have explored the concept of e-literacy, for example, an e-literacy approach to teaching language (Shetzer & Warschauer, 2000), e-literacy acquisition (Simpson, 2005), and e-discourse management (Murray, 2000). Crucial to the literacy is the text-based modality which was reported as "a good bridge between speaking and writing" (Cummings, 2004, p.29) as it combines the textuality of written communication with the interactivity of face-to-face communication (Darhower, 2002, Warschauer, 1997). The hybrid nature and absence of paralinguistic cues have prompted many research

interests in linguistic features of CMC discourse in comparison with other spoken and written genres (Biber, 1988; Collot, 1996, Yeats, 1996). The discourse was reported to be characterized by the use of simplified registers (abbreviations and simplified syntax), symbols or emoticons, and overlapping turn taking mechanism (Gonzalez-Bueno, 1998, Murray, 2000; Werry, 1996).

CMC has made its way into language education as an innovative and popular tool. Many language practitioners and researchers are enthusiastically embracing the networked technology and practicing it in various ways. In the following, we will focus on four different kinds of CMC applications to foreign/second language teaching and learning settings: a). comparison with face-to-face exchanges, b).collaborative learning, c).language learning, d).cultural learning, and e).learners' affective development.

Comparison with Face-to-face Learning

To evaluate efficacy of CMC in language teaching and learning, perhaps the most tempting way in earlier times of the development of CMC research is to compare learning outcomes obtained respectively in CMC and face-to-face classrooms. Researchers have made the comparison on the areas of discourse quantity (Beauvois, 1998; Kern, 1995; Schultz, 2000), discourse quality (Beauvois, 1998; Kern, 1995; Warschauer, 1996b) and participation equality among learners (Beauvois, 1998; Kern, 1995; Warschauer, 1996b). The majority of the findings were favorable, indicating that CMC seems to be more effective than regular classrooms in several aspects for promoting language acquisition.

In a comparison of discourse produced by two groups of university-level French learners, Kern (1995) found an increase in both the number of turns and length of utterances in the group using real-time *InterChange*. He also found that the language

of the *InterChange* group was more morphosyntactically complex than that of their face-to-face counterparts. Moreover, more equal student participation was observed in the electronic discussion. All students participated in the whole course of two 50-minute electronic discussions while four did not participate at all and five tended to dominate in the same-length face-to-face discussions. These findings were corroborated by Warschauer (1996b) and Beauvois (1998) in their similar comparisons.

In addition to lexical and syntactic complexity, Warschauer (1996b) noted formality of the language produced electronically by ESL college students. The discussion via *InterChange* tended to include more formal expressions such as "in my opinion" and "therefore," which were virtually absent from the students' oral discussion. Also, a trend was seen toward participation equality in *InterChange* discussion. Four quietest students increased their participation almost ten times (from 1.8% to 17.3 %). Likewise, Beauvois (1998) noticed that university students of French tended to write messages of more than one sentence and often with complex compound sentence structure in the *InterChange* discussion. Their treatment of the topic also tended to be more thorough and more personal than was observed in the oral discussions of the same topics.

Based on various documentations on the comparison, Kamhi-Stein (2000) listed advantages common to CMC over face-to-face oral exchanges as follows: a). a text-based medium that amplifies students' attention to linguistic form, b). a stimulus for increased written L2 production, c). a less stressful environment for L2 practice d). a more equitable and non-threatening forum for L2 discussion, especially those involving minorities. (p. 428)

The apparent, favorable findings, however, did not suggest CMC's replacement for traditional classrooms. As Warschauer (1996b) contended, the comparison of

CMC and face-to-face pedagogy is not necessarily built on an all-or-nothing basis. Instead, a classroom highlighting advantages of each could well be the environment of highest efficacy. The claim was supported by Schultz's (2000) comparison of students' writing performances in a peer editing task in face-to-face, *InterChange*, and mixed mode. She found that students of mixed mode outperformed those using either single mode in terms of content and style changes. The permanent nature of CMC text was more convenient for students' editing and rewriting while face-to-face mode was more effective for students to generate ideas. Recognizing the different cognitive processes involved in CMC and face-to-face formats, Schultz emphasized the importance for students to participate in both experiences in order to achieve optimal results in writing development

Collaborative Learning

Collaboration is generally rendered crucial to overall process of language acquisition by leading students to create knowledge through interaction and meaning negotiation (Blake, 2000). Although usually used interchangeably, the concepts of collaboration and interaction are fundamentally different. Interaction refers to the overarching concept of communicating with others while collaboration represents a particular kind of interaction that emphasizes learners' reception of assistance and guidance from more capable others (Oxford, 1997). It has been suggested that CMC, especially synchronous CMC, provides an ideal medium for language learners to benefit from collaboration (Freiermuth, 2002; McAlister, Ravenscroft, & Scanlon, 2004). Warschauer (1997) provided a review of computer-mediated collaborative language learning from a sociocultural perspective. Freiermuth (2002) discussed merits and demerits of computer-mediated collaborative language learning and suggested proper ways to employ collaborative tasks via Internet chat.

The endeavor to apply computer-mediated collaborative learning has been widely made to enhance learners' writing performance and form acquisition. For example, Sotillo (2002) engaged five graduate students of applied linguistics in a task of composing and revising their thesis collaboratively in a wireless university campus. Using real-time software of *NetMeeting*, the students were able to receive critical feedback, provide corrective input, and negotiate meaning while reading the same document on their computers at the same time. Sotillo indicated that there was a reorientation of conventional writer-audience relationship brought about by the online collaborative writing from individual work in isolation to collective participation where each participant benefited from interacting with others at varying stages of expertise. During the writing process, the less skilled students were acquiring the skills and rhetoric of academic writing by practicing the format and style of the more experienced writers in the group and gradually learning to solve problems independently. The experienced benefited as well by externalizing and, consequently, reorganizing their existing knowledge. After 16 weeks' collaboration, they all made great strides on their thesis work. Comparing effects on writing performance brought about respectively by electronic and face-to-face discussions, Schultz (2000) pointed out that the collaborative task of peer editing was better enhanced by real-time *InterChange*. The *InterChange* discussion increased students' feedback by allowing them to exchange messages at the same time instead of waiting for their turn as they did in face-to-face mode. The generated scripts also afforded them a better chance to pay attention to and reflect on discussion points and further to act on the suggestions in subsequent compositions.

Although CMC was reported to be a facilitative medium for collaborative learning, it seems that task design plays a large role in determining the type and quality of the resulting collaboration (Freiermuth, 2002). Freiermuth (2002) proposed

two questions as a reminder to better ensure the occurrence of sound computer-mediated collaborative tasks: a). did the tasks offer the students sufficient opportunities to learn language, or were they merely an opportunity for the learners to enhance their technological savvy? and b) did the tasks offer the students interaction with other students? (p.36) The effect of task design was illustrated by Blake's (2000) study. University students of intermediate Spanish participated in a series of online collaborative tasks, including jigsaw, information gap, and decision making. Blake found that the locus of meaning negotiation was commonly on lexicon rather than syntactic structure and, importantly, that jigsaw tasks proved more effective than other types of tasks in stimulating the appearance of the negotiation.

Language Learning

Here, we temporarily put other aspects of language acquisition aside but look particularly at the learning of language itself. It has been suggested that CMC constitutes a facilitative environment for language learning as evidenced by increased quantity and quality of learner discourse as well as by learners' improved skill performance. Physical distance combined with teacher's reduced authority raises learners' willingness to participate in online activities and generate more language production (Warschauer, 1997). Kern (1995) found that university students of French using *InterChange* took two to three-and-a-half times more turns in discussion than those not using *InterChange*. In a five-week e-mail exchange project, Gray and Stockwell (1998) reported that the length of text produced by L2 students of Japanese increased considerably, from an average of approximately two lines of text in the first week to about nine to ten lines by the fifth week.

Compared with quantity, the issue of discourse quality appears to be relatively complex, allowing for a discussion from multiple perspectives: a). lexical or syntactic

complexity, b). discourse functions, and c). contingent use of language. In their respective comparison of results achieved by CMC and by face-to-face exchanges, Kern (1995) and Warschauer (1996b) obtained the same finding that students using *InterChange* produced more complex language in both lexical and syntactic levels. In response to the critique of low form accuracy characteristic of CMC discourse, Pellettieri (2000) showed that recurrent processes of meaning negotiation and reflecting on corrective feedback helped university students of Spanish produce electronic discourse that was both structurally complex and grammatical. Students at Chun's (1994) German course presented development of language complexity over time as interacting via *InterChange*. They produced three times as many simple sentences as complex sentences at first but by the second semester the ratio improved to three complex sentences for every four simple sentences. More importantly, Chun found that the students engaged in a wide variety of discourse functions, such as requesting, paraphrasing, greeting, and leave-taking, suggesting their playing a more active role than was typically found in regular classrooms. Likewise, Beauvois (1998b) noted that L2 French students developed their own sort of interlanguage by demonstrating their repertoire of discourse functions, such as asking questions and reconfirming, so as to express themselves in a way that can be understood by others. McAlister, Ravenscroft, and Scanlon (2004), paying particular attention to augmentative functions, found that ESL students managed to acquire such discourse functions as challenging, asserting, and evidence giving while debating electronically at AcademicTalk interface.

Another useful indicator of language knowledge construction in interactive process could be the occurrence of contingent discourse. One of its defining features is individual learner's adoption of certain language that was previously used by his/her interlocutor (Scheffel, 2000). As Gonzales-Bueno (1998) elaborated, the value

of contingent discourse lies in the learner's awareness of the discrepancy between learner language and target language or the language produced by more capable others. More important then is his/her appropriation of the more accurate or proper language. Gonzales-Bueno, engaging university students of Spanish in an e-mail dialogue journal with the teacher, found that the students often adopted the instructor's language in subsequent replies and, consequently, form accuracy of their discourse was raised. Another example is Gray and Stockwell's (1998) e-mail exchange project. They noted that there were a number of occasions where lexical items were first introduced by native speakers (Japanese university students) and then were subsequently used by learners (Australian university students). Additionally, the learners in some cases corrected their own production on either lexicon or syntactic level after receiving messages from native correspondents. The aforementioned enhancement of discourse quantity and quality appearing in CMC environment is believed to assist learners in acquiring more sophisticated communicative skills and, therefore, conduces to successful language learning (Warschauer, 1996b).

A more common way to discuss language learning than discourse quantity and quality is probably skill acquisition. Researchers have explored and recognized CMC's potential to directly or indirectly bring about writing and speaking development. Chun (1994) suggested that writing ability might be enhanced by networked computer discussion, because participation requires not only comprehension of proceeding discourse but also coherent thought and use of cohesive linguistic references. Seventy-eight percent of the students using *InterChange* at Kern' s (1995) intermediate French course reported improvement in their writing ability, mainly due to the urgency to write and lessened concern about making mistakes. Moreover, according to Sotillo (2002), real-time NetMeeting greatly facilitated graduate students' thesis composing, especially for the less skilled by

allowing them to imitate formats and styles of academic writing of more capable writers in the collaborative process.

The resemblance between CMC and face-to-face conversation in terms of spontaneity and discourse functions has convinced some researchers that certain communicative competence demonstrated in CMC would be gradually transferred to learners' spoken discourse (Chun, 1994). To test the claim, Payne and Whitney (2002) engaged university students of Spanish in either electronic or face-to-face discussions and compared their speaking performances in pre- and post speaking tests. The finding showed a significant improvement in speaking ability of the students involved in electronic discussions. Similarly, investigating the effects of synchronous, asynchronous, and face-to-face discussion on speaking performances of L2 German students, Abrams (2003b) found that synchronous discussion appeared more effective than others in helping students produce spoken discourse. She concluded that it may be most useful to view electronic chat sessions as "conversational stimulator" (p.165) in language classrooms.

Cultural Learning

There is a wide consensus that cultural learning is an integral part of language acquisition. The significance of contacting another or the target culture was well described by Bakhtin (1986): "A meaning only reveals its depth once it has encountered and come into contact with another, foreign meaning…and foreign culture responds to us by revealing to us its new aspects and new semantic depths" (cited in Warschauer, 1997, p.475). Cross-cultural contact in language classrooms has recently become less than luxurious with the realization of long-distance exchanges, which was identified as a distinctive feature of CMC by Warschauer (1997). Exposure to target language communities via CMC can help learners develop increased

cross-cultural awareness (Gray & Stockwell, 1998; Kern, 1996), foster commitment to a target culture (Zeiss & Isabelli-Gracia, 2005) and even modify existing stereotypes about the target culture (Itakura, 2003). Among others, e-mail is probably the CMC tool used most commonly by language practitioners and researchers to promote cultural learning in the form of pen-pal correspondence with native speakers.

Such an endeavor was made by Gray and Stockwell (1998) in a five-week intercultural e-mail exchange project between Australian and Japanese university students. The students discussed assigned topics in Japanese with the focus on topic content rather than linguistic forms. A refined understanding of mutual cultures was reported by students on both sides, especially on the topics of eating, dating, and socializing. Zeiss and Isabelli-Gracia (2005) conducted an experimental study to investigate the effect of CMC on American college students' perception of and attitude toward Hispanic culture. The self-perception questionnaire results showed that the students involved in electronic bulletin board discussions with their Mexican counterparts developed higher awareness of the target culture than those who did not participate in the CMC discussions on the areas of current events, daily life, and educational systems. Additionally, the discussions were found to expand the students' learning motivation by augmenting their willingness to learn more about each selected topics and to study in the target country. Itakura (2003) went further to explore the issue of how cultural stereotypes were formed and modified in an e-mail project between Hong Kong and Japanese university students. The findings showed that cultural stereotypes are formed based on various kinds of input with different degrees of impact. The remarks of native speakers and classroom teaching appeared to be more influential than those from the mass media and fellow learners. The e-mail exchanging process helped learners of both groups modify their previous assumptions about the target culture and consequently integrate diverse and even contradictory

information into a meaningful whole.

Affective Development

Learners' affective domain is of crucial importance in learning. In this section, we look at several cases of CMC use in relation to affective factors of motivation and identity. Motivation has been one of the pervasive themes in CMC research (Cummings, 2004), and most studies into motivation generated positive findings that both students and teacher are highly motivated when using computer networking (Hanson-Smith, 2001). The raised motivation may have much to do with the non-threatening atmosphere brought about by CMC under which physical distancing and teacher' reduced authority free students from inhibition typically found in regular classrooms (Beauvois, 1998a; Perez, 2003). Accordingly, traditional IRF (teacher initiated, students responded, and the teacher gave feedback) interactive pattern is broken down and replaced by more dynamic, active discussions which were initiated and directed by students (Blake, 2000). Moreover, the anonymity in CMC encourages opener, more personal and honest self-expressions among students (Gonzales-Bueno, 1998).

Beauvois (1998a) found her shy, reticent ESL students talked about their own culture and even criticized American culture when discussing the topic of divorce via *InterChange* in a direct, bold way that was absent from their face-to-face exchanges. In Beauvois's (1998b) another study into students' attitude toward learning via *InterChange*, 70% of the L2 French students agreed that working with a computer was unstressful and facilitated self-expression, and 88% gave a strongly positive response to the idea of using networking for discussions with classmates. She concluded that networking formed a motivating environment by generating the following affective benefits: a). students feel less stress than in the regular classroom,

b).students have adequate time to think and compose messages, c). students feel empowered to control the conversational task, d). everyone has a turn, e). students experience greater ease of communication, f). the network allows for individual learning styles, and g).students express a positive reaction and claim to enjoy the experience (p.108). Cummings (2004) invoked asynchronous CMC and campus e-mail system as a buffer to mitigate teacher-student conflict resulting from mutual cultural clash. As a new teacher at a university in rural Japan, Cummings was initially frustrated at students' unmotivated and even hostile attitudes toward foreign teachers and the course of academic writing. She then engaged the students in an online task of interviewing a native speaker of English in their chosen field and writing an essay about that person. Over a 14-week corresponding process, students started to see English as a tool for meaningful communication with the world rather than a means by rote learning for passing exams. As a result, a significant change was observed among the students from sullen and non-communicative people into motivated learners who enjoyed interacting with each other, native speakers, and the instructor.

The two-fold veil of anonymity and physical absence not only augments learning motivation but also allows for learners' adoption of any identity as they wish, which may be closer to the real self than the one they adopt in public. Two female learners of Spanish were observed by Darhower (2000) to adopt masculine names for their WebCT chat pseudonyms and use masculine morphology in nouns and adjectives throughout the chatting process. A similar phenomenon was found in Lam's (2000) case study of an ESL teenager writing on asynchronous and synchronous CMC. The Hong Kong immigrant had suffered from a sense of not belonging as a result of his English deficiency. After participating in an online community of a Japanese pop singer, the regular correspondence with chat mates and e-mail pen pals around the world helped alleviate his sense of marginalization and, more importantly, reconstruct

his identity in English. Particularly, the teenage boy developed good friendship with female pen pals by adopting a supportive, nurturing voice which was usually associated with females. As concluded by Lam, the textual self brewed by CMC "has in some instances blurred the boundaries of stereotypical gender roles and destabilized national borders as the defining characteristic of his minority social identity." (p.475)

Discussions of language education have long revolved around cognitive factors. Until recently has social dimension received attention from language acquisition researchers and been taking on increasing importance (Simpson, 2005). Instead of mastering static elements of a knowledge domain, researchers started to view knowledge acquisition as an interactive, dynamic process that is constructed within social exchanges (Scheffel, Omdal, & Usrey, 2000). The shift of learning concept from acquisition metaphor to participation metaphor (Mondada & Doehler, 2004) warrants a rediscovery and recognition of the factor of social context in which learning occurs (Donato, 2000; Oxford, 1997). A consideration of language learning is therefore incomplete without incorporating discussions of the learning context.
In the following, we will move from CMC to social dimension of learning and focus on discussions of sociocultural theory in language education.

Sociocultural Theory in Language Education

With the growing recognition of social factors in learning, conventional mainstream language studies that frame language learning as a cognitive process inside individual minds (Long & Doughty, 2003) have recently been criticized on several grounds (Markee & Kasper, 2004;Young &Miller, 2004) . These include: a). the notion of competence as a phenomenon that is isolated from socialization processes, b). a conception of learning that is abstracted from the organization of

actions, community membership, and participation frameworks, and c). a notion of context that tends to be reduced to a stable variable affecting cognitive events (Mondada & Doehler, 2004, p.502). By contrast, the sociocultural approach to learning contends that learning is constructed by interactions of individuals within society and realized by social interaction (Simpson, 2005). Social interaction is believed to be fundamental tissue of a learner's everyday life and thus the most basic locus where learning takes place. In this view, learning is not something an individual does alone but is a collective endeavor which necessarily involves other individuals (Aljaafreh & Lantolf, 1994; Swain, 2000). The sociocultural view of learning is gaining popularity, and more detailed explications are available in literature (De Guerrero& Villamil, 1994, Mondada & Doehler, 2004; Swain, 2000; Watson-Gegeo, 2004). One key factor of social interaction is the context in which it is situated as Wretsch (1998) explained that "human mental functioning is inherently situated in social, interactional, cultural, institutional, and historical contexts" (p.3); therefore, human cognitive functioning cannot be separated from the given larger context (Oxford, 1997).

