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Computer-mediated peer response in a level-IV ESL academic writing class: A cultural historical activity theoretical perspective

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Computer-Mediated Peer Response in a Level-IV ESL Academic Writing Class:

A Cultural Historical Activity Theoretical Perspective

by

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DEDICATION

To my parents Yuanxue Jin and Bangzhi Wang,

and to other family members who have supported me these years

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Computer-Mediated Peer Response in a Level-IV ESL Academic Writing Class: A Cultural Historical Activity Theoretical Perspective

Li Jin

ABSTRACT

Very few studies focus on how English as a second language (ESL) students' agency and their unique histories as an integral part of the social cultural environment influence his or her participation in computer-mediated peer response tasks, particularly in a multimedia-based synchronous communication environment. Considering each ESL student as an active agency with unique historical bearings, the dissertation investigated ESL students' participation in computer-mediated peer response (CMPR) tasks that used instant messenger (IM) as the communication technology between students from the cultural historical activity theoretical (CHAT) perspective, which views all human interaction as a dynamic developmental process. A case study approach was adopted to collect qualitative data from five ESL students enrolled in a level-4 academic writing class in summer, 2006. The entire study spanned from May to August. Each of the five participants participated in three CMPR tasks throughout the semester. Data were collected from multiple sources including a demographic survey, IM chat transcripts, the researcher's participative observations, participants' on-screen and off-screen behaviors, their first and second writing drafts, interviews, the researcher's reflective journals as well as documents collected in each instructional modules. Both within-case and cross-case analysis were used to identify emergent themes. Specific methods included constant

comparison method, content analysis, revision analysis, and CHAT analysis. The findings showed that ESL students had multiple and heterogeneous motives and goals within and across CMPR tasks. Some motives were learning-oriented while others were non-learning-oriented or even entertainment-oriented. The use of IM not only triggered each student's motive and goal formation and shift, but also transformed his or her particular behaviors and the relationship established during each CMPR session. ESL students' online contributions were strongly influenced by the pair's IM communication styles and competences rather than the task types or their motives. Students also developed new perceptions about CMPR tasks, which shaped and were dialectically shaped by their participatory behaviors in each task. Conflicts and tensions existed within and between both contemporary and historical activity systems in which each student was involved. Those who actively sought solutions to the conflicts developed new knowledge and skills such as writing an exploratory essay and competences of conducting CMPR tasks. Those who ignored the conflicts experienced scarce expected development.

CHAPTER I

INTRODUCTION

Overview of the Field

Group and pair work has been pervasively used in education (Storch, 2002). For decades, peer response, a collaborative activity in which students exchange their writing drafts and provide feedback based on which relevant revisions are made, have been used in both first language (L1) (Grabe & Kaplan, 1996) and second language (L2) writing classrooms (Mittan, 1989; Liu & Hansen, 2002). In addition to teacher feedback, peer response provides an alternative venue of obtaining feedback. Writing researchers and educators believe that through peer response, a student can develop the proficiency with regard to linguistic forms (Storch, 1998), grammatical accuracy (Storch, 2001), meaning (Berg, 1999), content and organization (Hedgcock & Lefkowitz, 1992; Nystrand & Brandt, 1989) as well as a sense of audiences (Lockhart & Ng, 1995). As for the reviewers who are actively engaged in peer response, they acquire critical writing skills, which benefit their later writing (Leki, 1990; Mittan, 1989).

In both L1 and L2 writing, peer response has been used as an umbrella term that is used interchangeably with a myriad of terms, such as "peer feedback", "peer review", "peer editing", or "peer revision" (de Guerrero & Villamil, 1994; Villamil & de Guerrero, 1996). To avoid confusion, from this point of time on, peer response will be used in this study to refer to this peer collaborative activity in writing classrooms, which is carefully defined by Liu and Hansen (2002) as follows:

"The use of learners as sources of information and interactants for each other in such a way that learners assume roles and responsibilities normally taken on by a formally trained teacher, tutor, or editor in commenting on and critiquing each other's drafts in both written and oral formats in the process of writing." (p. 1)

Peer collaboration is supported by multiple theoretical stances including general second language acquisition theories (SLA) (e.g. Long, 1983, 1985; Pica, 1994), writing-as-a-process approaches (e.g. Emig, 1971), collaborative learning theory (Bruffee, 1993), and sociocultural theory (e.g. Donato, 1994; Lantolf & Apple, 1994; Lantolf, 2000; Vygotsky, 1978). The interactionist view of SLA purports that collaboration between peers provides more opportunities for comprehensible input (e.g. Doughty & Pica, 1986; Pica, 1994; Long, 1985), negotiation of meaning (Long, 1983), focus on form (Long, 1985), and comprehensible output (Swain, Brooks, & Tocalli-Beller, 2002), which are conducive to second language learning. Writing in a second language is not only a process of composing, but a process of making use of a second language. Hence, peer interaction is in turn conducive to learning second language writing.

As a response to product-oriented writing theory, which considers writing is an individual cognitive activity aiming at a final product, L1 writing process approaches emphasize the indispensability of peer response in the process of writing. Proponents of the approaches conceive writing as a complex, recursive and problem-solving process, which is comprised of brainstorming, outlining, drafting, and editing (Elbow, 1973; Grabe & Kaplan, 1996). Particularly, students are encouraged to engage in multiple drafts and revision activities, which are assisted through receiving teacher and peer feedback (Faigley & Witte, 1981; Flower & Hayes, 1981). It is assumed that peers can help

student writers realize the gap between what they have written and what they intend to express. It is also assumed that while providing feedback, students can notice and acquire new writing skills which can later transfer to their own writing. Strongly influenced by L1 writing theory, many L2 writing researchers (e.g. Mittan, 1989) agree that peer response bears similar importance in L2 writing process.

The use of group or peer work in teaching and learning also is promoted by collaborative learning theory, which holds a social view of learning (Faigley, 1986). A central tenet of this theory is that knowledge is not transmitted from one person to another, but co-constructed by people in social interaction. Bruffee (1993), a prominent proponent of collaborative writing, defines collaborative learning as a type of learning that takes place when students are involved in group interaction. He argues that some knowledge can be best acquired only in this way. L1 writing researchers (e.g. Bruffee, 1993; Gere, 1987) found that collaborative writing could benefit students by providing certain resources that are not accessible to students when they are working individually. In addition to this benefit, L2 writing researchers (e.g. Hirvela, 1999) also found that L2 students had linguistic gains and they had more opportunities to reflect on what they had learned and how to effectively use them when engaged in collaborative writing tasks. Another line of this socially constructed writing is the notion of discourse community (Swales, 1990), which purposes that through interaction and collaboration, student writers are apprenticed into one or more academic discourse communities in which they learn the specific conventions and genres shared by all discourse members.

The fourth theoretical stance, which has been increasingly acknowledged in recent years, is sociocultural theory (Vygotsky, 1978). Vygotsky asserts that human mind

is mediated by various psychological and physical tools among which language is a premium tool that not only facilitates communication also manipulates higher mental functions such as planning and reflecting. In a sociocultural view, human cognitive development is originated in social interaction in which an individual learns to extend their competence with the help of a more experienced individual. The space between the individual's actual level of competence at which the individual can complete a task individually, and the potential level at which the individual needs help from more experienced others to accomplish a task is called the zone of proximal development (ZPD). In recent years, this notion has been extended by SLA researchers (e.g. DiCamilla &Antón, 1997; Donato, 1994) to that help needed in the ZPD can be obtained from either an expert or any peer who is at the same level or even lower level of competence. In other words, learning is a dialectic process in which both interactants can learn from each other regardless of their proficiency gap.

Drawing on the aforementioned theoretical underpinnings, peer response has been widely accepted as a viable teaching strategy in both L1 and L2 writing classrooms, which in turn has evoked increasing interest of writing researchers. Since the 1980s, a myriad of empirical studies have been conducted with an attempt to uncover the effect and students' behaviors in peer response in L2 writing classrooms. Different aspects of peer response have been investigated with both quantitative and qualitative methods, such as, the process of peer response regarding interactants' stances, strategy use, language functions, role division and status (Carson & Nelson, 1994; de Guerrero & Villamil, 2000; Lockhart & Ng, 1995; Nelson & Murphy, 1992; Zhu, 2001), the quality of peer response (Caulk, 1994), cultural effect on peer response behaviors (e.g. Atkinson, 2001;

Nelson, 1997), the impact of peer feedback on subsequent drafts (Connor & Asenavage, 1994; Mendonça & Johnson, 1994; Nelson & Murphy, 1993; Tsui & Ng, 2000), affective advantages of peer response (Zhang, 1995), students' perceptions of the effectiveness of peer response (Nelson & Carson, 1998), and the impact of training for peer response (McGroarty & Zhu, 1998; Zhu, 1995). These studies have contributed to a better understanding of peer response in L2 writing classrooms.

However, a closer review of these studies reveals that the current understanding is still incomprehensive. The majority of the aforementioned studies (e.g. Carson & Nelson, 1994; Lockhart & Ng, 1995) have focused on the isolated dyadic interaction, which hold meager, if not none, interest in the macro-level social and political structures that may have significant impact on the micro-level actions of students in writing classrooms (Russell, 1997). In addition, although it is acknowledged by an increasing number of L2 writing researchers (Carson & Nelson, 1994. 1996; Ramanathan & Atkinson, 1999; Zhang, 1995), attention to the cultural and historical background born by each L2 student participating in peer response has been astonishingly missing in the majority of L2 writing research. Another important aspect of peer interaction that has not been investigated thoroughly is student writers' individual motives and goals of participating in peer response. It is overwhelmingly assumed in a great number of current studies that all students involved in a peer response task share the same goals with the teacher and with their group members. However, researchers adopting a sociocultural perspective (Coughlan & Duff, 1994; Roebuck, 2000) argue that to explain students' performance in a task requires a close look at each student's own goals and intentions.

In recent years, advanced computer technologies have taken a penetrating role in everybody's daily life. Particularly, they have attracted abundant attention from educators. Technology claims a great potential in assisting language teaching and learning as well (Chapelle, 2001; Warschauer & Kern, 2000). Researchers (e.g. Salaberry, 2001) agree that it would be a great waste of resources if educators do not take advantage of information technologies. One influential technology used in language-related learning is computer-mediated communication (CMC), which enables language learners to communicate with each other through networked computers (Warshauer & Kern, 2000). Since early 1990s, a great number of studies have been conducted to investigate the effectiveness of CMC in SLA (e.g. Chun, 1994; Kelm, 1992; Kern, 1995). The findings show that in electronic discussions, language learners display lower levels of anxiety (Beauvois, 1992; Kelm, 1992), more active and equalized participation (Kelm, 1992; Kern, 1995; Sullivan & Pratt, 1996), more peer-to-peer interaction (Erben, 1999; Kern, 1995), and greater amount of language production (Beauvois, 1992; Kelm, 1992; Kern, 1995).

A multitude of research has been conducted on application of CMC in L2 writing as well, for example, students' development of target-like writing styles via CMC (David & Thiede, 2000), e-mail journaling on accuracy and fluency (González-Bueno & Pėrez, 2000), comparison of computer-mediated and pen-and-pencil writing in terms of the social roles adopted by writers in group journaling (Abrams, 2001), and comparison of synchronous communication and face-to-face interaction in a L2 peer response activity (Liu & Sadler, 2003). While some researchers (e.g. Nabors & Swartley, 1999; Sullivan & Pratt, 1996) confirm the benefits brought by networked technologies, others (e.g.

Braine, 2001) discover that the feedback provided in a networked environment does not result in a better written text. It seems whether and to what extent CMC can benefit L2 writing, particularly in a peer response task, are still subject to debate. The fact that CMC is omnipresent in today's writing classrooms merits further studies on how the use of CMC influences peer response in L2 writing classrooms.

Statement of the Problem

An overview of the existing theories and studies in L2 peer response reveals that abundant attention in the field of L2 writing has been placed on either text-as-discourse or isolated dyadic interactive behaviors with regard to linguistic, cognitive, and affective aspects revealed in peer response. It has been generally overlooked that an individual student's orientation to the peer response activity is usually driven by their own perceptions of the task and intentions as well as is situated in complex social and material circumstances. Despite a surging number of studies intended to investigate the effects of diverse elements such as teacher expectations and peer stances within the classroom environment on L2 students' interactive behaviors, the findings are far from being exhaustive. The understanding of the complex social and cultural context in which peer response, a multifaceted social practice, is situated remains nebulous. The historical influences, in other words, L2 students' prior experience of writing instruction on peer interaction, have been surprisingly overlooked as well.

Despite the fact that a seemly exhaustive number of studies have been conducted on L2 peer response, the majority of them merely depict a descriptive picture of what occurs during peer response. How learning and development in terms of cognitive and social-cultural communication skills takes place remains untangled.

Besides the remaining problems in L2 peer response, the pervasive adoption of computer technologies, particularly CMC, in peer response activities draws more complexity in peer interaction in L2 writing classrooms. Among a variety of CMC technologies, synchronous technologies such as instant messaging, are attracting surging interest among language educators because of the similarities between synchronous communication and face-to-face communication in terms of communication discourse and messages delivered in a certain time period. Despite their great potential in assisting L2 learning, very few empirical studies have been conducted to investigate the potential and/or constrains of synchronous technologies in L2 writing classrooms.

Peer response, particularly in a computer-mediated environment, has been considered a viable learning task in L2 writing classrooms. Failure to consider the aforementioned factors that may severely affect students' performances in peer response may result in an incomplete understanding of peer response theoretically and pedagogically, which in turn may cause a misunderstanding of the learning and development that occurs in this classroom learning task. Ultimately, the consequences will be reflected on students' unsatisfying outcomes. Thus, more studies should be conducted to uncover the aspects of computer-mediated peer response (CMPR) that have been incompletely explored in previous studies.

Purpose of the Study

Inspired by current theories and motivated by the gaps remaining untangled in previous studies in L2 peer response, this study was intended to investigate how L2 students perform when participating in peer response that is carried out in a computer-mediated communication environment through a cultural historical activity theoretical

(CHAT) perspective. CHAT was adopted as the primary guiding theoretical framework in the study because it lent the researcher a special lens to consider all human interaction as a learning and developmental process by attending to the influences from both the social cultural environment and historical background as well as individuals' motives and goals.

CHAT, which is extended from Vygotsky's (1978) sociocultural theory, is a social psychological approach to understanding human mental functioning, social contexts, and processes surrounding the mental behavior, i.e. the process of peer response. Contrary to dualism, which perceives human and the society as separate entities, CHAT as well as sociocultural theory assert that learning has its origin in social interaction (Engeström, 1987; Lantolf & Thorne, 2006). CHAT provides a cultural historical view of human behaviors that result from socially and historically constructed forms of mediation in human activity (Lantolf, 2000). The activity that integrates various mediating artifacts including both physical and psychological tools is called a functional system (Luria, 1973, from Lantolf, 2000). Thus, the unit of analysis in activity theory is the activity, rather than merely a single individual. Writing researchers, e.g. David Russell (1995, 1997) and Jeff Wiemelt (2001), argue that activity theory provides a broader view of writing, which enables wider levels of analysis than the dyad. CHAT, whose roots can be traced back to Vygotsky's (1978) sociocultual theory, has experienced several generations of advancement (Engeström, 1987, 1993, 2001; Leont'ev, 1981). The proposed study will mainly use some conceptual constructs proposed in the second generation, i.e. Leont'ev's notion of hierarchical structure of activity, and the third generation of activity theory, i.e. dynamic human activity systems,

mediation, contradictions and expansive learning, which provides a theoretical framework to explain L2 student writers' performance in a computer-mediated peer response (CMPR) task.

According to Leont'ev's notions of activity theory, any situated event should be analyzed at three levels: activity, actions, and operations. Each level represents a different but complementary perspective of human behaviors (Wells, 1999). At the level of activity, any behavior is driven by a desire or a need, like hunger or the need to learn writing in a second language. Needs are not noticed until they turn into an individual's goal-directed actions. In other words, a need becomes a motive once it is directed toward a goal. Whereas a motive is usually collective and unconscious, a goal is the desired end of actions, thus is conscious. All goal-directed actions are operated in the context of concrete material circumstances, for example, in an online communication environment. The same motive might be realized in different actions that are bounded in one activity. However, the same actions can be linked to different motives, thus constitute different activities. Goals cannot be appropriately understood without taking into consideration the motives.

As mentioned earlier, the unit of analysis in activity theory is the activity rather than merely an individual. Each activity is distinguished based on the underlying motive or an object. Lantolf and Thorne (2006) interpret that motives in one classroom setting may vary among students as well as change within one student over time. Other researchers taking a sociocultural perspective (Coughlan & Duff, 1994; Donato, 1988; Roebuck, 2000) differentiate a task from an activity. Coughlan and Duff posit that a task, like peer response, is merely a "behavior blueprint" imposed by an outsider whereas

activity is the behavior the subject(s) conducts when performing in a task. Roebuck further explains this distinction by saying that subjects as "individual agents" shape their activity "based on their own particular goals, motives, and sociocultural histories" (p. 94). The proposed study will look at what motives and particular goals each L2 student as an individual agent involved in the computer-mediated peer response task holds.

The third generation of CHAT, namely, Engeström's notions of activity systems, further expands Leont'ev's view of activity and includes three more mediational factors of human social practice: the community, the rules of community and division of labor (Lantolf & Thorne, 2006). Engeström argues that a human activity system such as peer response is constituted by *subject*(s) under investigation, which can be either an individual or collective human (such as students participating in computer-mediated peer response), *object* that motivates the subject and is subsequently transformed into expected *outcome* (such as revised written texts), culturally and historically constructed *artifacts* including psychological and physical tools that shape and are shaped by the activity (such as textbooks, computers), *community* that are constituted by people involved in the activity system (such as students and the teacher in a L2 writing class), *rules* that guide human interaction in the community, and *division of labor*.

All elements of an activity system are constantly constructed within themselves as well as influence and shape each other so that the system is constantly adapting and transforming. According to Engeström, what appears initially object may be transformed to the outcome then to an instrument, and may later turn into a rule. By using this model, each ESL student participating in the computer-mediated peer response can be considered as a subject in a system of activity, which is constantly shifting and changing. After an

individual's object is transformed to the outcome, it may turn into an instrument or even a rule that mediates his/her later actions, which leads to a new object, thus a new system of activity. The contradictions and conflicts within the activity system and between the current activity system and other systems are the driving force of these changes. In other words, these contradictions may exist in students' current social cultural context or in other activity systems, such as their prior experience of writing instruction and of the use of computers and CMC. The process of solving these contradictions and conflicts is the transformation process through which each student orients toward their object-related activity.

The primary interest of this study was how ESL students as individual agents performed in the CMPR tasks. Particularly, the researcher investigated the dynamic developmental process involved in ESL students' peer interaction that was driven by his or her own motive and concurrently mediated by various social cultural artifacts, particularly computer technologies, his or her relation with the community and the rules of the community, labor division in the community as well as his or her diverse prior experience. To enhance a transparent depiction of this dynamic developmental process, a secondary theory, dynamical systems theory (DST), was adapted in the study. Dynamists, such as van Gelder, Port (van Gelder & Port, 1995), Thelen and Smith (Thelen & Smith, 1994; Smith & Thelen, 2003), believe that all cognitive activities, e.g. learning and development, are dynamic systems, which are composed of multiple variables interacting with each other. Constant interactions among systems exist simultaneously. One change of one variable in one system affects the chances in other variables, which results in the changes of the whole system as well as other systems. In

addition, a change at very early stage may have influence on changes at a late stage. Thus, all changes are historically related. Time is an important component in all dynamical systems. According to DST, all human events are chaotic. To depict the chaotic dynamic process, a two- or three-dimensional diagram with time as a parameter is the best way to record changes over time. Adopting the construct of timescale in DST and the activity concept in CHAT, the researcher represented the dynamic learning and developmental process involved in ESL students' participation in the CMPR tasks throughout the summer semester in 2007 in a two-dimensional diagram in which the time was a parameter on the X axis, while participants' engagement level during each CMPR task was the second parameter on the Y axis.

In sum, drawing on CHAT, this study investigated the performance of five ESL students in the CMPR tasks throughout the summer semester with a focus on these students' individual motives and goals of participation in CMPR tasks as well as the dynamic nature of CMPR as a transforming process for each of them. To uncover the learning and developmental process involved in CMPR, the analysis was supplemented by the constructs of timescale and attractors in DST. The CMC technology adopted in this study was a synchronous communication tool, MSN instant messenger. A case study approach was employed to analyze data collected throughout CMPR sessions in a level-IV ESL academic writing class at a southeastern university in the U.S. Data were collected from multiple sources including participative observations (Denzin & Lincoln, 2003), video taping, online recording, interviews, document review, and the researcher's reflective journals. Qualitative data analysis methods such as content analysis (e.g. Carley, 1993; Holsti, 1969), constant comparison method (Glaser & Strauss, 1967;

Lincoln & Guba, 1985), and CHAT analysis (e.g. Engeström, 1987, 1999; Leont'ev, 1983) were used to analyze the data.

Research Questions

The overarching question of the proposed study is how English as a second language (ESL) students as individual agents perform in computer-mediated peer response (CMPR). Sub-questions are as follows:

I. What are the motives and goals of ESL students who participate in CMPR and how do the motives and goals maintain or change overtime?

II. How do computer-mediated technologies, particularly synchronous chat, mediate ESL students' interaction in peer response?

III. How do the current social and cultural context influence ESL students' peer interaction in CMPR?

IV. How do students' prior experience with writing instruction and with computers use, particularly computer-mediated communication (CMC), influence their participation in CMPR?

V. What is the dynamic nature of CMPR?

Question 1 looked at what the motives and goals of ESL students participating in CMPR held as well as whether and how these motives and goals shifted over time. Question 2 focused on the medational roles synchronous communication technologies, in the current study, instant messenger, played in CMPR. Question 3 and 4 inquired the influence of sociocultural and historical factors on `peer interaction in CMPR. Question 5 aimed to depict a comprehensive picture of the constant transforming and developing process of the activity system of each ESL students involved in CMPR as well as the

dynamic nature of the CMPR itself as a functional system of activity. The answers to these questions represented the learning and developmental processes each ESL participant experienced in computer-mediated peer response, which were driven by their individual motives and particular goals as well as were mediated in a dynamic mode by the employed synchronous communication technology and by the synchronic and diachronic contexts.

Significance of the Study

The study differed from previous empirical studies in peer response in the following aspects. First, it considered each student as an individual agent who had particular motives and goals of conducting certain actions, rather than passively following the instructed steps imposed by the instructor. Thus, each student perceived the CMPR task in a heterogeneous way. Second, contrary to the dualism that predominantly guides the majority of previous studies on peer response, the current study borrowed the cultural historical activity theoretical perspective, which extends Vygotsky's view that individuals' thought structures are interlinked with social and material conditions of their social practices and claims that individual actions are mediated by both cultural artifacts and spatial and temporal social contexts. CHAT focuses on a functional activity system, which is constituted by subjects (such as ESL students), cultural artifacts (such as MSN instant message, the CMPR worksheets), and social interactions between subjects, the community and the commonly understood rules of the community (such as the norms students needed to follow in casual IM chat and in CMPR), and division of labor in the community setting (such as the reader's and writer's roles each participant was expected to play during each CMPR task). All components in this system constantly construct and

shape themselves and each other. Thus, the system is dynamic and ever-changing, which helps inform ESL students' learning and development process in peer response. Through this lens, students' history was also considered as an important attribute to their performance, thus was concerned in this study. In addition, by adopting the constructs of *timescale* and *attractor* from DST, the ever-changing dynamic processes each participant went through during each CMPR task were depicted in two-dimensional diagrams, which has never been conducted in previous studies.

The findings of this study contributed to the theory and practice of L2 peer response, computer-mediated communication, and potentially the theoretical refinement of CHAT. It provided a comprehensive examination of the L2 computer-mediated peer response task, which was perceived as a dynamic and developmental process. Students' behaviors in the peer response tasks were interpreted through a cultural historical lens by interlinking dyadic interaction with the social and cultural context in which peer response tasks were conducted, which provided an alternative interpretation of the peer response tasks and filled in the gaps remained unattended in previous studies. The study also offered significant implications for L2 writing practitioners. A clearer picture of online peer response depicted in this study provided more support and guidance to teachers who intend to effectively implement computer technologies in peer response activities in L2 writing classrooms. The study may also, in a limited fashion, contribute to general social science research on computer-mediate communication by calling for a cultural historical activity theoretical perspective to analyze the roles computer technologies play in teaching and learning settings.

As for the contribution to the theoretical refinement of CHAT, although CHAT has become a well-known psychological theory to assist the understanding of human learning and development, it is still a descriptive theory and there is still controversy over the definitions of certain terms, such as object and outcome. CHAT is by no means a clearly-articulate analytical methodology, such as the analysis of motive. In the current study, the researcher proposed a number of data analysis methods, which integrated both CHAT constructs as well as the constructs from DST. It is hoped that empirical data from the study help refine the CHAT by clarifying the opaque and controversial understanding of some key terminologies and offering a more articulate way to analyze activity systems.

Definitions of Related Terms

The study took an activity theoretical framework to interpret L2 peer revision activity in a computer-mediated communication environment. The following terms were employed throughout the study:

1. *Computer-mediated communication* (CMC) - one-to-one, or many-to-many communication through computer networks, which can take place in synchronous (real-time, simultaneous), or asynchronous (time-delayed) mode. Thus, the proposed study will focus on the use of a synchronous communication tool--- Yahoo! Messenger in a peer response activity in an English as a second language (ESL) academic writing class.
2. *Peer Response* - process that students provide comments on each other's writing. The writer will make revisions based on feedback obtained from the peer reviewer. This study will investigate the peer response activity taking place in a synchronous commucniation environment.

3. *Cultural Historical Activity Theory* – Extended from Vygotsky's (1978) sociocultural theory, this theory was initiated by A. N. Leont'ev (1978), which focuses on the activity an individual (or subject) is doing in a social cultural setting. Leont'ev's activity theory was formulated with three units of analysis: activity, action, and operation. Expanding from Leont'ev's conceptualization of activity theory, Engeström (1987) developed a new generation of activity theory model that added three aspects, which further mediates an activity in a context: community, rules of the community, and division of labor. This theory will serve as an overarching theoretical framework in the proposed study.

4. *Motive/object* – a construct of CHAT, which refers to a desire or need that motivates an individual to take certain actions, for example, hunger, warmth and literacy (Leont'ev, 1981). The object is the true motive. All human activities are driven by one or more motives. It is usually collective, recurrent, and beyond the conscious plane of a subject.

5. *Goal* – a construct of CHAT. A goal is the desired end of the actions, "a form of anticipatory reflection, as an intentional plan or strategy", or "what must be done" (Leont'ev, 1981, p.63).

6. *Activity* / *activity system* – a construct of CHAT, which means "doing in order to transform something" (Kuutti, 1996, p.25). It is the unit of analysis of CHAT, which is driven by the subject's motive/object and mediated by the social, cultural and historical context of the activity. It is not only a persistent formation, but "a creative, novelty-producing formation" (Engeström, 1993, p.68).

7. *Action* – the goal-directed behaviors evoked by the motive. Actions instantiate motives in the form of goal-directed behaviors.

8. *Operation* – the automatic or habituated actions in response to the immediate social-material contexts.

9. *Mediational means* – psychological or physical tools human use to shape the activity as well as are shaped by the activity, such as language, computer, or peer response working sheet.

10. *Division of labor* – a construct of CHAT, "the continuously negotiated distributions of tasks, powers, and responsibilities among participants in an activity system" (Cole & Engerström, 1993, p.7).

11. *Rules of community* – the rules and regulations each member of a community have to follow in social practices.

12. *Mediation* –A premium construct of Vygotsky's (1978) concept of how humans learn and develop higher order thinking skills. Vygotsky posited that all human mental activities are constructed through the use of physical and psychological tools, particularly human languages. In addition, the use of these tools is managed through the use of language. Interaction through signs and symbols interwines with our cultural and socio-historical backgrounds to give rise to mental functions such as conscious attention, rational thinking, emotions, learning and development.

13. *Practice* – a construct developed by social scientists (Bourdieu, 1990; de Carteau, 1984; Ortner, 1984) and linguists (Hanks, 1996; Scollon, 2001) to describe social action in the world. In this study, this term, more associated with Bourdiew (1990), will refer to "everyday, often habitual action that is informed by socially structured resources and competencies" (Thorne, 2004).

14. *Internalization /appropriation* – the process in which an individual internalizes information or artifacts through social interaction and simultaneously externalizes and creates new artifacts and social practices.

15. *Conflicts / contradictions* – a construct of CHAT, " problems, ruptures, breakdowns, clashes. Activity theory sees contradictions as sources of development; activities are virtually always in the process of working through contradictions" (Kuutti, 1996, p.34).

16. *Knotworking* – a term developed by Y. Engeström, R. Engeström, and Vahhaho (1999), which refers to the "construction of constantly changing combinations of people and artifacts over lengthy trajectories of time and widely distributed in space" (p.345).

17. *Timescale* – a construct of Dynamic Systems Theory (DST), which is used to describe the phase transitions or changes of a dynamical system during a certain period of timescale.

18. *e-turns* – a construct coined by Thorne (1999, 2000), refers to each message either in text or non-text icons posted by users in a synchronous communication discourse.

19. *Language functions* – The purposes of language use (Lockhardt & Ng, 1995), such as ask for opinion, apologize, compliment, etc.

Conclusion

This chapter has provided an overall description of the study. It presented the problems remaining untangled in L2 peer revision research, the purpose of the study, and research questions. It also justified the significance of the study. Definitions of key terms that were employed were provided as well. In the following five chapters, chapter 2 will address literature on theories and research pertinent to the proposed study. Chapter 3 provides detailed information about the study design, data collection and analysis

methods of the study. Chapter 4 and Chapter 5 report on the empirical findings. Chapter 6 concludes the study with a summary of findings to each research question, a discussion of the findings in the current study related with those in previous studies, recommendations for future research and pedagogical implications.

CHAPTER II

LITERATURE REVIEW

Introduction

Since its inception in the 1960s, second language (L2) writing research and practice has been enormously influenced by first language (L1) composition and rhetoric theory and research that can trace the origin back to the early 20th century (Ferris & Hedgcook, 1998). Despite a handful of distinctive research directions, e.g. contrastive rhetoric, until recently L2 writing theory and research has been overshadowed by L1 writing underpinnings. Theories of L1 writing have expanded in the last 40 years from formalism to structural constructivism, and in the 1980s, to neostructuralist social constructionism (Nystrand, Greene, & Wiemelt, 1993). Social constructivism, which is derived from sociocultural theory (SCT) (Vygotsky, 1978), views writing along with its social context, thus attempts to account for the social dimensions of writing, such as rhetorical situations and communities, as well as textual (formalism) and cognitive psychological dimensions (constructivism) (Russel, 1997). Under the influence of L1 writing theories, L2 writing theorists and researchers are gradually turning their attention away from writing process approaches (cognitive constructivism), which perceives writing as an abstract and inner discovery-type activity (Kent, 1999), and have proposed a new view of L2 writing: a post-process era in which writing is considered a cultural activity and writers position and reposition themselves according to the subjectivities and contexts (Atkinson, 2003). In recent years, cultural historical activity theory (CHAT)

(e.g. Engeström, 1988, 1993; Leont'ev, 1978), which takes into account not only learners' individual actions but the social cultural context and the communities of which they are members, has been adopted by a few researchers (e.g. Welmer, 2001) to provide a cultural historical view of L2 writing development.

Although peer response, emphasizing on student collaboration, has gained its position in L2 writing pedagogy for over two decades, until recently it has not been systematically analyzed from a post-process view, particularly from a cultural historical activity theoretical perspective. With the advent and popularity of computer technologies, the new millennium has seen enthusiastic implementation of computer-augmented tools in various language learning settings. Second language writing is no exception. Despite the consensus on the facilitative role of computer-mediated communication (CMC) in writing and writing instruction, computer-mediated peer response is still far from being a well-recognized and thoroughly explored area.

This chapter will start with a thorough review of the theoretical framework of the proposed study--- SCT and CHAT, current theories on L2 writing development and peer response, as well as contemporary views of application of computer technologies to human interaction and learning. A synthetic review of relevant empirical studies on L2 peer response, particularly those that have integrated CMC and been theoretically guided through CHAT, will follow up to conclude the chapter. The chapter is composed of four sections. The first section overviews SCT (e.g. Lantolf, 1994, 2000; Vygotsky, 1978; Wertsch, 1998) and CHAT (e.g. Engeström, 1988, 1993; Leont'ev, 1978), which will provide a theoretical guide to interpret data to be collected in the proposed study. Main theoretical tenets of SCT will be briefly reviewed, which is followed by a comprehensive

review of the historical evolution of CHAT and its major attributes with an emphasis on its application to L2 writing. To complement CHAT as a leading theoretical framework in the proposed study, one related theory, dynamical systems theory (DST) (de Bot, Verspoor, & Lowie, 2005; Larsen-Freeman, 1997; van Geert, 1998; van Gelder, 1995; van Gelder & Port, 1995), will be reviewed as well with the focus on the important constructs that are pertinent to the data analysis in the proposed study. In section two, major theories of L2 writing and writing instruction including writing process approaches (Flower & Hayes, 1981; Flower, 1989; Bereiter & Scardamaniar, 1987), which have been dominating the field of L2 writing research and pedagogy in the past two decades, and L2 writing in a post-process era, which has emerged in recent years, will be reviewed with a focus on the use of peer response in L2 writing pedagogy (e.g. Zamel, 1985, 1987; Connor & Asenavage, 1994). The third section contains a review of recent studies on computer-mediated communication (CMC), particularly employed in L2 settings (e.g. Kern, 1995; Warschauer, 1996, 1999) and provides a synthesis on the advantages and disadvantages of CMC in various L2 settings discovered in the empirical studies. The last section focuses on empirical research on L2 writing peer response, particularly those embracing the use of CMC and taking a cultural historical activity theoretical framework.

Theoretical Framework of the Study

Sociocultural Theory

Sociocultural theory (SCT) is a psychological framework of human development. It was developed by Lev S. Vygotsky (1978, 1986), a Russian psychologist, who had studied to become a literature teacher before turning his attention to psychology and investigated the development of thought and language in children. Vygotsky's ideas

remained unknown to the west until the 1960s. Over the last four decades, his works have been extolled and appropriated by scholars in a variety of fields to account for the processes of thinking, interaction, and meaning construction through understanding the influences of history, culture, and context on human development, both individually and collectively. The main tenets of SCT include genetic analysis, social origin of development, semiotic mediation, and the zone of proximal development (ZPD).

Vygotsky asserted that the only approach to analyze human higher mental functions such as planning and reflecting was historical because humans inherit cultural artifacts from their ancestors, who in turn inherit these artifacts from their ancestors. He proposed four generic domains for the analysis of higher mental functions: *phylogenetic domain* focusing on how human mental processes are distinguished from those in other life forms over the course of evolution; *sociocultural domain* concerning how symbolic tools are created and manifested in different cultures; *ontogenetic domain* with concerns of how children appropriate mediational means, primarily language, as they mature; and *microgenetic domain* analyzing humans' behaviors moment by moment. Vygotsky's works focused on the ontogenetic analysis.

Like Piaget, Vygotsky asserted that understanding human higher mental functions required an analysis of the process of human higher mental development. According to Vygotsky, higher order mental/cognitive functions including intentional memory, planning, voluntary attention, interpretive strategies, and forms of logic and rationality develop when humans participate in social practices or interact with caregivers, or use culturally historically developed artifacts. Thus, learning, which precedes development, is mediated first on the interpsychological plane when humans are interacting with other

people or using cultural artifacts, and then appropriated/internalized by individuals on the intrapsychological plane, in other words, into their inner cognitive worlds, which is more explicitly explained by Vygotsky as follows:

> Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, *between* people (*interpsychological*), then *inside* the child (*intrapsychological*) … All the higher functions originate as actual relations between human individuals. (Vygotsky, 1978, p.57, italics in original)

Learning on the interpsychological plane usually involves mentoring provided by a more culturally knowledgeable person, usually elders, to the less knowledgeable or novice person through the process called *scaffolding* (Bruner, 1975). During the scaffolding process, knowledge is not simply transmitted from one to the other. Instead, the learning process is reciprocal and mutually constructive. The novice is not a passive recipient of knowledge. Whereas cognitive change continually occurs to the novice, it also favors the expert by provoking reflection and organization. Meaning is thus constructed through joint activity.

Also fundamental to the process of internalization is the mediation of physical and psychological tools (Wertsch, 1991) or artifacts (Cole, 1996) such as computers, books, semiotic systems, mathematics, music, scientific concepts, or cultural behavioral norms, which are constructed historically and culturally. Thus, individuals are connected to cultural history and its manifestation every day. This corresponds to the earlier notion that learning is inherently social, even when others are not physically present (Bakhtin, 1981, 1986; Smagorinsky, 1995). Vygotsky and his followers emphasize that language is

"the primary medium for learning, meaning construction, and cultural transmission and transformation" (Lee & Smagorinsky, 2000, p.2).

Another tenet of SCT is the zone of proximal development (ZPD). The concept of the ZPD was created to explain the relation between the interpersonal and the intrapersonal plane (Johnson, 2004). Vygotsky defined the ZPD 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" (1978, p.86), which is illustrated in the graphic below:

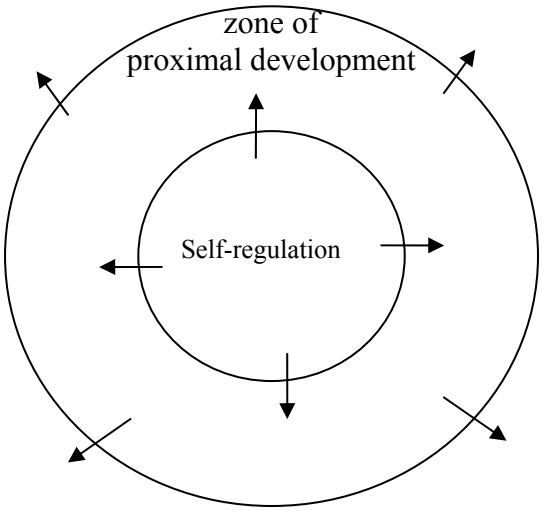


Figure 1. Zone of Proximal Development (Source: Johnson, 2004)

The actual developmental level shows the learner can solve cognitive problems independently. Thus, the mental functions associated with the cognitive activity have been stabilized in the learner. The potential development level indicates that the learner still needs intervention from others, either a peer or a more knowledgeable expert, to

perform a cognitive activity. Thus, at this level, some mental functions have not been stabilized. Vygotsky was more interested in children's potential development level. In his view, learning is infinite and unbounded. The potential, that is, the future development, rather than the actual development level, is the focus of human development. The potential of learning depends on what the cultural novice already knows, the nature of the problem or the task to be solved, the activity structures in which learning occurs, and the quality of the person's interaction with others. Two learners who are identified through their examination scores to be at the same level of actual development may be at different level of potential development, which depends on the different degree of assistance they obtain from an adult while solving the same problem. In the past several decades, the ZPD has become an increasingly appealing concept for people in a variety of educational settings. Acknowledging this concept, an expansive number of education stakeholders have realized that students' potential level of development, rather than their actual level of development, should be the focus of education.

Recent years have witnessed new interpretations of the *zone of proximal development*, which depict a more illustrating picture of what happens during the language-mediated interaction: 1) modeling; and 2) text-mediation (Wertsch & Bivens, 1992). In the modeling interpretation, interaction provides opportunities for learners to observe and intake the language, behavior, and skills of their teachers or more experienced peers and gradually embrace these as their own. This is consistent with the internalization process claimed by Vygotsky (1981). Contrary to the modeling interpretation, the text-mediation interpretation emphasizes the collaboration between learners to co-construct knowledge (Wersch & Biven, 1992) and to generate new

meanings (Lotman, 1988 in Warschauer & Healey, 1998). The text-mediation interpretation of the ZPD is supported and strengthened by Bakhtin's (1986) dialogic theory. Rather than perceiving language as an abstract linguistic system or an individual form and activity, Bakhtin describes speech experience as a process of constant interaction between the writer (addresser) and the audience. Through this intense interaction, which contains reactions and responses, either resistance or support from the audience, the writer develops a high socially polished knowledge, i.e. higher forms of learning (Volosinov, 1973).

Echoing the text-mediation interpretation in education, Bayer (1990) builds a model of collaborative-apprenticeship learning that stresses expressive speech and writing, peer collaboration, and meaningful problem-solving tasks. In this model, learners use their shared knowledge to scaffold their problem-solving. Wells and Chang-Wells (1992) describe learning as a semiotic apprenticeship through building a collaborative community of practice in which learners use speeches rather than modeling to develop thinking. In all, the new interpretations of the ZPD emphasize the effectiveness of collaborative communication between learners through various semiotic systems, e.g. speeches, or texts, in the development of higher mental functions of all learners engaged in the interaction.

In sum, Vygotsky's SCT provides a primitive framework to explain the multilevel nature of human development with an emphasis on the crucial mediational role the language plays during the process of learning and development. Within this social-cultural theoretical framework, learning originates in social interaction. Development occurs when humans internalize information gleaned on the social plane and

consequently transform their understanding. Vygotsky asserted that discursive social interaction that is connected to concrete practice activities is the source of both individual and societal development. In turn, socio-historical structures provide affordances and constraints that result in the development of special forms of consciousness (Lantolf & Thorne, 2006). This dialectic view of social structures and human forms the cornerstone of cultural historical activity theory (Lantolf & Thorne, 2006).

Cultural Historical Activity Theory

Cultural historical activity theory (CHAT) was developed by A. N. Leont'ev, who was Vygotshy's colleague and pupil, in the 1930s in Russia. It is "a psychological and cross-disciplinary framework for studying different kinds of human practices as development processes, with both individual and social levels interlinked at the same time" (Kuutti, 1996, p.25). Although it was formulated by A. N. Leont'ev (1978) and later expanded by Engeström (1987, 1993, 2001), CHAT traces its origins to, but extends beyond Vygotsky's ideas that knowledge is sociohistorically mediated and development occurs first on the interpsychological/social plane during human interactions, and later on the intrapsychological plane through learners' internalization. Thus, people's thinking and learning are shaped by and develop through the activities in which they participate, along with other sociohistorical tools and contexts.

CHAT has been the leading theoretical approach in psychology in Russia over the past several decades. The intellectual roots of cultural historical psychology can be traced back to the 18th and 19th century German philosophy (particularly Kant to Hegel), Marx and Engels' sociological and economic writings (specifically *Theses on Feuerbach* and *The German Ideology*), and most directly to the research of Vygotsky (1981) and his

colleagues Luria and Leont'ev (1981). Recent years have seen an expansive application of activity theory in U.S. research in different disciplines. It has been used in education (Engeström, 1987; Thorne, 2004; Wells, 1994), human-computer interaction studies (Nardi, 1996), and developmental workplace research (Engeström, 1987, 1993; Engeström & Middleton, 1996, cited in Engström, 2001).

To James Lantolf's credits, L2 researchers have embarked on the integration of a sociocultural perspective since the early 1990s. In contrast to the conduit metaphor used in a variety of SLA models (Gass & Selinker, 2001; Krashen, 1985; Long, 1983, 1985; Van Patten, 1996), which use terminologies such as input, output, intake, etc, to decode language processing in human brains, CHAT, though inclusive of divergent intellectual traditions, adopts a relational, historical, and non-dualist lens to reconceptualize learning and behaviors as development and practice. It has stimulated a shift of focus from brain-local cognitive functions to human higher mental functions, which accounts for learning as a development process contingent upon historical, cultural, institutional, and discursive contexts. The next few sections will address some key attributes of CHAT and the historical development of CHAT. How CHAT can shed light on the proposed study will be explained as well.

Activity Engagement and Activity System

CHAT addresses human's developmental processes in a sociohistorically bounded context. According to Lantolf and Thorne (Lantolf & Thorne, 2006), CHAT is built upon the conceptualization that human consciousness emerges as a result of constant interaction with the environment. Thus, social interaction is the source of both individual and cultural development. The cultural-societal structures in which the concrete practical

activity is conducted provide affordances and constraints that shape the development of consciousness. The unifying element and the unit of analysis of activity theory is the *activity*. Nardi notes that it is not possible to fully understand how people learn and work if the unit of analysis is "the unaided individual with no access to other people or to artifacts for accomplishing the task at hand" (Nardi, 1996, p.69). The word *activity*, translated from the German *deyatel'nosti*, means "doing in order to transform something" (Kuutti, 1996, p.25). It implies a constant dialectic in contradictions, such as "problems, ruptures, breakdowns, clashes. Activity theory sees contradictions as sources of development; activities are virtually always in the process of working through contradictions" (Kuutti, 1996, p.34). The learner's development occurs when he/she confronts these contradictions and undertakes a series of actions to change and solve the tensions. These changes in turn produce new contradictions. Thus, learning and development occur in an on-going contradiction-change circle.

Since all activities are social in nature and constantly shaped by the sociohistorically developed symbolic-conceptual and technical tools and environment, learning and development are bounded in particular contexts. From an activity theoretical lens, one can look at the activity at hand with an emphasis on human agency, which is mediated by mediational means including instruments such as computer technologies, books, the syllabus, and students' conceptions of learning, the communities involved in the situation, the implicit and explicit community rules and divisions of labor among community members, and the collective object of the activity system. To further understand CHAT as a conceptual framework, the term *activity system* used in CHAT is in need of a distinct definition.

According to Engeström, an *activity system* is "not only a persistent formation; it is also a creative, novelty-producing formation …" (Engeström, 1993, p.68). Deriving from this definition, a particular educational context is a part of a cluster of activity systems in which students participate, which encompass their prior educational experience, prior experience of using technology, the semester-long class, and other practices in which they are involved as a university student. A simple activity system is constantly influenced by multiple other activity systems, which Engeström calls *knotworking* (Engeström, 2001). Following this definition, CMPR in a second language writing class can be considered a single activity system that may be influenced by multiple surrounding activity systems such as students' prior experience of writing instruction, peer response, and computer use, as well as the writing class, the institute and the university.

Three Developmental Phases of CHAT

Engeström (2001) describes that CHAT has evolved over three generations since its inception. The first generation is rooted in Vygotsky's cultural mediation theory. Vygotsky (1978) asserted that human practices are mediated by objects and cultural artifacts, such as rules, pens, and language that is deemed as the primary mediational tool by socioculturalists. Objects are created by human operation. However, human, the subject, cannot directly act on the object, but employs cognitive or material tools to manipulate the object. Objects then become cultural entities to shape human mind. The theory is illustrated in a basic triangle (see Figure 2). Vygotsky's theory advances the understanding of human activities. He proposes a new view of the relationship between objects, context, and human practices.

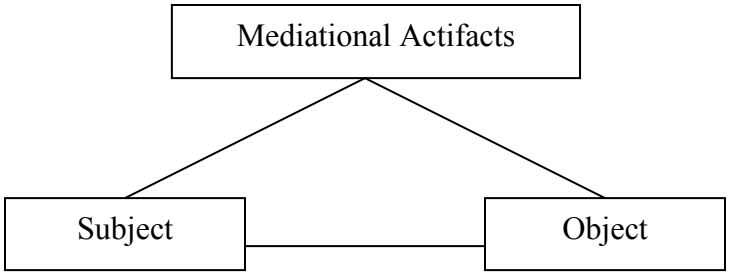


Figure 2. Vygotsky's view of Mediated Actions (source: Engeström, 2001)

The second generation evolves with a broadened view of human higher mental development by A. V. Leont'ev (1981), Vygotsky's disciple and colleague. Although Leont'ev shared Vygotsky's view that higher psychological development originates in socially meaningful activities, as clarified by D. V. Leont'ev, A. V. Leont'ev shifts emphasis from tool mediation to the roles of communities, the rules that structure them, and "the continuously negotiated distributions of tasks, powers, and responsibilities among participants in an activity system" (Cole & Engerström, 1993, p.7). In other words, Vygotsky emphasizes the role of social interaction, particularly the crucial mediational role of language, in the development of individual's higher psychological functions whereas Leont'ev stresses the context and the activity system in which learners are involved.

In A. V. Leont'ev's work, activity is emphasized as the principal that dialectically relates the external-materials social activity and the individual development. Leont'ev's activity theory is presented in the form of a hierarchy that structures human activities into three levels: the activity level which is the motive that reflects some social or material desires and needs; 2) an action that is the goal-directed behavior evoked by the motive; and 3) operations that are the automatic or habituated actions in response to the

immediate social-material contexts. Later researchers (Lantolf & Thorne, 2006; Wells, 1999) help clarify this hierarchy by elaborating on the everyday description, the orientation, the person or persons to carry out the action, and the time frame needed at each level as presented in Table 1:

Table 1

Leont'ev's Hierarchy of Activity Theory

Everyday description	CHAT unit of analysis	Oriented toward	Carried out by	Time frame
Why something is taking place?	Activity	Motive, transformation of object	Community and/or society	Recurrent, cyclic, iterative
What is being done?	Action	Goal	Individual or group	Linear, finite
The actual doing?	Operation	Condition	Individual	Present moment, process ontology

As elaborated in Lantolf and Thorne (2006), the activity level is the object/motive of a human activity, which is defined as "a definite need of a subject" and "is extinguished as a result of its satisfaction, and is produced again, perhaps in other, altogether changed conditions" (Leont'ev, 1978, p.62). All human activities have an object or motive. "Activity does not exist without a motive; "nonmotivated" activity is not activity without a motive but activity with a subjectively and objectively hidden motive" (p.62). In other words, all human activities are motivated by a biological and/or social/societal need or desire. The object/motive gives meaning and directions to actions, which instantiates motive in the form of goal-directed behaviors.

At the level of actions, goals are the desired end of the actions. Thus, all actions are goal-directed and autonomous. Whereas motive is usually collective and

subconscious, goals can be individual and self-conscious. According to Lantolf and Thorne (2006), a goal is "a form of anticipatory reflection, as an intentional plan or strategy", or "what must be done"(Leont'v, 1981, p.63). The relationship between actions and activities are asymmetrical. An activity contains multiple goal-directed actions. However, same actions can serve a variety of activities. For example, one L2 student may actively participate in a peer response task in class but merely to socialize with other students whereas a classmate is wholeheartedly involved in the task to learn how to write by exchanging comments on each other's writing. Although both students actively participate in the learning task, which are their actions, their behaviors are driven by a divergent motive (to socialize with people vs. learning to write skillfully).

An action is carried out through operations, which are defined as automatized or habituated actions that take place responsively in the immediate social-material conditions. The observational inquiry occurs through concrete operations and their contingent relations to conditions. To illustrate the relationship between actions and operation, an example can be a student who is socializing with classmates by using an instant messenger (IM). Here, the goal-directed action of socializing with classmates is instantiated in IM-mediated behaviors such as using emoticons, sending multi-modal messages, etc. Leont'v summarizes the hierarchy of activity as follows:

> In the general flow of activity that makes up higher, psychologically mediated aspects of human life, our analysis distinguishes, first, separate (particular) activities, using their energizing motives as the criterion. Second, we distinguish actions – the processes subordinated to conscious goals. Finally, we distinguish the

operations, which depend directly on the conditions under which a concrete goal is attained. (Leont'v, 1981, p.64-65).

Lompscher (2003) innovatively explains the use of activity theory in education. He describes that through "accommodation", human activity modifies the structure and features of its objects in accordance with its goal and conditions. Lompscher emphasizes that the human subject has the capacity to modify the actions and operation as the goals and conditions vary. In other words, the process of adaptation and accommodation illustrates the human subject's progress in a given domain of activity, i.e. their development.

A. N. Leont'ev's model is not without criticism. Criticizing that the hierarchy of activity focuses on culturally mediated individual action at the expense of attention to collective practice, multiple perspectives in one activity, and interactions between multiple activity systems, Engeström (since 1987) extends Vygotsky and Leont'ev's models and graphically represents a collective activity system (see figure 3 below). In this extended model, the *subject*, usually a collective one, refers to the individual(s) whose perspective is under investigation and is working towards some tangible or intangible *object* in order to transform it into some *outcome.* At the same time, individuals' actions occur within a collective activity system, which are influenced by three factors: *mediational means* including symbolic and material artifacts which shape the activity as well as are shaped by the activity, the *community* which is comprised of people (either as individuals or in groups) and its commonly understood *rules* which are historically and institutionally specific, and the *division of labor* which concerns how tasks are divided horizontally among community members and vertically with respect to

power and status (Engeström, 1996). What ties the elements together is "a collective object and motive [that] is realized in goal-oriented individual and group actions" (Hasu & Engeström, 2000, p. 63). Activity systems are not static but dynamic. All of a system's elements reciprocally and dynamically influence each other so that the system is continually adjusting, adapting, and changing. Thus, the relations between each element of the activity system are unstable, and constantly negotiated and transformed. The contradictions within a system of activity produce the conditions for learning and development (Engeström, 2001).

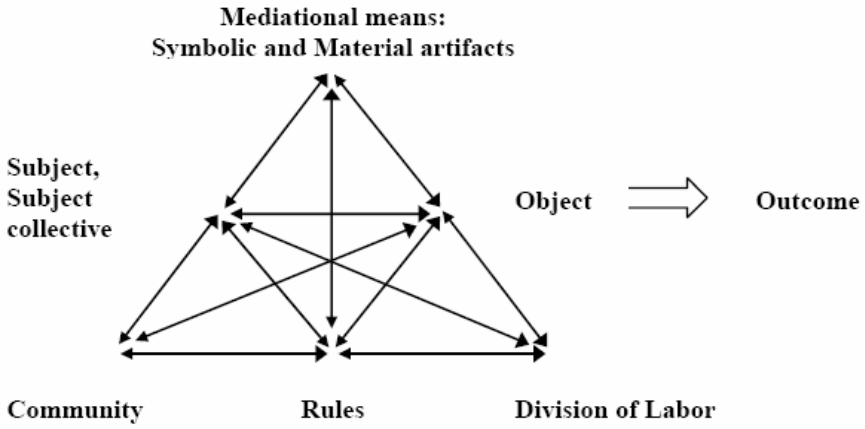


Figure 3. The Structure of a Human Activity System (based on Engeström, 1987, 1993, 1999, 2001)

CHAT has been constantly evolving and developing. The current approach of activity theory, which is the so-called third generation of activity theory, focuses on the collective action, individuals, and goal-directed activity. From this perspective, Engeström (1993) defines an activity system as "not only a persistent formation", but also "a creative, novelty-producing formation" (p.68). To contemplate the dialogues, multiple perspectives, and interacting activity systems, Ritva Engeström (1995) (in Engeström,

2001) further integrates Bakhtin's dialogicality ideas, such as the existence of constant communication between an individual and him/herself as well as the outside world and Leont'ev's concept of activity theory and formulates a new notion of activity. In this new notion, a single activity system is influenced by multiple other events and communities, each of which may be features of other activity systems.

Connecting activity theory and Latour's actor-network theory, Y. Engeström, R. Engeström, and Vahhaho (1999) develop the term *knotworking* to describe the "construction of constantly changing combinations of people and artifacts over lengthy trajectories of time and widely distributed in space" (1999, p.345). According to Lantolf and Thorne (Lantolf & Thorne, 2006), the *knotworking* concept allows the analysis of an individual's movement throughout time and space. Engeström (2001) further suggests to expand the unit of analysis in CHAT to a network of multiple activity systems, which is presented in a graphically depicted model (Figure 4) below:

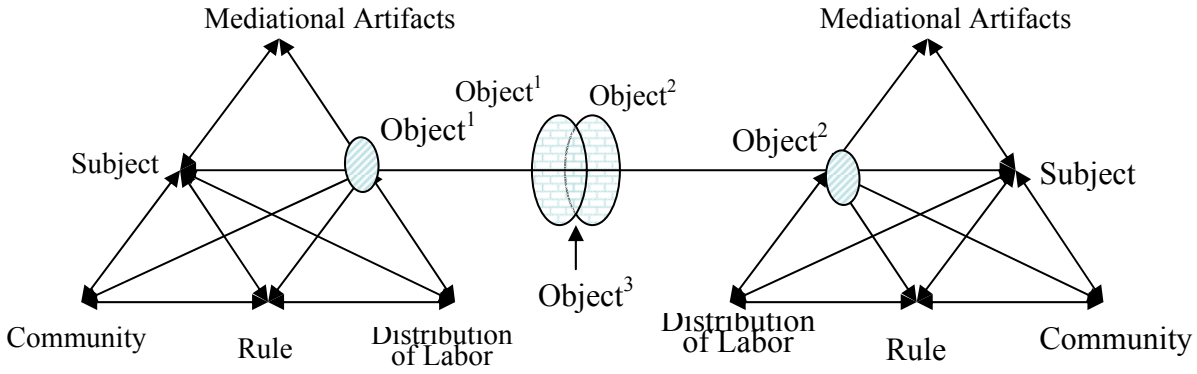


Figure 4. A Knotworking Model of Interacting Activity Systems (source: Engeström, 2001)

In the above model, object 1 represents "raw material" or one individual's motive that guides the activity (e.g. an ESL student taking the academic writing class and

participating in peer response). Object 2 is the collectively meaningful object constructed by the activity system (e.g. the student constructed as a L2 writer having ability to participate in peer response to improve writing). And object 3 is the shared or jointly constructed object (e.g. the shared understanding of the L2 student's situation and learning plan). In other words, when two activity systems encounter each other, a third place (cross-boundary) is created to account for events in the context, which forms a collectively constructed new meaning or object for participants in both original activity systems. And the object of activity is dynamic, not reducible to conscious short-time goals (Engeström, 2001). In the proposed study, the researcher intends to find out whether there is one activity system within each dyad during CMPR, which occurs when each dyad shares the same object, or two activity systems when each student in the dyad has heterogeneous objects in CMPR. If students have divergent objects, or motives, the researcher is interested in exploring how the two objects diverge from each other and whether and how a third object emerges during dyadic interaction.

Engeström (2001) further summarizes five principles of the current generation of CHAT. The first one is that the object-oriented artifact-mediated activity system is the primary unit of analysis. The second principle is multi-voicedness of activity systems. This principle indicates that every participant in an activity system, or every member in a community, may have different views because of their diverse histories and individual interests. In addition, networking between multiple activity systems accelerates this complexity, which consequently instigates contradictions and conflicts.

The third principle of CHAT is about the historical bearings of and in each activity system. Each component of an activity system, e.g. one artifact or the subject,

comes into being through a period of time and thus is shaped by the unique history. Hence, each activity system should not be understood without taking into account their histories. The fourth principle explicates that the source of change and development lies in contradictions, which are thinking and doing, knowing and performing, individual and society, idealism and materialism, use-value and exchange-value, internalization and externalization, etc. When a new component is introduced to an activity system, e.g. peer response is adopted in a writing class for the first time, the old elements (e.g. the division of labor) collide with it, which usually triggers conflicts and disturbance (e.g. students' disorientation about what they are expected to do). The fifth principle concerns transformation of activity systems. It proclaims that contradictions of an activity system may stimulate participants to deviate from the norms and embrace a broader or even different motive/object. Sometimes this transformation is achieved collectively. All these five principles will be used to guide data analysis in the proposed study.

Expansive Learning

Activity theory not only explicates individual practices in a social cultural historical context, but explains humans' learning and development in an activity system or multiple systems of activity. Learning occurs through reciprocal and unified processes of *internalization* and *externalization*. *Internalization*, also called *appropriation* (Engeström, 1998, cited in Engeström, 2001), and ultimately development, are triggered by the contradictions and tensions between individuals and sociocultural influences, between two or more elements of an activity system, and between various activity systems. Appropriation requires reflective analysis of the existent activity structure, i.e., existent internal contradictions within the activity system. To *develop* means to resolve or

transform these contradictions (instead of merely shifting them elsewhere), which could result in a change in the activity system: the construction of a new object and motive(s). Such a change is a long-term cyclical and spiral process of internalization and externalization that Engeström (1987) called *learning by expanding*:

> The essence of learning activity is the production of objectively and societally new activity structures (including new objects, instruments, etc.) out of actions manifesting the inner contradictions of the preceding form of the activity in question. Learning activity is *mastery of expansion from actions to a new activity*. While traditional school-going is essentially a subject-producing activity and traditional science is essentially an instrument-producing activity, learning activity is an *activity-producing activity*. (Engeström, 1987, pp. 124-125, italics in original)

According to this definition, learning is an activity system (e.g. using an alternative source of feedback to improve writing) in which the subjects, such as students participating in CMPR, tend to create a brand new activity driven by a new object or motive such as developing computer literacy or social interaction competency. According to Engeström (2001), expansive learning differs from traditional learning in three aspects: 1) Contents and outcomes of learning emerge as new forms of practical activity and artifacts constructed by both students and teachers in the process of tackling real life projects and during problem solving; 2). Learning is driven by genuine developmental needs in human practices and institutions, manifested by means of disturbances, breakdowns, problems, and episodes of questioning the existing practice; and 3). Learning proceeds through complex cycles of learning actions in which new objects and

motives are created and implemented, opening up wider possibilities for participants involved in that activity.

CHAT was developed as a psychological theory to understand human interactions and development situated in a social environment. Recent years have witnessed its rapidly increasing application in a variety of fields (e.g. Kuttii, 1996; Lantolf & Thorne, 2006; Russell, 1997). Engeström and other researchers' efforts, i.e. development of new constructs and ideas such as knotworking, creation of a third object, and expansive learning, have amplified its explicitness and expanded its applicability in explaining learning situated in various social cultural environments. It is undeniable that this theory is particularly pertinent to research on peer response activities in which L2 students bearing diverse cultural and instructional histories get involved in dyadic interactions in a writing classroom.

Deviant from traditional western cognitism, CHAT shifts people's attention from the inner mental behaviors to the more complex social cultural environment in which humans are situated. Understanding L2 students' learning and development during computer-mediated peer response is no longer confined within the skin and skull of each student. The social cultural historical context, which has been underexplored in other L2 writing models and empirical studies, may have significant impact on L2 students' learning during the process of task-accomplishing. In addition, constructs in CHAT, such as motives/objects, which are subconscious needs driving humans' actions (e.g. needs for development of writing skills), goals/actions, which are humans' conscious intentions in an activity (e.g. reading/writing the first draft, providing/obtaining feedback), and operations, which are moment-by-moment behaviors that take place in a specific situation

(e.g. exchange messages in an online environment), lead us to think more about students' own purposes while participating in a teacher-led task. Most of time, students are not passive rule-followers who supposedly share the same objects with their teacher. Their heterogeneous objects may be the source of diverse learning results in class.

From a CHAT perspective, all activity systems (e.g. a collective computer-mediated peer response activity system with the entire class as the subjects, or a simple activity system with each individual student as the subject) within themselves and between each other contain contradictions (e.g. students' knowledge of computer use and computer literacy required in the CMPR task). These contradictions are aggregated and projected as conflicts and tensions (e.g. students feel frustrated while using instant messenger in CMPR) in constant interactions between components within an activity system and among interrelated activity systems. Through the process of seeking for solutions to the existing conflicts, new tensions may be created and new objects may emerge. The dynamic model envisioned in CHAT sheds light on the complex nature of students' behaviors in CMPR. It will be employed as the primary theoretical framework in the proposed study to guide the researcher's uncovering and understanding of L2 students' interactions and development involved in computer-mediated peer response. Particular attention will be placed on main constructs such as motives, goals, and expansive learning.

Dynamical Systems Theory (DST)

Dynamic systems theory (DST) is a theory that can be used to explain the behaviors in complex systems such as higher order thinking or development (van Gelder & Port, 1995; Thelen & Smith, 1994). It provides very useful constructs for describing

and explaining the learning and development processes involved in human interaction situated in a particular social cultural context. The following section provides a review of this theory with regard to its origin as well as main tenets and explains how it will supplement CHAT to provide the theoretical guidance in the proposed study, particularly in data analysis.

Origin and Principles of DST

Dynamical systems theory is originated from dynamism, which is an area of mathematics used to describe the behaviors of complex systems by employing differential equations. Van Geert (1994) defines a dynamic system as "a set of variables that mutually affect each other's changes over time" (p.50). In recent years, DST has been expanded to describe human cognition. Dynamists, including van Gelder (1995), Port (van Gelder & Port, 1995), Thelen and Smith (Thelen & Smith, 1994; Smith & Thelen, 2003) think the path of an individual's complex cognitive behaviors under certain environmental and internal pressures can be best described with multidimensional equations used in DST. Mathematical ideas such as *state space*, *attractors*, *trajectory*, and *deterministic chaos* are borrowed to describe the internal cognitive processing of interactions between an individual agent and the environment. The *state* of a system is the position or state of each element and relation at a particular point of time. The *state space* or *phase space* is the space defined by the set of all possible states that the system could path through, which is mapped as two or three-dimensional landscapes. A *trajectory* illustrates a particular succession of states through the state space and is usually an interchangeably used term as the *behavior* of the system. The *topology* of the state space is the "attractive" properties of all points of the state space. And an *attractor*

is a point or path in the state space toward which the trajectory will tend. DST was created with an attempt to predict the behavior of a cognitive system under a given set of governing equation and a state on the trajectory.

Van Gelder (1995) formulates the dynamicist hypothesis, which assumes that some types of cognitive systems can be best understood through dynamics. And they are "state-determined systems whose behavior is governed by differential equations… Dynamical systems in this strict sense always have variables that are evolving continuously and which at any point in time are mutually determining each other's evolution" (van Gelder & Port, 1995, p.5). Dynamicists have assigned several criteria for dynamicist descriptions of cognition: they must be deterministic, general complex, described with respect to the independent variable of time, of low dimensionality, and intimately linked (van Gelder, 1995; van Gelder & Port, 1995). Dynamicists think cognitive behaviors are complex and in some instances chaotic. These behaviors are described in a continuous temporal manner, which introduces the concept of *timescale*. By using timescale, *phase transitions* of the dynamical system during a certain period of time are reflected as the *trajectory*.

Development as a Dynamical System

One branch of dynamical systems is simple nonlinear dynamical systems, also called chaos theory, which deals with long-term qualitative behaviors of dynamical systems. Deriving from nonlinear dynamics, an increasing number of dynamicists (e.g. Smith & Thelen, 2003; van Geert, 1994, 1998) view development as a dynamic system. Focusing on motor development, Smith and Thelen (2003) argue that human development entails self-organization and emergence. The development of a self-

organized system, i.e. human learning, is caused by multiple interacting elements in a complex environment. No single element has causal priority because all complex systems are open and sensitive to the changes in the environment. In addition, behavioral change occurs across different timescales. Some developmental changes take place in hours, days and weeks while others occur over months, years or a much long period of time. Lewis (2000) provides more detailed explanation of the development of a self-organized system. He summarizes that a system develops by generating novelty through the activity. New forms appear with time when entraining the interactions of the elements within the system. The self-organized system becomes more complex by spontaneously adapting to and reorganizing more sophisticated arrangements in the environment. The reorganization occurs at phase transitions, which are specific points of time where old patterns break and new ones emerge. These phase transitions can be general, abrupt, and influenced by various effects, thus may be discrete and unpredictable.

The lens of development as a dynamical system draws increasing attention from other fields, such as applied linguistics and second language acquisition (e.g. De Bot, Verspoor, & Lowie, 2005; Larsen-Freeman, 1997). These researchers synthesize the main features of DST that can specifically address issues in SLA: complex systems are dynamic, nonlinear, open (constantly receiving input from the environment), self-organized, feedback sensitive, and adaptive to surrounding conditions. Changes in complex systems can be traced in space by using time as a parameter. Perceiving language as a complex system entailing all these features, they advocate that DST provides a helpful tool to capture "the dynamism in evidence in the evolution of learner interlanguages (ILs)"(Larsen-Freeman, 1997, p.151).

Modeling Complex Dynamical Systems

One significant contribution of cognitive psychological dynamists (e.g. Van Geert, 1998; Van Gelder & Port, 1995; Thelen & Smith. 1994) is the creation of a variety of models to capture the dynamics of complex dynamical systems. These models are divided into three types bases on the extent of relatedness to rigorous mathematical modeling: quantitative modeling, qualitative modeling, and dynamical description (Van Gelder & Port, 1995). The quantitative modeling uses empirical data, which are expressed as direct mathematical equations, to describe behaviors of a system with the attempt to predict the future behaviors. The qualitative modeling uses empirical data to describe a simpler system, which resembles the system under investigation, rather than the actual system. In other words, models are used analogically to make qualitative predictions about human performances. Examples of qualitative modeling include language processing (e.g. Meara, 1999) and child development (Van Geert, 1998).

Diverging from the aforementioned two types of modeling, which use mathematical equations to describe behaviors, exponents and proponents (e.g. Thelen & Smith, 1994) of dynamical description modeling recognize that it is not feasible to build a formal model of the phenomenon under investigation due to the lack of appropriate data and the complicated nature of the system. Thus, they use qualitative data, which depict the state spaces (or phase spaces) on a timescale and are later converted to scale numbers, to provide an ad-hoc description and interpretation.

Application of DST to the Study

A comparison of DST and CHAT can reveal the consistency and discrepancy between these two psychology schools. Both theories assume any organism, that is, a

developmental and ever-changing entity, is a complex system composed of a variety of interacting variables, which constantly shapes the changes and development of the system. Both theories stress the influence from the spatial and temporal environment, which stipulates the compatibility between the two theories. Both interpret human learning and development as a dynamic, complex, and iteratively progressing process, which is inseparable from the environment and marked by novelty creation.

The difference lies in the variables of complex systems explicated in two theories. While dynamists hesitate to explicate specific variables entailed in the complex system, activity theorists have clearly defined the system and identified distinct components constituting the system, which brings more transparency and facilitation to the analysis of various developmental processes. It is also the reason many writing researchers (e.g. Bazerman, 1997; Russell, 1997) adopt CHAT to explain students' development in writing.

CHAT, particularly the third generation (Engeströms, 1987, 1993, 2001), provides a well-organized and articulate theoretical framework to understand human learning and development. It claims that learning activity is a new-activity-producing activity. In other words, to learn and ultimately achieve development, learners need to create new objects, thus, a brand new activity. However, Engeström and other CHAT theorists (2000) have failed to provide a unobscure illustration of this transforming process. In contrast, DST places abundant emphasis on the influence of time on development. It assumes time is a unified and inherent element of actions, learning, development, and evolution (Smith & Thelen, 2003). Mathematic equations and graphical diagrams are pervasively used to represent the dynamics of a complex system in a certain timescale.

Without diminishing the leading status of CHAT as a theoretical framework in the proposed study, the researcher argues that DST can be used to complement CHAT in the data analysis by [providing a graphic illustration of the trajectory of learning and development, in other words, transforming from one object-oriented activity to a new activity, that may take place in a larger activity system such as computer-mediated peer response (CMPR) in a certain timescale. The timescale could be one writing cycle in which students focus on one writing task or the whole semester in which CMPR is used in class. According to DST, time is always a parameter of the dynamical system. Other parameters can be chosen to describe the system's changes over time. By recording all these changes in a diagram, learners' motives in each writing task can be represented in a low-dimensional development field, containing two or three parameters such as time, proficiency of computer use, and social environmental influences, depending on the complexity of CMPR the researcher intends to investigate. In this way, the dynamic movements within the CMPR as an activity system and those among CMPR and other peripheral but related activity systems can be captured transparently.

Section Summary

In the current study, CHAT served as the primary theoretical framework to understand learning and development that take place in CMPR in a L2 academic writing class. Major concepts such as activity/context as the unit of analysis, motives, goals, subjects, mediational artifacts, the community, community rules, and division of labor were adopted to describe observable events as well as to interpret underlying mediation and transformation in CMPR. Pertinent constructs in dynamical systems theory, such as timescale and state, also were employed to complement the analysis of CMPR.

Particularly, the concept of timescale in DST was used to illustrate the dynamics of L2 students' learning and development in their participation in the CMPR tasks. The integration of CHAT and DST lent the researcher a social cultural historical lens to view CMPR as a developmental activity for L2 students in an academic writing class. The following section provides a thorough review of relevant L2 writing theories that explain in a conventional view why and how peer response tasks are undertaken, which is followed by a review of an evolving theory that calls for an alternative view of L2 peer response.