Sociocultural theory, mainly based on the work of Vygotsky, is characterized by the belief that human cognitive functions, such as voluntary memory, reasoning, and language learning are mediated mental activities (Donato, 2000). In the process of interaction, individuals adjust to other social agents of a particular community in a given context by mediation of symbolic or socioculturally constructed artifacts such as signs and symbols, the most important of which is language, to develop various kinds of cognitive functions (Donato& McCormick, 1994; Swain, 2000). The cognitive functions are processed first by collaborative endeavor with other individuals, and subsequently internalized into the individual's knowledge possession (Aljaafreh & Lantolf, 1994; Anton, 1999; De Guerrero& Villamil, 2000). In brief,

cognitive functions are constructed by mediation of sociocultural tools and through a two-plane mechanism, from social, or interpsychological, to mental, or intrapsychological, plane (Ohta, 2000).

Within the framework of sociocultural theory, Vygotsky proposed four genetic domains for proper study of higher cognitive functions: phylogenetic domain, sociocultural domain, ontogenetic domain, and microgenetic domain (Lantolf, 2000). Most of the studies related to language education have been conducted in microgenetic domain where the interest is in the reorganization and development of mediation over a relatively short period of time, for example, the acquisition of certain vocabulary and syntactic structure (Lantolf, 2000; Ohta, 2000).

A holistic perspective on foreign/second language acquisition has been gained through the sociocultural approach to language learning. Sociocultural theory, as an encompassing paradigm, consists of various concepts, of which four will be further discussed in the rest of the paper: a).activity theory, b).zone of proximal development, c).scaffolding, and d). regulation.

Activity Theory

Theory of activity maintains that human beings are agents who engage in activity and construct their environment in unique ways (Kinginger, 2002; Lantolf, 2000). To better understand the theory, it may help to start with a distinction between tasks and activities. Tasks, as often employed in experimental research to elicit particular performance from participants, are believed to be scientifically controllable and measurable (Roebuck, 2000). However, an opposite view is held by proponents of activity theory, who consider tasks to be “an entity which is transformed through its instantiation into the activity of particular learners” (Ohta, 2000, p.51).That is, tasks are variable in and of itself and can lead to different activities among participants. The

task-activity relationship was more specifically addressed by Coughlan and Duff (1994). They referred to tasks as a "behavioral blueprint" (p. 175) motivated by a set of research objectives while activities are the behavior that is actually produced when an individual performs a task. Tasks, therefore, are fundamentally different from activities.

The properties of a given activity are further determined "by the sociohistorical setting and by goals and history of the participants" (A. N. Leontiev, 1981, cited in Roebuck, 2000, p. 83). Rather than task instructions, it is the instantiation of a learner's various backgrounds as well as contextual influences that work together to determine his/her activities. The concept was exemplified in Lantolf and Genung's (2002) case study of how a learner of Chinese adjusted to a classroom she found dissatisfactory by shifting activities. The learner's history of being a colonel and of having abundant language learning experiences had led her to challenge the imposed structure of the Chinese course. After a consecutive of unsuccessful efforts, however, she chose to shift her goal from developing conversation abilities to passing the course and getting her degree. She thereafter acted in response to the new goal and finally achieved it. Clearly, the learner's activities were directed by goals and influenced by her history and perception of the given context. In the view, participants involved in the same task are necessarily involved in different activities as they bring to the task their unique goals, histories, and capacities. For example, Swain (2000) found that the same form-focused task turned out to be perceived differently by different pairs of students at a French class. Each pair focused on different aspects of language and did so in diverse ways. Coughlan & Duff (1994) indicated that activities generated by a given task differ not only across participants but also within the same participant at different times, drawing on findings from their comparison of the ways ESL learners orally described a picture. Similarly, Roebuck (2000) observed that

university students of Spanish engaged in a written recall task acted differently at the outset and, importantly, exhibited shifts in activities according to their changing motives as the task unfolded. The constant shifting from one activity to another suggests the discrepancy between what occurs during learner activity and what task instructions might lead researchers or instructors to expect. In the sense, what one intends to teach may be only indirectly related to what is actually learned since "what ultimately matters is how individual learners decided to engage with the task as an activity" (Lantolf, 2000, p13).

Zone of Proximal Development

Acquisition of all cognitive functions originates in social life and comes to individuals' possession through internalization (Aljaafreh & Lantolf, 1994; Anton, 1999; Kern, 1996; Ohta, 2000).The transfer from social plane to mental plane is closely related to Vygotsky's notion of zone of proximal development (ZPD), which is defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, cited in Anton, 1999, p. 304). In other words, ZPD refers to the difference between what a novice is capable of when acting alone and what he/she is capable of when acting under guidance of more skilled others. Central to the definition is the appearance of expert-novice interaction, which was identified as the most effective among four interactive patterns in creating conditions conducive to learning (Storch, 2002). However, learning does not occur as a necessary result of any kinds of support from others but emerge only with best possible assistance from experts (Ohta, 2000; Oxford, 1997). According to Ohta (2000), assistance that is too much or too easy would impede a learner's development. For Aljaafreh and Lantolf

(1994), optimal assistance is the one which is both graduated and contingent. That is, help should start at a highly strategic, implicit level and gradually become more specific until the appropriate level is accomplished. The progress of graduated assistance is clearly captured by a 12- level regulatory scale Aljaafreh and Lantolf proposed as shown in Figure2.1.

Figure 2.1 Regulatory Scale

0. Tutor asks the learner to read, find the errors, and correct them independently, prior to the tutorial.
1. Construction of a "collaborative frame" prompted by the presence of the tutor as a potential dialogic partner.
2. Prompted or focused reading of the sentence that contains the error by the learner or the tutor.
3. Tutor indicates that something may be wrong in a segment (e.g, sentence, clause, line)—"is there anything wrong in this sentence?"
4. Tutor rejects unsuccessful attempts at recognizing the error.
5. Tutor narrows down the location of the error (e.g., tutor repeats or points to the specific segment which contains the error.)
6. Tutor indicates the nature of the error, but does not identify the error (e.g., "There is something wrong with the tense marking here").
7. Tutor identifies the error ("You can't use an auxiliary here").
8. Tutor rejects learner's unsuccessful attempts at correcting the error.
9. Tutor provides clues to help the learner arrive at the correct form (e.g., "It is not really past but some thing that is still going on").
10. Tutor provides the correct form.
11. Tutor provides some explanation for use of the correct form.
12. Tutor provides examples of the correct pattern when other forms of help fail to produce an appropriate responsive action.

Moreover, help should be offered only when needed, and withdrawn as soon as the learner shows signs of self-control or ability to function independently. Discovering the novice' ZPD is therefore a process of novice-expert negotiation entailing continuous assessment of his/her needs and abilities and the tailoring of help to the

conditions (Kinginger, 2002; Lantolf, 2000).

In this view, ZPD is perhaps more appropriate to be considered a negotiated interaction of opportunities for individuals to develop their mental abilities (Lantolf, 2000). Interestingly, within ZPD, the role of expert and novice is not fixed all the time, but varies (Anton, 1999; Donato, 1994; Young & Miller, 2004) especially when the task they are coping with changes (Aljaafreh and Lantolf, 1994). Moreover, not only the novice but also the expert benefits from the interaction as the act of teaching or explaining to others may help him/her construct a more coherent and clearer representation of knowledge (Sotillo, 2002; Storch, 2002).

There are various interpretations of ZPD with its application to different teaching and learning settings. For example, Warschauer (1997) provided a theoretical foundation for CMC use drawing on text mediation and modeling interpretations of ZPD. Kinginger (2002), discussing foreign language teaching in America, deployed skills, scaffolding, and metalinguistic views of ZPD. ZPD, though a theoretical concept itself, has been explored in a number of empirical studies of language teaching and learning. Anton (1999) investigated devices the teacher used to foster negotiated collaboration with students of French and, therefore, to help the students advance through their own linguistic ZPDs. Ohta (2000) examined interactive process between adult L2 Japanese dyads in form-focused tasks and found that a learner's sensitivity to subtle interactional cues plays a large role in assisting the other to reach the potential level of development. Lantolf and Aljaafreh (1995) claimed that within ZPD was not only progressive but also regressive development as presented by ESL learners in writing tutoring sessions on the areas of linguistic features and frequency and quality of the generated negotiation.

Scaffolding

A concept associated with ZPD is scaffolding, which was first used by Vygotsky and Luria in reference to how adults introduce children to cultural means (De Guerrero & Villamil, 2000). Extended later in language learning, scaffolding was described as a process in which " a knowledgeable participant creates, by means of speech, supportive conditions in which the novice can participate and extend current skill and knowledge to higher levels of competence" (Donato, 1994, p.40). In other words, learners at a certain level of development are drawn by scaffolded help from more capable others into another more advanced space where they are able to solve problems or perform tasks independently (Storch, 2002). According to De Guerrero and Villamil (2000), one premise of such scaffolded help is for the participants to achieve a state of intersubjectivity, which refers to an interpsychological point of convergence at which participants share a common perspective of the given task with an equal degree of commitment. For Aljaafreh and Lantolf (1994), it is "the idea to offer just enough assistance" (p.469) that constitutes the key to the occurrence of scaffolding. However, "enough assistance" seems to depend on subjective judgment of individual researchers. For example, Aljaafreh and Lantolf noted that, as mentioned earlier, ideal assistance is established on the basis of gradualness and contingency. Wood, Bruner, and Ross (1976, cited in Anton, 1999, p. 305) proposed six scaffolding functions to characterize the ideal help that the expert could possibly provide the novice,

1. Recruitment: enlisting the learner's interest in the task
2. Reduction in degrees of freedom: simplifying the task
3. Direction maintenance: keeping the learner motivated and in pursuit of the goal
4. Marking critical features: highlighting certain relevant features and pointing out discrepancies between what has been produced and the ideal solution

5. Frustration control: reducing stress and frustration during problem solving
6. Demonstration: modeling an idealized form of the act to be performed by completing the act or explicating the learner's partial solution

These functions suggest that successful scaffolding hinges on how skillfully the expert manages the interaction between task demands and the novice's ability. More specifically, the expert has to possess not only an understanding of how to complete the given task or problem, but also an understanding of the novice's performance and competence (Darhower, 2002; Donato, 1994, Guerrero and Villamil, 2000).

The way the expert establishes scaffolding has been explicitly explored in studies of language teaching and learning. Anton (1999), examining the discursive devices used by an L2 French teacher from four perspectives, found that the teacher deployed directives, assisting questions, repetitions as well as nonverbal ones such as pauses and gesturing to construct scaffolded help for learners. Another example was reported by Ohta (2000) in a study of interactive processes between Japanese L2 learners. The expert demonstrated impressive skills of constructing assistance in a gradual and contingent fashion to help the novice internalize grammar knowledge. Whereas typical scaffolding occurs in a uni-direction between the expert and the novice, Donato (1994) explored the notion of "mutual scaffolding" among L2 learners. His purpose was to observe to what extent three novice students of French could positively influence each other's development in the target language as working collaboratively on a planning task. The finding showed that the learners, regardless of their linguistic abilities, were able to not only offer each other scaffolded help but also grow linguistically within their respective ZPDs. Likewise, De Guerrero& Villamil (2000) provided evidence about mutual scaffolding by bringing together two novice ESL learners in a revision task. Although the reader played a dominant role in the first place, the writer gradually developed his own revising strategies and ended up coming

to make a reciprocal endeavor with the reader. The phenomenon of reciprocity is not unlike what Storch (2002) referred to as “collective scaffolding.” It refers to the scaffolding in which both of the expert and novice benefit from the collaboration, and the role of expert/novice is fluid. The interchangeability of roles was clearly illustrated in Simpson (2005)’s study of e-literacy skills. It was observed that the tutor of English adopted a learning role when faced with the novel tool of networked computer, and, by contrast, learners turned to taking on the role of the expert when working on the network with which they were relatively familiar.

Regulation

Central to the transfer of cognitive functions from social plane into mental plane within ZPD is the process of internalization, or, more properly for sociocultural theory, appropriation. Although imitation is critical in the process, appropriation does not simply reproduce the mental activity of another individual; instead, it transforms the process itself by changing its structure and functions depending on the given context (Aljaafreh and Lantolf, 1994; Lantolf, 2000). The process of appropriation on the learner’s part can be further examined in terms of a cognitive stage of regulation which the learner is staying at or moving from or towards. Lantolf and Appel (1994), focusing on children’s mental development, proposed three distinctive kinds of regulation: object-regulation, other-regulation, and self-regulation. Object-regulation refers to the phase when children’s attention is still dominated by the objects in the environment and their actions are limited to those which do not require decontextualized representation. At other-regulation, they are said to be able to carry out certain actions but only with appropriate assistance from the parents, caretaker, or more skilled others. When achieving self-regulation, they internalize certain strategies and demonstrate capability to perform actions independently. In this view,

development emerges with the children, or the novice, performing increasing independence as a result of others' assistance, that is, moving from object-regulation, through other-regulation, and arriving at self-regulation (Mondada & Doehler, 2004).

The concept was elaborated and applied by De Guerrero and Villamil (1994) to the area of language acquisition. They indicated features of object-regulated learners as a lack of interest in the task and a short span of attention. Other-regulated learners typically present hesitancy, a need to be helped, and despair when not knowing what to do. Self-regulated learners are characterized by leadership, self-assurance about knowledge of task and language, and willingness to share the knowledge with partners. The performances corresponding to different stages of regulation were translated by Aljaafreh and Lantolf (1994) into a five-level appropriation scale. In their study of regulation progression, Aljaafreh and Lantolf looked at how negotiation of corrective feedback during writing tutorial sessions promotes learning among three ESL learners. The tutor corrected students' errors by increasingly implicit feedback and the students were observed to gradually move from reliance on the tutor and assume growing control over the task. That is, the original asymmetrical interaction turned out to be more a symmetrical cooperation at the end. A similar finding was reported by Young and Miller (2004) to support the claim that learning is a process of changing participation in discursive practices. They, investigating interactional discourse between a tutor and an adult ESL learner in a writing conference, found that the pattern of the co-construction was changing: the learner moved from peripheral to fuller participation over time and the tutor altered her participation in ways that allowed for self-regulation on the part of the learner. Nevertheless, as noted by De Guerrero and Villamil (1994), achieving self-regulation in particular kinds of task was not necessarily for the learner to have self-regulation in all tasks and for all time. Their analysis of interaction during peer revisions in an ESL writing classroom

showed that although there was a tendency that readers were mostly self-regulated and writers were other-regulated, the students moved back and forth along the regulation continuum. The movement was attributed to their adjustment to changing demands from aspects of the task and to such factors as L2 knowledge and awareness of task goals.

In the growing recognition of the importance of social and cultural factors in learning, sociocultural theory has become a new trend in the examination of language learning process in different contexts, including the context of CMC. Some language acquisition researchers have drawn on sociocultural approach to exploring the nature or potential of CMC for assisting language learning. For example, Warschauer (1997) introduced a sociocultural conceptual framework for understanding the role of CMC in the relationship among text, talk, and learning. He discussed distinctive features of CMC and recognized CMC' potential for creating a facilitative environment for collaborative language learning. Darhower (2002) examined interaction of L2 Spanish learners engaged in *WebCT* chat room and found that there appeared sociocultually oriented interactive features, such as intersubjectivity, identity exploration, and social cohesiveness. Within the online context, learners formed a particular community of practice which enhanced the development of a type of sociolinguistic competence that was hardly acquired in a typical L2 classroom. In a similar examination of a virtual English learning community, Simpson (2005) viewed the chat room where the community resided as a physical tool that learners employed to mediate their learning of English, computer technology, and specific linguistic and discourse practice of the community.

In the section, we first reviewed CMC and its relation to collaborative learning, language learning, cultural learning, and learners' affective development. Then, we

discussed sociocutural theory and its components of activity theory, ZPD, scaffolding, and regulation. As shown in the discussion, social factors should no longer be considered external variables of learning which are secondary to cognitive responses, but intrinsic parts of the discourse for knowledge construction. However, the examination of CMC discourse in the area of language acquisition has mostly been limited to analyses of discourse functions, syntactic complexity, and number or length of turns. Although some attempts (e.g., Simpson, 2005; Warschauer, 1997) have been made, relatively few studies have examined CMC practices with sociocultural theory in a systematic and comprehensive fashion. The present study, therefore, aimed to combine the two areas by examining interactive features of synchronous CMC discourse from a sociocultural perspective.

CHAPTER 3

METHODOLOGY

In the chapter, we propose research method in detail, including setting, participants, procedure and data collection, online system, and data analysis.

Setting

The study was undertaken in a regular 18-week English writing course at a public university in northern Taiwan. The classroom-based course was characterized by online writing in both asynchronous and synchronous mode. The main instructional activities in class included impartation of basic writing concepts, reading discussion, and peer editing. After class, the students were given the assignment of posting their individual reflections on the topic discussed in class onto an asynchronous platform, Blackboard[1].

To help the students improve their writing, there were three kinds of online writing consultations at service. First, the students were encouraged to post their writing problems on the Blackboard platform and the instructor answered the questions occasionally. Second, the students could regularly consult with an online writing tutor via synchronous MSN during a prescribed timeframe. Third, there were four rounds of tutoring sessions throughout the semester in which the students were led to revise their formal essays by two online tutors via synchronous co-writing system entitled COW, which will be introduced later.

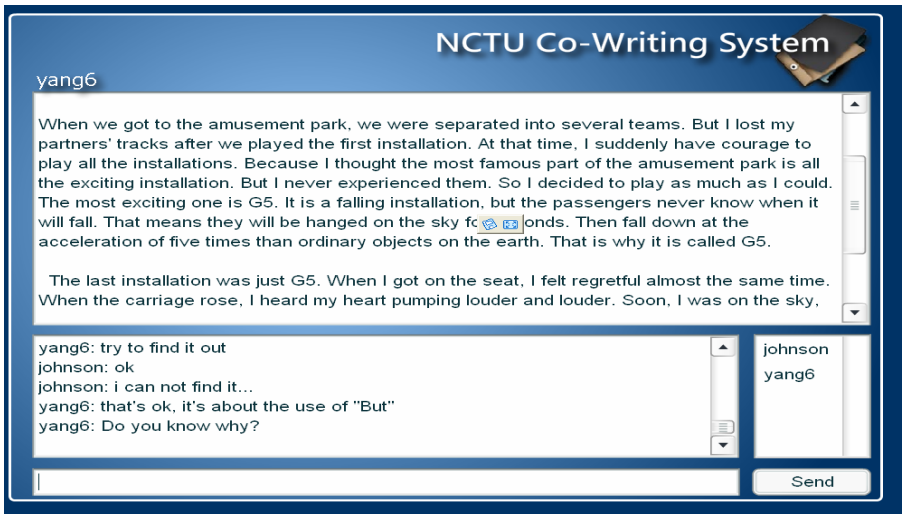
[1] Blackboard is a class delivery system designed to enhance teaching and learning. For more detailed information, please refer to http://www.blackboard.com .

Online System

The online system used in the present study is COW system. It is self-developed for pedagogical uses of co-writing and co-revising in the course, of which the latter is the research focus. COW presents users with a window interface entailing three major frames as shown in Figure 3.1. The upper frame is the place where the essay being revised is displayed. The tutor and the tutee were able to see the essay in the same frame at the same time, and moreover, they could revise problematic points directly in this frame while tutoring. The middle and the lower frame together present an online chat medium much like MSN and Yahoo Messenger. The middle frame displays the tutor and the tutee's ongoing communicative messages that they typed earlier in their individual lower frame. Their messages in the lower frame cannot be seen by the other until they are sent.

COW automatically records the tutoring communication and the revisions made in the upper frame during tutoring. Specially, the recording also includes the time at which each communicative message was produced and each revision was made. This allows us to better capture the microgenetic developments occurring in the tutoring process.

Figure 3.1 COW system



Participants

There were 24 students enrolled in the course, whose revising work was under the charge of two tutors. The tutors were graduate students of TESOL program of the university, and one of them was the researcher. The study was originally designed to cover the two tutors' tutoring sessions. However, after analyzing the protocols of the first tutoring, we realized that it was hard to interpret the dynamics in the tutoring communication without participating in the tutoring in person. Therefore, we later decided to only look at the tutoring sessions led by the researcher, who was assigned 15 students on a random basis at the beginning of the semester.

Nine of the 15 were selected to be the participants in the study by the criteria that they had attended all of the four tutoring. The participants, involving 5 males and 4 females, were given the pseudonyms of Alex, Brain, Chris, David, Eric (the male ones), Fanny, Gina, Helen, and Iris (the female ones). David, Fanny, and Gina were sophomore students; Alex, Eric, Helen, and Iris were junior students; Brian and Chris were senior students. They were all non-English majors from different academic statuses and different departments. As pre-study questionnaire results indicated, the participants in general possessed intermediate to upper-intermediate English

proficiency on the ground that they all had taken four- or more than four-credit English courses in college. All of them had English writing experiences prior to the course in high school, cram school or at college entrance examinations. As for online communication experience, they all had chatted with others in Chinese using synchronous systems such as MSN, Yahoo Messenger, or BBS, and only three of them (David, Fanny, and Gina) had ever chatted online in English. They communicated online very often with seven of them (except Alex and Eric) doing so every day, mainly for the purposes of discussing things and asking for help from others.

Procedure

The students were required to produce four formal essays throughout the semester. To help them revise essays, there were four administrations of online tutoring, approximately one for each month. Each tutoring session was constructed by a tutor and a tutee out of class to revise one essay via a synchronous system, COW. Before engaged in the tutoring sessions, a simple training session was offered to help the tutees get familiar with the COW system.

The tutoring sessions were assessable only at the three nights prior to the class day because the students were more likely to feel the need for tutoring help when approaching the deadline of a given assignment. At each of the nights, the tutor was responsible for 5 tutoring sessions. The sessions were consecutive in time, each of which lasted for 20 minutes (there was a 5-minute break for the tutor during every two sessions). To keep the tutoring task flowing smoothly, the students subscribed individual timeframes for their own sessions in advance of each tutoring administration.

The goal of the tutoring sessions was for the students to assume increased responsibility for correct linguistic performances over time. The tutoring procedure was simple. At the onset of a normal session, the tutee was asked to read certain paragraphs to see whether there were any errors or problems. Then he/she was led to exchange ideas or negotiate meanings in English with the tutor to identify and solve the errors/ problems. The tutees were encouraged to use English for the tutoring communication as the practice was considered beneficial for their English writing development.

It is important to note that assistance from the tutor was not given randomly. The tutor was trained beforehand according to Aljaafreh and Lantolf's (1994) scheme of regulatory scales to offer assistance that was gradual and contingent (see p.28). In correction of an error, he usually gave a sequence of helps. The helps started from clues to the error locus, then to examples that marked the concerned features, and finally to explanations that were given after the tutees produced wrong tryouts or after the solution was revealed. After the revision, the tutee worked on a final version of his/her essay and uploaded it to the Blackboard platform, and the teacher later read the essay and gave final comments.

Data Collection

All the interactions and revisions made during the session were automatically recorded by COW as protocols for later research analysis. In addition to protocols of the tutoring sessions, data were collected by means of questionnaire, interviews, and the participants' draft of the four essays. A self-developed questionnaire (see Appendix A) was administrated at the beginning of the semester as a pre-study survey about the students' background with respect to their English proficiency and their experiences of English writing and online communication. Moreover, there were two

semi-structured interviews (see Appendix B) with individual participants implemented respectively soon after the second tutoring and the fourth tutoring. The interviews shared the same two-fold goal. The first was to explore the participants' perception of CMC's influences on the tutoring processing. The second was to tap into the participants' thoughts when they performed signs of shifts in regulatory stages during tutoring in order to determine whether there really appeared regulatory shifts and further to investigate how the shifts occurred. The questions of the two interviews were basically the same but neither of the interviews could be left out in the sense that the examination was a longitudinal one and that the received responses might well change over time. During the interviews, the interviewer first had the participants reflect on effects and merits/demerits CMC brought to the tutoring. Then he, pointing to particular words and expressions in the protocols, asked them to recall and describe as detailed as possible what they were thinking about while producing those words and expressions. The interviews were audio-taped and transcribed.

The final type of data was essay drafts. Before tutoring, the participants uploaded their drafts to the Blackboard forum, and the drafts were later downloaded for study analysis.

Data Analysis

The focus of analysis was on protocols of the tutoring sessions and the tutees' essay drafts in the attempt to see whether the tutees performed any movements in regulatory stages as the sessions unfolded. In practice, protocols of each tutoring session were segmented by two coders into episodes. One of the coders was the researcher and the other was a graduate student from TESOL program of the university. An episode was operationally defined as exchanges between a tutor and a tutee which relate to a conversation topic. It could be any event-grouped exchanges,

for example, negotiation over the order of idea arrangement, correction of the use of passive voice, or simply chitchat on something off the writing tutoring.

These episodes were analyzed through two codings: episode type and cognitive stages of regulation. According to the extent to which the conversation topic was relevant to the tutoring, the episodes were first classified into three different types: off-task, about-task, or on-tasks episodes through De Guerrero and Villamil's (1994, p 486) scheme of episode type (see Figure 3.2).

Figure 3.2 Types of episodes

ON-TASK EPISODE: an utterance or a group of utterances semantically related in topic or purpose to one discrete troublesource or a series of connected troublesources (as in the case if several errors within one sentence). An on-task episode may be interrupted and continued later in the course of the interaction.
ABOUT-TASK EPISODE: a segment of conversation in which the participants talk about task procedures, for example, interpreting task instructions, rather than about specific troublesources.
OFF-TASK EPISODE: a unit of discourse in which the participants are not engaged in revising a troublesource and are talking about issues or aspects of their lives unrelated to the content of the composition.

Within each on-task episode, the tutees' performances were further coded into a particular regulatory stage: object-regulation, other-regulation, or self-regulation, based on De Guerrero and Villamil's (1994, p 487) scheme of regulation. In the coding process, we first coded 15% of the online protocols from the first tutoring independently using the original coding scheme. Based on the preliminary coding results, we revised the scheme to make it better fit into the context of the current study. According to the revised scheme of regulation (see Appendix C), we coded the on-task episodes simultaneously and separately. We compared results of episode types and regulatory stages in regular meetings. Differences of opinion were discussed and resolved on mutual agreement.

Although the tutoring covered a range of writing problems, it is important to note that, for purpose of analysis, we examined only the episodes that are concerning linguistic problems (e.g., subject-verb disagreement, fragments, and run-on sentences). Our concern here was about the tutees' ability to generalize corrected structures to relevant linguistic contexts other than that where they had received assistance. We traced individual tutees' errors by comparing the regulatory stages of their later performances on the same structures in subsequent episodes in the same session and in subsequent sessions. Through the trace and comparison, we then could identify the direction of the students' regulatory movement concerning these structures: progression toward self-regulation, standstill at the original regulatory stage, or regression toward object-regulation.

However, the analysis was lacking if we simply looked at episodes in the tutoring protocols because some cases of self-regulation may occur but would not be discovered in this way. More specifically, if some erroneous structures had been totally corrected and appropriated, when they later appeared in the tutees' subsequent productions, they were not erroneous anymore and thus would not be pointed out for revision in the tutoring sessions. In other words, the examination of the tutoring episodes alone can only capture the movements from object-regulation to other-regulation while those from other-regulation to self-regulation would be overlooked. Therefore, to have a more complete picture of the regulatory shifts, we also looked at the tutees' draft of subsequent essays when we found that their erroneous structures that were pointed out previously disappeared from the protocols of subsequent tutoring sessions. We looked for uses of these structures in the drafts to see whether the tutees had really picked up the corrected forms or they simply did not use the structures at all in the essay drafts.

As for the interview data, the transcriptions were analyzed to triangulate the themes and supplement the findings from the protocols of the tutoring sessions.

The questionnaire responses were analyzed to provide information about the participants' experiences of English writing and online communication.

Trustworthiness

Several techniques were conducted to ensure the trustworthiness of the study. First, research data were collected from multiple sources, including online protocols, questionnaires, and interviews. Different types of data triangulated each other, eliminating possible biases inherent in a particular type of data. Second, two coders were involved in analyzing the data of online protocols. The inter-rater reliability about regulation coding was 0.80. Third, we employed member checking technique to ensure that interview transcripts errors were minimized. Revisions were made on the transcripts based on the interviewees' reply.

In the following chapters, we will first display the study findings and then discuss some points emerging from the findings.

CHAPTER 4

RESULTS

In the chapter, we will present results in response to the three research questions. Under each question, there are several relevant themes emerging from the data.

Research Question 1: How Does Synchronous CMC Mode Affect the Processing of Tutoring Sessions in a College-level EFL Writing Course?

With the mediation of CMC, online tutoring is made possible and presented as an alternative novel mode of learning in contrast to traditional face-to-face tutoring. In what follows, we display representative protocols excerpts and interview segments to illustrate how synchronous CMC affected the processing of tutoring sessions of the present study. We have two main themes: (1) CMC facilitated processing of the tutoring and (2) CMC debilitated processing of the tutoring. Under each theme, there are several subthemes.

CMC Facilitated Processing of the Tutoring Sessions.

Time- and place-independence increased access to tutoring.

Time- and place-independence of CMC made the tutoring sessions more accessible by allowing the learners to process the task in a quite flexible and personal way. They were afforded to choose time and place for tutoring at their own will in adaptation to their own states and larger surroundings. Although in the study the timeframe for each tutoring session was preset, it is possible and not uncommon for the tutees to reschedule or prolong their tutoring. For example, at tutoring 2, Gina was busy with preparing for her mid-term examination and forgot to login the tutoring, so she later connected the tutor and managed to have her session moved to the next day.

At tutoring 4, Fanny thought that a 20-minute tutoring was not sufficient and she continued the session later that night after the tutor finished tutoring with other students. The high flexibility in time is more clearly illustrated in Alex's case as shown in Excerpt 4.1 and 4.2.

Excerpt 4.1 (tutoring 2)

1. 2006-11-05 22:13:41 (Alex): *TA is late*
2. 2006-11-05 22:14:54 (Alex): *TA is late*
3. 2006-11-05 22:17:40 (Alex): *zzzzz*

Alex's session was supposed to start at 22:00; however, the tutor did not show up during the whole session. It is interesting to find that Alex later stole the username of Chris and invaded into his session to look for the tutor as shown in Excerpt 4.2.

Excerpt 4.2 (tutoring 2)

1. 2006-11-05 23:19:02 (Chris): *hello?*
2. 2006-11-05 23:19:09 (Chris): *hi*
3. 2006-11-05 23:19:18 (Chris): *sorry i use your name*
4. 2006-11-05 23:19:27 (Chris): *i am alex...@@*
5. 2006-11-05 23:19:36 (T): *hello.....what? alex....?*
6. 2006-11-05 23:19:55 (Chris): *because tutoring is disappear in my time@@*
7. 2006-11-05 23:20:09 (Chris): *22:00~22:20*
8. 2006-11-05 23:20:18 (T): *hahahhaa, yeah, I am terribly terribly sorry for my absence.*
9. 2006-11-05 23:20:28 (T): *and I have mailed to you.*
10. 2006-11-05 23:20:30 (Chris): *我想怎麼不見了，所以就用 Chris 上來看一下* [I did not see you in my session, so I enter Chris's session to look for you.]
11. 2006-11-05 23:20:45 (Chris): *XD*
12. 2006-11-05 23:20:50 (T): *beacuse I mistook the timeframe*

13.	2006-11-05 23:20:57	(Chris): *那麼...我的 tutoring 的部分...@@?* [then…how about my tutoring]
14.	2006-11-05 23:21:12	(T): *and during that time, I was taking a bath.*
15.	2006-11-05 23:21:18	(Chris): *還是可以延到 00:00 再開始呢？* [or can we restart it at 00:00?]
16.	2006-11-05 23:21:20	(T): *sure!*

Note: Inside the square bracket [] is the English translation of Chinese messages.

Alex gave a quick explanation to Chris of what was going on. In line 5, the tutor was confused about the appearance of two Chrises and then after figuring it out, he apologized to Alex for his absence and explained that he had misremembered Alex's timeframe (line 12). It is important to note that at the end Alex asked for the possibility to postpone and restart his session at midnight and the tutor agreed with little hesitation (line 15 and 16). The tutor's carelessness would have formed an unrecoverable impediment to the tutoring, but, fortunately, the impediment was well redressed in the CMC context due to the feature of time-independence.

Another CMC feature that raises access to the tutoring is place-independence. The tutees did not have to rush to a prescribed place to meet the tutor and thus wasted extra time and energy. Rather, with CMC, they could login the session anywhere they found convenient and comfortable such as home, dorm, or even coffee shop as long as there is a computer linked to the Internet. The task of attending tutoring sessions therefore was easy, transforming from more of a burden to a sheer learning service as it was designed to be. The convenience brought about by place-independence is explicitly shown in Excerpt 4.3, where David had different tasks at hand, including attending the online tutoring.

Excerpt 4.3 (tutoring 3)

1. 2006-12-11 00:42:17 (David): *i want to go back to the dorm now*

⋮ ⋮

2. 2006-12-11 00:47:43 (T): *fine, ok, i gonna go. I have to teach high school kids tomorrow morning*
3. 2006-12-11 00:48:03 (David): *ok,i am really tired*
4. 2006-12-11 00:48:06 (T): *hahahaha*
5. 2006-12-11 00:48:20 (David): *haha*

Note: The symbol of vertical ". . ."stands for message omission.

The session lasted until around 1:00 in the morning; David was exhausted and wanted to back to dorm (line 1 and 3). According to the interview, David at that night was in the library to deal with several tasks. He first borrowed books, discussed schoolwork with classmates, then finished a paper, and finally revised his essay by the tutoring. With his networked laptop at hand, he was able to process all the tasks without leaving the library and letting the tutoring task curb his accomplishment of other tasks as might happen if the tutoring was face-to-face-based.

Clearly, CMC made the online tutoring far more accessible than traditional writing conferences by overcoming temporal and geographical limitations. It is also the quality that made the tutoring appear motivating as Helen noted in the interview,

"*恩我還蠻喜歡線上的tutoring，因爲我很懶，尤其是晚上，如果再加上颱風下雨什麼的，真的很不想出去，除非那個作業非常重要，才會去 [見tutor]…現在改文章在自己房間上網就可以了，很方便啊…*"(Interview # 1, 2006/11/9)
[*I am lazy and don't want to go out, especially at night or during rainy days. I will not go out to meet the tutor in person unless the assignment is very important. That's why I like online tutoring. I can process the task at my own room without going out.*]

CMC exposed learners to huge online resources.

The second facilitative effect is about the virtual world of information realized by CMC. Simply clicking hyperlinks, learners are instantly set free from the real world to a cyberspace with innumerable information databases and communities. They could easily access to most of the desirable information (except illegal, confidential entries) within seconds. The unparalleled access empowered the tutees to actively explore linguistic knowledge through the cyberspace in the flow of tutoring conversations. For example, when asked by the tutor to indicate the error locus, Iris did not just wait for hints nor resort to reference books but chose to use the online search engine of Google, or what she referred to as a good helper, to check word use and collocations. Google's powerful function of offering quick, large authentic language often helped her get the correct answer in a short time as she said in the interview,

> "*可以瞬間查資料，我會去 google 查字的用法，有時候 tutor 問我句子錯在哪裡嘛，就趕快把可疑的字打進去，看看用法對不對，應該是說看字的後面會接哪些詞，如果出現很多例子，那就對了…它算是個 good helper, 對我啦，哈哈。*" (Interview # 1, 2006/11/10)
>
> [*I looked for information during the tutoring. I went to Google to check word use. Sometimes, the tutor asked me where the problem is in a given sentence. Then I typed the candidates or collocations into the search line and checked their uses. If there appeared many examples of a particular use, then the use is correct…Google is a good helper, at least to me, haha.*]

A clearer example of exploiting the network is shown in Excerpt 4.4.

Excerpt 4.4 (tutoring 1)

1. 2006-10-17 23:16:25 (T): *ok, it's about "distance." think about it.*
2. 2006-10-17 23:17:21 (T): *any ideas?*

3.	2006-10-17 23:17:28	(Gina): *NO :(*
4.	2006-10-17 23:17:37	(T): *haha. fine*
5.	2006-10-17 23:17:49	(T): *"distance" is countable here.*
6.	2006-10-17 23:18:32	(Gina):*http://tw.dictionary.yahoo.com/search?ei=UTF-8&p=distance the first example*
7.	2006-10-17 23:19:11	(Gina): *it also dosen't countable*
8.	2006-10-17 23:19:43	(T): *so it should be "I had to walk __ long distance."*
9.	2006-10-17 23:19:50	(T): *yeah, u are right.*
10.	2006-10-17 23:20:07	(T): *many nouns can be both countable and uncountable, depending on the conext.*
11.	2006-10-17 23:20:34	(Gina): *oh!!! i see , i neglect 'a'*
12.	2006-10-17 23:20:45	(T): *yeah*

In the excerpt, the tutor pointed out Gina's misuse of *distance* and indicated that it should be countable in the context. What interests us is Gina's reply to the revision. She posted the URL of *distance* in Yahoo electronic dictionary and claimed that it is also uncountable according to the dictionary (line 6 and 7). It seems that she rejected the tutor's revision and tried to negotiate with him over the use of *distance*. Although Gina somehow finally found she was wrong (line 11), this sight negotiation implies that she, owing to the online dictionary, was empowered to become an active learner, who was capable of checking correctness of the tutor's messages rather than passively buying whatever he said. In this sense, if making good use of the online resources, the tutees could also be knowledgeable, even more than the tutor, when it comes to fixed word use and expressions. By extension, with the online resources at hand, they were likely to discover and solve particular problems themselves. From a sociocultural view, they were appropriating responsibility from the tutor for the correction over the problems.

Text-based communication allowed for reflection and edition.

CMC has been credited for overcoming the divide between spoken and written language. Although less interactive than speech, the text-based communication earns opportunities for reflection. In the tutoring sessions, the tutees could pause and pay closer attention whenever they felt confused in the midst of interaction. During intervals of typing, they had time to think about the tutor's messages and about how to translate their thoughts into text as replies.