L2 Writing Theories and Peer Response

Writing Process Approaches

Writing process approaches emerged in the 1970s out of untraditional students' needs to gain access to higher education in the United States. Contrary to the traditional writing theory, which considers writing as a final product, proponents of writing process approaches hold a different view in terms of the nature of writing, the written medium, and the ways in which writing is taught and learned (Grabe & Kaplan, 1996). They perceive writing as a goal-oriented and contextualized activity, and a recursive rather than linear process. The writing process rather than the final product is the research focus. Regarding writing instruction, writing process approaches allow more meaningful interactions between the teacher and students. Multiple drafting with between-draft feedback from real audiences is encouraged. The process perspective of writing has been considered a wholly positive innovation as to its theoretical framework as well as pedagogical implications (Hairston, 1982, in Grabe & Kaplan, 1996).

Four Stages of Writing Process Approaches

The major development of writing process approaches consists of four important stages from 1960s to present. The four stages represent three distinctive process approaches each of which embraces different understandings and views of writing theory and instruction. The latter stage doesn't necessarily replace the preceding one although the latter does explain the problems unsolved in the preceding stage. The four stages are: the expressive stages (the expressive approach), the cognitive stage (the cognitive approach), the social stage and the discourse community stage (the social-context approach). Among these approaches, the cognitive approach has more theoretical vigor with regard to how writers write, especially how revision is conducted during writing.

The cognitive approach, emerging in the early 1970s, was built upon research in cognitive psychology. The pioneer of this approach was Emig (1971) who opened up the use of case study approach and protocol analysis as well as other general ethnographical research methods in research on the writing process. Emig also initiated the view of writing as a recursive rather than linear process, which consists of prewriting and editing in addition to the actual composing. At this stage, researchers (e.g. Calkins, 1986; Graves, 1983, 1984; Perl, 1979; Sommers, 1980; Shaughnessy,1977, in Grabe & Kaplan. 1996) began to perceive writing as composing writer-based rather than reader-based text.

Since early 1980s, writers' cognitive development of writing skills became the focal point of many researchers. During this stage, several cognitive models of the writing process emerged. The first model was developed by Flower and Hayes based on protocol analysis methodology in the late 1970s. And since then it dominated the writing field for 15 years. Flower and Hayes claimed that composing was a "goal-oriented

activity" and "composing processes were interactive, intermingling, and potentially simultaneous" (Grabe & Kaplan, 1996, p.91) which contained three major components: the composing processor, the task environment, and the writer's long-term memory. In the following years, Flower and Hayes continued to refine the subcomponents of their model. One extension is of the theory of revision (Hayes, Flower, Schriver, Stratman, and Carey, 1987), which explains how writers revise, and how expert and novice writers differ in their revision processes. Following Flower and Hayes' efforts, other researchers proposed different models among which Bereiter and Scardamalia's (1987) model accepted more attention and was more powerful. Criticizing Flower and Hayes' model that the use of protocol analysis didn't provide evidence for its theory and the one-single-processing model is not efficient, Bereiter and Scardamalia developed by using a descriptive methodology a two-process theory of writing, which asserted that skilled writers composed writing using different devices which less-skilled writers didn't use: skilled writers used both knowledge-transforming and knowledge-telling process depending on the writing goals while less-skilled writers were merely able to use knowledge-telling process. This model provides an intriguing description of writing process, including revision processes both expert and novice writers go through.

Because of the distinctive differences between the traditional writing theory, which perceived writing as a final product, and the innovative writing-as-a-process approaches, a proponent of writing process approaches, Hairston(1982) (cited in Grabe & Kaplan, 1996), claimed a paradigm shift in writing theory and instruction. Both Flower and Hayes' and Bereiter and Scardamania's models have significant implications for school writing curriculum. Flower and Hayes's later research (1987, 1989, 1990) implied

that students should be taught strategic knowledge of how to perform a writing task as well as transform their knowledge rather than relying on simpler strategies. Teachers also could teach students the ability of exploring and recognizing rhetoric problems in writing. Bereiter and Scardamania (1985) criticized the lack of writing challenge in school curricula and proposed an "intentional learning"—students set self-driven learning goals and go through active problem-solving activities (Bereiter & Scardamania, 1987). In their strategy-training approach, they recommended to analyze and record the way expert writers process writing and set up a teachable routine to allow beginning students to learn it. They also proposed a similar training strategy for revision. In all, these writing process approaches along with the later social-context approach brought tremendous influence on school writing curriculum and elicited deep pedagogical thoughts and changes.

Second Language (L2) Writing and Writing Process Approaches

Since the middle 1980s, L2 writing research and pedagogy have gained accelerating popularity because of the growing number of L2 learners enrolled in English-speaking tertiary-level institutions. Due to the similarities L2 writing researchers identified between L1 unskilled writers and L2 writers (Raimes, 1985; Zamel, 1985), the L2 writing field was strongly influenced by L1 writing theories. The writing-as-a-process theory especially contributes to L2 writing research regarding L2 students' composing processes and revision strategies. Some researchers (Edelsky, 1986; Jones & Tetroe, 1987) looked at the transferability of L1 writing process in L2 writing.

The writing process paradigm places revision at the heart of the writing process because it assumes that it is through revision ideas merge and develop, and meanings are clarified (Lehr, 1995). Revision is viewed as a goal-oriented process that has both

internal and external manipulations, that is, it is both a thinking process writers have to go through to compare what is written and what should be expressed, and what actually happens to the product (Beach & Eaton, 1984; Scardamania & Bereiter, 1986). This process is generally seen as having three stages (Bereiter & Scardamalia, 1987; van Gelderen, 1997): (1) detection/evaluation/comparison in which writers compare what they have written and what they intend to express; (2) diagnosis/identification in which writers decide what the problem is and/or how the text should be improved; and (3) operation/execution/correction in which writers have to evaluate alternatives and decide the best solution to the problem.

Revision is not a simple activity. Both L1 and L2 researchers have found that inexperienced writers change words or sentences rather than make modifications to rhetoric forms (Faigley & Witt, 1981; Wallace, et al, 1996; Zhang, 2001) due to their inabilities to detect problems or fix problems (Wallace & Hayes, 1991) or their inability to corroborate both skills simultaneously (Scardamania & Bereiter, 1987). The other reason is that writers sometimes do not see the necessity of revision in certain types of texts. Researchers, however, have discovered that students would revise their texts when they receive support or indications (Lehr, 1995; Matsuhashi & Gordon, 1985; Wallace & Hayes, 1991). Over the last decade, help from peers in detecting and identifying problems in the draft has attracted expansive attention from L2 writing researchers and educators (e.g. Connor & Asenavage, 1994; Tsui & Ng, 2000; Villamil & de Guerrero, 1998)

Peer Response

From the writing-as-a-process perspective, revision contributes to writing and peer response helps revision. It is also assumed that the revision process varies in

different contexts from writer to writer. It is influenced by multiple factors, e.g. feedback sources, feedback quality, interaction time, interaction medium, students' learning styles, cultural backgrounds (Tuzi, 2004; Williams, 2004). Peer response is the response students obtain from their peers through collaborative communication. Sometimes, students incorporate peer comments into their writing while other times they do not. Advocates of peer response base their arguments on several related schools of thought. The first one is collaborative communication, which is rooted in the interactive view of second language acquisition (Long, 1985; Pica, 1994; Swain, 1985), and the social constructive view of general learning, which is derived from Vygotsky's sociocultural theory (Bakhtin, 1981, 1986; Vygotsky, 1978, 1981). The second support is aligned with the writing process approaches. Proponents of the writing process approaches consider writing as a process which is constituted with various phases: prewriting/discovery/invention, between-draft feedback, revisions, and edition. Peer response can take place at any of these phases.

Research on L2 peer response has been conducted for over two decades. A variety of aspects of peer response as a classroom task have been investigated: (a) the impact of peer response on subsequent drafts (e.g. Connor & Asenavage, 1994; Hedgcock & Lefkowitz, 1992; Lockhart & Ng, 1995; Mendonça & Johnson, 1994; Nelson & Murphy, 1993; Paulus, 1999; Storch, 1998, 2001; Tsui & Ng, 2000; Villamil & de Guerrero, 1998); (b) the quality of peer response (Caulk, 1994); (c) students' ability to identify areas in needs of revision (Nelson & Murphy, 1992); (d) students' stances toward peers' texts (Mangelsdorf & Schlumberger, 1992); (e) the effect of training on peer response (Berg, 1999; Stanley, 1992; Zhu, 1995); (f) interaction process during peer response

(Carson & Nelson, 1994; de Guerrero & Villamil, 1994, 2000; Lockhart & Ng, 1995; Storch, 2002, 2004; Villamil & de Guerrero, 1996); (g) students' perceptions about the effectiveness and the process of peer response (Carson & Nelson, 1996; McCarthey & García, 2005; Nelson & Carson, 1998); (h) affective effect of peer feedback (Liu & Sadler, 2003; Zhang, 1995); (i) other variables that may influence peer interaction in peer response, such as L2 students' cultural norms in written and oral communication (Nelson, 1997), students' expertise (Tin, 2003), mixed NES/ESL group format (Zhu, 2001), and students' personal goals (Storch, 2004; Zhu & Mitchell, 2005). In addition, two books have been published, offering an overview of issues in L2 peer response (Ferris, 2003; Liu & Hansen, 2002).

In terms of effectiveness of peer response in L2 students' development of writing proficiency, studies have found positive influence on linguistic forms (Storch, 1998), grammatical accuracy (Storch, 2001), vocabulary, content, and organization (Hedgcock & Lefkowitz, 1992) as well as sense of audiences (Lockhart & Ng, 1995). Storch (1998) discovers that students who have worked together in writing activities make statistically significant progress in certain types of grammatical forms when they later write alone and there is more grammatical accuracy in their writing (Storch, 2001). Hedgcock and Lefkowitz's (1992) study discovers that students who collaborate produce writing with higher quality in terms of vocabulary, content, and organization. Lockhard and Ng (1995) find that when students collaborate, the writers reflect on their intentions, the effects of their texts on readers, and their writing processes. Research also shows that students holding a collaborative stance are more willing to incorporate peer feedback into their revision (Nelson & Murphy, 1993), and to provide more feedback (Stanley, 1992).

Furthermore, students who actively provide feedback acquire critical writing skills, which benefit their later writing (Leki, 1990; Mitten, 1989).

Despite its strong theoretical support and positive findings in empirical studies, L2 peer response faces both effective and affective challenges in its application. Research has found that students sometimes don't have sufficient proficiency to provide quality feedback and some feedback only focus on sentential errors (Connor & Asenavage, 1994). Particularly, during oral peer response, L2 students may feel it difficult to understand peers' pronunciations or to express their ideas in the target language (Ferris & Hedgcock, 1998). On the other hand, many L2 students hesitate to receive peer response because they doubt peer response's quality. Students are overwhelmingly willing to receive feedback from their teacher rather than peers (Carson & Nelson, 1996; Zhang, 1995).

Because of the controversial findings regarding effectiveness of L2 peer response in empirical studies, researchers' interest has been drawn to investigating possible variables that may have an impact on peer interaction during peer response. Many researchers focus on the influence from L2 students' language proficiency and knowledge (e.g. Tin, 2003) and personality differences (e.g. Villamil & de Guerrero, 1996). With an attempt to enhance L2 students' cognitive knowledge and abilities to participate in peer response, some researchers focus on the impact of pre-task training on peer response (e.g. Berg, 1999; Stanley, 1992; Zhu, 1995). Researchers (Storch, 2004; Zhu & Mitchell, 2005) also look at L2 students' orientation toward peer response and the impact their goals have on peer response interactions. Zhu and Mitchell's study (2005), from a sociocognitive perspective, shows that ESL students have different goals, which

corresponds with their stances taken during peer response. Adopting an activity theoretical perspective, Storch (2004) discovers that ESL students have divergent goals, which affects their role-taking and attitudes toward accomplishing the tasks. Other researchers have shifted attention from individual differences to the environmental variables that may have impact on peer response, such as different peers with whom L2 students interact (Zhu, 2001) and cultural norms each L2 student brings into dyadic interaction (Nelson, 1997).

An Emergent View of L2 Writing and Peer Response

The writing-as-a-process perspective has been a dominant view of writing and writing instruction for both L1 and L2 students over the past three decades. Writing has long been considered an individual event. The introduction of sociocultural theory (e.g. Bakhtin, 1981; Vygotsky, 1978) and social constructivism inspire many scholars and researchers (e.g. Russell, 1997; Swales, 1990; Wiemelt, 2001) to reinterpret writing and learning of writing embracing a social cultural perspective. An increasing number of L2 writing theorists and practitioners (e.g. Atkinson, 2001; Atkinson & Ramanathan, 1995; Prior, 2001) have realized the indispensable influence L2 students' diverse cultural backgrounds and special social situations in which they are surrounded bring to their development of L2 writing proficiency. Calling for concerns about the connection between an individual and society, the cognitive and social, Atkinson (2003) proposes a post-process approach for L2 writing. Echoing this view, Casanave (2003) proclaims that the social, political, and cultural issues involved in L2 writing demand more attention from L2 writing researchers and practitioners.

Peer response has been adopted as a writing task in a multitude of L2 settings. Acknowledging peer response as a collaborative classroom activity, many researchers have taken expansive efforts in investigating and providing explanations for variations in peer response, with an emphasis on both individual differences and environmental influences. However, the majority of current researchers on L2 peer response, deeply influenced by thoughts from cognitivism, still subconsciously lean upon a cognitive view to understand the underlying developmental process in the task. One example is the tendency to disconnect individual differences from the cultural historical environments. Answering the call for a new post-process era of L2 writing, it seems to the researcher that there is a need for adopting an alternative perspective which views learning as a social event and interactions as a developmental process and which attends to the complex social cultural historical situations in L2 peer response.

Section Summary

L2 writing has been deeply influenced by L1 theories and pedagogy. In the past three decades, writing process approaches have been pervasively employed in various L2 educational settings. One application is the use of peer response. Rooted in a writing-as-a-process perspective, L2 peer response has been overwhelmingly investigated from a cognitive view. The current evolvement of L2 research and teaching practices make alarmingly salient various cultural backgrounds L2 students bear and special social political environments in which L2 peer response takes place. A more comprehensive view that attends to both L2 students' individual motives and the complex context should be adopted to understand L2 peer response. Cultural historical activity theory discussed

in section one provides a powerful theoretical framework to explore the complexity of L2 peer response.

Bringing more complexity to peer response, the development of computer technologies has made networked technologies an indispensable tool in writing classrooms. Peer response is no exemption. The following section will present the application of computer-mediated communication technologies in peer response. A review of empirical studies on computer-mediated communication in a variety of L2 learning settings will be provided.

Computer-mediated Communication and Peer Response

Since its inception in the early 1960s, computer technologies have claimed a great potential in assisting unconventional human interactions, particularly for language learners. Recent years have seen pervasive application of computer technologies in second language teaching and learning. In L2 writing instruction, networked technologies (computer-mediated communication or CMC) have been widely used to build alternative communication between the teacher and students as well as between students and students.

CMC and Second Language Acquisition

CMC has existed since the 1960s. But until the late 1980s it has not been widely used by the public. In the 1990s, language practitioners started to realize the great potential of CMC in language learning and teaching. According to Warschauer and Kern (2000), CMC allows learners with network access to communicate with other learners or native speakers of the target language in synchronous (through instant messenger, Chat room, MOOs, etc) or asynchronous (through email, discussion board, or listserv, etc.)

modes. Synchronous mode refers to the way in which learners can talk in a real time, simultaneously with their partner, while asynchronous mode means that there is temporal delay between message transmission. Synchronous mode allows one-to-one, one-to-many, or many-to-many communication. Depending on the interface, students using synchronous communication tools can share either brief messages or lengthy documents. Researchers (Chun, 1994; Kern, 1995; Smith, 2003; Sotillo, 2000) discover that synchronous discussion discourse is similar to face-to-face conversations. Erben (1999) points out that synchronous discussion discourse can be placed on a continuum between oral and written discourse or "speak-writing".

Asynchronous communication, on the other hand, allows more time for learners to plan and draft messages, which supports reflection. It is believed that CMC provides learners with the components associated with second language acquisition by supporting various types of interaction including learner-learner, learner-teacher, and learner-native speakers of the target language. In these diverse interaction settings, teachers can create authentic environment for discussion because students participate in a communicative activity with a goal and real audience (Warschauer, 1995).

In response to the enthusiastic implementation of computer-based technologies in practice, theorists and scholars have predicted the advantages and disadvantages of CMC use in various educational settings. Warschaer (1997) argues that text-based and computer-mediated interaction can serve as a cognitive amplifier for language learners because it encourages interaction and reflection and stimulates critical thinking. CMC is also believed to solicit meaningful discourses by allowing authentic communication and foster the sense of personal engagement and discovery essential to successful language

learning (Peterson, 1997). These theoretical statements are confirmed by the findings of various research studies, particularly in the L2 field.

Since the inception of network-based language teaching and learning, there have been numerous studies examining the effectiveness of CMC. Research has showed that CMC is linked with numerous benefits with language learners, e.g. quantity and quality of language production, equality of participation, and fostering negotiation of meaning and focus on form. Comparing CMC and face-to-face discussion, research shows that in the computer-mediated environment, language learners have lower anxiety (Beauvois, 1992; Kelm, 1992), there is greater participation (Kelm, 1992; Kern, 1995; Sullivan & Pratt, 1996) and more peer-to-peer interaction (Erben, 1999; Kern, 1995), and students produce more language (Beauvois, 1992; Kelm, 1992; Kern, 1995). Research also indicates that there is more equalized participation among students (Kelm, 1992; Sullivan & Pratt, 1996; Warschauer, 1996). Chun (1994) discovers that the shyer and quieter students are more prolific in the electronic discussion. Research also shows that students produce more types of sentence structures and more discourse functions (Chun, 1994; Kern, 1995), lexically and syntactically more complex language and more discourse strategy use (Warschauer, 1996).

Other advantages of CMC include greater cultural awareness (Cubillos, 1998; Jin, 2005; Warschauer, 1997), and more sense of errors (Gonglewski, 1999; Salaberry, 1996). Embracing an interactive perspective of language learning, researchers also identify more benefits of CMC including access to comprehensible input (Ortega, 1997; Warschauer & Healey, 1998), opportunities for learners to produce output (Blake, 2000; Erben, 1999; Ortega, 1997; Warshauer & Healey, 1998), and opportunities to negotiate meaning

(Blake, 2000; Lee, 2002; Pelletieri, 2000). Another line of interactive CMC research (Blake, 2000; Pelletieri, 2000; Sotillo, 2000) focuses on the corrective feedback in online environment. It is discovered that in electronic discourse, teachers focus on content rather than grammar and students tend to self-correct their errors. Interaction where students focus on form and receive corrective feedback tends to be effective for promoting second language acquisition (Long & Porter, 1995).

CMC and Computer-mediated Peer Response (CMPR)

The application of CMC in writing instruction has been focused on extending communication between the teacher and students as well as between students and students to facilitate documents and opinions sharing. L1 writing researchers (e.g. Cooper & Selfe, 1990; Kozma, 1991) have discussed its advantages in terms of social and pedagogical dynamics CMC promotes in peer response activities. For example, in a networked communication environment, teachers' power is usually yielded when delivering feedback through electronic venues, which enhances students' empowerment, and ultimately their autonomy of writing and sense of authorship (Spitzer, 1990). In addition, the social context created in networked communication helps to eliminate some limitations of face-to-face feedback. Researchers (Barker, 1990; Spitzer, 1990) find out that student reviewers are more concerned with the content delivered in the writing rather than surface mechanics, which promotes a sense of authentic audiences for the writer and consequently leads the writer to attend the needs of a real audience instead of surface issues of writing. Another advantage of computer-mediated peer response activities discussed by L1 researchers (Cooper & Selfe, 1990) is that student writers generalize the strategies they acquire throughout the peer response process. By participating in

computer-mediated peer response, students are exposed to multiple opinions and ideas and they develop critical thinking skills as to what information they should accept and discard. They learn how knowledge develops through reading, re-reading, comparing, and contrasting diverse opinions they receive.

In recent years, increasing attention has been placed to the use of CMC in L2 peer response activities. In their study of comparing pre-college ESL students' peer review activities using CMC technologies provided in the university networked system with those in traditional classrooms, Digiovanni and Nagasvami (2001) indicate that online peer response activities enable teachers to monitor peer feedback conversations, thus yield more on-task interactions. They also discover that online communications allow students to respond simultaneously while reflecting on their ideas, rehearse their responses, and respond at their own pace, which is lacking in oral feedback. Liu and Sadler (2003) investigate the effect and affect of peer review activities undertaken in electronic versus traditional interaction environment. The electronic peer review activities include students making comments on computers using Microsoft Word and later discussing synchronously via a multi-user domains object-oriented (MOO). The traditional peer review activities contain students making comments with pen on the writer's paper and then holding a face-to-face discussion. While agreeing that computer-mediated peer interaction is affectively more appealing, Liu and Sadler discover that face-to-face peer response is more effective in terms of its effect on subsequent revisions undertaken by the writer because synchronous interactions in MOO tend to generate more superficial rather than substantive comments. In addition, synchronous peer interaction environment lacks nonverbal clues for interlocutors, which constrains reviewers from

discussing about global issues of writing. Hence, the authors suggest no use of MOO interactions in peer review activities unless a communication protocol is set up for each student to abide by.

Sharing with aforementioned L2 writing researchers an interest in the influence of electronic feedback on student writers' subsequent revisions, Tuzi (2004) compares ESL students' revisions after receiving asynchronous feedback obtained from a database-driven web site specifically designed for writing and responding, those after receiving oral feedback from peers and the teacher, and those with feedback from face-to-face meeting with university writing center tutors. In contrast to Liu and Sadler's findings, Tuzi discovers that students prefer oral feedback, but feedback from the website has a greater impact on students' revisions in terms of the amount and types of changes. The research findings also show that online feedback expands the audience for L2 writers, which brings benefits to both the instructor and student writers regarding the access to and diversity of feedback.

Most of the CMC technologies examined in the above studies are traditional text-based communication tools. Recent years have seen a steadily increasing use of multimedia-enhanced communication technologies, particularly in synchronous technologies. Among the myriad of synchronous technologies, instant messenger, an Internet-based multimode communication tool, mostly free of charge, e.g. MSN messenger, Yahoo! messenger, and AOL messenger, is gaining more popularity in various educational settings. Instant messenger allows both one-to-one conversation and group conferencing through text, audio, even video exchange (Cziko & Park, 2003). L2 researchers (e.g. Kramsch & Thorne, 2002; Jin, 2005) have discovered the value of

instant messenger in L2 learning and teaching. Many L2 educators have realized the great potential of instant messenger in learning and teaching tasks, which otherwise are impossible to undertake successfully, such as building direct yet unobtrusive connection between the teacher and an individual ESL student in mainstream classrooms (Ban, Jin, Summers, & Eisenhower, 2006) and promoting intercultural communication and understanding between L2 learners and native speakers of the target language, particularly less commonly taught languages (Jin, 2005). L2 students also express their enthusiasm for the use of instant messenger for educational purposes (Jin & Erben, in press). Despite its great potential in L2 teaching and learning and its popularity among students, very few studies have been conducted to investigate the application of instant messenger in L2 peer response regarding the influences and how the use of synchronous technologies influence students' interaction in a learning task.

Section Summary

The section provides an overview of the application of CMC in various L2 educational settings. Empirical studies on advantages and disadvantages of CMC for L2 educational purposes are reviewed. The review of L2 studies on computer-mediated peer response (CMPR) displays a contradictory picture regarding the effectiveness of using CMC in peer response. The review also shows that there is a lack of studies on the use of multimedia-enhanced communication technologies, particularly instant messenger, a popular synchronous communication tool, in peer response. In addition, most existing studies merely provided descriptive accounts of students' interactive behaviors in a CMC environment. Very few studies addressed the underlying learning and development embedded in the social interaction process. The next section will provide a synthetic

review of empirical studies on peer response from a cultural historical activity theoretical perspective, particularly those conducted in an electronic environment.

Peer Response Studies from a Sociocultural View

In section two, a comprehensive review of empirical studies on L2 peer response shows that the view of many researchers is still deeply rooted in conventional cognitivism. Until the introduction of SCT to the SLA field in the early 1990s, L2 peer response was still considered merely an alternative way of obtaining external input to augment students' cognitive ability in writing. Only a handful of studies (e.g. de Guerrero & Villamil, 2000; Villamil & de Guerrero, 1996; Storch, 2002, 2004; Thorne, 2004) adopt a sociocultural or activity theoretical lens to investigate peer interaction.

SCT and L2 Peer Response

In Villamil and de Guerrero's (1996) study, they use SCT constructs such as *language as a mediational tool, private speech*, and *scaffolding* to interpret students' social-cognitive activities during peer interaction. In their study in 2000, Guerrero and Villamil undertake a further analysis of mutual scaffolding in L2 peer revision through the lens of the ZPD. They use a microgeneric approach to observe how strategies of revision took shape and developed in the interpsychological space. The authors look at not only the writer's development during peer response, that is, the revision process with the help from his/her peers, but his/her independent revision in the final draft. In other words, the movement in the ZPD is the focus. A moment-by-moment analysis of peer interaction reveals several scaffolding mechanism in L2 peer response: reader's role as a moderator, their regulating behaviors, which is reflected in intentionality, task regulation, meaning, and contingent responsivity, contingent use of L1, the establishment and

maintenance of intersubjectivity between the reader and writer, and the emergence of the writer's self-regulation and his/her growth as an independent writer and reviser.

Adopting Vygotsky's theory of cognitive development, Storch (2002) interprets the collaborative and the expert/novice dyadic interactions during a classroom-based peer response task. She agrees on the crucial role language plays in knowledge co-construction, which is subsequently appropriated and internalized by members of the dyad. That is, language is used to facilitate the lengthy and complex negotiations over language choice during collaborative and expert/novice dyadic interaction.

CHAT and L2 Peer Response

Having developed interest in the nature of students' goals in dyadic interactions, Storch (2004) furthers the analysis of dyadic interaction from an activity theoretical lens, using the same data set and analysis methodology as those in her study in 2002. In this latest study, Storch focuses on participants' motives and goals in dyadic interactions. Adopting a cultural historical activity theoretical view, Storch perceives that human purposeful activity is driven by needs, which can be biological or cultural constructed. Needs turn into motives when they are directed toward a particular goal. While motives are usually subconscious, goals are conscious with direct intentions. Employing the important concepts of motives and goals, Storch discovers that learners' perceived goals and roles they should play, rather than the task type, determine how a task is carried out. In addition, students' preexisting attitudes and beliefs as well as their actual experience of working in pairs shape and reshape their goals. Each member of the dyad holds heterogeneous goals. But working in the same pair over time might lead to a shared mutual goal or deteriorated competing goals. This shows that goals and motives of each

member participating in dyadic interactions are dynamic and fluid, not predetermined nor static.

CHAT-guided L2 Peer Response in an Electric Environment

In her study, Storch foregrounds each dyadic interaction without attending to the larger context in which each dyadic interaction takes place (Engeström, 1997). Taking into the whole context into consideration, Thorn (Thorn, 2004) adopts the concept of activity systems in CHAT to explain a peer response task through email exchange in a Spanish foreign language program. According to CHAT, an activity system is comprised of subjects, mediating artifacts, objects, outcome, community, rules of community, and division of labor, With an attempt to explain how innovations emerge, Thorne identifies key features of a peer response activity: the *subjects* that are Spanish foreign language students, *mediating artifacts* that include peer response tasks and guides, email, L1 & L2, etc, *object* that is essay writing and reviewing, inter-class collaboration, and student solidarity, *community*, which is the lower intermediate students and advanced students, *rules of the community* for dialogic interaction via email, *division of labor* such as the writer's writing essay, the reviewer's reviewing essay, negotiation and communication between both the writer and the reviewer, and *outcome*, which includes identity shifts for reviewers, demonstrated progress in L2, construction of ZPD, sense of progress for reviewers, etc.

Although Thorne's initial attempt in this study is not to uncover the underlying processes of computer-mediated (via email) peer response, he demonstrates that CHAT is a helpful theoretical tool to analyze a given activity system, such as L2 peer response that is undertaken through electronic venues. He also points out that CHAT helps to diagnose

potential problems in an activity system such as classroom-based learning tasks and the same learning task taking place in different classroom contexts, such as in an electronic discourse, with distinctive participants may create totally disparate activity systems.

Section Summary

Section 4 provides a review of peer response studies that take a social cultural historical view of social interaction. It shows that the cultural historical perspective has not been widely adopted in research on L2 peer response, both in face-to-face and online modes. CHAT has been acknowledged and embraced in other social science fields as a powerful theoretical tool to explain social interactions and human development. Every L2 classroom is a very complex environment, given the diversity of cultural, educational, and historical backgrounds of each L2 student. Nowadays, the omnipresence of computer technologies has aggregated the complexity of learning settings. Although an increasing number of L2 researchers have turned to CHAT for help to understand L2 teaching and learning, greater efforts are in need to unpack computer-mediated teaching and learning processes. CMPR is one of the fields that demand more thorough and profound reinvestigation and reinterpretation.

Conclusion

This chapter provided a comprehensive review of relevant theories and empirical research on L2 peer response. The review reveals that cultural historical activity theory provides an appealing view of human interaction and development. Through an activity theory lens, all human activities are closely connected and constantly interacting with the social cultural environments including mediational artifacts, the local community, and the history of each subject. Various human interactions afford both individual and cultural

development. Although many aspects of L2 peer response have been investigated, very few researchers perceive peer response as a dynamic learning and development process rather than a cognition-augmenting strategy. And a great number of current studies segregate peer response participants' behaviors from the social cultural environments. The roles computer technologies, particularly synchronous communication tools, as an omnipresent instrument in various educational practices, are playing have not attracted plenty of research attention they deserve. Aimed at addressing these research gaps and providing practical implications, the current study was intended to thoroughly explore computer-mediated L2 peer response from an alternative view of human interaction, theoretically guided by a combination of cultural historical activity theory, and dynamical systems theory. The following chapter will provide a detailed description of the study design and the important strategies that were employed for data collection and analysis.

CHAPTER III

METHODOLOGY

Introduction

This chapter provides information about the study design, the participants, the academic contexts in which the participants were selected, and the data collection and analysis processes of this study. In chapter 1, it is stated that one of the purposes of the proposed study was to uncover English as a Second Language (ESL) students' individual agency in computer-mediated peer response (CMPR), in other words, their motives and goals of participating in CMPR as a classroom task. Another focus was on how ESL students' learning and development unfolded under the influence of a variety of social and cultural factors as well as their prior experience with academic writing instruction and with the use of computers and computer-mediated communication (CMC) in CMPR tasks. In the following sections, the overarching research question and five sub-questions were provided and followed by a detailed description of the procedures the researcher undertook to collect and analyze data to answer each sub-question.

Research Questions

The overarching research question of this study is: How do ESL students, as individual agents, perform in computer mediated peer response (CMPR)? The five sub-questions are presented as follows:

I. What are the motives and goals of ESL students participating in CMPR and how do these motives and goals maintain or change over time?

Question 1 looked at what were the motives and goals of ESL students who participated in CMPR and whether and how his/her motives shifted throughout his or her participation in CMPR throughout the academic semester. According to cultural historical activity theory (CHAT), motive is the biological or sociocultural desire or need, such as hunger and learning to write, that drives people to participate in an activity, which is usually collective and subconscious. Motive can only be noticed in goal-directed actions. In contrast, goals are conscious intentions that direct people's actions. Goals are usually depicted as intentional plans or strategies. Drawing on CHAT, the researcher perceives each person involved in a social practice as an individual agent who has his/her own motive, which is realized in specific goal-directed actions. In this case, although ESL students in the writing class participates in the same CMPR task and seemingly follow similar steps required in the task instruction, each of them may have different underlying objects or needs that motivate his or her actions in CMPR. These heterogeneous motives may, in turn, lead to diverse behaviors, in other words, particular goal-oriented actions. Overtime, upon the attainment of the objects and goals, each student may have new motives and goals. The answer to this research question will reveal each ESL student's motives and goals that drive his/her actions in CMPR as well as a trajectory of the motivational changes, if there are changes, of each ESL student writer who participates in CMPR during the period of one academic semester, which will help explain why ESL student writers have the same or diverse behaviors when participating in CMPR.

II. How do computer-mediated technologies, particularly synchronous chat, mediate ESL students' interaction in peer response?

Question 2 focused on the mediation of computer-mediated technologies in ESL student writers' peer interaction in CMPR. Akin to sociocultural theory (SCT), CHAT views all human's social practices as mediated by psychological and physical tools such as language, signs, textbooks and computers. In the past decade, computer technologies have become a pervasive tool in writing classrooms. Particularly, it has been widely employed in second language (L2) peer response activities because of the specific benefits it bears for L2 learners (e.g. Chun, 1994; Kern, 1995; Warschauer, 1996). To investigate computer technologies' mediation in human-computer interaction, computer scientists (e.g. Kaptelinin, 1995; Kuuti, 1995) advocate a look at how computer technologies transform human behaviors from the three levels of activity, namely activity, actions and operations. In the proposed study, the use of a synchronous chat tool--MSN messenger in CMPR was of interest to the researcher. Mediation at the level of activity, such as the relationship between the use of IM and motive change, at the level of actions, such as the influence of the use of IM on students' conscious goal-setting, as well as at the level of operations, such as how ESL students in CMPR tasks took different e-turns, what language functions they employed, and what kind of interpersonal relationship they established were investigated.

III. How do current social and cultural contexts influence ESL students' participation in CMPR?

This question explored the influence of various factors in the contemporary social environment such as the institution regulations, expectations and intervention from the instructor, behaviors of other students who were involved in the same CMPR task, the rules to be followed, and the roles each member was expected to play on each ESL

student's performances in CMPR tasks. Extending the Vygotskian view that language is the primary mediational tool of human higher mental functioning in social interaction, CHAT foregrounds the mediation from the community of which the subject under investigation is a member, such as people who are involved in the same activity, commonly understood rules of the community, and division of labor, which refers to both a horizontal division of the tasks between members of the community such as the division between all students and a vertical division of power and status such as the division between the teacher and the students (Engeström, 2001). Given the assumption of the existence of mediation from the social and cultural contexts, the question aimed to uncover from each participant's perspective how each of them negotiated his or her motives and goals with the other components in the social cultural contexts comprised of the subject, the object, the mediational tools, the rules, the community, and the division of labor.

IV. How do ESL students' prior experience with writing instruction and with computer use, particularly synchronous communciation, influence their participation in CMPR?

ESL students' prior experience of writing instruction and of computer use, particularly using CMC as a new mode of peer communication, have not caught sufficient research attention in the field of L2 writing despite its omnipresence in writing classrooms. The third generation of CHAT claims that an activity system does not exist in a vacuum. It constantly interacts with other systems of activity cross time and space, one of which is the historical activities of the subject under investigation. The history can explain how the subject comes into being. At the same time, it has constant influence on

the current activity system by creating contradictions and conflicts, which spawns changes and transformation (Cole & Engeström, 1993). Thus, an understanding of the current situation of human practices requires an understanding of the history of the subject. Drawing on CHAT, the researcher explored what were each ESL student's prior experience with English academic writing instruction, particularly peer response, and with computer use and investigated what contradictions and conflicts were generated by the interaction between students' central learning activity systems and the historical activity systems they had involved in. How ESL students reconciled the conflicts were also accounted for.

V. What is the dynamic nature of CMPR?

According to CHAT, there are constant and incessant movements between each components of a system of activity. Simultaneously, constant interactions also exist between multiple interconnected activity systems. Because of these incessant movements and interactions, all activity systems are dynamic, which may cause conflicts and contradictions. By seeking for solutions to the conflicts and tensions, the subject within a particular system of activity transforms the activity and is dialectically transformed, which is named development in CHAT. In other words, development is a new-activity-creating activity. The answer to the fifth sub-question is a synthesis of all findings in the previous four questions. The intent was to present in a comprehensive way how each component of the activity system of each ESL student participating in CMPR constantly shaped and was shaped by each other within the activity system, how one activity system was influenced and transformed both synchronically and diachronically by other activity systems that existed on a spatiotemporal level (Gutiérrez & Stone, 2000), and eventually

how ESL students developed or were transformed in the process of constantly solving emergent conflicts existing in intra-and inter-activity systems. Constructs such as *attractors, basin of attraction, developmental time*, and *trajectory* from Dynamic Systems Theory (DST) (e.g. Thelen & Smith, 1994; van Gelder & Port, 1995) were borrowed to graphically illustrate how each participant went through the dynamic and fluctuating processes of learning and development in CMPR tasks.