The permanent nature of text also makes it possible for the tutees to reflect on previous exchanges, which were nearly inaccessible in speech-based interaction if not recorded. Some of the tutees were found to do so, as Chris described in the interview,

> "*記得在第三次 tutoring 的時候，同一個錯誤我犯了第二次，那個你之前就講過了，然後你問我該怎麼改的時候，就趕快回去看之前的對話，…恩，有啊，我有改對。*" (Interview # 2, 2007/1/11)
> [*I remember that at tutoring 3 the same error appeared again. When you asked me how to correct it, I scrolled back to read the previous messages on the error. …yes, I managed to correct it.*]

The action of reading previous exchanges successfully retrieved Chris's memory about the error and helped him correct it at the second encounter. In other words, he was moving toward self-regulation to a large extent as a result of exploiting the permanent nature of text. Moreover, the tutoring text was beneficial as the role of later reference, especially for those who were overwhelmed by the tutor's assistance during tutoring. Excerpt 4.5 illustrates the phenomenon.

Excerpt 4.5 (tutoring 2)

1.	2006-11-06 00:36:14	(T): *I like this film biggest reason, is because it let me seen friendly human nature.*

2.	2006-11-06 00:37:09	(T): *try to revise it.*
	⋮	⋮
3.	2006-11-06 00:41:18	(T): *if i were you: the main reason why I like the movie is beacause it shows that human nature is virtually good.*
4.	2006-11-06 00:41:51	(Alex): *ok...i will correct it latter*
5.	2006-11-06 00:42:34	(T): *or I like the movie mainly because it lets me see/realize that human nature is virtually good.*
6.	2006-11-06 00:43:15	(Alex): *hmm...ok*
	⋮	⋮
7.	2006-11-06 01:23:04	What is hero? Who is hero? the definition of "hero" is different from people to people.For example, some people thought fireman or …**I like the movie mainly beacause it shows that in fact human nature is good.** I believe our innermost soul is virtuous…

At first the tutor pointed out a problematic sentence for Alex to revise. After revision, the sentence became well-formed but still appeared unsatisfactory to the tutor; therefore, the tutor offered two extra suggestive alternatives (line 3 and 5). Interestingly, although promising to further revise the sentence (line 4), Alex did not do so until the tutoring was over. Line 7 represents Alex's final draft of the essay within the session (He might further revise the essay himself out of the session.), and the final production of the problematic sentence (in boldface) was very close to the suggestions from the tutor. According to the interview, the reason why Alex did not revise the sentence immediately after he received the suggestions is because he had had difficulty fully appropriating them in the quick flow of messages. He needed more time for reflection. It is the textual permanency that permitted Alex to do so at his own pace after the tutoring.

The online text-based communication is exclusively appealing not only for its permanency but also for its flexibility. As compared to traditional writing shared on paper, online text is much easier for transmitting, rewriting, edition, and storage, thus more useful for collaboration among learners or between individuals. There were many cases of edition observed in the tutoring on both sides of the tutor and tutees. For example, they often revised sentences directly on the COW system using word-processing techniques of deleting, copying, and pasting. Some tutees went further to store the tutoring discourse. Iris stored the discourse of tutoring 3 and 4 for later references, which she said would be helpful when she encounters similar writing problems or needs to write similar essays in the future.

In the above, we mentioned three facilitative effects of CMC on the processing of tutoring sessions. Then we will be talking about its debilitative effects in the following.

CMC Debilitated Processing of the Tutoring Sessions.

Online tutoring subjected to technological problems.

All learning via CMC is to take place on the very premise that there is a networked computer and that the network is well-functioned. In technologically advanced areas, network most of the time works well in a stable state; however, it is not uncommon that it breaks down unexpectedly once in a while for some technological problems. Some tutees were faced with the problems during tutoring. Fanny, for example, rescheduled her tutoring 2 because her computer was under repair at that time and she could not access to another networked computer at home. Eric at tutoring 3 encountered a short network breakdown and so did his roommates. It seems a network problem with the whole dorm, and Eric was therefore late for the tutoring. Helen had a problem of network lag throughout the four tutoring.

However, even with a computer of quality network at hand, sometimes online learning still goes awry when the learning system itself is problematic. Here is an example in Excerpt 4. 6.

Excerpt 4.6 (tutoring 1)

1.	2006-10-15 23:35:59	(T): *haha, no (but good guessing), "but" is a conjunctive. it is used to connect different nouns, expressions, or clauses.*
2.	2006-10-15 23:36:44	(T): *"But I lost my partners' tracks after we played the first installation." this is a main clause.*
3.	2006-10-15 23:36:51	(Chris): *my internet has some problems...*
4.	2006-10-15 23:36:55	(Chris): *sorry*
5.	2006-10-15 23:36:58	(T): *you cannot use a conjunctive here.*
6.	2006-10-15 23:37:07	(T): *it's ok.*

While the tutor was explaining the use of the conjunction *but*, Chris gave an incoherent response: there was something wrong with his network (actually with the COW system) (line 3). Chris later described the event in the interview: he went to look up words in an online dictionary at that time and when he switched back to COW system, he could not type words on it. Fortunately, the problem was solved right after he left and re-signed into the system.

COW system was not a fancy platform and appeared user-unfriendly to some tutees as indicated in Excerpt 4.7.

Excerpt 4.7 (tutoring 1)

1.	2006-10-15 22:35:04	(T): *because I'm afraid that it will be crazy and out of control.*
2.	2006-10-15 22:35:13	(T): *something wrong*

3. 2006-10-15 22:35:38 (Eric): *this system is hard to use...*
4. 2006-10-15 22:35:43 (T): *hahaha*
5. 2006-10-15 22:35:55 (T): *i agree with you.*

Eric indicated that COW was hard to use (line 3) because the last few words of each line shown in the middle frame of COW were somehow covered, making some sentences presented as fragmented. The tutor then could not fully check these sentences and may overlook some errors. The problems with COW could be eased with a further investment of skill and expense while those with network were harder to deal with, usually beyond the tutees' ability. These examples imply that online learning, although very tempting, may turn out to be mere mirage if the network and working systems are not well functioned and maintained.

Physical distancing gave rise to distraction.

Many CMC studies noted that the feature of physical distancing facilitates learning because it allows learners to formulate a desirable identity and promotes their self-expression. However, in the present tutoring perhaps what physical distancing brought about was more debilitative than facilitative effects. Without seeing each other in person, the tutor usually had little idea of what the tutees were really doing. A long pause did not necessarily mean that they were being reflecting as they were supposed to do. Rather, as confessed in the interview, they were often distracted to do something irrelevant to the tutoring during the tutoring process. For instance, Brian tended to browse irrelevant web pages while waiting for the tutor's message. Fanny had ever chatted online with friends during tutoring, moving back and forth between MSN and COW system. Chris interacted with the tutor and read books of another course at the same time in the week of final examinations. More interestingly, Eric

was once distracted from tutoring by his roommates' watching pornography on computer.

The tutor had quite limited control over these distracted behaviors, and probably the only thing he could do with this was to check whether or not the tutees were still on task. He often asked "are you still there?" when the tutees paused for more than one minute. Excerpt 4.8 and 4.9 show such an act.

Excerpt 4.8 (tutoring 3)

1. 2006-12-12 01:15:36 (T): *so how to revise it*
2. 2006-12-12 01:16:41 (T): *Chris, are u still there?*
3. 2006-12-12 01:16:54 (Chris): *YES*
4. 2006-12-12 01:17:14 (Chris): *I just keep thinking...*
5. 2006-12-12 01:17:21 (T): *hahaha, ok, good*

Excerpt 4.9 (tutoring 3)

1. 2006-12-11 22:14:11 (T): *alex, try to pick out errors in the sentence. there are four errors.*
2. 2006-12-11 22:15:15 (T): *Alex 在分心當中嗎* [Alex, are you distracted?]
3. 2006-12-11 22:15:17 (T): *hahaha*

The checking act may be useful in telling whether the tutees were distracted or not but not so useful in keeping them consistently from distraction, as Brian cogently reported, "*分心滿正常的吧，平常上課都會分心了，更何況現在在線上，…過五秒十秒，tutor 還沒回話，就跳走了。*" (Interview # 1, 2006/11/9) [*It is common to be distracted in normal class, not to mention that we are now in the online context…five or ten seconds later, if the tutor did not send new messages, then I would digress to do something else.*]

The finding lends support to the sociocultural theory of activity that human beings are individual agents who engage in activities and construct their environment in unique ways. They acted according to varying instantiations of their personal states, motives, and goals, resulting in a variety of activities necessarily different from the task instruction.

The lack of paralinguistic cues led to sequential incoherence.

A disadvantage of CMC resulting from physical distancing is the lack of such paralinguistic cues as gestures, gaze, tones, and facial expressions. Even if the tutees kept staying on task, without the cues, it was sometimes clueless for the tutor to tell whether or not they had appropriated the concerned points when they produced the correct forms under hints. They may be directed and reach the right answer in a wrong way. Hence, after explanations the tutor tended to add understanding checks, for example, “Do you understand? Really? ,” “Is it clear? ,” or “Can you follow me?” in order to have a better understanding of tutees’ mastery of the points in question.

Sometimes, the problem loomed large to the point that the tutor and tutees were not even talking about the same topic. When their real state (e.g., understanding of the point or pace of information processing) was not consistent with the one supposed by the other, they were developing and moving on along diverse thought lines; as a consequence, their exchanges were not sequenced in a logical, coherent way and presented somewhat like two monologues twined together. This is illustrated in Excerpt 4.10

Excerpt 4.10 (tutoring 2)

1.	2006-11-07 23:13:09	(Iris): *I have a problem here*
2.	2006-11-07 23:13:17	(T): *he stays alive, he now owns a happy family (he has 3 children and 1 grandchild), keeps doing research on theoretical physics and travels around the world for public lectures.*
3.	2006-11-07 23:13:51	(T): *too many clauses, and they are not connected by conjuctives.*
4.	2006-11-07 23:13:56	(Iris): *I have no idea how to discribe the disease is getting worse and worse day by day*
5.	2006-11-07 23:14:19	(Iris): *I need add some adv. word here... I guess*
6.	2006-11-07 23:16:11	(T): *any ideas?*
7.	2006-11-07 23:16:29	(Iris): *oops. this is really a challenge.. I need some time...*

At first Iris said that she had a problem, but the tutor put forth an incoherent message of a problematic sentence, which he probably had begun to type before he noticed Iris's message (line1 and 2). The tutor then pointed out the exact problem, but Iris continued to describe her question (line 4) without noticing the tutor's message until later. One can see that there were two parallel thought lines respectively developing for seconds and then converging at a later point (line 3 through 7). Although the convergence was quickly regained, in a sense, it might be a loss itself. It was actually purchased at the cost of Iris's chance for constructing knowledge. Her question was totally neglected in the episode and did not be addressed anywhere in the rest of the tutoring session. Excerpt 4.11 shows another example of the sequential incoherence.

Excerpt 4.11 (tutoring 3)

1.	2006-12-12 00:40:36	(Chris): *do you think my eassy's topic sentence is clearly enough?*

2.	2006-12-12 00:41:20	(Chris): *The two movies, "Frequency" and "Butterfly effect", both make me think about one question. That is "What will happen if we have the power to change our past?"*
3.	2006-12-12 00:41:29	(T): *ok, let me see*
4.	2006-12-12 00:42:33	(Chris): *another small question*
5.	2006-12-12 00:43:12	(T): *well, the topic sentence to me is a little weird*
6.	2006-12-12 00:43:14	(Chris): *how should I use the 代名詞* [pronouns]
7.	2006-12-12 00:43:23	(T): *i mean the logic*
8.	2006-12-12 00:43:35	(Chris): *what ??*
9.	2006-12-12 00:43:45	(T): *the essay is for u to compare and contrat the two movies*
10.	2006-12-12 00:44:48	(T): *not to answer "what will happen if we can change the past"*
11.	2006-12-12 00:45:05	(Chris): *ok i got it*
12.	2006-12-12 00:45:36	(Chris): *then how should use the 代名詞* [pronouns] *just like you , we, I*
13.	2006-12-12 00:45:56	(T): *ok, well, you are not suggested to use "you" in formal essays, but "we" " I" are ok.*

In the excerpt, Chris first asked about his topic sentence (line 1). While the tutor was trying to answer the question, he yet diverted from the topic sentence discussion to ask another question about the use of pronouns (line 6); incoherence thus emerged. As a result, Chris mistook the tutor's comment on the first question as a reply to the second question, and the exchanges appeared confusing as indicated by his response *what ??* (line 8). Then he quickly figured out the incoherence and went back to the original discussion about topic sentence. It is good to see that although his second question about pronouns went unnoticed at first, Chris, unlike Iris mentioned above, did not let go of it and managed to have it answered in the end by re-asking (line 12).

Tiring nature of typing made online tutoring unsuitable for complex concepts.

To compensate for the lack of paralinguistic cues, there appeared pervasive uses of emoticons in the online tutoring, such as ^_____^ (Iris), XDD (David), Orz (Brian), and <(@￣◡￣@)> (Eric). Although the symbols livened the text-based interaction to a certain degree, the interaction was still much less vivid and instantaneous than face-to-face communication.

This could be explained not only by the tutees' English deficiency but also by the action of typing, which was in fact time-consuming. Typing may take time as well as efforts several times as speaking does to express the same meaning. Arguably, perhaps expressing the same meaning could not be taken for granted because, in a stringent sense, it is questionable that the typed text is able to convey meanings as clearly and deeply as speaking does. The phenomenon is seldom discussed in CMC literature, but it is of importance in the present tutoring.

In recognition of the tiring nature of typing in consort with the task time constraint, it may be necessary to reduce the number of required keystrokes to a minimum unless one could type very rapidly. Most of the messages during tutoring were not surprisingly succinct with few superfluous words and perhaps so succinct to the point that they sometimes appeared superficial and ineffective in reaching the very core of intended meanings. The online exchanges, therefore, were reported to be relatively ineffective in dealing with more complex concepts needing profound explanations, such as essay structure and logical thinking. Instead, they were more suitable for simple linguistic concepts with clear and fixed rules, such as passive voice and subject-verb agreement. On this basis, it seems that what presented under the lack of paralinguistic cues and tiring nature of typing was a kind of online tutoring which appeared neither effective nor efficient. The point was made explicit as presented in the interview extracts:

"*有的問題比較複雜，像篇章結構我就覺得很難問，也很難解釋的來，而且打字很麻煩，在怎麼還是沒有辦法像說話那麼快、那麼清楚，所以就懶得問了。*" (Helen, Interview # 2, 2007/1/11)
[*Some problems are more complex in nature. For example, I think it is hard to ask about the concept of essay structure and also hard to explain it online. Typing is tiring. It could never be as fast and clear as speech, so I feel disinclined to ask questions.*]

"*要完整表達一些東西的話，又要打字，20 分鐘不夠。它只能對某些在網路上很容易解說的問題作處理而已，像加S 啊、像那個時態問題，都是一些容易解決的問題，對整體的幫助有限。*" (David, Interview # 2, 2007/1/12)
[*Twenty minutes is too short a time to express some concepts thoroughly by typing. The tutoring is useful only to deal with the concepts that are easy for online discussion, such as adding s, or tense problems. They are all simple concepts; therefore, the tutoring did not help me a lot.*]

"*網路 tutoring 有一個大缺點就是很難做深入的講解，因爲沒有表情肢體語言、然後加上打字又慢，所以它就只能停留在比較表層的對話。*"(Eric, Interview # 2, 2007/1/12)
[*The main limitation of online tutoring lies in the fact it could not afford deep discussions. There were no paralinguistic and nonverbal cues and typing is tiring, so what it fosters is simply superficial conversations.*]

From preceding discussions, one can see how considerably synchronous CMC affected the processing of tutoring sessions in both positive and negative ways, making tutoring so different from what it used to appear to us in face-to-face contexts. This echoes to a sociocultural assertion that the social context of learning, or CMC here, can alter the entire process and outcomes of task performance.

Research Question 2: What Interactive Features Emerge from the Online Tutoring Communication?

After discovering synchronous CMC's effects on the tutoring, it is logical then to go deeper to look at the tutoring communication itself. The communicative episodes were classified into three types according to the conversation topic: off-, about-, and on-task episodes based on De Guerrero and Villamil's (1994, p 486) scheme of episode type. There emerged five interactive features from the episodes: (1) greetings and leave-takings, (2) role shifting, (3) intersubjectivity, (4) power relation between the tutor and tutees, and (5) electronic variety of language.

Greetings and Leave-takings

We observed a general pattern of episode arrangement from the tutoring communication. A tutoring session generally started with off-task episode(s) where the tutor and the tutee greeted each other and then with about-task episode(s) where they talked about task purpose and procedures. At the end of the tutoring, off-task episode(s) emerged again serving the purpose of taking leave. This does not mean greetings and leave-takings were the only topics addressed in the off-task episodes. Sometimes, the tutor and tutees chatted after greetings or before leave-takings. The in-between part of the tutoring, then, was mostly occupied with on-task episodes where attention was focused on the work of revision.

In traditional face-to-face tutoring, greetings and leave-takings tend to be longer and more elaborated; by contrast, as exemplified in Excerpt 4.12,13 and 14, those in the tutoring were mostly short and simple.

Excerpt 4.12 (tutoring 4)

1. 2007-01-09 23:20:19 (Brian): *hello*
2. 2007-01-09 23:22:52 (T): *hello*
3. 2007-01-09 23:23:03 (T): *ok, please post your essay, lets start*

The two *hello*s alone construct a typical greeting we had in the tutoring. After the short greeting, the tutor immediately moved to the revision work.

Excerpt 4.13 (tutoring 4)

1. 2007-01-07 23:45:26 (T): *hello, Chris*
2. 2007-01-07 23:45:36 (Chris): *hi*
3. 2007-01-07 23:45:40 (T): *you are busy during final, right?*
4. 2007-01-07 23:45:51 (Chris): *yes...*
5. 2007-01-07 23:46:09 (T): *haha, ok, i understand. gogo*
6. 2007-01-07 23:46:15 (T): *let's start*

What is interesting about Excerpt 4.13 is that even if the tutor had extended the greeting by asking Chris about his final examinations (line 3), he soon cut off the off-task conversation and directed attention back to the revision work (line 6). The greeting therefore was still left short, and this was not uncommon in the tutoring.

Excerpt 4.14 (tutoring 1)

1. 2006-10-18 00:17:40 (David): *nice talking to you, thx*
2. 2006-10-18 00:17:45 (T): *me too*
3. 2006-10-18 00:17:46 (T): *see you online next time*
4. 2006-10-18 00:17:57 (David): *bye~*
5. 2006-10-18 00:17:57 (David): *see u*

Excerpt 4.14 represents a typical leave-taking we had, where the tutee thanked the tutor for his help and then they said goodbye to each other.

The brevity of the greetings/leave-takings was perhaps due to time pressure of the task and to the CMC nature of physical distancing, under which users were comparatively comfortable with and likely to produce small, plain greetings or leave-takings that would otherwise seem embarrassing and be improved by adding more words or gestures in face-to-face contexts. Although Darhower (2002) claimed that online demonstration of everyday speech acts allowed participants to create a sense of sociality and helped develop their sociolinguistic competence, we doubt whether or not similar functions occurred in the current study with such simplified acts of greetings and leave-takings.

Role Shifting

In the current tutoring, most of the time the tutor was the expert offering assistance for error correction while sometimes he was found to take on the learning role when it comes to something with which he was relatively unfamiliar than the tutees. That is, not only the tutees but also the tutor had chances to learn from the tutoring interaction. Excerpt 4.15 and 4.16 are two examples for the phenomenon.

Excerpt 4.15 (tutoring 3)

1.	2006-12-10 23:41:54	(T): *these two movies are both want to express a famous theorem called "butterfly effect", itp refers to an idea that a butterfly's wings might create tiny changes in the atmosphere that ultimately cause a tornado to appear.*
2.	2006-12-10 23:42:42	(T): *check hte sentence*
3.	2006-12-10 23:42:47	(David): *ok*
	⋮	⋮

4.	2006-12-11 00:30:57	(T): *hahha, thanks to u, i learn what "butterfly effect" really means*

In Excerpt 4.15, the tutor guided David to revise a run-on sentence, which describes the concept of butterfly effect. In so doing, the tutor unexpectedly learned the real meaning of this effect (line 4). Reciprocity was perceived on the ground that David enlarged his linguistic repertoire by the tutor's help and likewise, because of David, the tutor broadened his knowledge possession.

The phenomenon of role shifting was clearer in the context of off-task chats as shown in Excerpt 4.16.

Excerpt 4.16 (tutoring 3)

1.	2006-12-12 22:50:40	(Iris): *hello*
2.	2006-12-12 22:50:49	(T): *hello ^^*
3.	2006-12-12 22:51:02	(Iris): *I have a guitar performance this saturday*
4.	2006-12-12 22:51:19	(T): *really, wow, . are u good at playing guitar?*
5.	2006-12-12 22:51:30	(Iris): *yap, ha*
6.	2006-12-12 22:51:45	(T): *haha, i always want to learn it, really,*
7.	2006-12-12 22:52:09	(T): *how long do u think a normal guy can play a song ?*
8.	2006-12-12 22:52:30	(T): *need half year?*
9.	2006-12-12 22:52:46	(Iris): *ha, 2 month*
10.	2006-12-12 22:53:15	(T): *wow, good news, thanks*
11.	2006-12-12 22:53:22	(Iris): *the simplest of course*
12.	2006-12-12 22:53:27	(Iris): *haha ok*
13.	2006-12-12 22:53:30	(T): *hahaha, ok*
14.	2006-12-12 22:53:38	(T): *good luck on ur performance*

After a brief greeting, Iris initiated a chat on guitar playing (line 3). Knowing that Iris was good at playing the guitar, the tutor asked her how much time people would generally spend learning to play a song by the guitar (line 7). It is then interesting to find that Iris, the supposed novice in the tutoring, turned into the expert to answer questions of the tutor, who was a novice in this field of guitar playing. The finding indicates that the role of novice/expert was not fixed but actually fluid depending on the topic of communication. Chances are that the tutor would become a learner if the topic was not right concerning the revision work itself.

Intersubjectivity

Whether greetings/leave-takings or chats, the vast majority of the off-task episodes emerged either at the beginning or at the end of the tutoring sessions. Very few of them did we find to occur in the midst of the tutoring process. For one thing, although authority was reduced to a certain degree under CMC, the tutoring sessions essentially were still under the charge of the tutor, who directed the way of discussions and refrained off-task talks from popping up during the on-task flow. For another, the tutees had a clear idea of task procedures and were willing to have their essays revised as much as possible within the time constraint. These performances represent an intermental point of fusion at which the tutor and tutees came to share a common perspective or orientation toward the task goal and procedures. This was a state of intersubjectivity as Rommetveit (1974, cited in Darhower, 2002) referred to it as the establishment of a shared perspective between an expert and a learner in a problem-solving task.

The state of intersubjectivity in the tutoring was achieved by the collaborative exchanges in about-task episodes. The about-task episodes, functioning as a transition from off-task to on-task zone, were to specify the goal, purpose, and procedures of the

tutoring in order to generate a smooth revising process in the following. Excerpt 4.17 shows a representative about-task episode, extracted from Alex's tutoring 1.

Excerpt 4.17 (tutoring 1)

1.	2006-10-16 22:28:22	(T): *in the following 20 mins, we will revise your essay together.*
2.	2006-10-16 22:28:34	(Alex): *how do I send my essay to you?*
3.	2006-10-16 22:28:47	(T): *would you please pose your essay in the upper frame?*
4.	2006-10-16 22:28:47	(Alex): *ok... I try*
5.	2006-10-16 22:29:10	(Alex): *thank you..*
6.	2006-10-16 22:29:15	(T): *please read the first three paragraphs to see whether there are any errors? Or u can ask questions, if any*
7.	2006-10-16 22:29:25	(Alex): *hmm...I have no idea..@@*

Alex at that time was very unfamiliar with the tutoring processing to the point that he, although getting trained before, did not know how to display his essay via COW (line 2). The tutor explicitly told him the task instruction, including first posting the essay and then trying to pick out errors himself or to ask questions, if any (line 1 through 6).

As can be seen, the instruction was clear and simple. Also, the tutoring structure was simple in and of itself with only two people involved in each session, i.e., a tutor and a tutee, between whom an unequal social relationship had been clearly supposed. It is hence not demanding for the tutees to develop a fine understanding of how the tutoring would process and what they should do in the tutoring process. With increasing familiarity with the task, Alex had few, if not no, about-task utterances at tutoring 4.

Excerpt 4.18 (tutoring 4)

1. 2007-01-08 22:03:36 (Alex): *hello*
2. 2007-01-08 22:03:42 (T): *hello, alex, nice to meet u.*
3. 2007-01-08 22:03:46 (Alex): *I post my draft, I*
4. 2007-01-08 22:03:56 (T): *ok, let's start*
5. 2007-01-08 22:04:03 (Alex): *I cannot see any errors.*

As shown in Excerpt 4.18, Alex at tutoring 4 automatically post the essay and had tried to searched errors without the tutor's request (line 3 and 5), suggesting he had already appropriated the task instructions, or had achieved the state of intersubjectivity with the tutor. Not only Alex but also other tutees had quickly done so. They knew well the tutoring goal and procedures and acted accordingly.

Power Relation between the Tutor and Tutees

The criterion we adopted to determine power relation between the tutor and tutees is initiation of moves. Moves are not the same as episodes, and indeed an episode can contain any number of moves. A move is a discourse unit operationally defined in the study as a segment of text that shapes and conveys a particular communicative function, such as questioning, explaining, or requesting. We examined only the initiating type of moves within on-tasks episodes by looking at whether the tutor or tutee initiated the moves as well as the relationship between move initiation and the resulting scaffolding/regulation.

One advantage of CMC often mentioned in literature is the stress-reduced environment, under which learners do not have to face the authority in person and are therefore motivated for self-expression. However, this advantage was not very true in the current study. It is important to keep in mind that the CMC practice here was one

of tutoring, which was in nature structured with asymmetrical power distributions. The tutor as the power holder dominated and directed the tutoring communication while the tutees in general acted in response to given directives without many self-expressions, producing an average of 20 percent of all the initiating moves within on-task messages (see Table 4.1). They seldom initiated messages although often stimulated by such tutor utterances as “try to pick out errors yourself,” or “do you have any questions?.” Such power relation did not change remarkably as we expected toward a more equal distribution over time when the tutees were getting more and more familiar with the task and the tutor.

Nevertheless, two factors were perceived in the occurrence of the tutee-initiated moves. The first was personal style. It was very often that the same tutees appeared reticent or inquiry throughout the tutoring. For example, Helen responded to the tutor all the time with only two initiations respectively at tutoring 3 and 4. By contrast, Iris produced almost a half of the initiating moves contributed by the tutor in each tutoring given that, as she reported in the interview, she tended to prepare questions to ask prior to the tutoring. The second factor was the sociocultural context in which the tutees stayed during a tutoring session. The context affected tutees’ states of being, which in turn affected their task performances. For example, Eric was found less active and produced less initiating moves at tutoring 4 than before owing to the fatigue brought about by the preparations for final examinations. He explained that he had slept for only two hours the night before the tutoring. Similarly, Brian at tutoring 2 was absent-minded and inactive. He was eager to finish the task as soon as possible so as to continue the installation work of his computer operating system, which was interrupted by the tutoring.

Table 4.1 The Average Frequency and percentage of move initiation in on-task episodes of the four tutoring

Move initiation / Tutoring	Frequency		
	Tutor initiation	Tutee initiation	Total
First	18.6 (82 %)	4.2 (18 %)	22.8
Second	17.2 (79%)	4.8 (21 %)	22.0
Third	19.6 (78 %)	5.5 (22 %)	25.1
Fourth	19.2 (80 %)	4.8 (20 %)	24.0
Mean	19.0 (80%)	4.7 (20%)	23.7

By extension from the asymmetrical power distribution, there seemingly exists a relationship between move initiation and resulting scaffolding and regulation. Who initiated moves, either the tutor or the tutee, was found to have certain association with how much scaffolding was needed from the tutor and what regulatory stages the tutee would fall in. For example, if a move had been initiated by the tutor, suggesting that the tutee was unaware of the error and still far away from the end of an ideal solution, then full scaffolding was needed for the error correction. According to Wood, Bruner, and Ross (1976, cited in Anton, 1999), full scaffolding encompasses six sequential helps or functions: interest recruitment, task simplification, direction/motivation maintenance, then highlighting critical features, frustration control, and finally, solution demonstration. The need for so much assistance suggests the tutee's limited competence and heavy reliance on others, the traits characteristic of preliminary developmental stages of object- or other-regulation. Excerpt 4.19 shows an object-regulated case.

Excerpt 4.19 (tutoring 2)

1. 2006-11-06 00:20:00 (T): *do u find any errors in the parapgraph? Or have any questions?*
2. 2006-11-06 00:20:04 (Alex): *no*

3.	2006-11-06 00:20:11	(T): *ok, To my knowledge, hero can rescue people's lives.*
4.	2006-11-06 00:20:15	(T): *see somehting wrong here?*
5.	2006-11-06 00:20:27	(Alex): *can 去掉？* [delete *can*?]
6.	2006-11-06 00:20:33	(T): *no, that's ok.　Keep trying*
7.	2006-11-06 00:20:41	(Alex): *lives*
8.	2006-11-06 00:20:49	(T): *well, no, lives and life are both acceptable.*
9.	2006-11-06 00:20:59	(T): *ok, look "hero can rescue people's lives".*
10.	2006-11-06 00:21:09	(Alex): *so..?*
11.	2006-11-06 00:21:18	(T): *HERO can rescue people's lives*
12.	2006-11-06 00:21:29	(Alex):*...sorry*
13.	2006-11-06 00:21:37	(T): *hero is a countable noun*
14.	2006-11-06 00:21:45	(Alex): ….
15.	2006-11-06 00:21:52	(T): *A hero or Heroes*
16.	2006-11-06 00:22:06	(T): *A countable noun most of the time should add a/an/the or －s,　is it clear?*
17.	2006-11-06 00:22:17	(Alex): *ok, got it, thank you.*

At the outset of the excerpt, the tutor made an effort to induce initiation from Alex by asking *"do you find any errors in the paragraph?"* and*" have any questions?"* (line 1), but it was in vain. The error correction was then initiated by the tutor about the countable noun *hero* (line 3 and 4). Alex had quite limited control over the concerned structure. He tried twice to pick up the error but did not get any closer to the exact error locus (line 5 and 7). After the error was explicitly pointed out, he still had no idea how to correct it (line 11 through 14). In response to the object-regulated behaviors, the tutor provided a sequence of helps involving many scaffolding functions. He first recruited Alex's attention to a problematic sentence. After finding that Alex had difficulty identifying the error from the sentence, the tutor simplified the correction by narrowing the sentence down to the phrase where the error was embedded (line 9). He later highlighted the error in capitalization and

pointed out that *hero* is a countable noun (line 11 and 13). After these hints proved unsuccessful, the tutor finally revealed the solution. This case exemplifies that the tutor-initiation implied object-regulation (or sometimes, other-regulation) on the tutee's part and suggested the demand of assistance with more scaffolding functions.

The results were different if the move had been initiated by the tutee. A tutee-initiated move called for fewer scaffolding functions in the sense that he/she probably had perceived the error or had questions about preceding discussions on the error, that is, more awareness and control over the concern point. The tutor in this case, therefore, did not have to turn back to recruit interest in the task, simplify the task (by narrowing attention to the trouble source), and maintain the tutee's motivation. What the tutor needed to do was to provide the latter half of the helps in the scaffolding sequence. That is, the tutor bore a lighter load in the presence of a tutee-initiated move because the tutee had performed a certain degree of linguistic independence. In terms of regulation, the stage of other-regulation was the tutee believed to arrive at, but sometimes he/she would move further to the self-regulated stage if he/she had automatically corrected the error on his/her own. Excerpt 4.20 presents an example of this phenomenon.

Excerpt 4.20 (tutoring 2)

1.	2006-11-07 23:51:31	(T): *ok, let's check the first two paragraphs to see whether there are any errors.*
2.	2006-11-07 23:51:48	(Brian): *hmm*
3.	2006-11-07 23:52:06	(Brian): *I think I should write come and disapear without ed* - - [Note: the problematic sentence is: In this age, heroes are created by the media so fast. They **came** quickly and **disappeared** so fast that no one remembers them after few months.]
4.	2006-11-07 23:52:18	(T): *ok, good. It is better to use the present tense.*

5. 2006-11-07 23:52:38 (Brian): *ok*
6. 2006-11-07 23:53:13 (T): *more errors?*

Asked to review the first two paragraphs, Brian initiated a move in which he recognized a tense error in the problematic sentence and, moreover, corrected it by himself without any intervention from the tutor (line 3). The self-evaluation and self-correction indicate that Brian was self-regulated concerning the point and that none of the helps in the scaffolding sequence was needed.

A noteworthy point about the tutee-initiated moves is that many of them were actually short, superficial exchanges in which the tutees asked about correctness or appropriateness of a particular sentence, phrase, or word. Often in such exchanges, their concern was more with the evaluation or information than with why the evaluation had been made or how the information might be applied to relevant contexts other than the immediate situation. Excerpt 4.21 and 4.22 present two examples of such exchanges.

Excerpt 4.21 (tutoring 4)

1. 2007-01-09 23:31:39 (Brian): *and is it a right usage "at the west coast"*
2. 2007-01-09 23:31:51 (Brian): *in or at?*
3. 2007-01-09 23:31:54 (T): *better to use at or along*

Brian initiated a question about the preposition collocating with the word *coast* and provided two candidates for evaluation. It is regrettable that the tutor gave the correct answer in a direct, explicit way (line 3) although scaffolded assistance that entails a series of helps might be difficult or even not necessary to offer with a superficial point like this. Arguably, Brian may have to take some responsibility for

this lack of scaffolding because his question (line 2) seems designed to provide himself with a “quick fix” rather than an opportunity to explore the reasons behind the evaluation.

Excerpt 4.22 (tutoring 2)

1.	2006-11-07 23:17:23	(T): *haha, ok. add adverbs/conjunctives, or seperate them into different independent clauses.*
2.	2006-11-07 23:17:34	(Iris): *he stays alive amazingly. Hawking now owns a happy family (he has 3 children and 1 grandchild), keeps doing research on theoretical physics and travels around the world for public lectures.*
3.	2006-11-07 23:18:07	(T): *yes, good.*
4.	2006-11-07 23:18:09	(Iris): *is amazingly proper?*
5.	2006-11-07 23:18:20	(T): *haha, well....i dob'n think it is necessary.*
6.	2006-11-07 23:18:47	(Iris): *I also considered unexceptfully*
7.	2006-11-07 23:18:54	(T): *just alive is ok.*

In the excerpt, similarly, Iris employed a quick-fix question, which was concerned with the appropriateness of an adverb *amazingly* (line 4). This kind of questions was not uncommon among the tutee-initiated moves. It is good to see these questions, implying the tutees’ engagement in the task, but perhaps what was much more needed for interlanguage development to occur is their negotiations with the tutor over underlying concepts of problems, which, however, were unusual in the tutoring exchanges.

Electronic Variety of Language

The last feature we are looking at in this section is the linguistic aspect of the tutoring interaction. The novel context of CMC gives rise to the emergence of a new,

electronic variety of language. The language is employed by CMC users to reduce the time needed to type messages and to compensate for the lack of paralinguistic and nonverbal cues.

In our tutoring sessions, there appeared many uses of the electronic variety of language, which involved a tendency toward brevity and informality as exemplified in various forms of abbreviation and emoticon. They hastened the tutoring speed and created auditory and visual effects, manifesting the text-based conversation more like a face-to-face one. For example, one can commonly see the reduction of a word to the fewest possible letters that could be meaningfully recognized, such as “y (you)” and “thx (thanks).” Other cases of abbreviation were seen in a word or phrase that was condensed into a totally different form in morphology but actually of high relevance when considered in phonology as shown in the excerpts below.

Excerpt 4.23 (tutoring 3)

2006-12-10 23:19:16 (Helen): *3Q, bye*

Helen thanked the tutor by typing *3Q*, of which the Chinese pronunciation sounds like “thank you” in English.

Excerpt 4.24 (tutoring 4)

1. 2007-01-09 22:24:23 (T): *yes, and use A*
2. 2007-01-09 22:24:36 (Fanny): *ok i c*

Understanding the tutor’s message, Fanny typed *i c*, of which the letter *c* was associated with the word “see.”

The plain text-based conversation was made livelier with an injection of voices and gestures by an innovative set of graphic simulations. We found a number of onomatopoeias such as “hahahah,” “wow,” and “hmmm” in the conversations as an indication of emotions. There was a second type of onomatopoeia stemming from Chinese exclamations and translated into English here, for example, “pu” (噗) and “er” (痾) . The former referred to the sound of laughter and the latter referred to the sound that was often heard when students had nothing to say in reply. Some of the emotions were even better expressed by emoticons, which simulate facial expressions or body gestures as illustrated in the three excerpts below.

Excerpt 4. 25, 26, 27 (tutoring 1,3,3)

2006-10-16 23:16:46 (Iris): *Thank u ^_____^*

2006-12-11 00:30:14 (David): *really? XDD*

2006-12-12 21:30:28 (Eric): <(@ ￣◡￣ @)>

The three emoticons, albeit in different forms, shared the same attempt to capture a smiling face.

Excerpt 4.28 (tutoring 4)

2007-01-09 23:38:40 (Brian): *but i spelled precious Orz*

Orz is a portrait of a person kneeling down on the ground with his/her head facing leftward, conveying a feeling of sorry or a request for mercy.

Excerpt 4.29 (tutoring 1)

2006-10-16 22:31:02 (Alex): *hmm...I have no idea..@@*

The symbol of @@ refers to eyes that are whiling, indicating a sense of confusion or tiredness.

A creative use of computer wording editions created special functions for the tutoring text as well. Capitalization was seldom used for proper nouns or at the start of sentences. Instead, it was employed for expressing emphasis.

Excerpt 4.30 (tutoring 3)

1. 2006-12-12 01:21:15 (T): besdies, watch out consistency of verb tense
2. 2006-12-12 01:21:31 (T): *He never knew what would happen after he waked up.----PAST*
3. 2006-12-12 01:21:49 (T): *Hence, the only thing he can do is to cut off the relationship with the heroine.---PRESENT*

In the excerpt, the tutor used capitalization as a strategy to foreground the problem of tense incoherence. The capitalized *past* and *present*, contrasting with each other and with other lower-case words, presented themselves as the focus of attention and thus facilitated the problem solving. Moreover, an arrow sign was frequently constructed as a quick expression for “becoming” or “resulting in.” Below are two examples.