The current study was conducted in a level-4 ESL academic writing class in which computer-mediated peer response had been adopted as a regular class task for several semesters. Detailed information about the study context, the study design, participants, study process, data collection and analysis techniques are presented in the following sections.

Academic Context: the ELI program and Academic Writing Level IV

Participants of this study came from the English Language Institute (ELI) housed in the Department of World Languages Education (WLE) at a metropolitan, public, research-oriented university in southeastern U.S. The university offers over 200 programs at the undergraduate, master's, and doctoral levels to more than 40, 000 students. This English language program aims at preparing English language learners to enter U.S. higher education institutions and to adjust to the academic environment in the institutions. As outlined in its mission statement, the ELI also serves the university as a language and teaching laboratory to develop and experiment research-based instruction in English to speakers of other languages. Instructors in the institute either have, or are completing Master's degrees in language teaching. Some instructors are pursuing their Ph.D. degrees in related fields. The administrators provide instructors and curriculum

designers with various professional development opportunities such as teaching discussion forums and workshops, and encourage participation in professional conventions as well as active partnership with graduate programs in the university. The administrators also advocate innovative technology application to the teaching practices in the institute. Teachers are encouraged to use innovative computer-assisted media in language teaching, research, and communication.

Students enrolled in this program are from a variety of linguistic and cultural backgrounds. A high school diploma and some prior English learning experience are prerequisites for applying to this program. Upon enrollment, new students must take a placement exam, which combines sections in two placement tests: the Listening and Grammar sections of the Comprehensive English Language Test (CELT) (Canadian Test Centre Inc., 2003) and the Vocabulary and Reading Comprehension sections of the Michigan Test of English Language Proficiency (MTELP) (The University of Michigan, English Language Institute, Testing Certification Division, 2003). The results of the exam decide at which level each student should be placed in the upcoming semester (for more information about CELT and MTELP, see Appendix A and B). There are a total of five levels of courses offered in the ELI, each of which contains one or two sections depending on the enrollment situation. Students are required to enroll on a full-time basis and receive 25-hour weekly instruction during a span of 15 weeks in the spring and fall semester respectively, and 13 weeks in the summer semester.

The participants of this study were intermediate-level ESL learners enrolled in one level IV academic writing class, one of four level-4 academic writing sessions offered in the summer, 2006. Level IV students in the program usually have high

intermediate to low advanced English language proficiency. In other words, they had the ability to converse with native speakers of English or other ESL people, and to comprehend and produce a high intermediate to low advanced level of written forms. Classes offered to students at level IV included Listening/Speaking and Pronunciation, Academic Writing, Grammar, Cultural Contacts with a focus on reading, and Test Preparation Electives: TOEFL, SAT, GRE, or GMAT. The syllabi and teaching materials used at this level were consistent among all sessions. Each class had 7-12 students who usually came from diverse cultural and ethnical backgrounds. On average, 60% of students in this program came from South America, and the rest came primarily from Asian and Middle Eastern countries. In terms of educational background, most students did not experience communicative language approach and student-centered learning prior to enrollment in the ELI. The average age of Level IV students was between 19-25 years old.

The level IV academic writing class where the data were collected aimed for preparing ESL students for writing academic essays demanded in most U.S. universities or colleges. In this class, students learned how to write academic essays with accurate grammar, appropriate rhetoric strategies, and well-organized structures with the help of accessible resources such as the university library and the Internet. Upon completion of the course, students were expected to know how to write four- to five-paragraph academic essays in a variety of rhetorical modes such as exposition, cause and effect, and argumentation. The topics used for the writing projects in this course included those discussed in the Culture IV class that were expected to serve as a springboard from which

students could generate more ideas in their writing as well as those directly from the Level-4 academic writing textbook students used in this class.

The instructor of the Level IV academic writing class was also the researcher. The instructor / researcher is a doctoral candidate in a Ph.D. program with a focus on computer-assisted second / foreign language learning and teaching. She has been involved in ESL-related pedagogy and research for over 4 years. She has been teaching ESOL strategies in a pre-service teacher education program in the same university over the past two years. Although she worked as a research assistant for the former director of the ELI five years ago and participated in planning and teaching of the Level IV academic writing class along with the instructor in the summer, 2005, it was her first time to independently teach the class. As a novice teacher in the institute, the researcher/instructor adopted the teaching philosophy and the class textbook provided by the institute. The syllabus used in this class was attached in Appendix C.

In this course, the instructor adopted a writing process approach in which writing is considered a recursive problem-solving process rather than a one-time product. Apart from paragraph-composing at the beginning of the course, there were a total of five essay writing tasks: compare-and-contrast essay, expository essay, summary-analysis essay, argumentative essays and problem-solution essays. These five tasks were assigned in a sequence of the perceived complexity. Students did not start the next writing task until they submitted the final draft of the previous essay. At the outset of each writing task, the instructor did mini lectures on the general structures as well as the relevant writing strategies that could be employed to write an essay in the respective rhetorical mode.

Students were also provided an example essay of each type of rhetorical modes. Then, they were required to compose one draft either in the computer lab or at home.

As an important component of the writing process approach, peer response as a learning task was integrated in this class. After students finished their first draft of each writing task, they were paired with a partner with a similar level of writing proficiency. The dyads then exchanged their writing and reviewed each other's draft. In the following class session, a peer response session was offered in which the partners discussed each other's essay and provided comments and suggestions. A peer response instruction sheet (see Appendix D) and a peer response worksheet (see Appendix E) were provided at the beginning of each peer response task to guide students' performances. Based on their partner's comments, students revised their writing after class and submitted the second draft to the instructor. The instructor then provided comprehensive feedback on the mechanics, the content, and organization in their essays. Students, then, revised their 2nd draft based on the instructor's feedback and submitted a third draft which was graded as the final draft. All essay writing tasks followed the same process.

This writing class also placed a strong emphasis on students' computer literacy. Two out of five class sessions per week were given in the computer laboratory of the ELI in which students used the work processor to compose paragraphs and essays and to use web browsers to search for relevant online resources. In this study, students were required to conduct four out of five peer response tasks online in the lab.

Study Design: a Case Study Approach

This study adopted a case study approach. Distinguishing case studies from other research strategies such as experiment, survey, history and archival analysis, Yin (2003)

defines a case study as an empirical study that "investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (p.13). He claims that the purpose of a case study is to help our understanding of "individual, group, organizational, social, political, and related phenomena" (p.1). Since the phenomenon and context are oftentimes not distinguishable, the inquiry should also cover the contextual conditions as well as the histories. Whereas Yin considers case studies as a research strategy, Stake (2003), another prominent case study researcher defines case studies as "a choice of object to be studied" (p.443). Stake emphasizes that the object must be "functioning specific" (p.135), a bounded system that could be an individual or an organization. And the case should be purposive, and an integrated system with certain features as well as prominent coherence and sequence. The boundary and specific features inherent in the case helps the researcher specify the case (Stake, 2003).

Despite these discrepant views of case studies, the study was designed on the basis of an integrative view of case studies as both a choice of object that is functioning specific and a research strategy. This view was chosen because the focus of the current study was on both each ESL student as a participant agent who had unique personal histories and took actions in a particular social cultural context and the entire level IV academic writing class as a functioning subject. This view was also consistent with the theoretical framework under which data in this study were analyzed and interpreted. By taking this view, each ESL student had specific functions, and simultaneously he or she was inseparable from complex social cultural contexts including the class community,

which constantly mediated human development by providing both affordances and constraints. This complex phenomenon demanded a special process of inquiry.

In terms of case studies as an inquiry methodology, Yin (2003) further explains that a case study is both a process of inquiry about the case and the product of that inquiry. Thus, a case study inquiry is a comprehensive research strategy that contains "a whole set of technical characteristics" (Yin, 2003, p.13) encompassing the logical study design, the process of data collection relying on multiple sources of evidence, and the process of data analysis. For a long time, a case study approach as a research strategy has been criticized for its lack of generalizability of the findings. However, Yin (2003) stresses the value of case studies by arguing that case studies are generalizable to theoretical propositions rather than populations, which contributes to theory expanding.

Since Emig introduced the case study approach into writing research in early 1970s, case studies have been widely used by both L1 and L2 researchers to investigate the writing processes. In the study, there exist three underlying reasons for the researcher's adoption of a case study methodology. First, this study mainly focused on the process of peer response. The researcher had specific interest in how peers interacted during the CMPR tasks. For a better illustration of the processes of CMPR, the complex context in which peer interaction occurred should be accounted for. The case study methodology does not neglect the diversity and complexity of the contexts where certain events or phenomena take place. The second reason was the researcher's focus on the relationship between the history and the contemporary events. Using a case study methodology helped the researcher place attention to all contextual factors including historical contexts that might influence the object and the current event. The third reason

was related to the researcher's control over the events. The writing process is a complex process and the writing classroom is a complex context. Case studies, rather than isolating and manipulating the variables in the context, allows an unobtrusive observation of the behaviors and other variables existing in the writing classroom. In this study, the researcher worked as a participatory observer of the entire events occurring in the classroom. Based on these three reasons, the case study methodology seems to be most appropriate for this study.

According to Yin (2003), there are two main types of designs for case studies: single- and multiple-case designs. In a single-case design, the focus is on one single unique or critical case while the multiple-case design takes into account more than one case. The study to be conducted can be considered as a multiple-case study. There were two underlying reasons for selecting this design in the current study. First, the researcher investigated the motives and goals of multiple numbers of students who were involved in dyadic interactions. Second, ESL students' performances in the CMPR tasks were of specific interest to the researcher. One single case might not help the researcher understand the complex situations in a CMC environment. Collectively, findings from each student could inform and benefit readers' understanding of computer-mediated peer response in a larger context.

Participants

Students

Student participants of this study were comprised of 5 ESL students who were enrolled as full-time students in the academic writing level IV class in the English Language Institute at a southeastern public research university in the U.S. All

participants had intermediate- or advanced-level English language proficiency. The information about each participant's age, gender, cultural or ethnical backgrounds, prior educational experience, self-assessed English language proficiency and prior experience of using computer, particularly, the use of CMC, were obtained through an ethnographic survey administered at the beginning of the semester.

Sampling Technique

This study adopted a case study approach that follows a collective case study design. There is a consensus among case study researchers (e.g. Stake, 1995; Yin, 2003) that case study research does not claim specific sampling techniques. According to Yin, the case(s) to be investigated is/are purposely chosen by the researcher, depending on the researcher's interest and the purposes of the study. Stake suggests that a case should be selected according to its potential to maximize the researcher's understanding of the phenomenon and to its accessibility to the researcher. All students enrolled in the academic writing level IV class in the ELI in the summer semester, 2006 were invited to participate in the because ESL students at this level started to produce academic writing at the essay level. In addition, the diversity of cultural backgrounds of ESL students enrolled in this institute and the program's encouragement to students for using various computer technologies premised the uniqueness of the cases. Apart from this, the ELI serves as a laboratory for language teaching and research for graduate programs of the university, which provided the accessibility of the participants enrolled in this program. Therefore, all students enrolled in the academic writing level IV class in the ELI in the summer semester, 2006 were purposely selected based on the researcher's interest, the

research design and questions, and access to the participants. Participant selection was conducted in the first class of the summer semester.

Ethical Considerations of the Participants

At the outset of the study, the approval from the Institutional Review Board in the university was pursued. Students in the target class volunteered to participate in this study. All participants signed an informed consent form (Appendix F) in which information about the goal and the procedures of the study was provided. Students were notified that they might discontinue their participation at any point of time during the study; that, however, would not exempt them from participating in all other interactive writing tasks required in the regular class. Students also were informed that their names would not be identified during the data collection, data analysis, and later dissemination of results. Individual information collected during the study would not be accessible to unauthorized people without the participant's permission. The IRB approval was also obtained to conduct the pilot study in the summer semester, 2005.

Permission for conducting the study also was obtained from the Department of World Language Education (WLE) and the English Language Institute (ELI). The researcher/instructor contacted the department chair and the director of the ELI for the permission prior to starting the class.

Researcher's Role in the Study

Contrary to quantitative researchers' intention to "contaminate" the data as little as possible when collecting data, researchers conducting a qualitative inquiry usually serve as the instrument to collect data (Denzin & Lincoln, 2003; Lincoln & Guba, 1985). With specific focus on case study researchers' roles during the processes of study design,

data collection and analysis, the report writing as well as information distribution, Stake (1995) postulates that a case study researcher should take multiple roles such as teacher, advocate, evaluator, biographer and interpreter.

In the current study, the data were collected from the class the researcher taught. Thus, the researcher played dual roles in the field, both the researcher and instructor. The researcher collected and analyzed data from her students during and after delivering instruction and organizing the class. The advantages of being a researcher/instructor in the study include: 1) the researcher had a deeper understanding of the environment, the participants, and what occurred during the process of CMPR while teaching the class, which benefited the later data analysis and interpretation; 2) the data collection was less obtrusive; and 3) logistically, it simplified the data collection process in terms of setting up time and place or using special equipments, i.e. video camera, in class to collect data.

During the data analysis, the researcher/instructor played a crucial role in terms of collecting and analyzing data. Particularly, besides participants' reflections about their intentions and perceptions during each CMPR task, the researcher's interpretations of the phenomena were weighed heavily because of two reasons. First, the instructor's role helped the researcher gain valuable insights about the students and the dynamics. Second, some students such as Diane, Iron, and Nicky, sometimes failed to explicitly describe his or her intentions and actions due to the limited oral language proficiency. To guarantee the credibility of the information, all interpretations were verified with participants.

However, the dual roles the researcher took also caused special disadvantages, such as the researcher did not have sufficient time to take field notes due to her duties of being the instructor, e.g. walking around to provide necessary language or technical aids,

during the CMPR sessions. In addition, as cautioned by many qualitative researchers (e.g. Denzon & Lincoln, 2003; Lincoln & Guba, 1985), conducting research while actively participating in the event under investigation for a prolonged period of time may obscure the researcher's view of important issues emerging in the field or even produce potential biases (Yin, 2003). In other words, being the instructor simultaneously might prevent the researcher from identifying some significant themes or patterns in students' behaviors, which could have been avoided if analyzed by an external observer.

In addition, due to the reseracher's dual role in the field, some participants hesitated to comment on the class and their partners. Some of them explained that they did not want to complain about everything. Rocky tended to please the researcher/instructor constantly by providing all positive and sometimes false information about what he and his partner did during the CMPR tasks. Thus, some information collected him had to be verified with his partner and the video clips.

Procedure of the Study

The study was conducted in the summer semester, 2006, which spanned for 13 weeks. The complete data collection process lasted for the entire academic semester. The IRB approval for the proposed study was obtained prior to data collection. Prior to the beginning of the summer semester, the researcher/ instructor prepared the course syllabus (see Appendix C), particularly the computer-mediated peer response tasks. Based on the results from the pilot study in summer, 2005, the researcher developed a special instruction sheet (see Appendix D) and CMPR reader's worksheet and writer's worksheet (see Appendix E) for each CMPR task.

In the first session of the first week of the semester, which was a Thursday, students were informed of the study. The goal and the procedures of the study also were explained to all students. Students, then, were given the following weekends to think whether they would participate in this study. In the first class of the second week, students interested in participating in this study signed the informed consent form (see Appendix F). On the same day, the ethnographic survey (see Appendix G), which was piloted in the ELI in the summer semester, 2005 for its validity, was distributed during the class break to the participants who returned them in the last class session of the week. The survey was used to collect information about participants' age, gender, prior educational experience, their self-assessed English proficiency as well as their prior experience with computer use.

Since the ELI encourages computer use in the process of writing, all students at all levels in the ELI are required to have two lab sessions each week which were scheduled on Tuesdays and Wednesdays in the summer semester, 2006. During the lab sessions, students were allowed to use word processor to compose writing or use the Internet to search for class-related information. During the lab time of week 3, all students received CMC training in the computer lab of the ELI, which is located very close to other regular classrooms. The researcher / instructor first demonstrated how to create a username in a MSN instant messenger that was already installed in all computers in the ELI lab, add friends' user name in their messenger contact list, and try a conversation in the messenger. For those who participated in the study, they also were informed how to save their instant messenger conversations during each CMPR session into a folder set up by the instructor in a public server of the ELI. In the first week, a

screen-capturing computer software program called WINK, which could capture all on-screen movements such as clicking, highlighting, and typing, was installed in the computers that were designated for data collection during each CMPR task. During CMPR, only the student participants were asked to use the computers installed with WINK.

According to the syllabus (see Appendix C), there were a total of five writing modules. The first one focused on writing three paragraphs to compare and contrast two objects. The second, third, fourth, and fifth ones were writing an expository essay, a summary-analysis essay, an argumentative essay, and a problem-solution essay respectively. Each module spanned two weeks.

Starting from week 3, all students learned how to write three paragraphs to compare and contrast two objects. In the first and second sessions of the third week, students received instruction on how to write compare-and-contrast paragraphs. Then, they practiced paragraph-level writing. At the end of the second session, students were assigned a writing task to describe the similarities and differences between two advertisements. They could either pick the advertisements provided by the instructor or chose any two they found in a magazine. One week including the following two class sessions of week 3 was allowed for everyone to finish the first draft. In the first and second sessions of week 4, students learned a writing strategy: use punctuations through a mini-lecture and an in-class exercise. To help students gain acquaintance with peer response, the first peer response task was conducted in a face-to-face format in the lab. In the task, as shown in Table 8, three groups were formed. In the following day, students were asked to revise their first draft based on the feedback obtained during the peer

response task and submitted the second draft to the instructor. In the middle of the following week, students received the second drafts with the instructor's feedback based on which they revised the second draft and submitted the third draft by the end of week 5. Throughout the semester, the instructor only gave in-class feedback when there were common and extensive mistakes in all students' essays in a certain module. If the mistakes or problems were not alarming, no in-class feedback was given.

The module of writing an expository essay lasted from week 5 to week 6. Following the routine, in week 5, all students attended mini-lectures and did exercises on how to write an expository essay. They were required to write an expository essay on learning styles over the weekends of week 5 and swapped the essay on Monday in week 6 with a partner who was assigned based on students' writing proficiency demonstrated in the first writing task. Students also were given a CMPR reader's worksheet to help them take notes during the reading and a writer's worksheet to write down the questions they wanted to ask their partner. In the second session of week 6, students conducted the computer-mediated peer response task with their partner via the MSN IM in the computer lab. Prior to the CMPR session, the researcher / instructor turned on the WINK software program in the computers with the installation. During the CMPR session, the researcher / instructor first distributed the instruction sheet (see Appendix D) for the CMPR task and informed students of the required steps. Then she walked around the lab to ensure all students could successfully log on to the messenger, add their partner onto the buddy list, and set up the conversation. Students were advised to use the reader's worksheet to offer opinions and suggestions and to use the writer's worksheet to ask for and take notes of opinions and suggestions from his or her partner. Students who were still not familiar

with the MSN IM such as Iron were instructed individually to operate an IM. During this session, two video cameras were placed in the lab, one in the front and the other at the back of the lab, to record participants' beyond-screen behaviors during the CMPR session, such as their physical movements and special facial expressions while chatting with their partners online. When none of the students asked questions, the researcher/instructor took field notes by following a pre-designed observation protocol, which will be described in details later.

Upon the completion of this CMPR session, all students were required to start revising his or her draft based on comments or suggestions obtained during the peer response, which were undertaken at home or in the computer lab. The lab session in the following day also was assigned for essay revision. Students were required to submit their second drafts at the end of the lab session. In the last session of week 6, the new module of writing a summary-analysis essay started. The participants of the study also were required to save their IM chat recordings in the folder set up by the instructor in the public server that could be accessible from every computer in the computer lab. Then, each participant received a semi-structured informal interview with the researcher/instructor, which was scheduled at a convenient time and place for both the researcher/instructor and the interviewee. The interview was used here to solicit information on what occurred during CMPR, why certain behaviors were performed, and how participants perceived their involvement in the session (for a sample of interview questions, see Appendix H). The interview questions varied slightly according to the specific situation of each individual participant. For example, the researcher asked why Anton only commented on Iron's essay organization not on his grammar, and what and

how contextual factors influenced her participation in the session. As soon as the data were collected, the researcher started data analysis.

During week 7 and 8, students underwent the module of writing a summary-analysis essay. As for the study, the researcher and the participants repeated the procedures as those in the model of writing an expository essay. The same procedures were repeated during the module of writing an argumentative essay in weeks 9 and 10 and the module of writing a problem-solution essay in weeks 11 and 12. The last round of interviews on the CMPR task for the problem-solution essay was conducted during weeks 12 and 13. Member checks were conducted in both face-to-face meetings throughout the semester and IM conversations after week 13. Throughout the semester, the researcher/instructor kept a reflective journal after each class session to record the important events that have taken place in the class as well as the reflections. The study procedure is illustrated in Table 2.

In addition to collecting and analyzing evidence from the ethnographic survey, field notes, video tapes, interviews, IM chat transcripts, and WINK recordings, and relevant documents such as instruction sheets and the syllabus, the researcher also created a case study database recording the time and sources from which data were collected as well as maintained a "chain of evidence" (Miles & Huberman, 1994, p.260) to provide explicit link between the questions asked, the data collected, and the findings and implications concluded during data analysis. The data collection and analysis strategies that were used to answer each research questions are displayed in Table 3.

Table 2

Study Procedure

Time	Procedure	Notes
Week 1	Advertised the study	
Week 2	Informed consent form	
	Ethnographic survey	
	CMPR training	
Week 3	Instruction and Exercises on Writing three paragraphs	
	to compare and contrast	
Week 4	Face-to-face peer response	
	Teacher's feedback	
Week 5	Exploratory essay instruction & composing	
Week 6	CMPR	Teacher feedback
	Interviews	
	Reflective journal	
Week 7	Interviews	
	Summary-analysis essay instruction & composing	
Week 8	CMPR	Teacher feedback
	Interviews	
	Reflective journal	
Week 9	Interviews	
	Argumentative essay instruction & composing	
Week 10	CMPR	Teacher feedback
	Interviews	
	Reflective journal	
Week 11	Interviews	
	Problem-solution essay instruction & composing	
Week 12	CMPR	Teacher feedback
	Interviews	
	Reflective journal	
Week 13	Final week: Member checking	

Table 3

Data Sources and Data Analysis Methods

Research Questions		Data Sources	Data Analysis Methods
Overarching question:	Subquestion 1	Interview transcripts	Content analysis
			Constant comparison method
			CHAT
		Field notes	Constant comparison method
		Video clips	CHAT
		Reflective Journals	
		IM Chat transcripts	
		On-screen recordings	
		1st and 2nd writing draft	Revision Analysis
	Subquestion 2	Interview transcripts	Constant comparison method
		Field notes	Content analysis
		Video clips	
		Reflective Journals	
		IM Chat transcripts	
		On-screen recordings	
	Subquestion 3	Interview transcripts	Constant comparison method
		IM chat transcripts	CHAT
		Field notes	
		Video clips	
		Reflective journals	
		On-screen recordings	
		Documents	
	Subquestion 4	Pre-study survey	Constant comparison method
		Interview transcripts	CHAT
		Field notes	
		Video clips	
		Reflective Journals	
		IM Chat transcripts	
		On-screen recordings	
	Subquestion 5:	All data sources	CHAT

Detailed information about data collection and data analysis methods is described in the following section.

Data and Data Gathering Methods

Many case study researchers (e.g. Patton, 2002; Stake, 1995; Yin, 2003) argue that case studies should use multiple rather than single sources of evidence. The use of a combination of multiple sources can avoid the potential weaknesses inherent in any single source of evidence, which enhances the credibility and trustworthiness of collected data. Sources of evidence for case studies can come from documentation, interview, direct observations, participatory observations, and physical artifacts. In the current study, the researcher collected data through a pre-study ethnographic survey, student participants' first and second writing drafts in each writing module, participants' IM chat transcripts and on-screen behavior recordings in WINK, video clips, the researcher's field notes through participatory observations, reflective journals, in-depth interviews with student participants, and documents collected from the field.

Pre-study Survey

The pre-study survey (see Appendix G) was administered at the outset of the study to obtain participants' ethnographic background information and their prior experience with writing instruction and the use of CMC. This survey was developed by the researcher, which was field-tested in the summer semester, 2005. Students did not show difficulties understanding questions in the survey and the questions help collect necessary information for the proposed study. Questions in the survey included participants' age, gender, country of birth, country(ies) of citizenship, L1 and L2 proficiency, prior educational experience, prior L2 learning experience, particularly in L2

writing instruction, and their prior experience of using computers and CMC for social interaction. All questions were field-tested in the pilot study. Information obtained through this survey provided a fuller picture of each participant's past experience of writing education and computer use, which helped explain how each student participant's historical activity systems (prior writing instruction and prior experience of computer use) interacted with their current activity system (CMPR). The survey was distributed and collected by the researcher/instructor in the first session of week 2 in the summer semester, 2006.

Reflective Journals

The researcher/instructor kept a reflective journal at the end of each CMPR session and periodically at the end of each week. In the reflective journal, the focus was placed on: 1) the classroom atmosphere, particularly, the rapport between the instructor and students; 2) the salient issues that occurred in the class, such as problems or conflicts each student encountered, i.e. students' frustration of interacting with peers and the instructor as well as of operating computers; and 3) reflection as an instructor regarding students' performances in class as well as their development. Data collected through reflective journals helped the researcher to recollect what took place in each CMPR session, what were the salient issues that occurred in each week, and how students developed academically, which contributed to the later data analysis in terms of discovering how participants' behaviors in CMPR were driven by their motives and how the context had influence on participants' participation in CMPR as well.

Lab Observation

The researcher/instructor conducted more focused observation of CMPR in the computer lab. Stake (1995) purports that observations provide the researcher with a greater understanding of the case, and through observation, the researcher can keep "a good record of events to provide a relatively incontestable description for further analysis and ultimate reporting" (p.62). Since the researcher intended to discover each student participant's motive of participating in CMPR, which could only be observed in their actions (Lantolf & Thorne, 2006), as well as the influence the contexts cast on participants' actions, the researcher's focus during the observation was placed on: 1) the atmosphere and environment during the computer-mediated communication period; 2) interaction among ESL students during CMPR; 3) the interaction between ESL students and the instructor during CMPR; and 4) students' physical movements and facial expressions while operating a computer.

One sample observation protocol provided in Reed and Bergemann (2001) was used in the pilot study during the summer semester, 2005. Based on the observation during the pilot study, the researcher made modifications in the protocol to more accurately address the research focus in the proposed study (see Appendix I for the revised observation protocol). The observation protocol was slightly modified during the data collection process to capture emergent issues such as participants' certain behaviors at certain point of time. Two modes of observation were conducted including the researcher's field notes-taking and video taping. When there was no one student asking questions, the researcher/instructor take field notes by using the observation protocol. Due to the equipment arrangement in the computer lab, it was not feasible for the

researcher to observe all participants at one site. In order to capture as much information as possible during CMPR sessions, the researcher spent equal time in observing each participant from the area that provided a clearer view of each participant's performances. However, due to the fact that students asked questions during the lab time and the instructor did not have plenty of time taking field notes, two video cameras were used during each CMPR session to record participants' beyond-screen behaviors. One video camera was placed in the front of the computer lab and the other one in the back area. .

After each observation, the researcher immediately reviewed the video recordings in order to fill the information that was captured in the video tapes but missing in the field notes, into the observation protocol. Once the protocol was updated, all observation information were be synthesized, which allowed the capturing of accurate information from the field.

In summary, the use of two modes of observation were beneficial to the research in the following three aspects: 1) collecting data through both video taping and field notes taking allowed for the collection of thick data for the study (Lincoln & Guba, 1985); 2) the researcher's presence in the classroom since the start of the semester made less intrusive the later data collection process; and 3) the researcher's prolonged presence in the classroom and her role as technology trainer and facilitator in the computer lab helped build trust between the participants and the researcher, which benefits the collection of credible data (Lincoln & Cuba, 1985). Information obtained through lab observations were used to supplement the IM chat transcripts and the researcher's reflective journals, which not only helped triangulate findings, but portrayed a fuller picture of what ESL students underwent during CMPR.

IM Chat Transcripts and On-screen Behavior Recordings

At the beginning of each CMPR session, the researcher/instructor reminded the participants to save the IM chat transcripts into the folder in the public server at the end of the session. To further reveal what participants were doing in IM chat sessions, a software program named WINK 2.0 (DebugMode, 2005), which can capture users' on-screen movements such as clicking, highlighting, and typing as well as the time spent in browsing one page, was adopted to record students' on-screen behaviors, such as switching between windows, or choosing different communication features provided in MSN IM. The IM chat transcripts and on-screen behavior recordings were used to inform the researcher how the synchronous communication technology mediated participants' interaction in CMPR tasks, particularly how and what messages they exchanged as well as what kind of relationship each pair established in the CMC environment.

Participants' First and Second Drafts in Each Writing Task

Student participants' first and second drafts were considered as "physical artifacts" (Yin, 2003). The researcher collected the first two drafts upon students' completion of the assignment. The first and second drafts were compared to identify revisions students made after they exchanged feedback during the CMPR sessions. The purposes of obtaining the revision results were two-fold: 1) the researcher tracked each L2 student participant's learning and development process by analyzing to what extend and in what aspects they gained improvement in terms of writing skills or competences in conducting CMPR tasks throughout the semester, which helped reveal student participants' subconscious motives of involvement in CMPR; and 2) the results also were used to form some interview questions to discover participants' goals of taking part in

CMPR tasks and to recollect what they had done during CMPR sessions as well as how they perceived CMPR as a task in an academic writing class.

In-Depth Interviews

There is a consensus among case study researchers (e.g. Stake, 1995; Yin, 2003) that interviews are one of the important techniques to gather information in a case study. Seidman (1998) points out that the purpose of in-depth interviewing is to understand "the experience of other people and the meaning they make of the experience" (p.3). Interviews can be used to collect information, which is difficult, if not impossible, to obtain through the observations. For example, interviews can seek to obtain participants' personal views of a phenomenon or an event.

In this study, the interviews were used mainly to help students recollect their performances in the CMPR sessions, i.e., reflecting on what they did and why they performed in certain ways in each CMPR task, and the goals they had when taking certain actions. Particularly, the interview questions were divided into five sections: 1) information about key online events; 2) information about the goals each student participant held when conducting certain online behaviors, such as delivering certain messages and using certain graphic symbols during online chat; 3) students' sense of relationship establishment in a CMC environment; 4) students' perception of influence on their behaviors from the institute, the researcher / instructor, other students in the class, and particularly, their respective interlocutor during CMPR; and 5) students' perception of the influence of their prior experience of writing instruction and of computer use on their participation in the CMPR tasks. Apart from these, based on the findings from the revision analysis of their writing drafts, each student participant also was asked to reflect

on what stimulated certain revisions he or she made in the second draft. The data collected through the interviews helped unpack the CMPR process and students' perceptions of CMPR, and triangulated student participants' behaviors identified in IM chat transcripts as well as the on-screen behavior recordings in WINK.

Each participant received one semi-structured open-ended interview (see Appendix H for sample questions) after he/she submitted the second draft for each writing task. Although there were four CMPR tasks, Anton and Iron only participated in the first three tasks and Diane, Nicky, and Rocky participated in the last three tasks. Thus, each participant received a total of three interviews throughout the study. All interviews were conducted by the researcher in the researcher/instructor's office at a convenient time for participants or in a classroom during the break. The atmosphere in all interviews was informal and casual. The language used in the interview was English due to the fact that English was the only language with which the researcher and the participants were able to communicate.

Interviews followed the interview protocol (see Appendix H), based on the five sets of questions mentioned earlier. All interview questions were developed by the researcher and had been field-tested in the pilot study, which showed no comprehension difficulty on the part of participants. Questions for each interviewee varied slightly according to their respective behaviors during the previous CMPR session. All interviews were audio-taped and later transcribed for subsequent data analysis.

To enhance the credibility and transferability of interview data (Lincoln & Cuba, 1985), the researcher took three steps in the pilot study. First, all interview questions had been discussed with the researcher's dissertation committee that was comprised of

research experts in the fields of applied linguistics, second language writing, English as a second language (ESL) and foreign language education, socio-cultural theory, and computer-mediated communication. Content that was not clear or irrelevant was deleted or revised. Second, the interview questions were also discussed with the instructor who was teaching in the pilot class of Academic Writing Level IV in the summer semester, 2005, to ensure that the language used in the interview is appropriate to the participants' proficiency level. The third step was the pilot study conducted in the summer semester, 2005. The goal of the pilot study was to assure the clarity and comprehensibility of the interview questions as well as credibility of the questions for the proposed study. The academic writing Level IV class in the ELI was chosen as the pilot class. After students submitted their drafts, each of them received an interview based on the interview protocol and specific situations in each student's drafts. The researcher analyzed the transcripts and interpreted the data. Based on the interpretations, the researcher revised the interview protocol to foster its applicability in the target population of the proposed study.

In addition to the formal interview questions during discrete interview time, the researcher also conducted informal IM interviews with participants such as Anton, Diane, and Nicky who agreed to add the researcher into their IM list. Whenever the researcher needed to ask additional information and confirm some information from the formal interviews, the researcher could chat with the participants if they also were online. Other informal interviews were conducted during class break time, particularly with Iron and Rocky since Iron did not use IM and Rocky was seldom online. The information gleaned from the informal interviews was recorded in the researcher's reflective journals, which facilitated the data interpretation.

Document Review

Relevant documents were collected through the Internet as well as directly from the institute secretary. The documents included the mission statement of the institute, background records of the student participants, the writing class syllabus and materials used in the Level-4 academic writing class including instructions for each writing task and CMPR. These documents were used to analyze how the contemporary social and cultural context mediated students' participation in the CMPR tasks.

Unit of Analysis and Data Analysis Methods

The researcher started data analysis as soon as the first set of data were collected,. Data in this study included information obtained from the pre-study survey, the researcher's field notes from observation in the computer lab, video clips, the researcher's reflective journals, participants' IM chat transcripts as well as their on-screen behaviors recorded in WINK, the first and second drafts for each writing module, interviews, as well as documents collected from the institute and in the class. Data from these multiple sources supplemented and triangulated each other to answer the five research questions raised in the study.

Unit of Analysis

Researchers adherent to sociocutlural theory (e.g. Lantolf & Thorne, 2006; Siegal, 1996) argue that human's learning and development involve complex actions and procedures, and thus may require multiple levels of analysis. Activity theorists (e.g. Cole & Engeström, 1993; Engeström, 1988, 1994, 1999, 2001) think that the unit of analysis to uncover this complexity should be "activity systems, historically conditioned systems of relations among individuals and their proximal, culturally organized environments" Cole

& Engeström, p.9). The same activity system may look different if the researcher takes different members in the community as the subject of investigation. Akin to both sociocultural theory and CHAT, this study employed two units of analysis: 1) the activity system of each individual student participating in CMPR in which his or her actions were driven by his/her own motive and constantly mediated by the instruments employed, the partner who was part of the community in which each participant was a member, the community rules, division of labor, as well as his or her own history of writing instruction and of computer use; and 2) the CMPR activity system with the entire class as the subject of the activity system, which was driven by the collective objects: knowledge and skills of conducting CMPR tasks and knowledge and skills of writing academic essays. The purpose of employing two units of analysis was to uncover each English as a second language (ESL) students' individual motives and goals of participating in CMPR as well as to unpack the complex CMPR context in which ESL students were situated and mediated, which ultimately helped explain how ESL students learned and developed during their participation in the CMPR tasks in an academic writing class.

Given the aforementioned two units of analysis, the data analysis of this study involved two parallel but interwoven stages. The first stage took each participant's activity system as the unit of analysis, in other words, a within-case analysis (Miles & Huberman, 1994) of each student participant as the subject under investigation, which uncovered what motives and goals each participant held in his/her involvement in CMPR, how they used the synchronous communication technology in his/her peer interaction, how the current social and cultural context influenced his/her peer interaction and

thinking involved in CMPR, and how his/her prior experience of writing instruction and computer use, particularly synchronous communication, influenced his/her participation in the CMPR tasks. Thus, at stage 1, focus was placed on answering subquestion 1, 2, 3, and 4 with an emphasis on each individual. The second stage focused on the larger CMPR activity systems with the entire class involved in CMPR as the subject of the activity systems, in other words, a cross-case analysis (Miles & Huberman, 1994). At this stage, data from each individual participant were analyzed collectively to identify recurring themes or patterns across all participants. A thorough picture of the class dynamic was described and interpreted in terms of the mediation of synchronous technology in the class flow as well as conflicts-emerging and solution-seeking among community members, which eventually led to students' development. Findings obtained at this stage yielded answers to subquestion 2, 3, 4, and 5 at the class level.

For a long time, qualitative research has been criticized for the lack of systematic and transparent methods and procedures of data analysis. Aiming to systematize the data management and analysis of qualitative research, Miles and Huberman (1994) define that qualitative data analysis consists of three subprocesses: data reduction, data display, and conclusion drawing and verification. Data reduction, which is also emphasized by other qualitative researchers such as Creswell (1998), refers to the process of condensing obtained data through summarizing, coding, finding themes and clustering. Data display means a compressed organization of information for further conclusion drawing, which can be achieved through writing structured summaries, synopsis, vignettes, or drawing matrices or diagrams (Miles & Huberman, 1994). The third process, conclusion drawing and verification involve the researcher's interpreting and building connections between

the condensed and well-organized data as well as testing and confirming the findings. Techniques in this process include clustering, counting, compare and contrast, triangulation, negative cases, and member checking (Lincoln & Guba, 1985; Miles & Huberman, 1994). Miles and Huberman also emphasize that these three subprocesses unfold throughout the study design, data collection and analysis. In addition, data reduction, data display, and conclusion drawing and verification are undertaken in an iterative mode rather than a linear sequence during data collection and data analysis. In other words, unlike in a quantitative study, the boundary between data collection and analysis in a case study is blurred so that data can be condensed, displayed in matrices or networks, and then, interpreted in a way to draw conclusions any time during the study.

For the data analysis of the current study, the researcher went through the aforementioned three processes. According to Miles and Huberman (1994), data reduction was an ongoing process throughout the study design, data collection and analysis in which the researcher decided which data chunk to code and / or discard. In this study, data reduction started with initial selection and summery of important information, which is called *initial coding* (Miles & Huberman, 1994). During the initial coding, the researcher took an overall review of all data and tentatively clustered data that were relevant to certain constructs, which varied in different questions, into distinct groups. Then, a higher level of coding called *pattern coding* (Miles & Huberman, 1994) were conducted to identify themes, configurations and initial explanation based on the first-level coding. To name the coded patterns, the researcher used both existing themes that came from literature, a deductive coding technique, and labels or categories emerging from the field data, an inductive coding technique, to further condense and

summarize the loosely clustered data. Thus, the sources for naming of categories were both *literature* and *investigative* (Constas, 1992). In other words, during pattern coding, the categories were created iteratively, which were drawn from preexisting literature as well as from the researcher's investigation of the field data.

Particularly, during the inductive coding, the constant comparison method (Glaser & Strauss, 1967; Lincoln & Guba, 1985) was used. Although constant comparison method was coined by Glaser and Strauss (1967) as a primary data analysis method for the purpose of building a grounded theory, Merriam (1998) argues that "the constant comparison method is widely used in qualitative studies, whether or not the researcher is building a grounded theory" (p.18). Since this study was guided by theories, no attempt was taken to establish a theory. According to Lincoln and Guba (1985), the constant comparison method allows categories to emerge from the data, rather than imposing preconceived categories on the data. This method also allows the researcher to refine and identify properties of each category by constantly comparing the identified instances with other instances in one category as well as with those identified in other categories. The software program QSR NVIVO (version 2.0; QSR International Pty Ltd., 2002) was used to facilitate this data analysis process. For research subquestion 2, 3, and 4, within case analysis was followed by cross-case analysis. Data for each student participant were be analyzed. Then these data were collectively analyzed to depict a thorough picture of the entire class. A peer researcher also was involved during the inducting process in which the peer researcher reviewed the clustered codes and patterns identified by the research to verify the identified patterns and categories were representative and accurate. Discussions were held and data were reanalyzed to achieve conformation when discrepancy occurred.

After all patterns and categories were identified, they were displayed along with pertinent supportive data in diagrams or matrices, depending on particular research focus in each research subquestion. The final process, namely, conclusion drawing and verification, was conducted by the researcher with help from both a peer researcher and the committee members. Based on diagrams or matrices containing the obtained themes and categories as well as their supportive data, the researcher drew conclusions about how ESL students' CMPR was driven by their motives and mediated by the contemporary and historical contexts. The findings were verified through triangulating findings from multiple data sources and undergoing member checking (Lincoln & Guba, 1985) with all participants. Detailed analysis steps that were employed for each research subquestion are described as follows:

Data Analysis Steps

Prior to conducting any specific data analysis, a descriptive revision analysis by comparing each student's first draft with the second one after each writing task was conducted to identify what revisions each participant made in the second draft. A revision rubric (Table 3) and coding scheme (Appendix J) was used to facilitate the analysis. Based on the findings in the revision analysis and those from the IM chat transcripts, the researcher formed emergent interview questions to help each student participant recollect what they had done during each CMPR task. For example, the researcher asked Anton what she did during the first CMPR task and why she revised some phrases and sentences since her partner Iron did not offer any suggestion on her grammar in the first CMPR task.

To conduct the revision analysis, revisions each participant made in his/her second draft were identified and counted by using an adapted version of Chris Hall's (1990) revision analysis rubric, which has been used by other researchers (e.g. Tuzi, 2004). In his rubric, Hall attempted to categorize revisions based on the time, level, type, and purpose of revision. These four characteristics were created based on literature as well as emergent changes in students' writing. The time of revision refers to when the writer makes the revision. Under the category of level, there are eight characteristics from word- to essay-level changes. The category of type encompasses eight characteristics and the purpose has seven. Based on the findings in the pilot study and the research interest in the proposed study, a revised version of the rubric (see Table 4) was used in the current study (see Appendix J for the coding scheme). In the revised rubric, one more category, stimuli, was added because the researcher was interested in discovering how ESL participants made certain revision decisions.

Table 4

Revision Rubric

Level	Type	Purpose	Stimuli
Discourse	Add	Clarify intended meaning	Partner
Paragraph	Combine	Grammar	Instructor
Clause	Delete	Impact	Self
Sentence	Move	New information	Others
Phrase	Replace	Structure	
Word	Rewrite	Surface (spelling, capitalization,	
Punctuation	Split	punctuation)	
No change	No change	Unnecessary	

Research Subquestion 1: What are the motives and goals of ESL students who participate in CMPR and how do the motives and goals maintain or change overtime?

To answer subquestion 1, data from interview transcripts, observations, the researcher's reflective journals, participants' first and second writing drafts for each writing task, their IM chat transcripts as well as on-screen behavior recordings were analyzed.

Prior to data analysis for this subquestion, due to the ambiguous distinctions between goals and motives, the researcher set explicit criteria to differentiate the concepts of goals and motives. According to CHAT, goals such as being able to compose a 300-word essay, are usually linear, tangible, and time-bounded while motives such as being educated, or learning to read and write, are recurrent and iterative, which are usually abstract and may not be realized by human until they are instantiated in actions (Lantolf & Thorne, 2006; Leont'ev, 1981). Thus, two criteria were used to distinguish motives from goals. First, goals can be attained in a finite or relatively short time while motives are not time-bounded. Second, goals can be verbally expressed while motives are usually below the plane of conscious attention and may not be verbally explicated. By using these criteria, the researcher carefully distinguished participants' long-run motives from the goals that could be achieved within each CMPR session. Two major phrases of data analysis were undertaken to answer subquestion 1.

The first phrase was to infer each participant's motive(s) of his or her involvement in each CMPR task throughout the semester. Contrary to goals that can be verbally expressed, motives can only be observed by tracking goal-driven actions over a relatively long time period (Leont'ev, 1987). Thus, to identify participants' motives of participating in the CMPR sessions, the researcher focused on the data from field notes, video clips, reflective journals, participants' first and second draft for each writing task,

their IM chat transcripts and on-screen behavior captured by WINK. Data from the formal interviews at the end of each CMPR session as well as informal interviews during the class break and in IM chat between the participants and the researcher also were used to help the researcher understand each participant and his or her backgrounds in order to infer his or her genuine motives in a CMPR task.

To find out each participant's motive(s), the researcher undertook three main steps. First, the researcher's field notes taken in the observation protocol were compared with the video tapes recorded in each CMPR session. Important information that was recorded in the video tapes, but excluded in the field notes were added into the observation protocol. Then, each participant's beyond-screen behaviors, i.e. what participants did when they were not using the computer, which were synthesized in the observation protocol and recorded in the researcher's reflective journals, as well as on-screen behaviors, i.e. what participants did on the computers, which were recorded in IM chat transcripts and on-screen behavior recordings in WINK, during each CMPR session, were compiled in a primarily partially ordered matrix (Miles & Huberman, 1994) (see Table 5 and Table 6 for a template). The themes used in Table 5 were created based on the researcher's observation in the pilot study in the summer semester, 2005. The first theme in Table 6 referred to the turn-taking behaviors during online chat, which was first used in Thorne's (2000) study. On-task e-turns were the messages in which participants were engaged in the learning task. Off-task e-turns were those in which participants chatted on topics that are unrelated to the learning task. Each e-turn was one message participants posted in the IM chat window. Language functions were the purposes participants used the language to achieve during IM chat. Here a coding scheme for

language functions (see Appendix K) during online chat, which was adapted from Lockhart and Ng (1995), was used to identify various language functions participants employed during online chat session. Other online behaviors include using the browser to check other online information, such as a website, or even opening another MSN IM window to chat with other friends, which were observed in the pilot study. Emergent behaviors that were observed in the proposed study were added into these matrices as well.

Table 5

Beyond-screen Behaviors during CMPR Session 1

Participant	IWI	BM	FE	VIWP	AB
1					
2					
3					
4					

Note. IWI =: Interaction with the instructor; BM = Body movement; FE = Facial expression; VIWP = Verbal interaction with peers in the lab; AB = Additional behaviors

Table 6

On-screen Behaviors during CMPR Session 1

Participant	OnTET	OffTET	LF	OOB
1				
2				
3				
4				

Note. OnTET = On-Task E-Turn during online chat; OffTET = Off-Task E-Turn during online chat; LF = Language functions during online chat; OOB = Other online behaviors

After all data were entered into the matrices, the researcher used the displayed data to tentatively establish a scheme based on which participants' motives could be identified. To establish the scheme, the researcher first focused on Anton. All information from Anton, which included her beyond-screen and on-screen behaviors were overviewed to obtain a general image of what she did in the three CMPR tasks she participated in. Then, the researcher primarily analyzed what specific beyond-screen and on-screen behaviors she had during each CMPR task. As for beyond-screen behaviors, according to the researcher's observation in the pilot study, the more verbal interactions Anton had with the instructor and other students in the class during CMPR sessions, the less motivated she was to genuinely engage in the learning activity during the CMPR task. Her other beyond-screen behaviors such as pausing in the middle of chat to read both her and her partner's essay and checking her partner's status by looking at his or her directions could not indicate whether she was genuinely engaged in the learning activity. The initial judgments were triangulated with the researcher's reflective journals, which recorded students' in-class activities throughout the semester and contained the researcher's contemplation of each student's engagement in class activities, and the on-screen behaviors.

As for the on-screen behaviors, the researcher observed in the pilot study that students who produced more on-task e-turns held the motive of learning how to write an essay in the particular mode while those who produced more off-task e-turns were mostly motivated by having fun or socializing with other students online. In Wiemelt's (2001) study, language functions employed in class interaction are used as an indicator of students' motives in participating in a writing class. In the pilot study in the summer

semester, 2005, the researcher also discovered that ESL students' subconscious motives could be reflected in the language functions they used during online chat sessions. For example, students who produced more compliments and general opinions than specific suggestions might be motivated by making friends through CMPR and those who tended to elicit more questions from their partner were driven more seriously by a motive of learning writing. As for other online behaviors, the researcher discovered in the pilot study that students who disliked CMPR tended to use the computer to do other things such as chatting with other friends while participating in CMPR. Based on the information, another tentative scheme of Anton's motives according to her on-screen behaviors was established: the more time she spent on discussing on-task topics, e.g. giving and ask for opinions and suggestions on each other's essay, with her partner rather than off-task topics with the partner or other online friends.

By iteratively comparing and contrasting the findings in the primary analysis of participants' beyond-screen and on-screen behaviors as well as the reflective journals, the researcher established a motive-identifying scheme by using which each participant's motive of participation in each CMPR task were identified. This scheme was constantly modified and refined as other participants' motives were analyzed. For example, although Rocky contributed a relatively large number of on-task e-turns without chatting with any other online friends or any verbal communication with other students in the lab during the CMPR task for a problem-solution essay, he was not genuinely engaged in the learning activity because he did not even write his own essay and he had ample amount of verbal communication with the instructor. He tried to impress the instructor that he was on-task by confirming every suggestion he gave to his partner. It was evident that the only reason

he did not chat with online friends, which he did constantly in the previous CMPR tasks, was that the instructor sat behind him.

After the motives were identified, the second phrase was to identify each participant's conscious goals in each task. According to CHAT, the same conscious goals could serve for different motives. Thus, each participant's goals identified in this phrase might not reflect their true motives. This phrase consisted of three major steps which were not necessarily conducted in a linear manner.

First, the content analysis (Carley, 1993; Holsti, 1969) with interview transcripts was conducted to identify each participant's goals in each CMPR task. Content analysis has been defined as "any technique for making inferences by objectively and systematically identifying specified characteristics of messages" (Holsti, 1969, p. 14). Four steps were taken in this analysis. First, an analytical technique "Key-Word-In-Context (KWIC)" (Carley, 1993) was employed to identify the goal-related statements in interview transcripts. Key words such as "*I want*", "*I plan*", "*my goal is*" were identified by using the searching function in NVIVO.

The second step was a thorough review of all interview transcripts to glean any statements that were goal-related but screened out in the previous step due to the lack of any of the key words. For example, in the first interview with Anton, she said "*usually when I make peer review, I try to answer the questions you ask from the paper… we were asked to help each other. So I gave him my comments on his ideas, organization, grammar and the references in his essay. Then, I asked him to help with my essay."* Although she did not use any key word explicitly, her actions as she described in the statement were driven by some conscious goals according to CHAT. In addition, these

actions were not considered automatic operations based on the information provided in the beyond- and on-screen behavior recordings: she still relied on the reader's worksheet to guide her review and form her questions and she reported to the instructor her difficulties with using the worksheet.

At the third step, sentences containing the pre-selected key words and those goal-related statements were read through to identify specific goals that were explicitly or implicitly expressed by each student. Those explicitly stated goal-related statements were be further confirmed by the researcher whether they reflected participants' motives or goals by using the criteria set at the outset of data analysis. For example, the actions Anton described in the above gleaned statement reflected the goals she held during the first CMPR task: help her partner with the content, the organization, grammar, and the references. After all goals were identified, each goal expressed by an individual participant was compared and contrasted with each other to cluster similar ones into categories, which were coded with names created by the researcher.

Research Subquestion 2: How do computer-mediated technologies, particularly synchronous chat, mediate ESL students' interaction in peer response?

As for subquestion 2, data including the researcher's field notes, video clips, reflective journals, interview transcripts, IM chat transcripts, and on-screen behavior recordings were analyzed. Acknowledging CHAT as a helpful theoretical framework, some prominent computer technology researchers (e.g. Kapelinin, 1996; Kuutti, 1996) purpose that computer technologies' mediation in computer-human interaction can be investigated through analyzing the support or problems computer technologies bear at three levels of human activities: activity, actions, and operations. In other words, how

computer technologies transform the subject's motive, goals, and physical conditions is the focus. Kuutti (1996) agrees on Davydov, Zinchenko, and Talyzina's (1983) (in Kuutti, 1996) notion that the borders between activity and action as well as between action and operation are blurred, in other words, an activity can change into an action, which in turn can become an operation any time, because of the dynamic and fluid nature of activity systems. Thus, he argues that computer technologies may play diverse mediational roles in different activities. And even within the same activity, computer technologies' mediation may vary dependent on the level of analysis.

With a focus on the mediation of computer-mediated communication (CMC) in language learning, Thorne (2000) observes that CMC not only shapes the way foreign language students communicate in a synchronous chat environment, which can be considered as mediation at the level of operation, but also reshapes students' conceptualization of communication, which may be at the level of actions or activity. Integrating Kuuti's view of computer mediation at the three levels and Thorne's focus in the analysis of the mediation, the researcher conducted a multiple-level analysis of CMPR, namely at the level of activity, actions, and operations. At the activity level, the focus was placed on how the use of instant messenger mediated participants' motives by analyzing the motive maintenance and shifts that were triggered by the use of IM and participants' perceptions of CMPR tasks. As for the level of goal-driven actions, the researcher investigated how the use of instant messenger had an impact on students' conscious goal-setting during CMPR. At the level of operations, how participants took e-turns and employed different language functions as well as non-text communicative strategies such as emoticons (smiley face icons to express emotions), wink and nudge

(animated emoticons), as well as what interpersonal relationships were established throughout CMPR were investigated.

The analysis of instant messenger's mediation at the activity level was composed of two phases. In the first phase, the researcher investigated the influence of IM use on participants' motive formation and shift. The first phase consisted of two steps. First, the researcher reviewed the findings as well as all the data analyzed in the research question to identify whether the use of IM played a role in each participant's motive formation and shift. If a motive was identified as having fun in IM chat, it indicated that the use of IM afforded the formation of the motive. If a participant shifted from the central learning activity to having fun in IM chat, it was evident that the use of IM might allure the participant from continuously engaging in the central learning activity. After the influence of IM on each participant's motive formation and shift during the CMPR tasks was identified, a cross-case analysis was conducted to draw a complete picture of how IM use mediated all participants' motive formation and shift by comparing and contrasting the influences on each participant's participation.

The second phase was a within-case analysis with each participant as the unit of analysis, which contained five steps, followed by a cross-case analysis. The researcher identified each participant's perception(s) of CMPR by analyzing the data related to participants' perceptions in the interview transcripts. First, data from the perception section in the interview transcripts of each participant were overviewed. Second, statements on similar perceptions ere clustered. At the third step, a name or theme was given to each cluster to describe the type of perception reflected in the statements. The name was either gleaned directly from the interview data or created by the researcher.

Fourth, the researcher compared and contrasted all statements within each cluster to ensure the statements within each cluster were not redundant with those in other clusters. Finally, the identified types of perceptions were displayed in a perception matrix (Miles & Huberman, 1994). Following the same steps, perceptions expressed in interviews with other participants were identified and displayed in the same matrix.

As for the analysis of the mediation of instant messenger at the level of goal-driven actions, the researchers investigated how the use of instant messenger influenced participants' decision-making regarding setting a certain goal or choosing particular strategies during CMPR. To do so, pertinent data from all participants' interview transcripts were analyzed by using both within-case and cross-case analyses. During the within-case analysis, relevant data in the interview transcripts from each participant were analyzed in five steps. First, the data were overviewed to gain a general view of how the use of instant messenger influenced the participant's goal-setting, particularly by reviewing the findings in the first research question. Second, statements that reflected types and the extent of influences were grouped together. Third, the researcher compared and contrasted statements within each group and cross groups to reduce redundancy and discrepancy. Then, a name was given to each group to describe the main feature in the group. Next, a cross-case analysis was conducted to identify the types and extent of influence on their goal-setting that were perceived by the majority of participants and those that were only individually acknowledged. The findings of the cross-case analysis showed the types and the extent to which the use of instant messenger influences participants' goal-driven actions in CMPR at an individual as well as collective level.

Instant messenger's mediation at the level of operations was analyzed from three aspects, what messages participants exchanged during CMPR sessions, in what way participants exchanged messages, and what interpersonal relationships were established between participants and their respective partner. As for the mediation to messages student participants exchanged during chat sessions, the focus was placed on the on-task and off-task e-turns each participant took. As described earlier, on-task e-turns, a term coined by Thorn (2000), are the turns in which students are engaged in task-related discussion whereas off-task e-turns refer to those in which students discuss topics that are unrelated to the task in an online chat environment. By using the on-screen behaviors matrix (see Appendix M), which contained data from online chat scripts and online behavior recordings from WINK, the researcher counted both on-task and off-task e-terns each participant took during the CMPR tasks.

To analyze in what way the use of instant messenger mediated messages exchanged during CMPR sessions, the researcher counted the maximum and minimum of e-turns each participant took continuously without giving up the floor to demonstrate how dominating or collaborative each participant behaved when he or she collaborated with different partners in different CMPR tasks. The researcher also looked at language functions participants employed and other online behaviors such as non-text communicative features, e.g. emotions, wink, during online chat. The on-screen behaviors matrix (see Appendix M) was used here.

Regarding language functions, as mentioned earlier, a coding scheme for language functions such as clarification request, confirmation request, or eliciting questions (see Appendix K), which was adapted from Lockhart and Ng's (1995) study,

was be used to identify the language functions participants employ in online chat. To identify what language functions participants used in the CMPR sessions, a within-case analysis of each participant's online chat scripts will be followed by a cross-case analysis of all participants in each CMPR session. In addition, participants' language patterns during online chat sessions, such as the use of emoticons, which are smiley-face icons provided in MSN IM to express emotions, were counted. These features were analyzed because it was observed in the pilot study that students frequently employed emoticons during conversations, which was considered an important online interaction strategy. In addition, the conditions under which participants used emoticons were described. The researcher also captured other emergent online conversation strategies by using a constant comparison method, which enabled the researcher to group similar patterns into distinct clusters and then to conduct comparison and contrast of the data to identify emergent recurring patterns and themes. In addition, other online behaviors, such as simultaneously browsing other websites while conversing in the IM, or chatting with other online friends by opening multiple IM chat windows, were analyzed as well.

Regarding the relationship established between online peers, both the IM chat transcripts and the interview transcripts were analyzed. First, information about each student participant's self-perceived relationship with their online partner was gleaned from interview transcripts. Then, all relationship-related statements from each student participant were collected together and further reviewed by the researcher. Through comparing and contrasting, conclusions about the types of relationships established during CMPR between all student pairs were drawn.

Subquestion 3: How do the current social and cultural contexts influence ESL students' peer interaction in computer-mediated peer response?

The contextual influences on students' participation in CMPR were analyzed through multiple data sources including interview transcripts, observations including synthesized information from both the researcher's field notes and video clips, IM chat transcripts, the researcher's reflective journals, and documents obtained from the institute and the writing class such as the mission statement of the institute, the class syllabus, and peer response instruction sheets during CMPR sessions. In other words, both the researcher's interpretation and the participants' perceptions about the tensions and conflicts that took place in each CMPR task were used to fully present the complex interactions in each activity system.

Drawing on CHAT, the social cultural context that was investigated in this subquestion was the activity system in which each participant was engaged when participating in each CMPR task (Lantolf & Thorne, 2006; Wertsch, 1985), such as the activity system of learning to write a summary-analysis essay in the second CMPR task. Each activity system was comprised of the object negotiated by each participant with the institutional expectations and the instructor's expectations, interaction with other students in the class, rules required to follow as well as roles participants played during the CMPR task. Since contextual influences cannot cause effects without being perceived by people situated in the context, the researcher investigated from the lens of each CMPR participant the affordances and tensions generated by the interactions between the components in the central learning activity system each participant was engaged in during

each CMPR task by looking at both what each participant performed and how they perceived the influence from the contexts.

To answer this subquestion, three main phrases were undertaken. In the first phrase, the researcher reviewed all the data to understand what had happened to each participant in each CMPR task. The second phase focused on how each component of the activity system in which each participant engaged in each CMPR task interacted, which yielded or constrained participant's learning and development by uncovering what tensions and conflicts emerged and what caused the tensions in each activity system. In the third phrase, the researcher investigated the interactions within the social cultural context with the whole class as the subject driven by an overall motive of learning how to conduct CMPR tasks.

In particular, the analysis at the second phase consisted of several steps. First of all, documents collected from the institute and the writing class such as the mission statement of the institute, the class syllabus, the peer response task instruction sheet, and peer response student working sheets were thoroughly reviewed by the researcher to gain acquaintance with the environment. Second, the interview transcripts with each participant were reviewed. The information that was related to how each participant thought the institute, instructor, his/her peer and partner, the rules to be followed during CMPR, and the different roles the instructor and each student should play during CMPR influenced his/her online behaviors was pulled out discretely. Names were given to each discrete group of information. For example, information about participants' perceptions about the influence from the institute was categorized as "community" whereas information about influences from the use of English and CMPR worksheets were

categorized under “mediational tools”. After all relevant information was categorized and named, further analysis within each category was conducted. By using constant comparison method (Lincoln & Guba, 1985; Miles & Huberman, 1994), the tensions that emerged in each activity system that was driven by a learning and development motive and how each participant sought solutions to or ignored the tensions were identified.

In the third phrase, the whole class was considered the collective subject engaged in the activity system throughout the summer semester that was oriented to the object of knowledge and skills of conducting a CMPR task. Following the similar steps as those in the second phrase, first, the researcher identified the tensions or conflicts between each component within the activity system by reviewing all the data collected during CMPR tasks. Then, participants’ attempts or negligence to reconcile the tensions and conflicts were identified by using constant comparison method. Finally, the learning and development that emerged throughout participants’ solution-seeking process were investigated by scrutinizing what changes in terms of communicative strategy use had occurred in students’ participation in the CMPR tasks in the summer semester. To present the interactions between the components in the activity system, tensions or conflicts also were displayed in the activity triangle.

Subquestion 4: How do students’ prior experience with writing instruction and with computers use, particularly synchronous communication, influence their participation in CMPR?

Regarding how students’ prior experience with writing instruction and with computer use, particularly using synchronous communication, influenced their participation in the CMPR tasks, the analysis was conducted within the activity systems

each individual participant was engaged in that were constantly mediated by each participant's unique histories before his or her enrollment in the current class. Information from the pre-study ethnographic survey, interview transcripts, the researcher's field notes, video clips, reflective journals, and participants' IM chat transcripts as well as their on-screen behavior recordings were analyzed to describe in what way and to what extent each student's history of writing instruction and compute use facilitated and/or constrained his or her interactions during the CMPR tasks.

This analysis contained four phases. First, data from the pre-study survey were reviewed and each student's prior experience of writing instruction such as whether he or she received English academic writing instruction before enrolling in this course, how many years of writing instruction they had received upon enrolling in this course and what kind of writing instruction they had received, whether he or she had heard of or participated in any peer response, etc, and of their computer use and CMC were reorganized in a matrix for the convenience of later analysis.

Then, segments of student interview transcripts addressing how students thought their prior experience with writing instruction, particularly peer response, and with computer use, particularly IM chat, influenced their participation in the current CMPR, which were usually reflected in their preconceptions of peer response and IM chat, were reviewed thoroughly. The problems or tensions encountered by each participant that were caused by his or her prior experience with writing instruction and computer use, the process of seeking for solutions to these problems/conflicts, as well as any positive experience that was fostered by their prior experience were identified. By using constant comparison method (Lincoln & Guba, 1985; Miles & Huberman, 1994), identified

themes and categories, such as negative or positive experience each participant had during the CMPR tasks were recorded and later compared and contrasted to ensure all pertinent information was included but not overlapped. The identified information later was synthesized in the Matrix created in the first phase.

Next, the researcher's field notes, video clips, IM chat transcripts as well as on-screen behaviors recorded in WINK were reviewed to identify the conflicts/problems and/or conveniences that were brought by each participant's history. Themes and categories identified from the data were compared and contrasted to eliminate redundancy and discrepancy. Information obtained at this phrase also was synthesized in the Matrix.

Finally, identified themes from the three phrases were compared and contrasted. When discrepancies occurred, the participants were contacted either in a face-to-face interview or through email or IM to confirm what exactly had taken place during the CMPR. By connecting each participant's prior experience with writing instruction and computer use with his/her current actions during the CMPR tasks, the researcher was able to uncover how each ESL student's prior experience influenced his or her participations in each CMPR task throughout the semester.

Subquestion 5: What is the dynamic nature of CMPR?

The fifth research sub-question was answered based on the findings in the other four sub-questions. This question concerned the dynamic aspect of CMPR. In other words, ESL students' learning and development throughout CMPR was the focus of the analysis. Drawing on the previously analyzed data, a review of the interview transcripts, and the constructs provided in both Leont'ev's (1981) hierarchical structure of activity

and Engeström's (1987, 1999) triangle model of activities, the researcher presented a synthesized explanation of how each participant performed in CMPR by connecting what motive and goals each participant held during each CMPR task, whether their motives maintained or shifted, and how each student driven by his or her own motive constantly transformed and was transformed by the social cultural contexts which contained the mediational tools, the community members, the norms and rules to be followed, and the roles expected to play, as well as his or her own histories.

In addition, drawing on the key tenets in a supplementary theory, namely Dynamical Systems Theory (DST), the researcher recorded the trajectory of the dynamic developmental process of CMPR in a two-dimensional graphical diagram. Time was considered a parameter on the X axis while each participant's engagement in each CMPR task throughout the semester was reflected on the Y axis. To analyze each participant's developmental trajectory throughout the CMPR tasks, data from field notes, participants' beyond- and on-screen behavior recordings, IM chat recordings, and the researcher's reflective journals were used. Three main phases were undertaken. In the first phase, a Scale for Quantifying ESL Students' Engagement in CMPR Tasks (Appendix O) was created based on the researcher's understanding of participants' engagement and/or disengagement behaviors during the CMPR tasks. The second phase was using the scale to quantify each participant's performance during each CMPR task. In the third phase, each participant's score at the particular point of time during each CMPR task was filled in a matrix and then converted into diagrams.

Particularly, in phase 2, five specific steps were undertaken. First, the participant's beyond- and on-screen behavior recordings as well as IM chat transcripts

were reviewed. Behaviors that occurred every 10 minutes within each CMPR task were grouped together. Second, data collected every 10 minutes were scrutinized to identify the types of performances based on the aforementioned scale. Third, the constant comparison method was conducted to ensure the data under each category were accurate and not redundant. Step 2 and 3 were repeated to identify the performances during all of the 10-minute slots. Fourth, after the types of performances every 10 minutes were identified, each type of performance was given a score based on the Scale. If a participant conducted multiple types of performances, his or her score would be the accumulated scores of all performances. For example, during the second 10-minute slot in the first CMPR task, Iron both gave opinions to Anton, which was scored 3, and read the essay and the worksheet, which was score 2. Thus, his score in this slot was 5. The same steps were repeated to score every participant's performances. Since Rocky was considered unengaged in the activity system of learning how to conduct CMPR tasks, his performances were analyzed here.

This trajectory display provided a more transparent picture of the dynamic development process during each participant's involvement in the CMPR tasks, which illustrated the results of the interactions of all components within each participant's activity system and the ones between neighbor activity system interacts existing diachronically and synchronically, which gradually led or was leading to ESL students' development in terms of their understanding of CMPR and second language writing.

Trustworthiness

Lincoln and Guba (1985) argue that researchers conducting naturalistic or qualitative inquiry should ascertain the quality and rigor of qualitative research as well as

quantitative researchers do. In contrast to the validity and reliability against which the rigor of quantitative studies is established, they propose four attributes to caliber the trustworthiness of qualitative studies: credibility, transferability, dependability and confirmability. Credibility is a standard that all relationships identified by and interpretations made by qualitative inquirers should be derived from authentic data as well as be credible to "constructors of original multiple realities" (p.296). To meet this criterion, Lincoln and Guba recommend three strategies: prolonged engagement, persistent observation, and triangulation to reduce unnecessary distortion in the field, build trust with participants, gain data maturation in the field, and decrease researcher biases. As for transferability, Lincoln and Guba argue that although it is, in a strict sense, impossible to transfer findings of qualitative inquiry from one context to another, qualitative researchers are responsible to provide thick description for potential appliers.

Dependability concerns whether the process of the study is reasonably stable over time and across researchers and methods. To achieve this goal, they recommend researchers keep an audit trail to record all methods and procedures that are conducted throughout the study. The fourth criterion, confirmability, refers to the "relative neutrality and reasonable freedom from unacknowledged researcher biases" (Miles & Huberman, 1994, p.278). This criterion concerns whether the conclusions depend on the people and the environment under investigation rather than the inquirer. In other words, other researchers can "replicate" the study.

Given the aforementioned four criteria, the researcher employed several strategies to establish the trustworthiness of the study. First, to achieve the credibility, the fact that the researcher also was the instructor of the class allowed unobtrusive and persistent

observation in the academic writing class throughout the semester. It also enabled the researcher to develop a deep understanding of the participants and the environment, which might otherwise be uneasy for an external researcher. Besides using video cameras and taking field notes to record all three CMPR sessions, the researcher kept a teaching log, namely reflective journals, after each CMPR session and periodically at the end of each week, to record salient issues that emerged in the class as well as to reflect on why the issues occurred and whether they shed light on tensions and conflicts that emerged during the following CMPR task. Using these multiple sources of data enabled the researcher to make authentic interpretation of the event under investigation.

However, the dual roles the researcher played in the study also caused researcher effect. For example, some participants such as Rocky tried to please the instructor/researcher during interviews by giving overwhelmingly positive comments about CMPR when asked about their perceptions about CMPR. Rocky also tried to impress the instructor/researcher by acting more attentively during the last CMPR session when he was aware that the researcher was sitting right behind him. To reduce these threats to credibility, the researcher used several strategies: (1) participants were informed at the outset of the study that what they said during interviews would affect their final grades for this class; (2) occasionally informal interviews were conducted in IM after the researcher discovered participants such as Nicky were more open in IM chat as well as during class break time; and (3) the researcher avoided sitting right behind or next to participants during the CMPR tasks. In addition, to reduce the researcher biases, both peer debriefing and member checking were conducted.

A peer researcher was invited to review a sample coding process and sample codes identified by the researcher during the analysis process. The peer researcher also was invited to participate in the coding process in research question 5 to ensure the performance conversion was reliable. Besides the help from the peer research, the researcher also discussed the identified themes and instances under some category with one debriefer who has expertise and ample experience in ESL writing instruction and research methodology. The findings of the study were reviewed by two debriefers, one with expertise in ESL peer response and the other knowledgeable in the field of computer-mediated communication and sociocultural theory. Both debriefers were on the researcher's dissertation committee. The debriefing activities aimed to verify the data collection and analysis, e.g. identifying all goal-related statements in interview transcripts, and clarify interpretation. Debriefing activities were undertaken in formal and informal modes. The formal debriefing was conducted when the researcher had face-to-face meetings with each debriefer to discuss the primary findings. The informal debriefing was undertaken when the researcher shared ideas and insights with each of the debriefers about the emerging issues during the data collection process and the primary findings in the data analysis process.

As for the member checking, all data and partial findings and interpretations were verified with all participants. Member checking was used to confirm the intentionality on the part of the participants and to reduce the error of interpretation on the researcher's part. The member checking was conducted either in the classroom during break time or informally through IM chat with each individual participant after initial findings were identified, which usually occurred in the week following the CMPR task. During the

member checking, participants were asked to restate their intentions during the peer response session and to confirm their intention in the interview. The researcher's interpretations of the goals and the influences from the social cultural contexts and the historical activities were shared with each participant. Each member checking was kept in the researcher's reflective journals.

To consolidate the transferability of the proposed study, the researcher provided thick description of the study design in the report with an emphasis on the context and the sampling strategy. As for the dependability, the researcher provided an audit trail of the entire study by providing a dense description of the data collection and data analysis processes. Apart from this, strategies such as triangulation by using multiple data sources and research methods, member checking with the participants, and peer debriefing with two advisors on the researcher's dissertation committee were undertaken.

Regarding confirmability, Robert Yin (2003), a prominent case study researcher, offers an opposite view by arguing that it is impossible for another researcher to replicate the results of a previous case study in a new environment due to the context sensitivity of case studies. The researcher agrees with Yin's assertion. One of the research interests in the study was to investigate how the current social and cultural contexts influenced ESL students' behaviors during CMPR sessions in a level IV academic writing class. Given the uniqueness of all social cultural contexts in which human beings are situated, it may not be feasible for another researcher to replicate or confirm the conclusions obtained in the study in a new social cultural context. To achieve confirmability Yin (2003) suggests the case study researcher provide thick descriptions of the context and the study design so that future researchers are able to replicate the research methods rather than the

conclusion. Thus, in the study, the researcher provided detailed descriptions about the context where the study was conducted, the participants, the data collection and analysis procedures as well the methods.