Excerpt 4.31, 32 (tutoring 2, 3)

2006-11-06 00:37:14 (Alex): *seen-->see?*

2006-12-12 23:50:13 (Brian): because it is true ---> are ?

An interesting point about the tutoring conversation is the participants' high tolerance of surface errors, most of which are typos. Although they might have noticed the errors, they mostly continued to discuss on the concerned point as long as the errors were not global enough to hinder comprehension of the conversation. In the excerpt below, there are three typos marked in boldface and they were left uncorrected since it is easy to infer the intended words (*paragraph*, *not*, *write*) from the typos.

Excerpt 4.33 (tutoring 3)

1.	2006-12-13 00:41:36	(T): *to make sure what you are going to writing in each* ***praragrapg***
2.	2006-12-13 00:41:59	(T): *and then check whether these ideas are linked logically or* ***onot***
3.	2006-12-13 00:42:20	(T): *work harder please*
4.	2006-12-13 00:42:20	(Brian): *not well prepared to* ***wrtie***
5.	2006-12-13 00:42:25	(T): *yes*

In sum, there was a pervasive use of electronic variety of language in different forms in the tutoring. Their informality and brevity not only livened the text-based communication but also saved time for typing, making it more possible to have a productive tutoring. Moreover, although the tutoring conversation was expressed by English, it had its root in Taiwanese culture. For example, the emoticons of *Orz* and *XD* were hardly seen in the communication of online communities in contexts other than Taiwan.

In the CMC tutoring communication, we have seen the interactive features of short greetings/leave-takings, role shifting, intersubjectivity, asymmetrical power relation between the tutor and tutees, and electronic variety of language. Nevertheless,

not all of these features were unique to CMC tutoring; rather, three of them (role shifting, intersubjectivity, asymmetrical power relation) may also be commonly perceived under traditional face-to-face mode of tutoring. This may indicate that perhaps the interaction in CMC tutoring is not so different from that in face-to-face tutoring as generally assumed.

Research Question 3: How Do EFL Learners Shift Their Regulatory Stages during the Tutoring Sessions?

In literature on apprenticeship, development occurs when novices move from initial stage of reliance on others, object- or other-regulation, toward the ultimate stage of independent problem solving, self-regulation. It should be emphasized that although object-regulated and other-regulated behaviors are both realized through reliance on more capable others, they are essentially different; other-regulated learners are more able to respond to others' assistance and deemed more developmentally advanced.

In the following, we will look for the participants' regulatory shifts during the tutoring sessions and look at their microgenetic developments within the shifts. There are two themes: (1) shifts in regulatory stages over the tutoring sessions and (2) influences of assistance on learner development. Each of them encompasses two subthemes.

Shifts in Regulatory Stages over the Tutoring Sessions

In the section, we will display representative protocol excerpts, the participants' essay drafts, and interview segments to illustrate two kinds of regulatory shifts: regulatory progression and regulatory regression.

Regulatory progression.

Regulatory progression referred to the movements the tutees made toward the end of self-regulation (but not necessarily arrived at self-regulation), or more specifically, the process they appropriated assistance from the tutor and generalized the appropriation in one linguistic context to other relevant contexts. It was considered a sign of interlanguage improvement.

The first case of regulatory progression is from Alex's learning of the distinction between *because* and *because of*. He showed a clear cross-tutoring development.

Excerpt 4.34 (tutoring 3)

1.	2006-12-11 22:21:06	(T): *because the fire thirty years ago. Is there anything wrong?*
2.	2006-12-11 22:21:20	(Alex): *hmm..*
3.	2006-12-11 22:21:34	(Alex): *因爲三十年前的一場火災* [because of a fire thirty years ago]
4.	2006-12-11 22:21:49	(T): *yes, and then?*
5.	2006-12-11 22:22:04	(Alex): *I dont know*
6.	2006-12-11 22:22:14	(T): *ok, it's about the use of "beacuse" any ideas?*
7.	2006-12-11 22:22:29	(Alex): *no*
8.	2006-12-11 22:22:40	(T): *ok, for exmaple, I like her beacuse she is rich.*
9.	2006-12-11 22:22:43	(T): *i like her because of her fortune.*
10.	2006-12-11 22:22:48	(T): *got it?*
11.	2006-12-11 22:22:53	(Alex): *ok...got it*
12.	2006-12-11 22:22:58	(T): haha, good

In Excerpt 4.34 from tutoring 3, Alex could not recognize the error of *because* (line 5); after explicitly told the error source, he was still unable to correct it (line 7). Two

sampling sentences then were given to demonstrate the difference between *because* and *because of* (line 8 and 9), and Alex finally figured it out. In the whole process, Alex did not contribute any relevant constructive messages, except the Chinese translation of the phrase (line 3). The responsibility for the error correction was very asymmetrically distributed with the tutor taking most, if not all, of it. This implies that Alex was quite bounded by the draft he had produced and saw no ways to improve it, a behavior characteristic of the elementary stage of regulation, or the object-regulation. Moreover, a noteworthy point is that when asked to indicate the trouble source, Alex murmured "hmm" and then came up with the Chinese translation as a kind of what Vygotsky referred to as "private speech" to assist him in solving the problem. Also, the sudden transfer to Chinese, his L1, was very intriguing and will be discussed later.

The next occurrence of the *because* problem was observed in Excerpt 4.35 from tutoring 4, which was conducted about one month later.

Excerpt 4.35 (tutoring 4)

1.	2007-01-08 22:25:56	(T): *The TSA can help transfer students to solve the problem about courses. Because the transfer students take class is something different to normal students.*
2.	2007-01-08 22:26:19	(T): *notice anything wrong here?*
3.	2007-01-08 22:26:25	(Alex): *because 的問題* [The *because* is problematic.]
4.	2007-01-08 22:26:34	(T): *yes, how to correct it?*
5.	2007-01-08 22:27:39	(Alex): *加個 of 就好了吧？* [to add *of*?]
6.	2007-01-08 22:27:48	(Alex): *後面整句當主詞* [What follows is the subject.]
7.	2007-01-08 22:28:45	(Alex): *Because of the transfer students take class is something different to normal students, they have to retake some classes and take classes with different classmates.*
8.	2007-01-08 22:28:52	(T): *no*

9. 2007-01-08 22:29:50 (T): *ok, here, beacuse of her fortune, i marry her.*
10. 2007-01-08 22:30:05 (T): *beacuse she is rich, i marry her.*
11. 2007-01-08 22:30:08 (T): *understand?*
12. 2007-01-08 22:30:25 (Alex): *because 不可以直接放句首* [*because* cannot be placed at the beginning of a sentence.]
13. 2007-01-08 22:30:30 (T): *nono*
14. 2007-01-08 22:30:48 (T): *beacuse + S + V 就是子句* [that is, a clause]
15. 2007-01-08 22:30:52 (T): *但是* [but]
16. 2007-01-08 22:30:57 (T): *beacuse of + N 加名詞* [followed by a noun]
17. 2007-01-08 22:31:06 (T): *is it clear? keep it in mind*
18. 2007-01-08 22:31:10 (Alex): *ok*

The tutor, as usual, posted a sentence containing the target error and recruited attention from Alex for revision. What is different this time is that Alex showed a greater awareness of the *because* problem as he gave a quick correct reply about the error locus (line 3). However, his appropriation seems just enough for the recognition but no more left for further revision. More explicit assistance was then offered in the form of sampling sentences, but he still failed to see the point and induced an incorrect rule that *because* cannot be placed at the beginning of a sentence (line 12). That the sampling sentences are much like the ones provided last time in tutoring 3 indicates that Alex probably had acquiesced to the tutor's messages without a real understanding during the last tutoring (see Excerpt 4.34). He confirmed it later in the interview, "*我那時候好像在做別的事情也沒仔細看，就回了 got it，那個時候應該是不太懂。*" (Interview # 2, 2007/1/12) [*I was distracted that time and just replied "got it" without careful thinking. I think I did not quite understand the point then.*]

In response to Alex's incorrect reply, the tutor kept narrowing his help to the specific formulae of *because* and *because of* (line 14 and 16). Compared to the last

tutoring, Alex here still did not have a complete grasp of the point but he presented a certain degree of control over it. He was assuming increased responsibility from the tutor by identifying the trouble source himself based on what he had appropriated. This is an indication of progress toward a more other-regulated level of development.

Further development is observed in Excerpt 4.36, a later episode in the same tutoring.

Excerpt 4.36 (tutoring 4)

1.	2007-01-08 22:31:23	(T): *Some of the transfer students are not easy to get along with their classmates because their bashfulness or introversion.*
2.	2007-01-08 22:31:31	(T): *ok, check the sentence*
3.	2007-01-08 22:31:46	(Alex): *ok*
4.	2007-01-08 22:32:17	(Alex): *because of*
5.	2007-01-08 22:32:23	(Alex): *加 of 吧？* [to add *off*, right ?]
6.	2007-01-08 22:32:23	(T): *yes, good ^^*

Alex in the episode not only recognized the trouble source but went further to correct it on his own when asked to revise the sentence (line 4 and 5). During the process the tutor only offered a minimal amount of intervention of initial posting and final evaluation, and Alex took over the rest of the revision. We can see that he was growing more and more independent of the tutor throughout tutoring 3 and 4 as a consequence of appropriating assistance given before. In other words, he was moving from original object-regulation through other-regulation and maybe on his way toward self-regulation. However, we did not ensure whether Alex had really arrived at self-regulated level of development because we had only four tutoring administrations, and there were no data available about Alex's following performances on the use of

because hereafter.

By contrast, in cases where errors were discovered earlier, say, at tutoring 1 or 2, and disappeared from later protocols, we could have a fuller trace of the concerned point by also examining the tutees' drafts of subsequent essays to look for occurrences of self-regulation. Eric' learning of *so* as a conjunction in the following involved such examination.

Excerpt 4.37 (tutoring 1)

1.	2006-10-15 22:38:51	(T): *. So I just let it have some bites and then pulled it back to the line. Check the sentence.*
2.	2006-10-15 22:39:05	(Eric): *have → having*
3.	2006-10-15 22:39:42	(T): *well, no, focus on So I just let it have some bites*
4.	2006-10-15 22:40:07	(T): *ok, look at So*
5.	2006-10-15 22:40:46	(Eric): *...*
6.	2006-10-15 22:41:11	(T): *ok...the first word "so " is incorrect, informal*
7.	2006-10-15 22:41:42	(T): *do you know why?*
8.	2006-10-15 22:42:08	(Eric): *I don't know*
9.	2006-10-15 22:43:10	(T): *ok, because "so" is a conjunctive. it is used to connect different sentences.*
10.	2006-10-15 22:43:52	(T): *however, "So I just let it have some bites and then pulled it back to the line" is only an independent sentence.*
11.	2006-10-15 22:44:40	(T): *you have to cross out "so," and use "therefore"*
12.	2006-10-15 22:45:05	(T): *it should be "therefore, I just let it have some bites and then pulled it back to the line."*
13.	2006-10-15 22:45:41	(T): *Can you follow me?*
14.	2006-10-15 22:46:22	(Eric): *yes*

In Excerpt 4.37 from tutoring 1, the narrowing strategy was employed to direct Eric's attention gradually from the whole sentence, to the clause, and finally to the

specific location of the target error (line 1 through 4). Even if pointed out the error source of *so*, Eric did not see why it is inappropriate to start an independent clause with *so* in formal essays (line 6 through 8). The tutor subsequently offered explanations as well as a suggestion to substitute *so* with *therefore* (line 11). In the corrective process, except a wrong tryout for searching the error source, Eric let himself totally led by the tutor without producing any negotiatory exchanges, showing that his development was still at a rudimentary, object-regulated stage. He encountered the same problem three weeks later at tutoring 2 as shown in Excerpt 4.38.

Excerpt 4.38 (tutoring 2)

1.	2006-11-07 22:40:09	(T): *So I think he is a hero. see anything wrong?*
2.	2006-11-07 22:40:48	(Eric): *thought?*
3.	2006-11-07 22:40:56	(T): *no, try again*
4.	2006-11-07 22:41:17	(Eric): *was?*
5.	2006-11-07 22:41:51	(T): *"is" is aslo acceptable if you keep consistent in the verb tense in the whole essay.*
6.	2006-11-07 22:42:13	(T): *ok, it's about "so"... . do u know why?*
7.	2006-11-07 22:42:51	(Eric): *not really*
8.	2006-11-07 22:43:10	(T): *ok, "so" is a conjunctive used to connect two clauses.*
9.	2006-11-07 22:43:39	(T): *but here it is an independent clause.*
10.	2006-11-07 22:44:07	(T): *for example, he is nice, so everyone likes him.---correct*
11.	2006-11-07 22:44:27	(T): *he is nice. So everyone likes him. ----incorrect*
12.	2006-11-07 22:44:59	(Eric): *but what if so is not conj?... I think it can be other ..*
13.	2006-11-07 22:45:45	(T): *use it as an adv.?*
14.	2006-11-07 22:46:09	(Eric): *ya*

15. 2006-11-07 22:46:21 (T): *then my suggesion is "Therefore, ""Hence"*
16. 2006-11-07 22:47:16 (T): *they are adverbs and often used at the beginning of sentences. "so" is seldom used as a adv this way.*
17. 2006-11-07 22:48:10 (Eric): *Therefore I think he is a hero.*
18. 2006-11-07 22:48:28 (T): *plus a comma after "therefore"*
19. 2006-11-07 22:49:15 (Eric): *but why? Ortherwise it will be wrong?*
20. 2006-11-07 22:50:01 (T): *well...not exactly wrong, but we often use it that way.*
21. 2006-11-07 22:50:16 (Eric): *I see*

Encountering the same problem, Eric clearly had not got a good hold of it. He failed to identify the error and was unable to see why it required revision after pointed out where the error was (line 2 through 7). This unsatisfactory performance may lead some readers to suspect Eric's confirmation to the tutor's understanding check "Can you follow me?" at the end of Excerpt 4.37. He explained in the interview that it was due to his forgetfulness and low concernment with the task,

> "*應該是忘記，過了兩三個禮拜印象已經很薄弱了，而且沒有特別去記這個點…如果要改的話，還需要多一點刺激，就是說每次錯就改，然後大約錯個兩三次，就差不多了…就是覺得跟其他科作業來比的話，這個就顯得比較沒有那麼重要，所以就沒做筆記，也不會特別去記。*" (Interview # 1, 2006/11/10)
> [*I think it is due to forgetfulness because the point was addressed two or three weeks before and I did not make special efforts to memorize it. To eradicate the error, I think the correction for more times, say, two or three, are needed to form a deeper impression… I think the task was less important as compared to those of other courses, so I did not take any note nor try to memorize the addressed points.*]

The tutor then explained again and provided examples to highlight the point that it is informal to start an independent clause with *so* (line 8 through 11). Of special interest is Eric's subsequent response: what if the *so* he had used was not a

conjunction as the tutor assumed but an adverb (line 12 through 14). He was questioning and, importantly, negotiating with the tutor in Gass's (1997) sense that negotiation was a means of drawing attention to linguistic form, making it salient and thereby creating a readiness for learning. After further explanations and suggestions, a second negotiation occurred on the use of *therefore* and comma (line 18 through 20). At the end, the tutor managed to convince Eric to replace *so* with *therefore* and to add a comma after *therefore*. From the view of regulation, the two negotiations indicate Eric's deeper engagement in the tutoring than before and, eclipsing his forgetfulness, moved him toward the stage of other-regulation.

Moreover, the development did not halt here but continued to enter the self-regulated zone as we observed in his drafts of the third and fourth essay. In the two essays Eric correctly used *so* to connect paralleling clauses and also adopted *therefore* followed by a comma somewhere, for example:

They found that they have the power to change the past, ***so*** *they used their ability to change the things they regret****...Therefore,*** *they kept trying to make a better future by changing the past again and again.* (From essay 3)

They give large space to the people, ***so*** *there are not many formal restraints on the people...****Therefore,*** *they do not like to limit others too much to what they will do spontaneously.* (From essay 4)

Here Eric had grown full independence of the tutor for his own linguistic performance. This case may serve as a good example to illustrate that development is negotiated through reflective inquiry with more capable others, or the tutor in the study (Oxford, 1997; Swain, 2000). However, it should be noticed that the tutor' assistance was not necessarily the sole source of mediation that contributed to the self-independence. Instead, it might also result from the mediation of other English

learning sources, such as the teacher's instruction or peer-editing activity at class.

In sum, both Alex and Eric demonstrated a development in regulation of particular linguistic forms over the tutoring sessions. Although they both had stumbled for a while on their way from object-regulated stage to other-regulated stage owing to distraction (Alex) or forgetfulness and low concernment with the tutoring (Eric), in essence, they moved forward all the way. Nevertheless, progression is not the necessary outcome of assistance; rather, developmental process is variable and vulnerable to regression. In the following, we will turn to look at regulatory regression in the tutoring.

Regulatory regression.

Regulatory regression referred to the movements the tutees made toward the end of object-regulation (but not necessarily arrived at object-regulation). Excerpt 4.39 and 4.40 represents segments of David's correction of run-on sentences in which he regressed halfway in the course of regulation growth.

Excerpt 4.39 (tutoring 1)

1.	2006-10-17 23:59:32	(T): *I took it to the animal hospital, the doctor gave me some medicine and told me to put the drugs in the water.*
2.	2006-10-18 00:00:30	(David): *medicines?*
3.	2006-10-18 00:00:41	(T): *well, no*
4.	2006-10-18 00:01:01	(T): *other ideas?*
5.	2006-10-18 00:01:10	(T): *again, there are two independent clauses, not a sentence*
6.	2006-10-18 00:01:16	(David): *, and the doctor gave me some medicine and told me?*
7.	2006-10-18 00:01:21	(T): *ok, good, you pick it up ^^*
8.	2006-10-18 00:01:45	(T): *and u can also use the period to separate them.*

In Excerpt 4.39 from tutoring 1, David at first had difficulty discovering the run-on error, but later he succeeded and corrected it shortly after receiving a clue (line 5 through 7). He revised the problematic sentence by connecting the two independent clauses encompassed in the sentence with a coordinator *and* (line 6). The quick correction was not surprising given that he had dealt with the same problem once earlier in the same tutoring. As indicated by the tutor-guided correction, David here was believed to stay at the developmental level of other-regulation.

Hereafter, we did not see the error appear again in the protocols of tutoring 2 and 3, and we found that there was a correct use of the clausal-level *and* in the draft of essay 2. It is:

Bernie rescued lots of passengers in the plane, ***and*** *Chen protected his family from legal sanctions.* (From essay 2)

In the draft of essay 3, despite no similar uses of *and* like this, all clusters of sentences that would otherwise become run-on sentences were sequenced correctly in the form of separate, independent clauses. That is, David was self-regulated that time. He could produce well-formed connections between paralleling clauses on his own, either by adding *and* or by inserting a period. However, the desirable performance did not last long. Three weeks later the error emerged again in tutoring 4, as shown in Excerpt 4.40.