Conclusion

In this chapter, the researcher presents how to conduct the study, including the study design, study contexts, participants, data collection and analysis procedures and techniques. Besides these, detailed information about the techniques employed to establish the trustworthiness of the inquiry is also provided. Through these research procedures and techniques, important information was obtained to answer the overarching research question: how do ESL student writers perform in a peer response task that is conducted in a computer-mediated environment?, which will be reported on in Chapter IV.

CHAPTER IV

RESULTS

This chapter presents the results based on the obtained data in the study. To provide a context for the findings, I first provide a profile of each participant. It is followed with the results pertinent to the first four research questions: (1) ESL students' motives and goals as well as their formation and shift during Computer-mediated Peer Response (CMPR) tasks; (2) the mediation of IM use in ESL students' participation in CMPR tasks; (3) the mediation of the social cultural contexts in ESL students' participation in CMPR tasks; and (4) the mediation of ESL students' prior experience with English academic writing instruction, particularly peer response, and with IM chat in their engagement in CMPR tasks. The results for the fifth research question, which present a comprehensive dynamic view of the whole study, are discussed in detail in Chapter V.

The information about each participant's cultural, linguistic, and educational backgrounds was obtained from two sources: (1) pre-study ethnographic survey and (2) students' background records including pre- and post-level-4 CELT and MTELP scores. The pre-study ethnographic survey was administered in the second week of the summer semester, 2006 in the English Language Institute (ELI) whereas the students' test scores were collected both at the beginning and at the end of the semester.

The Profiles of the Participants

The class in which the study was conducted started with 11 students in May, 2006. In the second week, one student left the ELI and one newly joined it. Throughout the semester, three more students withdrew from the class due to various reasons. In the middle of the semester, one student (Gasan) was dropped from the study because he consistently missed classes including the majority of computer-mediated peer response (CMPR) sessions. Thus, although he signed the informed consent form, his data were not included in the study. Two students (Percy and Jillil) did not participate in the study. Thus, data for this study were collected from a total of five participants: Anton, Diane, Iron, Nicky, and Rocky. Pseudonyms are used here to protect the confidentiality.

The profiles (see Appendix N) present participants' ethnographic information, self-reported intention of attending the ELI, and prior experiences with English academic writing instruction, particularly peer response, and computer use. As shown in Table 7, among five participants, three were female with two within 20-30 years old and one in the age range of 30-40. The other two were male one of whom was within the age range of 20-30 and the other in his mid-40s. Each of the students came from a different cultural background including Belgium, Columbia, Saudi Arabia, Taiwan, and Turkey. The only language they used to communicate with each other was English. Their academic backgrounds were diverse as well. Two earned a Master's degree before the enrollment in the ELI. One had a B.A., one came with a vocational school certificate, and one had a high school diploma. They all earned the degrees in their native countries. Among the five participants, two stated their goal at the ELI was to solely improve his or her English

language proficiency. Two intended to enroll in a graduate program in the U.S. and one in a undergraduate program in the U.S.

All five participants received English language instruction before joining the ELI. However, only one participant took one course with a focus on English academic writing in which only writing-related lectures were delivered. Three of the participants knew about peer response and two had no idea of it before taking this course. Only one participant explicitly expressed her expectation for this academic writing course: express self in a correct way.

Regarding their prior experiences with computer use, all participants owned a personal computer. Four of them had been using computers for more than three years and one less than six months. All of them expressed enthusiasm in using the computer and all had been using computer technologies to communicate with people. Among computer technologies, four used email, instant messaging, and public chat room whereas one reported only use of email. In terms of instant messaging, four said they used IM daily but three used it less than one hour per day and one stayed online for 4-12 hours per day. All four IM users used IM to entertain with friends and/or to communicate with family. The non-IM-user participant only used email to communicate with colleagues.

In terms of participants' English language proficiency, one had been in the ELI since level 1, which means this was her fourth semester at the ELI. Three joined the ELI in the spring semester, 2006, and one was a fresh new student in the ELI. Among the five participants, one participant took the TOEFL in the spring semester and obtained a very good score. The pre-test scores in CELP & MTELP demonstrate that two participants were at the upper level, two in the medium range, and one at the lower level. Except the

two participants leaving the ELI before the end of the semester, two participants obtained higher scores and one obtained the same in the post tests. The following section provides a detailed description of each participant with an emphasis on his or her prior experiences with English language learning, academic writing instruction, and computer use.

Anton. She was a 22-year-old Belgian student. Her native language was French. She graduated with a bachelor's degree in economy from a college in Belgium one year before the data collection. Then she worked in a small company in Belgium. In order to work in the international trade company owned by her sister-in-law, she came to the U.S. to improve her English. She had no intent to enroll in any higher education institution in the U.S. or any other English-speaking country. Anton had taken English courses for 3 years in a high school in Belgium. Most of the instruction she received in Belgium focused on grammar and translation. She was not trained to speak English or to compose academic papers in English. She had never heard of peer response until she was enrolled in a Level-3 academic writing course in the ELI in spring, 2006, which was also her first semester at the ELI.

When Anton joined the ELI in January, 2006, she could not understand or speak English at a normal speed. However, she made dramatic progress in the spring semester. When she started the level-4 academic writing class, she was one of the most proficient students in English speaking and writing. She had no obvious communication problems within and beyond classrooms. She also took the TOEFL at the end of the spring semester and obtained a very good score. Anton had her own computer and claimed she had been using it for more than three years and was an enthusiastic CMC user. She used email, public chat room, instant messenger, and voice-over-Internet-protocol (VOIP) to

communicate with her friends and family. The IM tool she usually used was MSN messenger and she used it daily but merely less than one hour per day. She had never used IM to discuss academic issues with classmates.

Diane. She was a 34-year-old Columbian student with Spanish as her native language. After marrying an America-born Columbian in Tampa, FL, she moved here to take care of her husband and mother-in-law. She spoke Spanish at home. Besides taking courses at the ELI, Diane also worked as a part-time salesclerk in a local grocery store where she spoke Spanish for the majority of time and occasionally practiced English with her English-speaking co-workers. She obtained her bachelor's and Master's degrees in Columbia before moving to Tampa. She started her study at the ELI from Level 1 in summer, 2005. In other words, she had gone through level-1, -2, and -3 at the ELI in the past three semesters. Diane planned to join a graduate program in accounting in the U.S. after the ELI. She took English courses in Columbia but those courses merely focused on vocabulary memorization. When she arrived in the U.S., she could not speak any English. Only after her enrollment at the ELI, she started systematically learning English speaking, reading and writing. Thus, she cherished every moment to improve her English.

Diane took a Level-3 academic writing course in the previous semester in which she learned paragraph-level composition and gained awareness of peer response. However, peer response was not deemed an important learning task in the level-3 writing class. Thus, Diane did not understand what was expected in a peer response task until she took the Level-4 academic writing course. Regarding computer technologies, Diane had her own computer and had been using computers for more than three years. She enjoyed using various computer-mediate communication technologies such as email, chat room,

and instant messenger to communicate with her friends and family members. She used IM daily but for less than one hour per day.

Iron. He was 43 years old when he joined the ELI. He was financial manager in an International finance auditing company located in Istanbul, Turkey. His native language was Turkish and he obtained his master's degree from a university in Turkey. He had taken English classes in Turkey for about three years. However, he had rich experience with English-speaking environments because of his trips to London for business meetings. Therefore, although the summer semester was Iron's first semester at the ELI, he was placed at level 4. Iron could comprehend, read and write in English with no significant difficulties. But his English speaking ability was in need of ample improvement. He reported that his sole purpose at the ELI was to improve his English proficiency. He expected to learn how to correctly express himself in both spoken and written forms in English at the ELI. Iron had his own computer.

He had a column in a well-known finance newspaper in Turkey. He published financial reports and commentaries every Wednesday in his column. Since he was away from Turkey, he usually typed his article in Turkish on his computer and sent it to the newspaper editor in Turkey every Tuesday night. Thus, Iron was a frequent computer user although he only used email to communicate with his colleagues in Turkey and occasionally with colleagues in London. However, Iron could not type especially in English on the computer very quickly because his staff usually typed for him when he was in Turkey. He had never used, even heard of instant messenger before he joined the Level-4 academic writing class.

Nicky. She was a 21-year-old native Taiwanese and immigrated to the U.S. with her parents a year and a half before she enrolled in the ELI. She obtained a certificate from a vocational college in Taiwan, which could be considered an equivalent degree to a bachelor's degree in the U.S. Before joining the ELI, she took only one year of English language instruction in a high school in Taiwan. She had never taken any English academic writing courses before she entered the ELI. Upon her enrollment at the ELI, she was placed at Level 3. She expected to enter a graduate program in a U.S. institution after the ELI.

Nicky had difficulties speaking and writing complete and grammatically correct English sentences upon entering the Level-4 academic writing class. Besides very introductory knowledge about peer response she gained at level 3, Nikky had never participated in any peer response activities. Regarding her computer use experience, Nikky had her own computer for more than three years. She felt very comfortable with computer use. She usually used email and instant messenger to communicate with her friends. She never used IM to discuss academic content with her classmates. She used IM daily and usually 4-12 hours per day.

Rocky. He was a 23-year-old Saudi Arabian student. After graduating from a high school in Saudi Arabia, he moved to Armenia because of his father's duty as a Sandi Arabian diplomat. After two years in Armenia where he learned English with his mother who was an English teacher, he moved to New York City. After four years in NYC, he joined the ELI. His total English instruction exceeded 5 years, more than that of all other participants. However, he never took any formal English academic writing course except writing practice with his mother before he entered the ELI. Because of the years of his

English education and his living experience in NYC, he was very fluent in English and had no ostensible problem with reading in English. But due to his relatively low level of writing proficiency, he was placed at Level 3 when he joined the ELI. Confident in his English proficiency, he insisted on taking courses at level 4. He failed the Level-4 academic writing class and had to retake it. Thus, at the time of this study, it was the second time Rocky took the academic writing IV class. And he was aware that he had to be sent back by the Saudi Arabian Embassy which sponsored his study in the ELI to Saudi Arabia if he failed it again.

Despite his prior experience with level-4 academic writing, Rocky was not aware of peer response tasks. He expected to successfully graduate from the ELI and obtain reference letters from the ELI to enter a undergraduate program in a local private university. Regarding his computer skills, Rocky had his own computer but he did not own it until six months ago. He was very comfortable with computer use and usually used email, chat room, and instant messenger to communicate with his friends. He used IM daily but only for less than one hour per day.

The five participants of the study came from diverse cultural, educational, linguistic, and social backgrounds. The CELP and MTELP scores showed participants had distinct English language proficiency in terms of listening, reading, vocabulary and grammar. Among them, two intended to enroll in a graduate program in a U.S. higher education institution, one was aiming an undergraduate program, and two merely wanted to improve their English proficiency. None of them had taken English academic writing courses and understood how to conduct peer response tasks. Four out of five had used

and were familiar with instant messenger to communicate with friends and family. None of them had used IM for academic purposes.

The students participated in a total of four computer-mediated peer response (CMPR) tasks throughout the semester although only one pair (Anton and Iron) participated in the first CMPR task which was for an expository essay. Due to the holidays that were right before the first task, the vast majority of students either missed the class or did not finish the expository essay upon the first CMPR session. Thus, data in the first CMPR task were only collected from Anton and Iron. In other words, the majority of data were collected in the 2nd, 3rd, and 4th CMPR tasks for the 3rd (summary-analysis), 4th (argumentative), and 5th (problem-solution) essay, respectively. However, due to Anton and Iron's unexpected early withdrawal from the ELI, no data were collected from them in the 4th CMPR task. In the first CMPR task, all students in the class were paired with partners selected by the instructor according to students' writing proficiency. In the last three tasks, students were paired with either instructor-selected or self-selected partners upon students' request. Pairs who worked in the CMPR tasks were listed in Table 2.

The following sections are organized in the order of the four research questions: (1) ESL participants' motive and goals as well as their motive shift throughout the CMPR tasks; (2) the mediation of the use of instant messenger in participants' interaction in the CMPR tasks; (3)the mediation of current social and cultural contexts on participants' participation in CMPR; and (4) the mediation of students' prior experience with writing instruction and computer use in their participation in CMPR tasks. Both within-case and

cross-case analysis were conducted in this study. Thus, each research question was answered with findings from both the individual and collective views.

ESL Students' Motives and Goals in CMPR Tasks

Question 1: What are the motives and goals of ESL students participating in CMPR and how do these motives and goals maintain or shift over time?

CHAT researchers (e.g. Davydov, Zinchenko, & Talyzina, 1983, as cited in Kuuti, 1995; Leont'ev, 1981) acknowledge the difficulties of distinguishing motives from goals due to the blurring and fluid boundaries between motives and goals. Therefore, prior to the analysis of each participant's motives and goals in each CMPR task, the researcher employed two criteria to help identify each participant's motives and goals: (1) goals can be attained in a finite or relatively short time while motives are not time-bounded and may be achieved in days, months, or years; and (2) goals can be verbally expressed while motives are usually below the plane of conscious attention and may not be verbally explicated.

Motives

To analyze each participant's motives, three specific steps were taken. First, each participant's beyond-screen behaviors that were recorded by two video cameras and the researcher' participatory observations and on-screen behaviors that were recorded through a screen-capturing software program WINK and in IM chat transcripts were synthesized by using the constant comparison method (Lincoln & Guba, 1985; Denzen & Lincoln, 2006) into a beyond-screen behavior matrix (see Appendix L) and an on-screen behavior matrix (see Appendix M).

Each participant's beyond-screen behavior patterns were first identified from the data recorded in two video cameras in terms of their verbal interaction with the instructor, their respective partner, and other students in the lab, and their facial and physical movements during the CMPR tasks. Then these patterns were compared with the observations collected from the researcher's observation protocol. Due to the fact that the cameras and the researcher were located in different places during the CMPR tasks, the researcher constantly compared the observation protocol and the camera recordings to achieve congruence between the two set of data. The identified beyond-screen behaviors in the four CMPR tasks are listed in the four tables (see Appendix L). :

As for participants' on-screen behaviors, the researcher first reviewed each participant's online interaction and website browsing during the four CMPR tasks captured in both WINK and IM chat recordings. Then significant patterns were identified and the frequencies were counted including on- /off-task e-turns (each thread of text or graphic message an IM user posts during IM chat), language functions (the purposes of language), emoticon use (e.g. ☺, ☹), online resource usage, and multiple off-task IM chat windows by using the On-Screen Behavior Matrix (see Appendix M) which was created based on the data from the pilot study and expanded with data from the current study. Several new language functions that were not included in the coding scheme of language functions but were used in participants' interactions in the current study were identified: *inform action, check for readiness, indicate lack of self-confidence, linguistic self-correction, comment on topic, encourage, ask for permission, permit*, and *express appreciation*. Examples that illustrated the additional language functions were added in Appendix K. To avoid redundancy and repetition among the identified patterns, the

researcher constantly compared the patterns and the data from which the patterns were identified to ensure no patterns were similar to each other. The frequencies of the on-screen behaviors during each CMPR task were also tallied. Emergent interaction patterns such as the use of wink and nudge, which were animated emoticons, were added into the category of "emoticon". The identified patterns in the four CMPR tasks are listed in four tables (see Appendix M).

Second, by using Anton's data from the beyond- and on-screen behavior matrices, the researcher's reflective journals, the results of revision analysis, and occasionally interview transcripts from the first CMPR task, the researcher established a tentative scheme to identity Anton's motives in the task. As described in detail in Chapter III, a student's performances such as chatting with other students in class during the CMPR task and whether helpful suggestions were incorporated into the second draft were connected with a certain motive in the tentative scheme. Then, the tentative scheme was used to infer Anton's motives in the other two tasks and other participants' motives in each of the CMPR tasks. Along the data analysis, the tentative scheme was constantly revised to assist the researcher to understand and identify each participant's motive in each task.

Anton's Motives

The data about Anton's beyond-screen and on-screen behaviors throughout the three CMPR tasks she participated in showed that Anton was engaged in multiple activity systems. In the following text, I will describe Anton's actions in three tasks respectively, based on which the motives driving her actions in each task were inferred.

The first CMPR task was conducted in week 6 in which Anton collaborated with Iron. The data of Anton's beyond-screen behaviors showed she concentrated on the online interaction throughout the task, which was reflected in 1) she did not have any verbal interaction with other students and the instructor during the task and the only interaction she had was to return Iron's essay at the end of the session; 2) she concentrated on typing and reading messages on the screen and occasionally paused to check Iron's essay, which she explained in the follow-up interview was to look for more aspects to comment on and ensure her comments were appropriate; and 3) she occasionally looked at Iron to check whether he was on task.

Her on-screen behavior recordings also showed that Anton did not chat on any off-task topic throughout this task. She was completely focused on the peer response activity. During her message exchange with Iron, she used various language functions to fulfill her roles as a writer and a reader, such as give opinion/suggestion, ask for opinion/suggestion, structure, and ask clarification. As shown in Appendix M, a total of 26 e-turns were produced and none of them were off-task topics. During the chat, Anton pinpointed the problems in his content, organization, format, and references. She also asked Iron to provide any feedback on her essay. When Iron pointed out some weakness in her organization, she actively sought suggestions from him.

The revision analysis (in Table 7) showed that Anton revised her first draft after the CMPR task. She made two sentence-level changes by rewriting one sentence and expanding another. Two phrases were replaced by new ones. Five words were replaced with new ones. In the interview, she revealed, "*Iron told me I had problems in my introduction paragraph. So I rewrote my thesis statement and added new information. I*

also changed some phrases and words because I feel these new words are clearer and better." (interview with Anton, 6/25/06). Thus, the sentence-level revisions were mainly inspired by her chat with Iron while her word- and phrase-level revisions were made by herself. Her word-level revisions were stimulated by herself because "*I like to go back to revise my essay one week later because I could find some mistakes and think of better words (to express myself)*." (interview with Anton, 6/25/06)

Table 7

Anton's Revision in the Expository Essay

Level	Type	Purpose	Stimuli
Sentence 2	Add 1	Clarify intended meaning 4	Partner 4
Phrase 4	Replace 8	Impact 4	Self 6
Word 5	Rewrite 1	New information 1	
		Structure 1	
		Surface (spelling, capitalization, punctuation) 3	

Based on her beyond- and on-screen behaviors as well as the results of revision analysis, it can be inferred that Anton was driven by a motive of improving her writing skills in an expository essay in the first CMPR task.

During the second CMPR task conducted in week 8, Anton's actions deviated dramatically from those in the first task, which indicates Anton was engaged in some totally different activity systems in this task. The beyond-screen behavior recordings showed that Anton did not concentrate on the chat, which was reflected in 1) she was constantly checking whether the instructor was looking at her before putting on an earphone and she immediately took off the earphone when she noticed the instructor was

approaching her area; 2) she briefly chatted with her neighbor for information of online music; and 3) she stuck her tongue out and made faces toward the camera several times.

The on-screen behavior recordings further verified that Anton was not engaged in the learning activity system the instructor expected during the second CMPR task. While chatting with Iron on her essay, she opened a total of three more IM chat windows and browsed several music websites throughout the lab time. In other words, she was simultaneously chatting with four persons, with Iron on the peer response task, with an online friend on irrelevant topics, and with two classmates Diane and Jillil respectively. In her chat with Iron, Anton only produced nine e-turns among which seven were on-task and two were off-task. In the seven on-task e-turns, she rejected all the opinions and suggestions Iron gave about her essay. In addition, she did not provide any comment or suggestion on Iron's essay throughout the task. The data captured in WINK revealed that Anton complained how boring and stupid her partner Iron was and she did not want to work on the task with him when she chatted with Diane. Then, she started to play an online poker game with Diane. When she chatted with Jillil, he suggested she visited an online music website, which was accepted by her. Thus she immediately started browsing the website sent by Jillil and put on the earphone when she noticed the instructor was not looking at her direction. It was clear that Anton resented collaborating with Iron, which was confirmed by Anton in the follow-up interview in which she commented on Iron as a partner, "*Iron typed very slowly. He doesn't know how to give me suggestions. So I didn't think he could help me* " (interview with Anton, 7/17/06) . Regarding her objection to Iron's suggestions, she confessed that "*I don't think his opinion make sense to me. It just did not help me improve my writing*." (interview with Anton, 7/17/06).

In addition, the revision analysis (see Table 8) showed that she made any revision after the CMPR task. But none of them were stimulated by her chat with Iron. She explained that "*He said something about my ideas. But I don't think it helps me improve my essay. He said I have some mistakes in my sentences. But he did not tell me how to change them.*" (interview with Anton, 7/17/06). But as she usually did, she revised her essay by herself by replacing some words with new ones and rewriting a clause because "*they made my essay clearer*." (IM chat with Anton, 7/18/06).

Table 8

Anton's Revision in the Summary-Analysis Essay

Level	Type	Purpose	Stimuli
Clause 1	Replace 6	Grammar 1	Self 6
Word 5	Rewrite 1	Impact 5	

All these observations and analysis helped the researcher infer that Anton was not engaged in the activity system oriented to the object of knowledge and skills of writing a summary-analysis essay although she sat in the lab and followed the instructor's directions in the CMPR task. Instead, it was inferred that Anton was driven by two motives in this CMPR task. The first one was to maintain her good-student image, based on her rules-following behaviors in class. Although Anton came to the class and conducted the CMPR task with Iron, she did not initiate the conversation nor did she provide any comments on Iron's essay. She only passively responded to Iron's message whenever the system reminded her that a new message arrived. Her focus was completely placed on her chat with other online friends. Her resistance to Iron's opinion might seem that she was engaged in the task and just disagreed with Iron. However, the on-screen behavior recordings showed that Anton complained to her other online friends that Iron

was too stupid and boring to chat in IM. In addition, although she occasionally responded to Iron's messages, she spent the majority of her lab time chatting with other online friends and listening to online music. Thus, her second motive was just to have fun with her friends online. Neither of these motives were congruent with the expectation of the instructor. Between these two motives, the first one was the primary motive that motivated Anton to come to class to participate in the CMPR task. Then she realized she could simultaneously chat with her friends to kill some time in class, which stimulated her second motive.

In the third CMPR task, Anton was actually engaged in two different activity systems although she actively contributed to the IM discussion throughout the task. The beyond-screen behavior recordings showed that she had no interaction with the instructor and had two brief verbal interactions both of which lasted for less than two minutes during the task. The first brief talk was initiated by her classmate who asked how it was going with her when he passed by her computer desk. The other brief verbal interaction occurred between her and her partner Diane in the middle of their IM chat. The IM chat transcripts showed that neither Anton nor Diane printed out a hard-copy of each other's essay which was swapped via email the day before the CMPR task. Both of them felt difficult to discuss grammar issues in IM chat. So they decided to print out a hard copy and mark out the grammar mistakes directly on the paper. Diane printed out her own essay and walked over to exchange her essay with Anton's. After she exchanged the essay with Diane, Anton started to read Diane's essay carefully to identify grammatical errors in the essay.

The on-screen behavior recordings revealed that Anton was not only participating in the CMPR task with Diane, but also actively involved in two other IM chats. In her interaction with Diane, Anton was very collaborative, which was illustrated in both the e-turns she produced and the language functions she used (see the task for the argumentative essay in Appendix M). Throughout the chat, she produced a total of 46 e-turns 34 of which were on-task and 12 were off-task. Among the 34 on-task e-turns, Anton used numerous language functions such as structure, give opinions/suggestions, ask for suggestions, indicate intentions, clarify, ask for clarification, etc while playing her roles as a critical reader and a self-reflective writer. She also structured the conversations proactively by suggesting what Diane and she could do to optimize the peer response at both the beginning and the ending of the task.

Table 9

Anton's Revisions in the Argumentative Essay

Level	Type	Purpose	Stimuli
Clause 1	Add 7	Clarify intended meaning 6	Partner 2
Sentence 5	Delete 1	Impact 7	Self (all the rest)
Phrase 7	Replace 12	New information2 Structure 5	
Word 10	Rewrite 2		

As shown in Table 9, the revision analysis that compared Anton's first and second drafts revealed that Anton made enormous revisions in her second draft, which included one clause-level, five sentence-level, seven phrase-level, and ten word-level changes. Comparing Anton's revisions and her IM chat with Diane as recorded in the IM chat transcript, it showed that her edition of three sentences in her body and conclusion paragraphs to make the structure clearer and the addition of two sentences to include new

information were stimulated by her chat with Diane. Some of her word-level revisions such as misspellings were directly from Diane's edition in her essay.

All these indicated that Anton was driven by the motive of improving her writing skills in an argumentative essay in the third CMPR task. However, Anton's other on-screen behaviors indicated that besides the CMPR task, she was simultaneously engaged in another activity system: having fun in IM chat. The on-screen behavior recordings showed that as soon as Anton logged onto the messenger and started chatting with Diane, she opened another IM chat window and initiated a conversation with an online friend who was obviously her boyfriend based on their chat content. Based on the beyond-screen behavior recordings, she was smiling all the time while chatting with both Diane and this online friend. She did not pause chatting with him even when Diane walked over to exchange hardcopies of their essays. In addition, Anton constantly checked the screen to see whether her online friend sent her new messages even when she was editing the grammar mistakes in Diane's essay. This indicated that the other motive that drove Anton to participate in the third CMPR task was to interact with friends online.

Based on the above analyses, it showed that Anton held heterogeneous motives within and across tasks. Anton's motive shift throughout the three CMPR tasks can be illustrated in Figure 5:

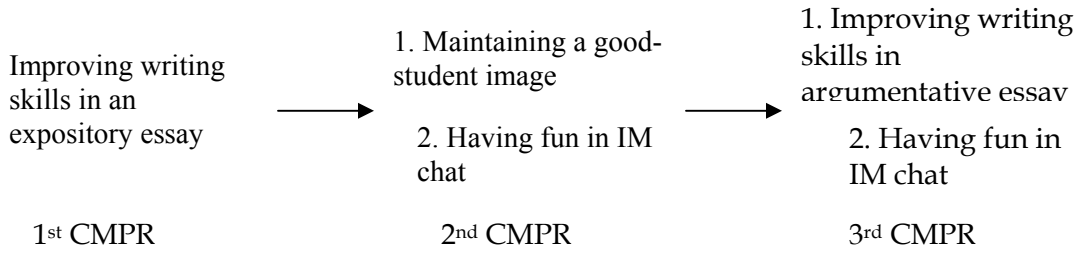


Figure 5. Anton's Motive Shift

Diane's Motives

Before Diane participated in the CMPR tasks, she was an experienced user of instant messenger. She missed the first CMPR task. Thus, she only participated in the CMPR tasks for summary-analysis essay, argumentative essay, and problem-solution essay. In the three CMPR tasks, she was motivated by heterogeneous motives.

In her first CMPR task, she was paired with one non-participant student Jillil who she had known since Level-1 was consistently slothful in the majority of class tasks. However, she was still enthusiastic to participate in this task, apparently driven by a different motive. Both the beyond- and on-screen behavior observation data showed that she was motivated primarily by the idea that she could chat with friends online and access online entertaining resources during the class time.

According to the beyond-screen behavior observations, Diane enjoyed chatting with friends rather than discussing on the essays: 1) she kept smiling during the entire chat time and even laughed out loud once toward the end of the CMPR session; 2) she showed her funny chat content to a classmate who approached to see why Diane was so happy; 3) she did not finish reviewing her partner's essay before coming to class, thus kept reading the essay throughout the CMPR session. However, even when she was reading the essay, she constantly checked her screen and stopped reading immediately to respond whenever a message was sent over from a friend.

Her on-screen behavior observation data showed a clearer picture of what Diane had been doing during the task. Diane contributed a total of ten e-turns in the chat five of which were on-task and five were off-task. In the five on-task e-turns, she gave very limited feedback. She used one e-turn to ask how her partner Jillil thought about her

ideas, one to confirm one question asked by Jillil about her introduction paragraph, one to express her appreciation for the feedback from him, and two to comment on Jillil's essays. There were no actual exchanges as to whether those comments made sense to the writer. After the brief chat on the essays, Jillil suggested they chat something fun. Diane spent another five e-turns chatting what she and Jillil did over the weekends. She spent less than 10 minutes on the chat with Jillil. In contrast, Diane had a long and enjoyable chat with Anton who was working with Iron. After knowing Anton was bored with chatting with Iron, Diane first suggested she watch some online MTVs, then told her some fun things that just happened to another classmate, finally started to play an online poker game with her. While chatting with Anton, Diane was also checking email and surfing on the Internet to find interesting online MTV files to amuse herself. She did not seem to concern whether she could improve her writing based on her chat with Jillil, which was confirmed by the results of revision analysis, which showed she made very minor word-level changes. In the follow-up interview, she explains, "*Jillil is killing me… he did not want to talk about our essays. He only wants to talk something fun. So I did not get any help from him. So I did not make changes*." (interview with Diane, 7/21/06)

However, the data also showed that Diane was simultaneously driven by another motive: to maintain a good-student image in front of the teacher. Although Diane extremely enjoyed the online chat and seemed willing to spend the entire class just chatting with friends, she was constantly concerned whether her behaviors, which she knew were not allowed by the instructor, would be discovered. The beyond-screen behavior data showed that she constantly checked where the instructor was standing and whether the instructor was looking at her. Once she noticed the instructor was moving

toward her seat, she started reading the essay to pretend she concentrated on the task. Considering Diane came from a culture--Columbia where students are educated to obey all classroom rules, the researcher inferred that Diane was not willing to break the status-quo between the instructor and her in this CMPR task.

In the CMPR task for the argumentative essay, Diane's motives seemed to shift dramatically. She believed she would benefit more if working with a partner with a higher-level English proficiency. Thus, she requested to work with Anton who she thought was the best student in her cohort. Throughout the CMPR task, she provided extensive contributions to the chat. When she was waiting for responses from Anton, she reviewed either her own essay or Anton's essay. After agreeing with Anton on marking down grammatical errors in each other's essay, she printed out her new essay and walked over to exchange the essay with Anton.

The on-screen behavior data showed that during the chat Diane was also revising her essay based on the suggestions from Anton. In addition, as shown in the chat transcripts, Diane contributed 34 e-turns which significantly outnumbered her contributions during her first CMPR task. Among the 34 contributions, 25 were on-task, which means the vast majority of her focus was placed on the CMPR task during the chat. Diane used a variety of language functions during the chat, such as express her appreciation, provide opinions and suggestions, indicate difficulty, ask for opinions and suggestions, clarify and discuss about her ideas in her essay , as well as phatic (maintain the flow of the conversation). Diane agreed on all or did not object any suggestions given by Anton.

The revision analysis (Table 10) further illustrated Diane respected for Anton's opinions and incorporated the vast majority of her suggestions into the second draft. As shown in Table 8-a, Diane made two paragraph-level, three clause-level, two sentence-level, phrase-level, and 10 word-level revisions, She rewrote her introduction and conclusion paragraphs using several connectors to make her arguments clearer and stronger. She added sentences in the paragraphs, and replaced ten words and two phrases with new ones. The comparison between her revisions and the IM chat transcripts showed that her paragraph-level revisions were stimulated by her chat with Anton. In the follow-up interview, Diane reflected that her sentence- and word-level revisions were based on Anton's edition. She also revealed that she rewrote three clauses because she thought they were not clear.

Table 10

Diane's Revisions in the Argumentative Essay

Level	Type	Purpose	Stimuli
Paragraph 2	Add 3	Clarify intended meaning 1	Partner 13
Clause 3	Replace 4	Grammar 3	Self 2
Sentence 2	Rewrite 5	Structure 2	
Phrase 2		Surface (spelling, capitalization,	
Word 10		punctuation) 12	

In addition, due to their difficulty in using English texts to discuss grammar issues, Diane and Anton voluntarily had a face-to-face meeting to continue their peer response during the lunch break. All these indicated that Diane was motivated in the second CMPR task to improve her writing skills in argumentative essay.

Diane was not solely driven by one single motive in her second CMPR task. Her partner Anton came to class late. Thus, Diane started checking email and surfed on the

Internet checking new online music video while waiting for Anton. After hearing some positive comments from Anton about her essay, Diane thought they finished the task, thus immediately invited Anton to play an online poker game. In addition, the IM chat transcripts showed that Diane used numerous non-text communicative tools and language functions such as emoticons (e.g. ☺, ☹), nudge and wink (animated emoticons) as well as compliments and sweet greetings to spice up the IM conversation. She also used several e-turns to express her disappointment of not being able to play the online game and her admiration of Anton's English. All those behaviors indicated she tried to entertain both Anton and herself by using the fun features afforded in IM. The beyond-screen behavior data also showed that Diane kept smiling when she chatted online. Considering her history of using instant messenger to communicate with friends as well as her behaviors during the chat, the researcher inferred that the other significant motive for Diane to participate in the second CMPR task was having fun in online chat.

In the CMPR task for the problem-solution essay, Diane was paired with Rocky who she thought was not a serious student. As usual, she started checking her email and returned email upon her arrival in the computer lab. She also checked various online video sites to see whether there were new music videos. After finding some interesting music sites, she put on the earphone to enjoy them. She did not initiate contact with Rocky until he walked over to ask for her IM account information. Thus, in the first 15 minutes of the CMPR session, Diane did not approach Rocky at all.

As shown in the on-screen behavior recordings, when Rocky eventually logged online, Diane initiated the chat with him by checking whether he read her essay and whether he finished his essay, which indicated that Diane had expectation that Rocky

might not have finished his essay because of his usual tardiness. During the chat, Diane contributed 38 e-turns all of which were on-task. Although she initiated the vast majority of the topics by using various language functions, e.g. ask for suggestions, and request information about the topic of Rocky's essay, she did not expect Rocky to give her much feedback as she revealed in the follow-up interview. But she still seemed enjoying the chat by using emoticons and wink in the chat. However, when Rocky helped her identify some word-level errors in her essay, which was one of her weaknesses in academic writing, she seemed to change her attitudes. She then constantly asked Rocky to mark down those words which he thought were erroneous or unclear.

Table 11

Diane's Revisions in the Problem-Solution Essay

Level	Type	Purpose	Stimuli
Phrase 1	Add 3	Grammar 12	Partner 15
Word 13	Replace 12	Surface (spelling, capitalization,	
Punctuation 1		punctuation) 3	

The revision analysis (see Table 11) showed that Diane made one phrase-level, thirteen word-level, and one punctuation revisions and all of them were suggested by Rocky since he corrected all the errors in her first draft. It indicated Diane trusted Rocky's English proficiency. She did not make any other revisions except incorporating Rocky's editions into her second draft.

In addition, despite the fact that Rocky did not finish his essay before the CMPR session, during the chat Diane asked what topic he was writing about and then gave him some ideas to solve the problem he was tackling. As requested by Rocky who gave her his essay at the end of the day, she reviewed his essay and provided detailed comments

the next day. Diane's behaviors during this CMPR session showed that she was experiencing a motive shift during the CMPR task for problem-solution essay. Her initial motive of participating in the CMPR task was having fun in IM chat, which was shown in her behaviors before chatting with Rocky. During the chat, after she realized Rocky was able to offer helpful word-level suggestions to her, her second motive emerged and dominated the chat, which was to improve her writing skills in argumentative essay. Diane's motive shift can be illustrated in Figure 6:

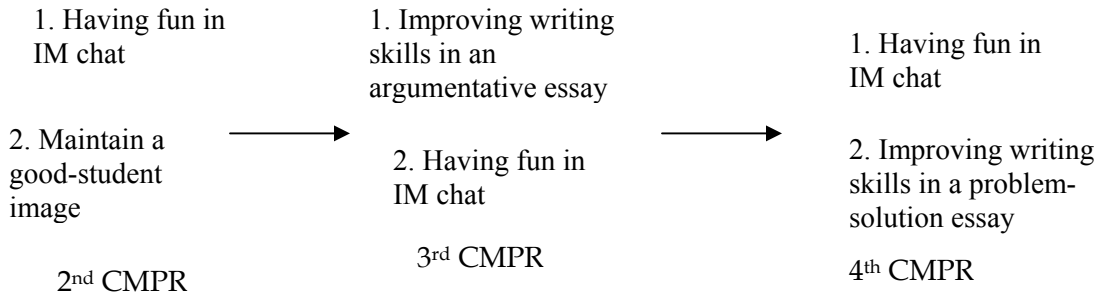


Figure 6. Diane's Motive Shift

Iron's Motives

Iron was a very dedicated student in the entire semester. However, it showed his motives of participating in the CMPR tasks constantly deviated from his partners' and shifted chronically. The first CMPR task which was for the expository essay was Iron's very first time to conduct online chat. He was not skilled in typing on the keyboard. The instructor helped him register a new MSN instant messenger account and showed him how to find his partner in his MSN buddy list and to conduct a chat with her. Because Iron was encountering this completely new tool, he was very concentrated on the chat.

His beyond-screen behavior recordings showed that he did not have any other behaviors besides reading messages on the screen, typing on the keyboard, and

occasionally checking his partner's essay and the CMPR worksheets given by the instructor throughout the CMPR task.

His on-screen behavior recordings confirmed his devotion to this task: 1) all his contributions in his online chat were task-related although he only contributed a total of 14 turns due to his lack of typing skills; 2) during the CMPR chat, the language functions he employed include greetings, express intention, give opinion, give suggestion, agree, phatic , and inform action; 3) he did not chat with anyone else during the chat. During the chat, Iron's partner Anton suggested he follow the academic writing format such as space between lines and paragraphs, provide reference information for the data he cited, and balance the information discussed in the introduction and conclusion paragraph.

Table 12

Iron's Revisions in the Exploratory Essay

Level	Type	Purpose	Stimuli
Sentence 1	Add 1	Structure 1	Partner 4
	No change	Surface (spelling, capitalization, punctuation) 3	

As shown in Table 12, Iron added one sentence in his conclusion paragraph to match his introduction and conclusion paragraph, as suggested by Anton during the chat. He also changed the fonts of his bolded words and double-spaced his essay. However, he did not include the reference information despite Anton's suggestion. In the follow-up interview, Iron explained, "*I don't know… how to use the reference. I didn't change it*" (interview with Iron, 6/21/06).

Although he was very slow, Iron managed to offer some feedback on Anton's essay. Using the CMPR reader's worksheet, he pinpointed some weaknesses in Anton's

essay and offered one suggestion, such as her thesis statement was too broad enough and her conclusion paragraph was weak. All these data helped the researcher infer that Iron was genuinely engaged in the activity system of learning knowledge and skills of writing an expository essay.

In the second CMPR task, Iron collaborated with Anton again. However, he seemed to be driven by two divergent motives in this task. Since he obtained some useful feedback from Anton in the first CMPR task and acknowledged that Anton had very high English proficiency, he retained faith in the usefulness of this task as revealed in the follow-up interview. Thus, he was eager to participate in the second CMPR task.

The beyond-screen behavior recordings showed that he again completely concentrated on his chat. When he was waiting for responses from Anton, he constantly compared his comments on Anton's essay with the CMPR worksheets. The on-screen behavior recordings showed that he initiated the conversation and contributed many comments on Anton essay despite her negative attitudes as reflected in the IM chat transcript. He reported to the instructor in the follow-up interview that he was disappointed that Anton did not provide any feedback to him during the chat, which indicated he was concerned of receiving feedback from Anton to improve his writing.

However, the data also showed that Iron might be driven simultaneously by a secondary motive: remedying his image of computer illiteracy. In the first CMPR task, due to his limited computer skills, the chat was constantly led by Anton who not only contributed the majority of the e-turns, but also directed the conversation as well as urged him to type faster. Iron was not able to finish the chat within the assignment time, which caused the pair to have an additional CMPR session the next day. Iron seemed to intend

to change this impression during the second CMPR chat, which was reflected in four aspects: 1) he had been staying in the lab to practice typing after class, which helped him be able to type with two hands since the second CMPR task (he typed with one hand in the first task); 2) he initiated the conversation; 3) when Anton rejected his comments on her essay, he defended himself by indicating that he was a boss in a big company in Turkey and he could not type fast because his staff did all the typing for him, which indicated that Iron was very self-conscious about his typing skills; and (4) he was very disappointed by Anton's negative attitude toward him and his feedback, as he revealed in the follow-up interview with the researcher. It seems Iron's motives in this CMPR task were demolished by Anton's objections, which caused his hesitation to wholeheartedly participate in the following CMPR tasks.

Despite his unsuccessful and unhappy experience in the second CMPR task, Iron participated in the third CMPR task without any complaint. However, his actions differed from those in the first two CMPR tasks. In this task, Iron was paired with Nicky. According to the beyond-screen behavior recordings, Iron encountered some technical problems when he tried to log into his MSN messenger at the beginning of the lab time. Unlike the eagerness he demonstrated in the first two CMPR tasks, he seemed indifferent about conducting the CMPR task. He did not report this problem immediately to the instructor. Instead, he began reviewing Nicky's essay and writing down comments on the CMPR worksheets. Until the instructor and Nicky discovered the problem he encountered and helped him log in, Iron did not show enthusiasm in conducting the task. However, during the chat, while waiting for responses from Nicky after he sent out each message, Iron was attentive to the task by constantly comparing Nicky's essay and his comments

with the CMPR reader's worksheet to "make sure my comments are correct" (interview with Iron, 7/21/06).

Iron's on-screen behavior recordings also showed that one reason that Iron was not so eager to participate in the CMPR task was he did not finish reviewing Nicky's essay before the class. So he tried to finish it before he started to chat, which indicated that Iron was not so motivated to participate in this task. Otherwise, he would have been fully prepared for this task as he did earlier. Due to the technical problems he encountered at the beginning of the task, Iron had only 20 minutes left to conduct the task. During his chat, Iron only contributed eight e-turns and all of them were on-task. The language functions he employed included ask for suggestions, clarify, give opinion and suggestions, express intention, inform action and ask for permission. Although at the beginning of the chat, Iron asked Nicky to give suggestions on his essay, Iron was not genuinely motivated to obtain help from Nicky, which was indicated in the follow-up interview when Iron seemed very confident in his own writing by saying "*my essay is difficulty…. she tried to, she cannot hold my essay and she said she learned a lot of new words in my essay*" (interview with Iron, 7/21/06). After hearing some very positive comments from Nicky and her statement that she did not have any further suggestion for him, he started to provide comments on her essay. After they ran out of time, Iron suggested they continue the CMPR during the lunch break. During the interview with the researcher, Iron revealed that he gave his partner more comments in their follow-up peer response. Although he did not obtain any helpful suggestion from his partner, he enjoyed the process very much because "*because she is willing, to learn. Also I am willing (to share)*" and he liked the authority he had in front of Nicky "*I give some suggestions, she*

will change all of them" (interview with Nicky, 7/21/06). A tentative revision analysis showed that Iron submitted his first draft without making any revisions directly to the instructor.

The data indicated that Iron was driven by two motives which differed not only qualitatively but also chronically. At the beginning of the third CMPR task, Iron's actions were driven by his motive of maintaining a good-student image by finishing up reviewing Nicky's essay before the chat, being prepared to give feedback, and then telling Nicky his comments and suggestions, and politely asking Nicky's suggestions about his essay, which were required by the instructor. After hearing the compliments and appreciative words from his partner, Iron realized Nicky, unlike his previous partner Anton, respected his comments, which motivated him to provide more detailed suggestions to her and even suggest they have a follow-up discussion during the lunch break. He enjoyed the collaboration with Nicky even though he did not obtain any constructive feedback from Nicky on his essay. He also revealed that he did not need Nicky's suggestions because his "*essay was strong*" and he enjoyed his image as a competent writer in front of Nicky "*I give some suggestions, she will change all of them"* (interview with Iron, 7/25/06). Thus, it indicates his actions in the second half of the task were driven by the motive of maintaining an image of a competent writer.

To sum up, during the third CMPR task, Iron was driven by an initial motive of maintaining a good-student image in class which was replaced by a secondary motive of merely maintaining his image of a competent writer. Iron's motive shift can be illustrated in Figure 7 below:

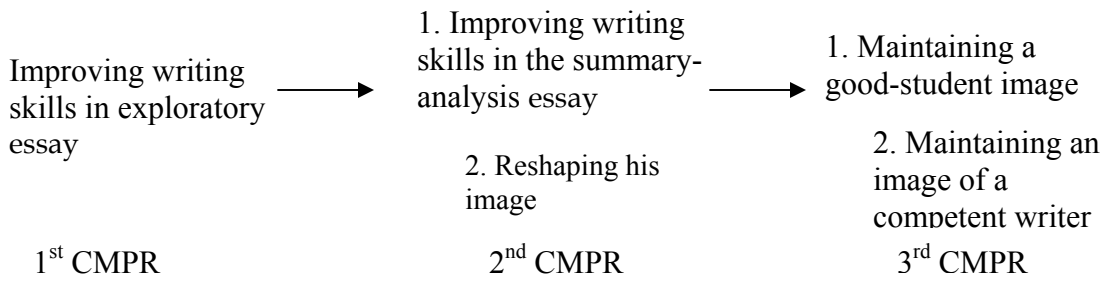


Figure 7. Iron's Motive Shift

Nicky's Motives

Nicky had no prior experience with either peer response or chatting with English-speaking classmates via instant messenger. In addition, Nicky was a very shy Taiwanese student and not confident in her English writing ability. She was constantly skeptical of whether her partners could benefit from conducting peer response tasks with her, which were reflected in her messages during her chat and in the interviews. But she was motivated to improve her writing skills through the tasks by collaborating with competent peers.

In the first CMPR task she participated in, which was the CMPR task for the summary-analysis essay, she collaborated with Rocky to whom she seldom talked even in regular class meetings. Rocky did not finish his essay before the CMPR session. So Nicky and Rocky only discussed Nicky's essay during the in-class CMPR task and they continued the task to discuss Rocky's essay at home at that night after Rocky finished his essay.

The beyond-screen behavior recordings showed that Nicky used the writer's worksheet exactly as the instructor required. When she was chatting with her partner online, she wrote down his comments onto the writer's worksheet. Occasionally, she reviewed her own essay during the chat, which seemed she was comparing what Rocky

commented on with her own essay. She also used a portable electronic dictionary to check some words in her essay and some words she used in her messages to Rocky during the chat.

Nicky's on-screen behavior recordings and the chat transcripts showed that she concentrated on the task throughout the task. She contributed a total of 41 e-turns and only five of them were off-task. In her chat with Rocky, two of her friends from Taiwan tried to chat with her. She turned down their chat invitations by informing them she was trying to finish a class task. Nicky used a myriad of language functions to negotiate with Rocky the opinions and suggestions from and to him, which included conformation check, give opinion and suggestions, ask for opinions and suggestions, disagree, confirmation request, etc. Particularly, she was eager to get feedback from Rocky. After hearing some compliments from Rocky, she became skeptical as to whether Rocky ever read her essay. Later, Rocky pointed out the problem in her introduction paragraph and the grammar mistakes in her essay. In the follow-up interview, Nicky reflected, "*Yes, he was helpful. He told me my problem in my introduction paragraph. He helped my grammar mistakes*." (interview with Nicky, 7/14/06), although she still believed Rocky was not competent enough to identify all the problems in her essay.

Table 13

Nicky's Revisions in the Summary-Analysis Essay

Level	Type	Purpose	Stimuli
Sentence 2	Add 1	Grammar 7	Partner 9
Phrase 2	Replace 8	Structure 1	Self 2
Word 6	Rewrite 2	Surface (spelling, capitalization,	
Punctuation1		punctuation) 3	

As shown in Table 13, Nicky made two sentence-level, two phrase-level, six word-level, and one punctuation revisions by adding one sentence, rewriting one sentence and one phrase, and replacing one phrase, six words, and one punctuation to correct grammatical errors, misspellings and punctuation, and to improve the structure. Nine of the revisions were stimulated by her chat with Rocky and two word-level revisions were made by herself.

The above analysis indicated that Nicky was engaged in the activity system of improving her writing skills of a summary-analysis essay. However, merely improving writing skills in a summary-analysis essay could not explain all of Nicky's behaviors. Nicky's IM chat transcripts in and after class showed she might also be driven by a secondary motive: having online chat with a non-Chinese speaker.

Nicky had been in the U.S. for merely seven months. Due to her cultural background and family environment, her social circle had been constrained within Taiwanese friends although she was attending the ELI. Nicky revealed in the interviews and informal after-class IM chat with the researcher that all her real-life and virtual friends spoke Chinese. She seldom talked in English with someone who did not speak Chinese. Thus, she might subconsciously look forward to the opportunity to chat with a non-Chinese speaker online and practice her English, which was reflected on her proactive contributions during her chat with Rocky in class and after class despite the fact that Rocky was not so helpful as she expected. In addition, despite her lack of confidence in her English academic writing skills, she provided many suggestions, which surprised Rocky. In the follow-up interview, Nicky reflected on her IM chat,

"*I like it. Rocky is …is nice and his English is good. I never have… talk to people only speak English to me… yes, most of my friends from Taiwan…. Oh, my cousin is … born here. She speak English.*." (interview with Nicky, 7/14/06).

Nicky's partner in her second CMPR task was Iron. After she read Iron's essay, Nicky was aware that Iron's English proficiency was much higher than hers. She told the instructor that she looked forward to working with him. According to the beyond-screen behavior recordings, Nicky voluntarily helped Iron set up his IM when she found he could not log onto his instant messenger. While the instructor was helping Iron to log onto a new instant messenger, Nicky patiently waited in her seat, reviewing both Iron's and her own essays and occasionally writing down some notes on the reader's and writer's worksheets. During her chat with Iron, she was very patient while waiting for Iron's slow responses. When it took Iron extra long time to respond, she constantly looked in Iron's direction to check whether he was reading or typing messages. While waiting for further responses, she went back to read her own essay.

The on-screen behavior recordings and the IM chat transcripts showed that Nicky contributed 15 e-turns during the chat all of which were on-task. Throughout the chat, she neither chatted with other people online, nor checked any other websites. She also used a variety of language functions to comprehend what Iron said and ask for and give opinions and suggestions. During the chat, she complimented Iron that she learned a lot of vocabulary from his essay and expressed her anxiousness to obtain opinions and suggestions from him. When Iron sent an incomprehensible message due to his misspellings and grammar mistakes, she used several e-turns to request for clarification. She also pointed out some organizational ambiguity in his essay. Due to the technical

problems Iron had and his slow typing, Nicky and Iron did not finish the CMPR task in class. But they decided to finish it in the afternoon, which they did very successfully.

Table 14

Nicky's Revisions in the Argumentative Essay

Level	Type	Purpose	Stimuli
Paragraph 1	Add 3	Clarify intended meaning 1	Partner 6
Sentence 1	Rewrite 2	New information 1	Self 7
Phrase 3	Replace 6	Structure 3	
Word 8	Move 2	Grammar 8	

The revision analysis (Table 14) showed that Nicky added one paragraph to strengthen her argument and two phrases to modify the structure, rewrote one sentence to clarify her argument and one phrase to modify the structure, moved two words and replaced six words with new words to improve her grammar. Among the 13 revisions, six of them were stimulated by Iron during the chat and seven came from herself. She respected Iron's feedback and incorporated all his suggestions into her second draft. All of these indicated that Nicky's actions were driven by her motive of improving her writing skills in an argumentative essay in her second CMPR task.

Because of her successful collaboration in the second CMPR task, Nicky requested to conduct her third CMPR task again with Iron. However, due to Iron's unexpected early withdrawal from the ELI, Nicky was paired with a non-participant student Percy. Driven by the similar motive, she completed her first draft and exchanged the draft with Percy before the CMPR task.

The beyond-screen behavior recordings showed that Nicky attentively exchanged messages with Percy throughout the chat. Occasionally, she paused to check Percy's

essay and the reader's worksheet. She also constantly checked her own essay and the writer's worksheet to ensure the suggestions Percy provided were appropriate and pertinent to her essay. She also wrote down some notes on the writer's worksheet. She smiled frequently at the screen during the IM chat.

The on-screen behavior recordings showed that Nicky contributed a total of 25 e-turns all of which were on-task. She provided opinions and comments to Percy and actively negotiated the feedback given by Percy by using language functions such as clarification request, agree, confirm, etc.

The revision analysis (see Table 15) showed that Nicky made an enormous number of revisions in her second draft, which included two clause-level, one sentence-level, three phrase-level, 36 word-level, and one punctuation revisions. The majority of her revisions aimed to correct her grammar although 12 were intended to clarify her meaning. When asked who stimulated her revisions, Nicky revealed that 25 of them were pointed out by her partner Percy, and "I also asked my cousin to help me" (her cousin is an American-born Chinese). She also changed some word-level mistakes after some similar ones were identified by Percy and her cousin. Nicky incorporated all the suggestions given by her partner Percy.

Table 15

Nicky's Revisions in the Problem-Solution Essay

Level	Type	Purpose	Stimuli
Clause 2	Add 12	Clarify intended meaning 12	Partner 25
Sentence 1	Delete 3	Grammar 28	Self 10
Phrase 3	Move 1	Structure 1	Other source
Word 36	Replace 23	Surface (spelling, capitalization,	(cousin) 8
Punctuation 1	Rewrite 3	punctuation) 2	

The above analysis indicated that Nicky's motive in the third CMPR task was to improve her English academic writing skills in the problem-solution essay. Nicky's motive shift throughout the three tasks she participated in can be displayed in Figure 8:

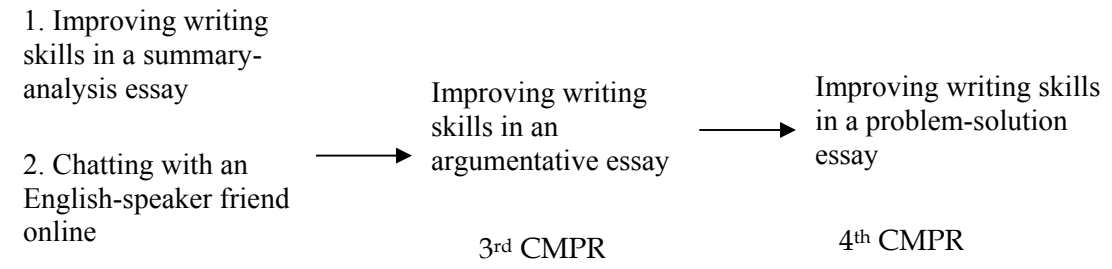


Figure 8. Nicky's Motive Shift

Rocky's Motives

According to the ethnographic survey and the researcher's reflective journals, different from other students, Rocky had taken the level-4 academic writing course in the previous semester. Although he failed the class, he believed his English writing was better than most of his current classmates. Therefore, he did not expect to improve his academic writing skills by working with his classmates, which were reflected in his behaviors such as he never finished his first draft before the CMPR task and he always submitted his first draft to the instructor without incorporating the feedback offered by any of his partners. However, since he failed this class in the previous semester, he had to do well and pass this class in order to successfully graduate from the ELI on time. Thus, to analyze Rocky's analysis, the researcher not only used the observation and interview data collected during CMPR tasks but looked at what he did in the class throughout the semester.

In his first CMPR task, Rocky collaborated with Nicky who he knew had much lower English proficiency than him. He did not finish his essay before the CMPR session

as required by the instructor. Thus, he and Nicky only focused on Nicky's essay during the lab session. The beyond-screen behavior observation data show that Rocky was very concerned with whether he looked good in front of the instructor. First of all, at the beginning of the CMPR task, he explained to the instructor that he did not give Nicky his essay for a pre-CMPR review just because he forgot to bring it. But later he had to admit he did not finish it as required. Secondly, he constantly checked whether the instructor was observing him during the chat. He seldom checked Nicky's essay and never compared Nicky's essay with the reader's worksheet during the chat. However, when he noticed the instructor was near him, he started to read Nicky's essay and occasionally scanned the reader's worksheet. Thirdly, after he finished chatting with Nicky, he immediately informed the instructor that he had accomplished the task. He reported that Nicky and he had a great time and they would have a CMPR that night to discuss his essay. From the instructor's perspective, Rocky looked eager to please the instructor that he was a good student following all the instruction.

His on-screen behavior data show that he did not pay serious attention to the task, either. First, although Rocky contributed a total of 44 e-turns and 35 of them were on-task, he did not provide quite helpful suggestions to his partner. The vast majority of his contributions were compliments and very vague and general comments on her essay. The only constructive suggestions he provided were about the introduction paragraph and a few grammar mistakes in Nicky's essay after her constant request for suggestions. Second, Rocky was simultaneously chatting with another friend during his CMPR with Nicky. He initiated this conversation with the online friend in the middle of his discussion with Nicky. Whenever he saw a message coming from the friend, he would

stop responding to Nicky's message to check the other chat window, which indicated that he was more interested in the chat with the other friend. In the additional chat with Nicky on his essay at night, Nicky offered suggestions on Rocky's organization and references. He denied the weakness in his organization. Although he asked Nicky about how to revise his references, a tentative revision analysis showed that he incorporated none of Nicky's suggestions in his second draft. It was unquestionable that Rocky intended neither to give helpful suggestions nor to accept any in this CMPR task. He participated in the task probably merely to maintain a good-student image.

Rocky was motivated differently in the second CMPR task because of his experience in the first CMPR task as well as his relationship with his second partner who was a non-participant. First of all, because his experience with having IM chat with his friend without apparently interrupting his participation in the CMPR task, which he thought was not discovered by the instructor, he enjoyed online chat so much that he immediately opened a new window to chat with his online friend even before he started chatting with his partner in the second CMPR task. And he never stopped chatting with this friend throughout the task. On the other hand, another significant motive also drove Rocky's actions in this task: maintaining a good personal relationship.

Rocky knew his second partner Francia very well. She had extraordinary difficulty in English academic writing and had constantly expressed her frustration to him. After knowing she would collaborate with Rocky in the CMPR task, Francia asked Rocky to give her a lot of help. On the day of the second CMPR session, Rocky and Francia sat in two computers facing each other. Before the CMPR started, Francia was too eager to get help from Rocky so she walked over to directly ask feedback from him.

After being informed by the instructor that this assignment would be conducted online, Francia returned to her computer. However, she could not log onto her instant messenger account. Rocky then walked over to help her out. During their online chat, Rocky and Francia occasionally had verbal communication because she did not know how to express herself through the messenger due to her limited English proficiency. Throughout the chat, Rocky only occasionally checked Francia's essay. He never used the reader's worksheet. At the end of the task, Rocky walked over to Francia's seat and gave her more specific feedback on her essay since they did not finish the CMPR online.

Rocky's on-screen behavior recordings showed that he provided significant help to Francia although some were not specifically related to the essay. He contributed a total of 23 e-turns all of which were on-task. During the chat, he pointed out that there were some grammatical mistakes in her essay. He suggested she read novels and use an outline to improve her grammar and organization upon her request for strategies to improve her writing in general. When Francia expressed her lack of confidence in her English writing, Rocky also spent several turns to comfort her by saying her essay was fine and her problems were not devastating. In the follow-up interview, Rocky described his collaboration with Francia, "she needs a lot of help. I want to help her. We all are friends here." (interview with Rocky, 7/25/06). All of the data indicated that Rocky's second motive in the task was to provide help and maintain his personal relationship with Francia.

In the last CMPR task, Rocky was paired up with Diane whom Rocky also knew very well. Although Rocky came to the lab on time, he did not give his essay in advance to Diane, nor did he bring it to the lab. During his chat with Diane, he admitted that he

did not finish his essay. But he blamed it on his computer which he claimed did not work the day before the CMPR task. Under the situation that the last CMPR task was conducted one week before the final week and students would get their scores for the course very soon, both his beyond- and on-screen behaviors indicated that Rocky's participation in the CMPR task was driven by his motive of maintaining a good-student image to eventually pass the course.

The beyond-screen behavior recordings showed that Rocky concentrated on the CMPR task by switching between reading Diane's essay by using the reader's worksheet, which he never did in previous CMPR tasks, and chatting with her on the instant messenger. In addition, during the chat, Rocky constantly confirmed with the instructor some mistakes he identified in Diane's essay, especially when he noticed the instructor was observing him.

The on-screen behavior recordings showed that Rocky contributed an unprecedented number of e-turns and all of the 35 e-turns were on-task. Throughout the CMPR chat, he focused on the discussion with Diane without opening any other chat window as he did in previous tasks. The IM chat transcripts showed that Rocky focused on the grammar mistakes and misspelling in Diane's essay during the chat. No comments about the content and organization in Diane's essay were provided. At the end of the task, Rocky informed the instructor that he would give his essay to Diane in the next day so she could give him feedback, which he did. However, despite the detailed comments provided by Diane, Rocky only submitted his first draft to the instructor. In the interview, he defended himself by saying "*Diane did not give me much feedback. She only changed some misspellings.*" (interview with Rocky, 8/4/06).

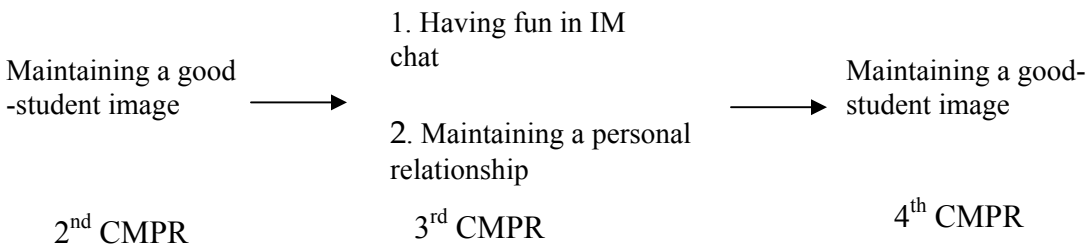


Figure 9. Rocky's Motive Shift

Although Rocky acted like a very devoted student during the CMPR task, his behaviors before (his failure to finish his draft in time and his lies) and after (his failure to revise his draft) the chat session indicated that he was not genuinely motivated to improve his writing skills of the problem-solution essay when he participated in the task. He might merely intend to maintain a good-student image to impress the instructor. Rocky's motive shift throughout the three CMPR tasks can be illustrated in Figure 9.

Goals

To analyze each participant's goals of participating in the CMPR tasks, both content analysis and CHAT analysis were conducted. First, the content analysis of interview transcripts was conducted. All explicitly stated goals marked by the key words were gleaned from the interview transcripts. According to cultural historical activity theory, all human actions are driven by conscious goals. However, due to the fact of the participants were still undergoing English language process, they occasionally failed to verbalize their conscious goals. Under this situation, goal-related statements were gleaned from the interviews. Second, the explicitly expressed goals in the interview transcripts were identified. Regarding the goal-related statements, the goals that drove the actions described in the statements were interpreted by the researcher through the lens of CHAT. To do so, the beyond- and on-screen behavior recordings as well as the researcher's

reflective journals were reviewed to identify what conscious goals drove the actions the participant described in a statement. Finally, the researcher used constant comparison method to constantly compare the goals identified with the raw data as well as one goal with another to ensure the consistency between the data and the theme identified and to avoid redundancy between the themes. In addition, Nvivo 2 was used to assist the analysis process. Goals identified from the above steps were demonstrated in Table 16, 17, 18, and 19.

Goals in the CMPR Task for the Expository Essay

Table 16

Participants' Goals in the CMPR task for the Expository Essay

Participant	HC	HO	HR	HF	SHE	MC	Extra
Anton	√	√	√	√	√	√	
Iron	√	√			√	√	Log into IM Send Messages

Note. HC = Help peer with the content in his/her expository essay; HO = Help peer with the organization in his/her expository essay; HR = Help peer with the resources used in his/her expository essay; HF = Help peer with the format of his/her expository essay; SHE = Seek help from the peer with the essay; MC = Maintain conversation; Extra = Extra goals.

Among the five participants, only Anton and Iron participated in the first CMPR task which was for the expository essay. As shown in Table 16, Anton and Iron's actions were driven by both overlapping and divergent conscious goals. The overlapping goals included (1) helping peer with the content; (2) helping peer with the organization; (3) helping peer with the grammar; and (4) seek help with own essay, which were congruent

with the explicitly stated goals of the task. Both Anton and Iron evaluated each other's essay by using the prompts in the CMPR reader's worksheet.

Anton stated in the interview,

"*Usually when I make peer review, I try to answer the questions you ask from the paper… we were asked to help each other. So I gave him my comments on his ideas, organization, grammar and the references in his essay. Then, I asked him to help with my essay*." (interview with Anton, 6/21/06).

Anton also noticed Iron did not follow the format for academic writing, which she learned in the Level-3 academic writing class. Thus, she informed Iron of his problem and offered suggestions. She also tried very hard to maintain the conversation when she found Iron barely responded to her messages. When asked how she felt about conducting the task, Anton reflected, "*The worksheet did not help me much. The questions were too general. I didn't know if I found all the problems in his essay*" (interview with Anton, 6/21/06). Although Anton did not explicitly state her goals in the first task, the beyond- and on-screen behavior recordings showed that she concentrated on the chat and constantly checked the reader's worksheet to help her find the problems in Iron's essay.

Iron reviewed Anton's essay very carefully by using the CMPR reader's worksheet. He only commented on Anton's idea and organization, leaving out the grammar, punctuation, and spellings as well as references. When asked why he did this, Iron explained that "*Anton's English is good very good. So I didn't find many mistakes. I commented her content and organization because I am responsible…. responsible to help her*." (interview with Iron, 6/21/06). He did not comment on her use of references because he himself did not completely understand how to use references in a summary

essay even after a special lecture on this topic. On the other hand, because this was Iron's very first time to use IM, he had three unique conscious goals: (1) logging in to IM; (2) sending messages through IM; and (3) maintaining conversation. Because he never used an IM and seldom typed on a computer, he described his first experience with CMPR, "*I wanted to be able to chat like the other students*." (interview with Iron, 6/21/06). He was also consciously struggling to maintain the conversation in IM since it was a new communication environment and he was not good at it.

Goals in the CMPR Task for the Summary-Analysis Essay

Table 17

Participants' Goals in the CMPR task for the Summary-analysis essay:

Participant	HC	HO	HG	HF	SHC	SHO	SHG	SHR	SH	Extra
Anton									√	IP
										SLT
Iron	√	√	√							TF-IM
Diane	√	√			√	√				CF
Nicky		√		√	√	√	√			
Rocky	√	√	√			√		√		CF

Note. HC = Help peer with content; HO = Help peer with organization; HG = Help peer with grammar; HR = Help peer with reference; SHC = Seek help from the peer with content; SHO = Seek help from peer with organization; SHG = Seek help from the peer with grammar; SHR = Seek help from the peer with reference; SH = Seek help from the peer with the essay; Extra = Extra goals; IP = Inform the peer his/her problems in IM interaction; SLT = Spend the lab time; TF-IM = Type fast in IM; CF = Communicate with online friend.

Table 17 showed a rather diverse distribution of goals held by participants in the second CMPR task. Anton confessed that she did not plan to do anything related to the

task during the second CMPR task, "*Actually last Thursday I did nothing. He messaged me to give me his opinions of my essay. I just responded him*." She reflected that she and Iron did not collaborate very well during the first CMPR task because Iron typed very slowly. Thus, she did not plan to receive or provide any feedback in this task. During the chat, when Iron offered some comments, she directly rejected them. When asked why she did so, she said, "*they just don't help me. I don't think Iron should judge my ideas. He was so slow. He did not know what he was talking*", so she decided to "*tell him his problems with the chat*" (interview with Anton, 7/17/06).

However, when Iron offered one comment about her organization in her essay, she asked him to give detailed suggestion by saying "*go ahead, Iron*". When asked why she said so but rejected his earlier comments, she said "*I may have a problem with my organization. So I want to hear what he suggested*" with a conscious goal of seeking help from him. She soon dropped the goal when Iron failed to clarify himself. On the other hand, Anton had been chatting with other online friends throughout the task with a conscious goal of just killing the time in the lab, "*I didn't think Iron could help me. So I just wanted to spend the time there.*" (interview with Anton, 7/17/06).

Iron participated in the task with conscious goals of helping Anton with her essay. He reflected on his behaviors in the chat, "*I want to help her. You know, this is peer review, help her ideas, organization, and grammar, like I did in the first time*." (interview with Iron, 7/13/06). Iron also had another conscious goal: to type faster. Iron realized he was too slow to follow the conversation with Anton in the first task. He had been practicing typing English words at home and in the lab. He actually did make progress by

using two hands rather than one to type in the second task. In the follow-up interview, he revealed, "*I don't want to chat. But I have to type faster*." (interview with Iron, 7/13/06).

As for Diane, she did not plan to do anything serious during the CMPR task because

"*Jillil, you know him, he is killing me. He (is) never serious. We just talk about what we did on the weekend. Whenever I talk to him, he says, 'come on, let's talk something fun'. So I don't p….plan to work with him. But I have to do something, you know, in class.*" (interview with Diane, 7/14/06).

It seemed despite her dissatisfaction with Jillil, Diane still followed the rules to comment on his content and organization and asked for his opinions and suggestions on her essay. She also read Jillil's essay by using the reader's worksheet during the chat. Her actions were driven by the conscious goals to offer and ask for help although she was not oriented to learning. She also chatted with Anton during the task for which she explained, "*I am a multi-tasker. Anton is my friend. I like to talk to her.*" (interview with Diane, 7/14/06).

Nicky followed the instructor's direction closely, "*I used the worksheet… I want to give my comments about his ideas, organization, and the references. I want him to help me too.*" (interview with Nicky, 7/14/06). When asked why she did not help Rocky correct his grammar mistakes, she said, "*my grammar… my English is not good. I am afraid…. And I don't find mistake in his essay."*

As for Rocky, he held the goals of helping Nicky with the content, organization, and grammar. When asked what he did during the task, he reflected, "*I told Nicky her problem in the introduction (paragraph). I also gave her some ideas. Oh, I found some*

grammar mistakes in her essay…. why? …. well, she needs my help. " (interview with Rocky, 7/17/06). He did not comment on Nicky's references. Although Rocky did not explain why he did not offer opinions and suggestions on Nicky's references, the IM chat transcripts showed that he asked Nicky how to put the references in an essay and he missed the lecture on how to include reference information in a text according to the researcher's reflective journal, which indicated Rocky did not know how to do the references by himself. Besides these goals, he also had a friend with whom he frequently chatted. He said "*I was waiting for Nicky to answer me. I just wanted to say hello to my friend online.*" (interview with Rocky, 7/17/06).

Goals in the CMPR Task for the Argumentative Essay

Table 18

Participants' Goals in the CMPR task for the Argumentative Essay

Participant	HC	HO	HG	HE	SHC	SHO	SHG	SH	Extra
Anton				√				√	CF, SW
Iron	√	√						√	
Diane				√	√	√	√		FUN
Nicky				√	√	√	√		
Rocky	√	√	√						CF, FD

Note. HC = Help peer with content; HO = Help peer with organization; HG = Help peer with grammar; HE = Help peer with the essay; SHC = Seek help from the peer with content; SHO = Seek help from the peer with organization; SHG = Seek help from the peer with grammar; SH = Seek help from the peer with the essay; Extra = Extra goals; CF = Communicate with online friend; SW = Seek a good way to help each other with grammar and organization; FUN = Have fun on the Internet; FD = Finish the first draft.

The third CMPR task witnessed rather divergent goals held by participants. Rather than following the worksheets closely as they did in the previous two tasks, participants described their conscious goals as "*help my partner*", "*give advice to my partner*" or "*receive advice from my partner*".

When asked what she did during the task, Anton reflected "*We talked about the ideas of the essay. She gave me some advice. I gave her some too*." After informed by Diane that she had some misspellings and grammar mistakes, she decided to have a face-to-face meeting with Diane to discuss some common problems in each other's essay such as organization and grammar. When asked why she did this, she said,

"*…For example, there is a sentence which is grammatically incorrect. It is difficult on the net to write it down again. So I want to find some easier way to discuss about it. So I prefer to show her face to face. So here is the mistake, here...*" (interview with Anton, 7/25/06).

Besides the task-related goals, she also confessed that "*it is not easy not to chat with someone else online because they are there*" (interview with Anton, 7/25/06). In other words, she still had the conscious goal to communicate with online friends.

As for Diane, she reflected that "*I had problems with my idea and my organization. I know I also have grammar mistakes. I want Anton to help me because she is good in writing."* And she also "*wanted to discuss with Anton about some information she wrote in her essay and her grammar mistakes.*" (interview with Diane, 7/25/06). She also confessed that she wanted to have some fun online since she was online.