Excerpt 4.40 (tutoring 4)

1.	2007-01-07 22:53:23	(T): *It seems so many things we need to cope with, it is also a precious opportunity for us growing to maturity by experiencing these unfamiliarity.*

2.	2007-01-07 22:53:26	(T): *is there anything wrong?*
3.	2007-01-07 22:53:35	(David): *ties*
4.	2007-01-07 22:53:42	(T): *no,*
5.	2007-01-07 22:54:17	(David): *also?*
6.	2007-01-07 22:54:30	(T): *no, ok, they are TWO main clauses.*
7.	2007-01-07 22:54:47	(David): *yes?*
8.	2007-01-07 22:55:21	(T): *the two clauses are needed to be connected by a conjunction.*
9.	2007-01-07 22:55:51	(David): *ok, add and*
10.	2007-01-07 22:56:59	(T): *yes. Or you can make them two independent sentences.*
11.	2007-01-07 22:57:06	(T): *change the comma into a period.*
12.	2007-01-07 22:57:22	(T): *do u know why?*
13.	2007-01-07 22:57:30	(David): *yes.*

David at first tried twice to look for the problem source but simply kept going in circles without getting any closer (line 2 through 6). After the tutor pointed out the run-on problem, David still failed to see any ways for solution. He did not come up with the right solution until explicitly told that what he needed was a conjunction (line 8 and 9). It is clear that the corrective process was more laboring as compared to that in Excerpt 4.39 from tutoring 1. It took two tryouts and two clues from the tutor to reach the end of correction. In particular, the first clue (line 6) was almost the same as the one that led David to the ideal solution in tutoring 1. This indicates that David had a less control over the same problem than before or, more specifically, he regressed from the cognitive stage of self-regulation to the former one of other-regulation. This regression was a reflection of carelessness as he reported in the interview,

"這個點我懂，只是在寫的時候粗心大意沒有特別去注意…也許很認真寫的話就會寫對，或者是說如果今天是用選擇題的方式來選擇句子的連接，選項

有加 and 的跟用逗號的，那這樣應該就會寫對，…” (Interview # 2, 2007/1/12)
[*I know the point of sentential conjunction. I made the error because of carelessness. If I had paid full attention to the writing, I think I could have avoided the error. Or If the point was tested in the form of a multiple choice with the items of adding and and adding comma, I think I would have the correct answer.*]

As a whole, the above excerpts provide evidence that the tutees shifted their regulatory stages toward independent linguistic performance as a sign of interlanguage improvement throughout the tutoring. They went through intermental- to intramental functioning by appropriating the tutor's assistance and generalizing the appropriation to subsequent relevant linguistic contexts. As a result, they moved away from reliance on the tutor toward reliance on the self. The control over the task originally held by the tutor was gradually transferred to the hands of the tutees. However, the developmental process was not impervious to standstill or regression. Some tutees were observed to linger around a particular regulatory stage or move backward to earlier regulatory stages.

In the above, we have focused on the tutees' shifts in regulatory stages. In the following, we will turn to look at the other party of the tutoring communication, i.e., the tutor's assistance, trying to provide a fuller picture of how the regulatory shifts occurred.

Influences of Assistance on Learner Development

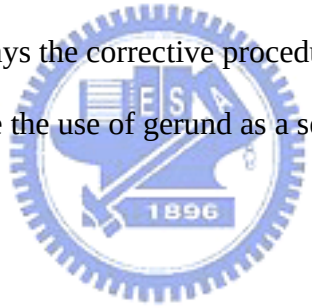
In the developmental process, more capable others co-construct with the learner a ZPD in which assistance becomes relevant and then can be appropriated by the learner to approach self-independence. All types of assistance are potentially relevant to learning, but the relevance depends crucially on the extent to which the assistance is consistent with the learner's current and potential levels of development as well as

on the way it is offered. Likelihood is higher for the learner to have deep reflection and make progress when the assistance is given gradually and contingently, and vice versa.

In what follows, we will look at examples of scaffolded assistance and non-scaffolded assistance in the tutoring to illustrate how assistance of different quality affected the tutees' interlanguage development.

Scaffolded assistance.

Scaffolded assistance referred to the assistance that could form scaffolding, which, according to De Guerrero and Villamil (2000), is the supportive behaviors by which an expert can help a novice approach more advanced levels of regulation. Excerpt 4.41 displays the corrective procedure in which the tutor guided David gradually to appropriate the use of gerund as a sentence subject by means of scaffolded assistance.



Excerpt 4.41 (tutoring 4)

1.	2007-01-07 23:00:39	(T): *study abroad could not only improve our academic achievement but make our mind stronger. see anything wrong?*
2.	2007-01-07 23:00:53	(David): *no*
3.	2007-01-07 23:01:02	(T): *ok, look at "study abroad could not only improve our academic achievement"*
4.	2007-01-07 23:01:56	(T): *ideas?*
5.	2007-01-07 23:02:07	(David): *studying?*
6.	2007-01-07 23:02:14	(T): *yes, do u know why?*
7.	2007-01-07 23:02:26	(David): *not sure*
8.	2007-01-07 23:02:45	(T): *ok, Go shopping is fun. Vs Going shopping is fun.*
9.	2007-01-07 23:03:06	(T): *which sentence is right?*

10. 2007-01-07 23:03:50 (David): *not sure "Go shopping" is noun*
11. 2007-01-07 23:03:51 (T): *no, it is not a noun*
12. 2007-01-07 23:04:01 (T): *it is a verb phrase, so you have change it into a noun*
13. 2007-01-07 23:04:10 (T): *ideas?*
14. 2007-01-07 23:04:29 (David): *Going shopping or to go shopping*
15. 2007-01-07 23:04:40 (T): *yes, good*
16. 2007-01-07 23:05:02 (T): *beacuse they are nouns, and they can serve as the subject of the sentence*
17. 2007-01-07 23:05:04 (T): *is it clear?*
18. 2007-01-07 23:05:10 (David): *yes*

First, the tutor recruited David's interest in the task by posting a problematic sentence in which the target error was located. Given several vain attempts to identify the error, the tutor narrowed David's attention to the former part of the sentence and helped him pick the error out (line 3 through 5). Then the tutor, instead of directly revealing the answer, asked David to choose a right one from two sampling sentences, which exemplify the discrepancy between what had been produced and the ideal solution (line 8 and 9). This choice was followed by explications made to complete David's partial understanding of the concepts concerning verb phrase (*go shopping*) and noun phrase (*going shopping*) (line 11 through 16). Finally, David was scaffolded to come up with the solution himself and assumed a clear understanding as suggested by his reply to the tutor's final check (line 17).

We can see that the assistance entailed three scaffolding functions (i.e., enlisting the learner's attention in the task, simplifying the task, and marking critical features) as suggested by Wood, Bruner, and Ross's (1976, cited in Anton, 1999) scaffolding sequence. More importantly, it was given strategically to fit the principles of gradualness and contingency (Aljaafreh & Lantolf, 1994). For one thing, the tutor

offered different forms of guidance with increasing explicitness, from initial direction of attention, sampling sentences, to final explanations, creating a narrowing path for a step-by-step readiness for learning. For another, he constantly fathomed where David was within the interlanguage system by such understanding checks as "do you know why?" or "is it clear?," and then, on this basis, decided to provide or withdrew assistance in the following.

Excerpt 4.42 presents another example of scaffolded assistance, by which Eric was led to solve the problem with mode of verbs in the *there be* structure.

Excerpt 4.42 (tutoring 3)

1.	2006-12-12 21:10:25	(T)*: when there were bad things happened.*
2.	2006-12-12 21:10:30	(T): *see anything wrong in the sentence?*
3.	2006-12-12 21:10:50	(Eric): *mm*
4.	2006-12-12 21:11:42	(T): *ok, think about it---> there is a dog barking every night---right*
5.	2006-12-12 21:12:05	(T): *there is a dog barks every night ---wrong*
6.	2006-12-12 21:12:13	(Eric): *要改成動名詞喔?* [to use the present participle?]
7.	2006-12-12 21:13:03	(T): *yes, 不然兩個動詞都是主要動詞 又沒有連接詞* [Otherwise, the two verbs are both main verbs, and there is no any conjunction between them.]
8.	2006-12-12 21:14:01	(Eric): *??*
9.	2006-12-12 21:14:40	(T): *it is from: there is a dog which barks every night. .*
10.	2006-12-12 21:14:54	(T): *clearer?*
11.	2006-12-12 21:15:17	(Eric): *是關代省略的關係嗎* [Is it about the omission of relative pronoun?]
12.	2006-12-12 21:15:47	(T): *yes, so there were bad things _____ happened.*
13.	2006-12-12 21:16:22	(Eric): *which*
14.	2006-12-12 21:17:13	(T): *yes , so, if you take out "which"*
15.	2006-12-12 21:17:17	(T): *it should be there were bad things _____.*
16.	2006-12-12 21:17:32	(Eric): *happening*

17. 2006-12-12 21:17:48 (T): *yes, good, do u understand?*

18. 2006-12-12 21:18:01 (Eric): *瞭解了 XD* [Yes, I understand.]

In addition to sampling sentences highlighting the relevant features (line 4 and 5) and understanding checks (line 10 and 17), the tutor devised incomplete messages. The incomplete messages deliberately left out the features of relative pronoun and present participle as blanks for Eric to fill out (line 12 and 15). These blanks not only specified where the problem is but also served as a test to check Eric's appropriation of help given earlier. If the blanks failed to produce correct responses from Eric, more assistance would right ensue. Moreover, it is interesting to notice that there appeared uses of Chinese, Eric's native language, on both parties of the tutoring during the corrective process. They employed Chinese to help maintain the flow of interaction on more complex thoughts, which English, at least for Eric, was believed to be harder to achieve. It is much easier to use Chinese temporarily and then continue to use English for communication than to spend a long time trying to express a concept in English and still fail to get the exact meaning across.

The two excerpts above show how scaffolded assistance worked to help the tutees approach the end of error correction. However, not all helps could constitute scaffolding. In what follows, we will turn to look at the assistance without scaffolding, or non-scaffolded assistance, and to see how it affected the tutees' appropriation.

Non-scaffolded assistance.

Excerpt 4.43 and 4.44 present two examples of the non-scaffolded assistance.

Excerpt 4.43 (tutoring 2)

1. 2006-11-06 22:14:23 (T): *there are something we value and making us full.*

2.	2006-11-06 22:14:45	(T): *any idea?*
3.	2006-11-06 22:15:42	(Helen): *a little strange*
4.	2006-11-06 22:15:59	(T):*ok, there IS something*
5.	2006-11-06 22:16:10	(T): *something is singular, not plural.*
6.	2006-11-06 22:16:14	(Helen): *HA*
7.	2006-11-06 22:16:18	(T): *yes, ok,*
8.	2006-11-06 22:17:36	(T): *we can become hero by doing the right thing in the right time.*
9.	2006-11-06 22:17:43	(T): *Check the sentence*

In the corrective process, Helen was more told than led to find that *something* is a singular noun. The tutor first asked Helen to find out the trouble source from the provided sentence as usual. When Helen revealed signs of difficulty doing so (line 3), the tutor yet did not use narrowing strategy to simplify the task nor offered any sampling sentences to arouse deeper thinking. Instead, he pointed out the trouble source and directly revealed the ideal solution (line 4 and 5). After a brief explication that *something* is singular, he moved on to deal with the next problem without checking Helen's understanding (line 8).

As a whole, we saw a quite unequal responsibility distribution in the correction. Helen contributed only two messages (*a little strange* and *HA*) (line 3 and 6), both of which show little reflection involved. This, on the surface, suggests that Helen was at the stage of object-regulation and thus the tutor had to take the vast majority of the responsibility. However, perhaps another consideration is warranted. It seems more compelling that Helen was in fact deprived of chances for self-reflection and self-expression in the sense that the knowledge was spoonfed rather than scaffolded. In other words, her real development level might well be underestimated.

Excerpt 4.44 shows another kind of non-scaffolded assistance.

Excerpt 4.44 (tutoring 2)

1. 2006-11-08 00:15:00 (T): *he had done very good.*
2. 2006-11-08 00:15:02 (T): *weird, something wrong,*
3. 2006-11-08 00:15:06 (Brian): *ya = =*
4. 2006-11-08 00:15:06 (T): *yes?*
5. 2006-11-08 00:15:18 (T): *done + adv. not adj.*
6. 2006-11-08 00:15:28 (Brian): *:P*
7. 2006-11-08 00:15:37 (T): *done well.*
8. 2006-11-08 00:15:48 (Brian): *ok*
9. 2006-11-08 00:16:02 (T): *his name was soon spread over the nation.*

Facing Brian's misuse of the adjective *good* to modify the verb *do*, the tutor yet skipped scaffolding steps and directly jumped to the specific formula (*done + adv. not adj.*) (line 5) without further explanations. There were few guiding strategies seen during the problem solving. The limited assistance appears more so when we consider that it operated superficially with only the local pair of *good* and *well* without delving into the essential distinction between general adjectives and adverbs, which is probably what Brian really had problems with. As a result, his understanding seems confined to the particular use of *done well*, as he still confused adjectives with adverbs after the tutoring. In the draft of the next essay, a relevant error emerged. It was:

Google can return things we want in a quite ***precisely way.*** (From essay 3)

Brian here wrongly used an adverb to modify a noun. Attributing the error to the

tutor's previous non-scaffolded assistance is arbitrary and unfair, but it appears safe to say that the error might have not occurred if ample scaffolded assistance was offered in the first place.

Little or too direct assistance, as shown above, not only degraded learners' potential performances to the ones characteristic of rudimentary regulatory stages but also retarded their future development. The non-scaffolded assistance could come from various causes, which will be discussed in the next chapter. Nevertheless, here it is not the exploration of the causes that is of importance but the recognition that the assistance itself plays a large role in learners' development. There exists the tendency that the more scaffolded assistance one receives, the better appropriation he/she will have.

In sum, here we have looked at some tutees' developmental changes within their interlanguage system in views of cognitive stages of regulation. They shifted regulatory stages toward independent problem solving throughout the tutoring while sometimes they stopped or moved backward to earlier stages of regulation. Moreover, we also have examined how the tutor forged and gave assistance of different qualities. Scaffolded assistance was indispensable to successful appropriation.

CHAPTER 5
DISCUSSION AND CONCLUSION

In the chapter, we will first discuss findings of the study. Then we will summarize the findings and point out study limitations, pedagogical implications, and suggestions for future study.

Discussion

The findings reported in Chapter 4 can be further discussed under three themes: the social context of CMC, mediation, and activity theory.

The Social Context of CMC

According to sociocultural theory, the social context in which learning is rooted is of pivotal importance because it can alter the entire learning process and outcomes (Swain, 2000; Wretsch, 1998). Here we further look at the very context of CMC in terms of its effects and features. The synchronous CMC in the study, instead of a mere electronic medium as assumed in most existing studies, was considered an alternative context for social interaction as well as a kind of mediated means through which the learners were able to interact with the tutor and appropriate assistance for regulatory progression. We have seen how considerably the synchronous CMC affected the processing of the tutoring sessions in both positive and negative ways. The tutoring was independent in time and place and fostered huge online resources; however, it subjected to technological problems and tiring typing nature. Its text-based communication afforded chances for reflection and edition but, at the same time, suffered from learner distraction and incoherent exchanges.

These CMC effects are significant in a sociocultural sense that some of them encouraged the tutees' movement toward self-regulation but some of them curbed such movement. For example, time- and place-independence made the collaborative learning and the assistance from the tutor highly accessible, thus raising the possibility of successful appropriation. Online resources promoted learner independence by allowing the tutees to search information during tutoring and to solve particular problems by themselves. By contrast, learner distraction and incoherent exchanges were found to retard the tutoring processing as the tutees were thus engaged in some activities that were not directly relevant to the tutoring. They, for instance, digressed to read books of other courses during midterm and final examinations. They often got lost in the intertwined exchanges and had to spend extra time finding the way out. Moreover, the time-consuming and tiring nature of typing made it hard and non-temping for the tutees to delve into discussions on profound concepts that require a large number of keystrokes especially under the tight time constraint. They therefore generally produced short, simple messages in preference to long, complex ones. With the effects working together, the tutoring as a whole did not appear so effective and efficient as we had expected.

Among the results brought about by the CMC effects, the most significant is the one that the online tutoring was useful only to deal with linguistic forms but ineffective in discussing on larger writing concepts (see pp.60-61). From a pedagogical view, the writing concepts are no doubt the issues of more importance than grammatical knowledge as far as overall writing development is concerned. In addition to the tiring typing nature, another possible explanation for the result is related to the task demand of using English, the target language, for communication. The tutees' English proficiency in general was not good enough to afford a smooth communication on intangible abstract concepts. Rather, English deficiency was often

found to form an obstacle to their logical thinking during tutoring. Even if they had logical ideas in mind, what their English messages finally presented was often a distorted picture of the intended thinking. Under the circumstances, we saw a common transfer to Chinese, the mother language, for quick problem solving. The result presented us with an idea that the tutoring could have been more effective and efficient if Chinese had been adopted for the tutoring communication.

We were especially interested in the CMC quality of physical distancing because what we found about it in the study is very different from what it was often noted in CMC literature (e.g., Kern, 1995; Lam, 2000; Schultz, 2000). Physical distancing is commonly considered an advantage because it relieves learners' pressure of facing authority and creates a non-threatening learning atmosphere. Learners, therefore, tend to become active about self-expression. However, in the present CMC tutoring, we did not find obvious evidence for this phenomenon. On the contrary, the tutees tended to be quiet with few initiations throughout the tutoring (see Table 4.1). This might be explained from two aspects. First, the online practice here was not chitchat among peers but tutoring involving a tutor and a tutee, which in nature was structured by a clearly unequal power allocation with the tutor as the authority and the tutee as the apprentice. The tutees, in essence, were supposed to be led by the tutor for error correction. Second, the tutees, except Iris, did not prepare questions to ask in tutoring beforehand. As a result, most of the tutoring interaction fell into the conventional IRF model (Ellis, 1994) with the tutor initiating an exchange, then the tutees responding, and finally the tutor evaluating and giving feedback. That is, what the tutees did most of the time was to respond to the tutor's messages rather than initiate communication.

One interactive feature from the tutoring commutation that is closely related to the CMC context is the electronic variety of language. The language here was characteristic of abbreviations and emoticons for the purpose of reducing the time

needed to type messages and compensating for the lack of paralinguistic cues. Although relatively novel, these forms of electronic language had made their way into online communities, including the present tutoring, and become a conventional practice. Without extra explanations, these linguistic practices were quite understood by the tutor and tutees and functioned well.

All of the aforementioned features and effects were closely associated with the context of synchronous CMC, and each of them reflected particular qualities of the context. This suggests that the tutoring process and outcomes would be very different from what it is presented if it had been undertaken in another context, say, traditional regular classrooms or asynchronous CMC. On this basis, the finding serves as an excellent example for the sociocultural belief that the social context in which learning takes place cannot be reduced to a mere background factor but instead is an internal part of cognitive development. Such recognition, however, has been consistently overlooked in mainstream second language acquisition research (e.g., Krashen, 1981; Krashen & Terrell, 1983).

All in all, CMC context overcomes several limitations that can never be removed from regular classrooms (e.g., limitation of time and place) but it also creates several demerits that are hardly perceived in regular classrooms (e.g., incoherent communication and technological problems). It is therefore essential to know that CMC is not a panacea and that its function is more to supplement than to replace regular classroom-based practices.

Mediation

Sociocultural theory maintains that cognitive development does not automatically happen by itself within the brain of individuals. Instead, it is a mediated process through culturally-crafted tools and by others in social-interactive practices

(Donato, 2000; Mondada & Doehler, 2004). Learning therefore is not something an individual does alone but is a collective endeavor which necessarily involves other individuals. In the tutoring of the study, CMC technology and the network were the technological tools for the tutees to mediate their relationship with the tutor and the world. Owing to the mediation of the tools, although sitting at the computer in their own places, the tutees were able to communicate with any other online individuals and to know about what happened in other corners of the globe.

A more important form of mediation observed in the tutoring is assistance from the tutor, by which the tutees were afforded to improve control over their own linguistic performances over time through appropriation. Interestingly, we found that in the assistance there appeared uses of Chinese, the L1 of the tutees and the tutor (see Excerpt 4.35 and 4.42). The tutees resorted to L1 when they had problems continuing to use English, the L2, for communication, and, in response to the tutees, the tutor then also transferred to L1. After the particular problem was solved, the tutor shifted back to L2 for following communication. This is an indication that L1 was the crucial tool that mediated the intend meanings to get across much more easily than L2 did. In this sense, strategic uses of L1 could greatly facilitate L2 communication if all the interlocutors have the same L1 and, therefore, L1 should not be banned from L2 classes.

In the process of appropriation, we have seen that learning is composed of various irregular movements. Some tutees moved from initial stages of object- or other-regulation toward the ultimate one of self-regulation while some stayed at the same stage or even moved back toward the end of object-regulation. This is consonant with Lantolf and Aljaafreh's (1995) finding that regression was a natural part of the developmental process. These standstills and regressions were indicative of recurrences of the errors that were addressed before. We found that the errors were

actually due to different causes in addition to linguistic deficiency, for example, carelessness, distraction, and low concern with the tutoring task. The recognition has two implications. First, some of the error causes originated in social-cultural dimensions, suggesting again that appropriation was not equivalent to and more than development of individual minds embraced by traditional language acquisition school. Second, that errors had diverse causes led us to believe that even the same error on the surface, whether from different learners or from the same learner at different times, is more often than not situated in different places within their interlanguage system representing different problems and thus requires different levels of assistance.

The study used two criteria to examine assistance from the tutor, that is, the principle of gradualness and contingency proposed by Aljaafreh and Lantolf (1994) and the scaffolding functions by Wood, Bruner, and Ross (1976, cited in Anton, 1999). A tendency was shown that assistance of different qualities led to different outcomes of appropriation. The quality of assistance, however, was determined by how gradual and contingent it is rather than how many scaffolding functions it entails. The assistance with six scaffolding functions is not necessarily better than the one with three or less functions. As shown in the relationship between move initiation and scaffolding (see pp.70-73), the assistance entailing full scaffolding functions was not needed and appeared superfluous to the tutees who had already possessed certain control over the discussed point.

We have seen that non-scaffolded assistance degraded the tutees' potential performances to the ones characteristic of rudimentary regulatory stages (see Excerpt 4.43) and undermined their future development toward self-regulation (see Excerpt 4.44). There are several possible causes of the non-scaffolded type of assistance. The first one is the tight time constraint. The fact that a session lasted only for 20 minutes was very likely to reduce the tutor's tolerance of the tutees' long pause and to boost

him to provide direct or explicit assistance in a hurry. The second is about the nature of error. Some linguistic structures are easier in nature and thus require few explications to be understood, such as prepositions and subject-verb agreement. Given a problematic sentence like “John was interested at politics,” there seems nothing much more left to be done for the problem solving than directly telling the tutee that the preposition going with *interested* should be *in*. The third, and the most important, is the tutor’s skills in offering assistance. Offering scaffolding was a demanding task. It called for the tutor’s sensitivity to the movement within the tutees’ interlanguage system as well as his ability to accordingly forge tutee-specific helps. Although having a simple training beforehand, the tutor sometimes still failed to fulfill the demands for producing scaffolded assistance.

A final point about mediation is that the tutees’ regulatory progression was realized through appropriation of mediation, but the mediation did not necessarily only come from the tutor’s assistance. Rather, given that the interval span between every two tutoring is long (close to one month), the mediation may well also come from other English-learning sources appearing in the tutees’ daily surroundings, such as the teacher’s instruction or peer-editing activity at class . The tutoring assistance, although crucial, was one of the possible sources of mediation for the tutees’ regulatory growth.

Activity Theory

Activity theory, one important component of sociocultural theory, contends that human beings perceive and interact with the world in unique ways, and the properties of a given activity are determined by the socio-historical setting and by goals and history of the participants (Lantolf, 2000; Roebuck, 2000). In our examination on CMC physical distancing and tutoring power relation, we obtained findings consistent

with activity theory.

The tutees, in addition to engaging in different activities, were found to foster diverse perceptions of the task. Given that the course was elective, most of the tutees admitted in the interview that they did care less about the tutoring task in comparison with those of required courses. However, on the contrary, Gina and Iris thought highly of the task. They made many efforts to process it and did so for different reasons. For Gina, each task, whether from elective or required courses, was equally important and should be taken seriously. Iris treated the task as a writing training that was part of her preparation for studying abroad after graduation from the university. Also, although in general the tutees produced few initiating moves, it was found that personal style and the sociocultural milieu in which they stayed during a tutoring session were two factors in the occurrence of the move initiation (see p. 69).

When engaged in the tutoring, the tutees were in fact continuously adapting to the unfolding circumstances in their own ways according to their own states of being and motives, which were in turn changing according to the larger social, cultural, historical, and institutional contexts. It was observed that the institutional event of final examinations affected the tutees' states/motives, which then affected their resulting performances. For example, Eric produced less initiating moves at tutoring 4 than before owing to the fatigue caused by final examinations. Chris interacted with the tutor and read arithmetic textbooks at the same time in the week of final examinations. In this view, the resulting activities were essentially different from the task instruction. The tutees' personal states and motives were a much more crucial determinant to what they were going to act than the task instruction. In a word, the tutees set their own agenda and determined their own activities.

As revealed in the preceding discussions, social context of the CMC, technological and human mediation, and activity theory respectively represent a

strand of influences on the tutoring process and outcomes. These influences were themselves interrelated. The formation of the tutoring context, for example, depends on what kind of technological tools and how they were employed. The effectiveness of tutor mediation was greatly determined by the tutees' states and motives. All this indicates that learning is not just intramental processing but a complex movement rooted in social interaction with multiple mutually-influenced factors involved. Varying instantiations of theses factors realize a variety of learner performances with many possibilities, including that of standstill and regression. We, therefore, believe that it is not fair to attribute the learning results all to the synchronous CMC without considering others factors and, on this basis, to judge it as an absolute facilitative or debilitative context/ mediation for language learning and teaching. What is perhaps more meaningful is to make endeavors to amplify CMC facilitative effects and diminish debilitative effects through well-designed tasks and quality meditated means.

Conclusion

Here we will first summarize the study findings and then indicate study limitations, pedagogical implications, and suggestions for future study.

The study adopted a sociocultural view to examine synchronous CMC practices in four administrations of tutoring sessions throughout an 18-week EFL writing course. We examined the CMC's effects on the tutoring processing, interactive features emerging from the tutoring communication, and the tutees' developmental movement throughout the tutoring. We found that the CMC context affected the tutoring processing in both facilitative and debilitative ways. The effects were so considerable to the point that the tutoring was presented very different from traditional ones in face-to-face contexts. Under the CMC, the tutoring was invulnerable to temporal/geographical bounds and endowed with huge online

information databases while at the same time it suffered from technological problems, typing speed, learner distraction, and the lack of paralinguistic cues. Its text was credited for permanency and flexibility but also criticized for incoherence. With these effects, the tutoring was reported to be more suitable for corrections of local linguistic forms than for discussions on global writing issues.

We discovered five interactive features from the tutoring communication: short greetings and leave-takings, role shifting, intersubjectivity, asymmetrical power relation, and electronic variety of language. The supposed roles of the expert and novice were found to be interchangeable when the communicative topic was changing to the ones with which the tutor was comparatively unfamiliar than the tutees. Moreover, the interactional control during the tutoring was asymmetrically distributed with the tutor as the power holder contributing the vast majority of the initiating moves.

Finally, as for the tutees' interlanguage development, we found that they were moving from object- or other-regulation toward self-regulation over particular linguistic forms as a consequence of appropriating the tutor's assistance. Such progression was not a necessary outcome; instead, sometimes they were lingering around the same spot or even moving backward, indicating that learning itself was a process that in fact was irregular and dynamic. In the movement, appropriation depended crucially on the mediation provided by the tutor. Assistance of different quality tended to result in different extent of appropriation. Scaffolded assistance proved to be the helps that brought about readiness to the tutees for learning.

Limitations of the study

The study was flawed at least on four grounds. First, although two online tutors were involved in the tutoring service of the course, the study only covered the tutoring

sessions led by a particular tutor. This may overlook some significant findings about the students' interlanguage development in the CMC tutoring. Second, the tutor under examination was the researcher. There may be biases on the selection of which part of data to present and on the interpretations of the data. Third, the two interviews held respectively after the second and fourth tutoring might not well capture the tutees' developmental changes throughout the semester. The interviewees often had problems clearly recalling what they were doing and thinking about during the last tutoring. Instead, we should have held four interviews with each given soon after a tutoring. Fourth, the tutoring task was not well designed from an instructional perspective. It should not be processed in English beacause the second language communication hindered logical thinking and smooth self-expression on the tutees' part. Given that the tutoring concern was about error correction instead of the language for communication, Chinese should have been adopted for the tutoring so as to have better effectiveness. Additionally, each tutoring session lasted for only 20 minutes. The time span was too short to generate fruitful discussions. What had been addressed in the tutoring was just a small part of all the errors.

Pedagogical implications

Four implications for language pedagogy can be drawn from the study findings. First, teachers are suggested to consider two questions before implementing tasks. One is whether the tasks could engage learners in social interaction, or more specifically, collaboration with more capable others. The other is whether learners have chances to receive scaffolded assistance/mediation in the tasks. The questions serve as guidelines for the teachers to design sound tasks that are consonant with the sociocultural view of learning. Second, given that tutee-initiation tended to result in more advanced levels of regulation, writing tutors, in either face-to-face or CMC

mode of tutoring, are suggested to encourage initiations from tutees by ceding more floor to them or asking them to prepare questions in advance. Third, language teachers should foster an open mind toward learners' standstill and regression in the learning process and recognize that a given error could have different causes. Dealing with learners' errors, they should first identify the real error cause and then accordingly offer appropriate assistance. Fourth, it is suggested that online writing tutoring not operate alone if the concern is more than about grammar learning. Instead, if possible, it should work in tandem with traditional face-to-face mode of tutoring to provide assistance on overall aspects of writing. Teachers should keep in mind that online tutoring, although enjoying several distinguished advantages, is to supplement face-to-face tutoring and only when face-to-face tutoring is not feasible should the online tutoring operate alone.

Suggestions for future research

The study was a pioneering effort to apply sociocultural theory to examining second language acquisition via CMC practices. To have a better understanding of how CMC realizes second language acquisition, future research may find it useful to have the application to language practices other than the present tutoring in alternative CMC social contexts, for example, chat rooms or asynchronous forums. Moreover, CMC technology is rapidly developing. It has overcome the lack of paralinguistic cues by tools such as online telephones and videoconferencing. These tools on the cutting-edge of technology are remained relatively uninvestigated and deserve attention from future research to discover their nature and potentials for enhancing second language teaching/learning practices.

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APPENDIXES

Appendix A
Questionnaire

網路英語寫作
95I 期初課程問卷調查

你的姓名：_____

I. 英語能力及學習經驗

你目前在交大(或清大)已修了幾學分的英文課：_____
如果有，請列舉課名：

II. 寫作經驗

在上這堂課之前你有任何的英文寫作經驗嗎？
☐ 有　　☐ 沒有

若有，請描述一下是在何時，何種狀況下寫的 (如：高中英文課)：

你現在對英文寫作的感覺如何：
☐ 很討厭　　☐ 討厭　　☐ 普通　　☐ 喜歡　　☐ 很喜歡

在上這堂課之前你曾經在 E3, Blackboard, 或其他網路系統 (如:MSN, e-mail) 用英文寫作嗎？☐ 有　　☐ 沒有

請描述在什麼樣的狀況下(如：上課時)及使用什麼樣的系統(如：MSN)：

III. 一般電腦技能及使用網路溝通經驗

1. 在上這堂課之前你有任何的網路**即時（同步）**溝通經驗嗎 (如：使用 MSN 或 Yahoo Messenger 與他人聊天)？
   ☐ 有　　☐ 沒有

   若有溝通經驗，是用何種語言溝通？
   ☐ 中文　　☐ 英文　　☐ 其他: _____

你多久上網溝通一次？

☐ 每天　☐ 每 1~3 天　☐ 每 4~7 天　☐ 每個月　☐ 其他: _____

3. 你使用過何種溝通系統：

☐ MSN　☐ Yahoo Messenger　☐ 其他: _____

你的網路溝通對象是：

☐ 家人親戚　☐ 同學朋友　☐ 老師　☐ 其他: _____

你上網溝通爲了：

☐ 就是聊天　☐ 討論事情　☐ 有事需要幫忙　☐ 認識新朋友

☐ 其他：

你對網路溝通的感覺如何：

☐ 很討厭　☐ 討厭　☐ 普通　☐ 喜歡　☐ 很喜歡

非常感謝你寶貴的意見！

Appendix B
Interview Questions

1. 你覺得線上寫作諮詢有何優點？
2. 你覺得線上寫作諮詢有何缺點？
3. 線上寫作諮詢給你怎樣的感覺 (喜歡、討厭)？
4. 線上寫作諮詢中你遭遇到何種困難 (語言問題、網路問題)？
5. 在與 tutor 的溝通過程中，除了 tutor 的幫助，你有運用其他資源來改寫文章嗎？有運用線上資源，如線上字典？
6. 線上寫作諮詢是否讓你較能或較敢表達出自己的問題或意見？爲什麼？
7. 有些較複雜或深入的概念 (如篇章結構)，你覺得在網路上反而難以表達（而導致不想問問題）？
8. 你在哪裡與 tutor 溝通 (如在家，在宿舍)？能夠在自己選擇的溝通地點，感覺如何？
9. 進行寫作諮詢中，你的身心理狀態爲何？(跟平日有何的不同) (如很累、很煩)？爲什麼有這些不同？
10. 諮詢過程中，你曾經再次閱讀你與 tutor 的溝通內容或儲存這些溝通內容？
11. 與 tutor 溝通的過程中，你是否會作其他的事情(如跟室友聊天、看其他書)？
12. 你是否發現有時跟 tutor 談的點不同？
13. 你重視寫作諮詢活動嗎？你有做筆記嗎？有事先準備題目嗎？爲什麼？

Appendix C
Regulatory Stages

Regulatory Stages (Adapted from De Guerrero and Villamil, 1994)

OBJECT-REGULATED

* The learner is controlled by the draft. He/she is bound by the words in the text he/she has produced and cannot see ways in which to improve it.
* The learner has an inadequate or incomplete grasp of the goals of the revision task; in other words, he/she fails to understand that the overall purpose of the revision session is to improve the text.
* The learner does not have the language and rhetorical knowledge necessary to carry out the task nor the procedural strategies to attempt revision.
* The learner is "satisfied" with his/her rudimentary first draft.
* The learner does not respond to prompts for revision made by a tutor and his/her attention is easily distracted by away from the task.
* The learner gets "stuck" with a trouble source. He/she does not know how to solve it, but keeps going in circles around it without making any progress even assistance is given repeatedly.
* There is an absence of questions on the part of the learner.
* The learner does not engage in any constructive dialogue with the tutor that will lead to improvement of the text; that is, there is no inter-psychological functioning directed towards solution of the task.
* The learner may heavily employ his/her first language in communication to compensate for his/her limited language knowledge and show reluctance to use the target language
* The learner is still stuck in the same types of errors that were corrected earlier in the same revision session.
* The learner may idle for a long time when asked to carry out certain actions.
* The learner may easily digress from the revision task to other off-task activities.

OTHER-REGULATED

*The learner lets himself/herself be guided by a tutor during the revision task. The tutor provides strategic assistance, or "scaffolding," for the learner to advance towards completion of the task.
* The learner does not yet have a complete grasp of the task goals and is unable to undertake revision on his/her own initiative but can achieve a certain degree of control over the task thanks to tutor assistance.
* The learner may recognize trouble sources when pointed out by tutor and may even

ask questions on how to solve them but will mostly allow himself/herself to be led through the task by the tutor.

* The learner may accept suggestions for revision from tutor or professor but sometimes problems in communication may arise due to the learner's limited understanding of the task situation or knowledge of the language.
* The learner may simply comply with or acquiesce to the tutor's suggestions, with or without understanding, or may engage himself/herself in a more collaborative effort towards making meaning.
* The learner may not accept or doubt a tutor' suggestion and negotiate meaning with the tutor.
* The learner may try to solve given problems by resorting to other sources other than the tutor's assistance, for example, the dictionary.
* The learner takes the initiative to ask questions or to ask for help and shows willingness and eagerness to solve encountered problems.
* The learner may have several wrong try outs for the error locus or correction, but with each try out, he is getting close to the ideal solution.

SELF-REGULATED

* The learner is capable of independent problem-solving. He/she can identify trouble sources in the text, initiate revision, and provide alternatives for the text.
* The learner has internalized the task requirements and has a clear vision of the goals to achieve.
* The learner's attitude is one of self-confidence in terns of content, language use, task goals, and procedures.
* The learner points out the trouble source and corrects it himself/herself without any prompts or hints from the tutor.
* The learner automatically corrects errors that are the same as or similar to the ones corrected previously in the same session or in preceding sessions.

Appendix D
Consent Form

交通大學
研究同意書
由社會文化理論檢視網路即時溝通的互動

你好。我是楊舜哲，是交大英語教學研究所三年級的學生。我正在做論文的研究。研究內容是用社會文化理論來探究網路即時溝通的互動情形。因為研究對象是使用網路進行寫作諮詢的同學，所以我想邀請你們成為我研究的參與者。

我會收集而且分析你們在這堂課中與助教利用網路溝通的對話記錄，還有你們上傳的作業。此外你們需填兩份問卷。根據問卷結果，我會針對幾個參與者進行一到兩次的訪談，每次時間不超過 30 分鐘，而訪談內容將會錄音且謄寫。

參與這項研究沒有任何風檢。你的資料將會保密。除了研究者外，沒有其他人會接觸問卷及訪談內容。這些資料在研究分析後也會立即銷毀。你的個人資料不會公開在研究報告中，而以匿名方式公開。

如果你有任何問題，歡迎現在發問。如果之後你有任何問題，你可以透過電話 0933580004 或 e-mail： yang1026314@yahoo.com.tw，跟我聯絡。你也可以跟我的指導教授張靜芬老師聯絡，電話為(03)7512121-52715，e-mail：cfchang@mail.nctu.edu.tw 。

我誠摯的邀請你參與這項研究，你的參與將能幫助英語教學工作者進一步瞭解網路即時溝通對於語言學習的影響。你可以決定是否要參與這項研究。不參與對你也不會有任何不好的影響。研究期間，如果你不願意繼續參與，你可以隨時退出，而你的資料將歸還或銷毀。如果你已閱讀以上說明，而且**願意**參與這項研究，請你在下面參加者的欄位簽名。謝謝你！

參加者簽名 _____ 日期 _____

研究者簽名 _____ 日期 _____