Regarding Iron's goals, he said he gave Nicky some ideas and some suggestions about the organization to "*help her*" (interview with Iron, 7/21/06). He asked for

suggestion but she did not give him any feedback. But he still enjoyed the collaboration because "*she learn new words from my essay*" (interview with Iron, 7/21/06).

As usual, Nicky used the both the CMPR reader's and writer's worksheets when she reviewed her partner Iron's essay. She wrote down some comments on her reader's worksheet. She reflected on what she did during the task and said , "*I think….. his essay is good. Many new vocabulary… but I said I am not sure one connector word between her his paragraphs… I want to help him*". She was more concerned with the content, organization, and grammar in her essay. So she asked Iron to give her comments on her organization, her ideas, and the grammar with the conscious goals "*I want he help me, my organization, my argument, and grammar.*" (Interview with Nicky, 7/20/06).

As for Rocky, he had conscious goal to help his partner but not the other way. He reflected that "*I just wanted to help her. She needs a lot of help*. *She did not give me any suggestion. But it is ok. If she wanted to give me advice, I would receive it.*" (interview with Rocky, 7/20/06). On the other hand, Rocky still planned to talk to his friend if she was online by confessing "*well, if my friend is online, I always say hello to her.*" (interview with Rocky, 7/20/06). In addition, since he did not finish his first draft of the essay to be discussed that day, he also intended to finish his draft during the lab time.

Goals in the CMPR task for the Problem-solution essay

Due to Anton and Iron's unexpected withdrawal from the ELI, only Diane, Nicky, and Rocky as participants participated in the CMPR task for the problem-solution essay. In this task, Diane worked with Rocky while Nicky was paired with a non-participant student Percy.

Table 19

Participants' Goals in the CMPR task for the Problem-solution essay

Participant	HC	HO	HG	SHC	SHO	SHG	SH	Extra
Diane	√			√	√	√		FUN
Nicky	√	√		√	√			
Rocky		√	√				√	

Note. HC = Help peer with content; HO = Help peer with organization; HG = Help peer with grammar; SHC = Seek help from the peer with content; SHO = Seek help from the peer with organization; SHG = Seek help from the peer with grammar; SH = Seek help from the peer with the essay; Extra = Extra goals; FUN = Have fun on the Internet.

During the task, Diane initiated the chat with Rocky and asked him whether he could understand her essay and what recommendation he could offer. In the follow-up interview, Diane reflected,

"*I finish my essay at 1 o'clock. I was tired. I want my partner to help me find out my mistakes*. *So I ask Rocky to tell me my mistakes, like content, structure. But he only talked about my grammar*"(interview with Diane, 8/3/06).

As usual, Diane turned on online music during the CMPR task. She revealed that

"*I listened to music because I am chatting with friends. At least for some time, you know, I also want to have fun also. I want to enjoy every time. Because this time is my fun time when I am here. When I go to work, all the kinds of thing... so....*"(interview with Diane, 8/3/06).

Nicky had another successful CMPR task. She said, "*I am not sure about my ideas my organization. I wanted my peer to help me. I also helped him*." (interview with Nicky, 8/3/06). As for Rocky, because he did not finish his essay, he decided to focus on

giving advice on Diane's essay in the CMPR task. But he planned to give his essay to his partner later and get feedback. During the chat, he commented on Diane's introduction paragraph and grammar to "*help Diane. You know… she asked me to give her suggestions*." During the chat, Diane and Rocky discussed about Rocky's essay topic. When asked why they had the conversation, Rocky explained, "*I don't know, she may want to help me. I told her my topic. She gave me her idea. …. Yeah, yeah, it helped me.*" (interview with Rocky, 8/4/06). Thus, although passively, Rocky was aware that he was supposed to get help with his own essay during the task.

Section Summery for ESL Participants' Motives and Goals

The results presented above illustrated that ESL participants were driven by heterogeneous motives, in other words, they were involved in discursive activity systems, even when they participated in the same learning task. In addition, even in the same learning task, one student might have multiple motives which might exist simultaneously or emerge chronologically. On the other hand, for some students, the relationship between one activity system and another one across tasks driven by distinct motives might shift throughout the semester. For example, in one learning task, one motive played the dominant role whereas it receded as a secondary motive in another learning task. For some students, maintaining a good-student image in class was a dominant motive when they participated in the CMPR task. For others, improving writing skills through collaborating with peers motivated him or her the most of the time in the semester.

As for ESL students' goals during the CMPR tasks, the results showed that the vast majority of participants' conscious goals were consistent with those held by the instructor, as stated explicitly in the CMPR instruction sheet which was distributed at the

beginning of each CMPR task. In other words, they helped each other to identify mistakes and offered suggestions about the content, organization and style, grammar, punctuation, and spellings, as well as references in each other's essay, as required for all the CMPR tasks although they might not be able to conduct certain actions to achieve some goals due to the lack of proficiency or their partner's proficiency. However, there existed no consistent symmetry between goals of help provision and those of help pursuit in each task. Comparing each participant's goals throughout the three tasks in which he or she participated, the goals across tasks were diverse as well. This was a result of the existence of different motives driving each participant's actions within the same task as well as throughout the tasks. From the lens of CHAT, providing help or seeking help in certain aspect of the essay might be a conscious goal in one task because the participant was not familiar yet with the way of providing help in that aspect or he or she needed extensive help to improve his or her writing competence in that aspect. In the next task, he or she had developed the ability to provide feedback in that aspect or the writing competence without conscious attention to seeking external help in that aspect any more.

In addition, even within one CMPR task, participants' goals shifted because they were simultaneously involved in more than one activity system the interaction of which stimulated new actions driven by newly formed goals. In other words, the conflicts between motives engendered the emergence of distinct goals. In particular, because of the multiple chat windows enabled in IM as well as the access to the Internet connection, some participants held goals that were not related to the tasks, such as communicating with online friends and have fun on the Internet.

The data further resonated with the view of CHAT that although students held the same goals and conducted the same actions in a task, they might be involved in heterogeneous activity systems driven by distinctive motives. For example, although Rocky seemingly conducted all the actions required by the instructor as well as Nicky, he was driven by a non-learning motive. In addition, the reason that some participants' goals kept relatively constant across the learning tasks in terms of help provision, was caused by their engagement in passive or non-intellectual activity systems (Clancey, 2002) such as maintaining a good-student image, which did not stimulate conflicts that could constitute advancement or development.

Mediation of the Use of Instant Messenger

Research Question 2: How do computer-mediated technology, particularly the use of IM, mediate ESL students' interaction in peer response?

The mediation of instant messenger (IM) in CMPR tasks was investigated at three levels, namely, the activity, action, and operation (Kuutti, 1995). At the activity level, the motives and motive shift that were triggered or formed by IM use as well as ESL students' perceptions of CMPR tasks were investigated with the use of within-case and cross-case analyses by focusing on each participant's motives in each CMPR task. The findings about motives in research question 1 were used to help analyze how the motive formation and shift might be influenced by the use of IM. At the action level, the conscious goals ESL students held and the actions they took that emerged because of the use of IM were identified. Students' perceptions of the influence of the use of instant messenger on their goal-setting process during each CMPR task were also investigated. At the operation level, instant messenger's mediation was analyzed from three aspects:

the messages exchanged during CMPR tasks, the ways in which each message was exchanged, and the interpersonal relationship established during the CMPR tasks. The findings were presented in the following texts:

Mediation of IM at the Activity Level

As discovered in the data for research question 1, the use of IM significantly influenced the activity systems in which ESL students were involved throughout the four CMPR tasks as well as their perceptions about CMPR tasks. In terms of the activity systems in which ESL students were involved, the use of IM mediated the motive formation and shift among CMPR tasks.

Mediation of IM in Motive Formation and Shift in CMPR tasks

In a traditional peer response task, students collaborate with each other by verbally exchanging comments on each other's essay. However, when the collaboration was moved to the Internet, the change of interaction environment triggered and nurtured new motives as well as destructed existing motives.

During the second CMPR task, Anton discovered she could chat with her friends online simultaneously when she worked on the CMPR task with her partner Iron who she thought was very boring. She started participating in two activity systems, one of which was afforded by the use of IM: having fun in IM chat whereas the other one was not. In the third CMPR task, she was immediately engaged in two activity systems: improving writing skills in the argumentative essay and having fun in IM chat. It seemed that the use of IM not only stimulated the emergence of additional activity systems, but afforded the maintenance of them. The same thing happened to Diane. Diane was an enthusiastic IM user. She hailed the integration of IM use in the task because she could have fun any time

during the class. Throughout the three CMPR tasks she participated in, she was engaged in the activity system: having fun with IM chat, which would not have happened should IM not be incorporated in the task. As for Iron, his image of being a competent writer, which he firmly believed, was ruined due to his clumsy performance in the first CMPR task. Therefore, a new motive emerged when he participated in the second CMPR task: changing his image of being an electronically dysfunctional partner. In Nicky's case, the use of IM enabled her to chat with a friend in English without worrying about prompt language production, particularly oral production.

On the other hand, the use of IM may also distance students from existing activity systems. For example, Anton was driven by the motive of learning writing through collaborating with her partner in the first CMPR task. After realizing her partner could not type quickly and failed to provide feedback efficiently online, she receded from the activity system when she participated in her second CMPR task.

Besides allowing participants to join in new IM- afforded activity systems and to withdraw from previous activity systems in different learning tasks, the use of IM also enabled participants to freely shift among the existing activity systems within one learning task. For example, Anton participated in the third CMPR task attentively in one moment, and switched to the activity of having fun in IM chat next moment. All these could happen smoothly without disturbing other community members in each activity system. On the other hand, if appropriate technologies such as screen capturing tool WINK employed in this dissertation study are employed, the activity systems in which students participate can be easily identified because students' motives that are triggered

by the use of technologies are amplified and realized in their actions in the electronic environment.

Mediation of IM in ESL Students' Perceptions of CMPR Tasks

As shown in the following analysis, because of the integration of IM in peer response tasks, ESL participants' perceptions about peer response tasks, particularly CMPR tasks, were reshaped regardless of whether they had prior experience with peer response. The analysis of interview transcripts, particularly those toward the end of the study, presented two main types of perceptions about CMPR tasks held by the participants of this study: (1) learning-affordance; and (2) learning-constraint. Under the learning-affordance are four features: a. affectively appealing and low-anxiety environment; b. flexible pedagogy; c. extension of view about IM communication for educational purposes; and d. support of multiple learning purposes. The learning-constraint was reflected in: a. constraints of interaction topics; and b. a demand for skillful computer skills.

First, three out of five participants emphasized the fun part of CMPR because of the use of IM. They considered CMPR as a task integrating both learning and fun. Anton described CMPR as "*It's fun to do it with instant messenger"*(interview with Anton, 6/21/06). In the third interview, she also described that "*..., it is peer review. But the fact that it is online. It's very funny because it is attractive."*(interview with Anton, 7/25/06). Both Diane and Rocky shared this affection. In her first interview, Diane said, "*I think it is a good strategy because we can find each other's mistakes. Also it is fun. You can chat.*" (interview with Diane, 7/17/06). During the third interview, when asked why she listened to online music while chatting with her partner on the task, she explained, "*I was*

waiting for responses. So I don't have anything to do…. I want to have fun also. I want to enjoy every time… It didn't affect my talk with him."(interview with Diane, 8/3/06). It indicates that the fun part in the CMPR task not only resides in the real-time chat, but also embraces all the fun things afforded by the Internet.

As for Nicky, CMPR provided a low-anxiety environment for her to participate in class discussions without concern about her pronunciation and with more time to plan for the language. She reported, *"(in IM chat) I have more time to think about it, to chat*." (interview with Nicky, 7/14/06). Because of the extended reflection time as well as the non-threatening environment allowed in IM chat, Nicky became a very active partner contributing an unprecedented number of e-turns, which was also noticed by her partner Rocky, who noticed that "*I just realize, well, most of teachers and students don't realize that. When she chats online, she is someone else. She is relaxed, she is home, in her room, she asked me a lot of questions …. She also gave me lots of suggestions.*"(interview with Rocky, 7/17/06).

Besides the affective attraction, ESL students also thought CMPR was a flexible task in terms of scheduling and location. In other words, if students know what to do in peer response and they have access to computers, they can conduct the CMPR anywhere and anytime. Thus, the CMPR does not have to be constrained within the regular computer lab. In the second CMPR task, Nicky and Rocky did not get a chance to discuss Rocky's essay. They finished the task in their own houses that night. In the follow-up interview, Rocky reflected, "*It was great. We talked on the Instant messenger at night. It feels good to do the task at home*" (interview with Rocky, 7/17/06). After two CMPR tasks, Anton even questioned the necessity of having CMPR tasks in the same lab, "*I*

think we don't get the purpose of chatting why we are in the same room, you know…"(interview with Anton, 7/17/06).

Through the CMPR tasks, ESL students also realized they could have electronic communication for academic purposes after class. Before participating in the CMPR tasks, all four participants who had prior experience with IM interaction merely used IM to communicate with online friends, usually in their native languages. Even when they occasionally had IM chat with a friend from the ELI, they mainly talked about daily issues such as what each other did over the weekends or whether one watched a movie or a TV show. No one had ever thought of using IM to discuss homework or schoolwork. After the first CMPR task, students started to realize IM could be used to facilitate their English learning at the ELI. Diane reflected that "*When I go to work. I don't understand. So I go to my messenger. I saw somebody from my university. I ask them how do you do your homework? something like that*"(interview with Diane, 7/17/06). Rocky also revealed that "*I use instant messenger now to chat with classmates over the weekend, about the assignments in class, about the writing class"(*interview with Rocky, 7/17/06)

Besides discussing homework and school projects, some participants also observed that they could improve their English by participating in online chat in English. Rather than producing verbal utterances, they had to type down each word they wanted to say, which brought the conversational written forms into their consciousness. Rocky discovered that typing was a great way to practice writing in terms of spelling and grammar. He reflected on his first CMPR task, "*Typing is really good for writing. I checked my grammar and my writing (spelling) all the time (when I chatted with my partner)*" (interview with Rocky, 7/17/06). It indicated in some ESL students' view, IM

chat not only supports idea communication to accomplish the task, but also serves as a language developmental tool.

On the other hand, participants noticed that because of the special features of online chat, such as no physical contact and all text communication, there also were some inconveniences caused by IM chat. For example, some students thought the better topics to be discussed during CMPR tasks were the content and organizations rather than sentence-level grammar in each other's essay due to their lack of language vocabulary to describe each type of grammar structures. Both Anton and Diane realized that they did not know how to discuss the grammatical errors in each other's essay. Anton reflected, "*For example, there is a sentence which is grammatically incorrect. It is difficult on the net to write it down again. So I prefer to show her face to face. So here is the mistake, here…*" (interview with Anton, 7/25/06). She also thought, "*we didn't really emphasize on the sentences. We mainly emphasize on the ideas, how to organize the essay, how to be accurate in the essay*." (interview with Anton, 7/25/06).

Finally, ESL students realized an additional skill was crucial for successful participation in CMPR tasks: the computer typing skill. Although many students perceived CMPR as a fun and learning-conducive task, students such as Iron, who did not have the threshold-level typing skill, was not able to completely enjoy the process. Anton reflected on her collaboration with Iron and pointed out that "*it is not good for everybody. I mean it is not good for Iron because he doesn't know how to type very quickly. But it is good, I mean it works with Diana and me*" (interview with Anton, 7/17/06). Nicky, who also collaborated with Iron, reported, "*we didn't have enough time to discuss. He typed very slowly. This is a difficult activity for him although he is good at writing.* " (interview

with Nicky, 7/20/06). The lack of typing skill not only brought extra workload for Iron but also reduced the fun to his partners.

At the activity level, the use of IM not only triggered the formation of new motives within and across learning tasks but also afforded flexible motive shift among the activity systems in which participants were involved, which to some extent augmented human beings' agency (Vygotsky, 1978) in learning processes. In addition, from students' perspective, the use of IM in a peer response task can be both affording and constraining to their learning. As argued in Chapter 3, the reason students' perceptions about CMPR are considered at the activity level is that the use of a tool shapes students' perceptions which in turn play an important role in their agency operation, thus motive shift.

Mediation of IM at the Action Level

The mediation of IM in the CMPR tasks at the action level was mainly reflected in its interference in the process of ESL students' conscious goal-setting. In other words, the use of IM influenced ESL students' decision-making regarding what actions to take and what to avoid. To analyze the mediation of IM in participants' goal-setting, the goals identified in research question 1 were reanalyzed in this section.

Iron never chatted with people on the IM before the CMPR tasks. To be able to participate in the tasks, he set a conscious goal in the first CMPR task to create an IM account and to practice online chat, as reflected by him in the follow-up interview, "*I wanted to be able to chat like the other students"* (interview with Iron, 06/25/06). Due to the lack of the typing skill, he did not finish the first CMPR task in assigned time. Thus, a

second IM-related conscious goal was set up in his second CMPR task: typing faster in IM chat, as shown in the analysis in research question 1.

As for Anton, sharing comments about grammar mistakes with the partner in face-to-face conversations did not cause any problem for her. However, when the action was performed online, she felt it difficult to describe the problem and explain how to revise the erroneous places due to her lack of English vocabulary, as she expressed in the follow-up interview on July 25, 2006, "*Maybe it is easier to form of the.... For example, there is a sentence which is grammatically incorrect. It is difficult on the net to write it down again. So I prefer to show her face to face. So here is the mistake, here....*". Thus seeking an alternative way to help each other with the grammar emerged as her conscious goal, which would never have happened had IM never been employed in the task. In addition, the integration of IM into the learning task also allowed other students who were already familiar with IM chat to take advantage of the IM chat. Because of the affordances of IM and the access to the Internet, new goals such as communicating with online friends appeared among some students. On the other hand, because of the easy access to IM and other Internet-afforded tools, students' actions that were not oriented to learning were more ostensibly displayed in front of an inspector, such as a teacher. Thus, it can assist a teacher to identify what real motives are behind a student's actions in the same task.

As shown above, the mediation of IM at the action level was demonstrated in the elicitation of students' emergent conscious goals, particularly the externalization of more IM and Internet-afforded actions. For students who were not familiar with IM chat, learning how to operate IM rose up as a conscious goal along with other peer response-

related goals during the CMPR tasks. For students who lacked the proficiency to discuss certain issues in an IM environment, they created new goals to help them overcome the problems caused by the use of IM. On the other hand, the actions that were directed to having fun on the Internet rather than learning would be easier to be identified.

Mediation of IM at the Operation Level

The mediation of IM in CMPR tasks at the operation level was analyzed from four aspects mainly based on the on-screen behaviors recorded in WINK, chat transcripts and interview transcripts: (1) participants' e-turns and e-turn-taking features in IM chat; (2) language functions and non-text communication tools employed during IM chat; (3) the interpersonal relationship established and maintained throughout the CMPR tasks; and (4) the off-screen efforts of participants to fulfill their conscious goals in the CMPR tasks;. Since two units of analysis were adopted in this study, the findings will be discussed in both individual activity systems and the collective activity system in which all participants were involved.

E-turns and E-turn-Taking

In this section, only the data from the chat transcripts were analyzed. Thus, some operation-level behaviors driven by certain conscious goals such as logging into IM account and communicating with online friends were not included in the following matrices. To analyze each participant's e-turns and e-turn-taking behaviors, three steps were undertaken. First, on-task and off-task e-turns were identified according to the definitions: (1) on-task e-turn is the text or graphic message a speaker posts in a synchronous chat platform, which is pertinent to the task; and (2) off-task e-turn is the text or graphic message a speaker posts in the chat room, which is irrelevant to the task.

Second, the identified on-task e-turns were numbered, which facilitated the later analysis of language functions used in each e-turn. Third, the total number of on-task and off-task e-turns produced by each participant in each CMPR task were counted and filled in the E-turns and E-turn-taking Matrix for each task. Finally, the maximum and minimum number and frequencies of e-turns conducted consecutively by one participant, which was called monologue e-turns, in each CMPR task also were counted and put in the matrix. The analysis results in all four CMPR tasks were represented in Tables 20, 21, 22, and 23 in the following section.

Table 20

E-turns and E-turn-taking in the CMPR Task for the Exploratory Essay

Participant	No. ET		No. ETG						No.MET		FMET	
	OnT	OffT	HO	HC	HF	HR	SH	MC	Max	Min	Max	Min
Anton	26	0	3		4	2	5	12	5	1	2	1
Iron	14	0	6	1			1	6	2	1	3	7

Note. No. ET = Number of e-turns; OnT = On-task e-turns; OffT = Off-task e-turns; No. ETG = Number of e-turns for each goal; HO = Help the peer with organization; HC = Help the peer with content; HF = Help the peer with format; SH = Seek help from the peer with the essay; MC = Maintain conversation; No. MET = Number of monologue e-turns; FMET = Frequency of monologue e-turns; Max = Maximum turns of MET; Min = Minimum turns of MET.

Only Anton and Iron participated in the first CMPR task which was for the exploratory essay. Since it was Iron's first time to use IM chat, he typed very slowly. Thus, it took Anton and Iron two class periods which were totally one hour and 40 minutes to finish the task. As shown in Table 20, both Anton and Iron focused on the task

during their chat. However, Anton contributed much more e-turns than Iron. Because of Iron's slow responses, Anton produced five e-turns before Iron did one as shown in the Excerpt 4.1. Anton used five e-turns to offer comments and suggestions about the format in Iron's essay before he could type one message as a response that he was still reading her essay. And this situation occurred twice during the first CMPR task (as seen in Excerpt 4.1 in which Anton used five consecutive e-turns to offer comments and suggestions and Excerpt 4.2 in which she used them to maintain the conversation.) Anton also had one-to-one message exchange with Iron, which occurred four times.

Excerpt 4.1

2Anton says:So, Iron.... Your writing is well-organized and very interesting... I have nothing very important to tell you actually.... But, this is a peer review... so I will try to help you to do better that you do!
3Anton says: First, concerning the format of the paragraph... You have to know that in an academoc writing, you have to follow certain rules.
4Anton says: Don not use Bold
5Anton says: No space between paragraph (only indent)
6Anton says: Also, the line spacing is double and not simple
2Iron says: I am reading your essay about learning style now.

Excerpt 4.2:

14Anton says: there are only three minutes left....
15Anton says: we are in a hurry! :-p
16Anton says: ok... so I think we have to leave now....
17Anton says: we will continue this conversation tomorrow morning!

In contrast, Iron's maximum number of monologue e-turns was two. He sent two messages consecutively only for three times. Most of his messages were one-to-one with Anton, which means Iron was alarmingly slower than Anton. Anton and Iron used different numbers of e-turns to achieve their goals. Both of them spent more e-turns providing feedback than receiving feedback. Iron was still struggling to figure out how to use IM. Before he deliberately requested for suggestions on his essay from Anton, she

offered several. So he had to concentrate on providing feedback on her essay. Thus, he discussed his feedback on Anton's essay with 50% (7 out of 14) of his e-turns whereas he spent only one e-turn on the feedback from Anton.

In addition, the e-turn distribution also showed that both Anton and Iron contributed an enormous number of e-turns to maintain their conversations (as shown in Excerpt 4.2). The speed of conversation flow did not catch Anton's attention until in the last five minutes of the CMPR session when she found Iron had not really offered any feedback on her essay. She created the conscious goal to accelerate Iron, the failure of which led her to suggest an additional CMPR session. As for Iron, the cause of his conscious goal to maintain the conversation was that he was too slow to catch up with the conversation, as explained in the follow-up interview. Thus, to ensure his partner's awareness of his presence in the conversation, he occasionally contributed some e-turns to inform Anton of his status, such as "*I am reading your essay about learning style now*" and "*I'l concern and evaluate your suggestions. Thank you a lot."*

During the CMPR task for the summary-analysis essay, Anton continued working with Iron whereas Diane worked with a non-participant student Jillil. Nicky collaborated with Rocky. Based on the earlier motive analysis, Anton, Diane, and Rocky were driven by either the motive of maintaining a good-student image or the one of having fun in IM chat. Both Iron and Nicky were engaged in the learning activity. However, Iron simultaneously had a secondary motive to change his inefficiency image. These diverse motives were reflected in their operations in IM chat. Thus, each participant's e-turn contributions and turn-taking behaviors will be explained within their respective activity systems (see Table 21).

Table 21

E-turns and E-turn Taking in the CMPR Task for the Summary-Analysis Essay

	No.ET		No.ETG											No.MET		FMET	
	OnT	OffT	HC	HO	HG	HR	SHO	SHC	SHG	SHR	SH	CF	IP	Max	Min	Max	Min
Anton	9	0									5		4	4	1	1	5
Diane	10	5	1	1			1	2				5		2	1	3	4
Iron	8	1	4	2	1									2	1	2	5
Nicky	36	5		6		7	12	7	1					3	1	2	29
Rocky	39	5	5	13	2		9			7				3	1	1	27

Note. No. ET = Number of e-turns; OnT = On-task e-turns; OffT = Off-task e-turns; No. ETG = Number of e-turns for each goal; HC = Help peer with content; HO = Help peer with organization; HG = Help peer with grammar; HR = Help peer with reference; SHC = Seek help from the peer with content; SHO = Seek help from the peer with organization; SHG = Seek help from the peer with grammar; SHR = Seek help from the peer with reference; SH = Seek help from the peer with the essay; IP = Inform the peer his/her problems in IM interaction; CF = Communicate with online friend; No. MET = Number of monologue e-turns; FMET = Frequency of monologue e-turns; Max = Maximum turns of MET; Min = Minimum turns of MET.

Due to the disappointing experience she had in the first CMPR task, Anton engaged in two alternative activity systems in the second task. The primary one was maintaining a good-student image and a secondary one was having fun in IM chat. Because she was not engaged in the learning activity system, she merely contributed nine e-turns in her chat with Iron, extraordinarily less than hers in the first CMPR task. In addition, although all of her e-turns were on-task, she used four e-turns to reject Iron's comments, only one to ask for further suggestions, and 4 to inform him of his inefficiency in IM chat, which was very rude in online chat. She seldom initiated topics. She responded only when receiving a message.

Similar to Anton, Diane was driven by two non-learning–oriented motives. To pretend she was on task, she contributed 10 e-turns. However, half of them were off-task in which she and her partner discussed fun things they did over the weekend. Diane and her partner maintained balanced and smooth conversations in chat in which her maximum of monologue e-turns was two. The majority of the communication between Diane and her partner was one-to-one question-and-response.

In this task, Iron was involved in both the learning-oriented activity, improving writing skills in summary-analysis essay and the one oriented to change his image. The vast majority of his e-turn contributions reflected both his motives, such as initiating the chat, and more e-turn contributions within the assigned CMPR time limit. However, he was only able to send two messages consecutively twice at the beginning of the chat. During the majority of chat time, he responded to one message when receiving one. He spent four e-turns on the ideas in Anton's essay, two on organization, one on grammar, and one to defend himself as to why he could not type fast.

Although the collaboration between Nicky and Rocky seemed successful in terms of e-turn contributions and e-turn taking, Nicky was driven by the motive to improve her writing and Rocky was driven by merely maintaining a good-student image. Nicky contributed a total of 41 e-turns and Rocky contributed 44. In the middle of the chat, Nicky accidentally closed her chat window without saving all conversations. Thus, she and Rocky each used 5 e-turns to discuss how to remedy the conversation recording. The maximum number of consecutive e-turns Nicky contributed was three and she did so twice. The most number of monologue e-turns Rocky took were three and he only did it once. Thus, the vast majority of interaction between them was one-to-one. However, a further analysis of the e-turn contributions showed that Nicky used more e-turns to seek help with her own essay and she initiated the majority of topics during the chat whereas Rocky spent most e-turns in giving help, more accurately, responding to Nicky. It indicated Nicky was genuinely motivated to improve her writing through this task while Rocky merely wanted to finish it.

In the CMPR task for the Argumentative Essay, Anton was paired with Diane, Iron with Nicky and Rocky worked with Francia, a non-participant of the study. In this task, Anton, Diane, and Nicky were mainly driven by the learning-oriented motive: improving writing skills in argumentative essay whereas Iron and Rocky were mainly driven by merely maintaining a good-student image. However, Anton, Diane, and Iron each were also motivated by one additional motive, Anton and Diane by having fun with IM chat and Iron by maintaining a competent-writer image. The detailed e-turn-taking information is displayed in Table 22.

Table 22

E-turns and E-turn Taking in the CMPR Task for the Argumentative Essay

	No. ET		No. ETG											No. MET		FMET	
	OnT	OffT	HC	HO	HG	HE	SHO	SHC	SHG	SH	SW	CF	FUN	Max	Min	Max	Min
Anton	34	12				19				12	4	12		4	1	2	12
Diane	25	9				11	5	10	1				9	2	1	8	18
Iron	8	0	4	1						3				2	1	1	6
Nicky	15	0				9	2	4						4	1	1	4
Rocky	23	0	4	7	10									2	1	5	13

Note. No. ET = Number of e-turns; OnT = On-task e-turns; OffT = Off-task e-turns; No. ETG = Number of e-turns for each goal; HC = Help peer with content; HO = Help peer with organization; HG = Help peer with grammar; HE = Help peer with the essay; SHC = Seek help from the peer with content; SHO = Seek help from the peer with organization; SHG = Seek help from the peer with grammar; SH = Seek help from the peer with the essay; SW = Seek new ways to help each other with grammar and organization; CF = Communicate with online friend; FUN = Have fun on the Internet; No. MET = Number of monologue e-turns; FMET = Frequency of monologue e-turns; Max = Maximum turns of MET; Min = Minimum turns of MET.

Diane had been talking to Anton online even when they were not paired in any task. Thus, although the total number of e-turns Anton and Diane each contributed in the chat were 46 and 34 respectively, 12 of Anton's e-turns were off-task and 9 of Diane's were off-task in which they chatted about an online game and something they talked earlier. The maximum number of monologue e-turns Anton took was 4 and she did it twice whereas Diane took either two e-turns consecutively or one e-turn per time. Another interesting phenomenon here was Anton's two 4-e-turn contributions, which are shown in the following two excerpts:

Excerpt 4.3:

1Anton says: I sweetie!
2Anton says: Hi!
3Anton says: I'm online
4Anton says: so.. no pocker today!
1Diana says: hi honey

Excerpt 4.4:

19Diane says: you know!! we have similar ideas, but your are eassy to understand. mine are so difficult
22Anton says: don't say that!
23Anton says: you are easy to understand
24Anton says: and yes... we have excatly the same ideas.. that's funny!
25Anton says: We should develop our ideas face to face... I think we have a lot of things to learn from each other

Although Anton seemed taking the floor for too long, she did not mean to dominate the conversation. The first time she uttered four e-turns consecutively, she tried to catch Diane's attention since Diane did not respond to her immediately after she got online, which was unusual. The second time she produced four e-turns at once, she tried to comfort Diane because she sounded very unconfident in her writing. To cheer Diane up, she not only corrected Diane's mistaken self-perception, but also offered to work on the essay together to help each other. Thus, these multiple e-turns by no means indicate

Anton intended to play a dominating role in the conversation. On the contrary, she attempted to build an equally collaborative and friendly relationship with Diane since Diane was both her partner and a good friend, which indicated the overlapping area of two activity systems: improving writing and having fun with friends.

Due to the technical problem Iron had at the beginning of the chat, he and Nicky only had 18 minutes left before the lab time was over. Thus, Iron was only able to contribute 8 e-turns and Nicky did 15. But all of the e-turns were on-task. Iron's contribution style was stable. He took 2 consecutive e-turns occasionally and took one e-turn per time for the majority of the chat. Initially Iron was merely motivated to maintain a good-student image to finish this task. So he mainly used one e-turn per time to greet Nicky, to inform what he was doing, and to ask for suggestions from her. After hearing very positive feedback from Nicky on his essay and her high expectation for his feedback, Iron was very happy and started to contribute two e-turns in a roll to provide his suggestions.

As shown in Excerpt 4.5, Nicky contributed 4 e-turns in a roll only once when she received a message from Iron asking for permission to give suggestions, which was very unusual in CMPR from Nicky's perspective. She was too shocked to say anything else but use different expressions to permit. To maintain a smooth conversation between Iron and her, she mainly contributed two e-turns in a roll and one e-turn per time.

Excerpt 4.5:

5Iron: I was wondering if you'd mind letting me offer you some addional things.
10Nicky: ofcouse
11Nicky: i am glad if you can gine me some suggestion
12Nicky: i don't mind
13Nicky: :-D (a big smile emoticon)

Rocky contributed a total of 23 e-turns during his chat with his partner. Because he was motivated to maintain a friendly relationship with his partner by helping her, he took two consecutive e-turns five times and posted one message per time in the rest of the chat time. As shown in Table 22, driven by the motives of maintaining a good-student image and a personal relationship, Rocky mainly focused on grammar mistakes in his partner Francia's essay by contributing seven e-turns.

Table 23

E-turns and E-turn Taking in the CMPR Task for the Problem-solution Essay

	No. ET		No. ETG						No. MET		FMET	
	Ont	OffT	HC	HO	HG	SHC	SHO	SHG	Max	Min	Max	Min
Diane	38	0	6			6	1	25	3	1	2	13
Nicky	25	0	3	6		7	9		3	1	3	16
Rocky	35	0		4	28	3			3	1	3	16

Note. No. ET = Number of e-turns; OnT = On-task e-turns; OffT = Off-task e-turns; No. ETG = Number of e-turns for each goal; HC = Help peer with content; HO = Help peer with organization; HG = Help peer with grammar; SHC = Seek help from the peer with content; SHO = Seek help from the peer with organization; SHG = Seek help from the peer with grammar; No. MET = Number of monologue e-turns; FMET = Frequency of monologue e-turns; Max = Maximum turns of MET; Min = Minimum turns of MET.

Both Anton and Iron left the ELI before the last CMPR task was conducted. Thus, data were only collected from Diane, Nicky and Rocky. In this task, Diane was paired

with Rocky whereas Nicky collaborated with a non-participant student. However, only Nicky focused on the activity of improving writing skills in problem-solution essay whereas Rocky was merely motivated to maintain a good-student image and Diane was initially driven by the motive of having fun on the Internet although she later engaged in the learning activity.

As shown in Table 23, both Diane and Rocky were prolific during the chat with a total of 38 and 35 e-turns respectively. All e-turns were on-task. The largest number of e-turns Diane produced consecutively was three and she did so twice. She frequently took one or two consecutive e-turns during the chat. Similar to Diane, Rocky took three consecutive e-turns occasionally. The majority of his contributions spanned two e-turns and one per time. However, due to the fact that Rocky did not finish his essay, the vast majority of the e-turns focused on the discussion about Diane's essay. As usual, Rocky mainly commented on Diane's word-level mistakes. He only provided one comment which was very positive on Diane's introduction paragraph.

As for Nicky, she worked with a student whom she was not quite familiar with. But she was still very active contributing a total of 25 e-turns all of which were on-task. The largest number of e-turns she took consecutively was three and she took such e-turns three times. During the majority of chat time, she took one e-turn per time. During the chat, she was obviously more concerned with obtaining feedback from her partner on her essay by contributing 16 e-turns to seeking help and 9 to helping peer.

In sum, although participants could contribute messages anytime they would in IM chat environment, it seems the diversity of e-turn contribution depended on both participants' IM chat skills as well as their personal IM communication style. In other

words, a person's operations in the IM environment were influenced by his or her partner's operations, which were mediated by the physical situation. When participants collaborated with a partner who was familiar and equally IM skilled even though they might not have the similar English proficiency, they tended to produce a bigger number of e-turns and managed to balance each other's contributions to avoid dominating the conversation. The unbalanced e-turn contribution was caused either by the lack of IM chat skills of one interlocutor or consciously endeavored by the message author to show a stronger emotion: anger or urgency.

On the other hand, participants' motives did not seem to play a significant role influencing the number of e-turns produced in IM chat. Participants seemed always willing to contribute in the IM chat whether he or she was genuinely engaged in the task.

Language Functions and Non-text Communicative Tool Use

Lockhart and Ng's (1995) study shows that ESL students use a variety of language functions to help them achieve their goals in peer response, which reflect different stances each ESL student takes for the task. Built on the scheme of language functions developed by Lockhart and Ng in face-to-face peer response, the language functions ESL participants employed for each goal they held during the CMPR tasks were identified through the analysis of IM chat transcripts. Only the goals that were reflected in the use of language functions were included in the following tables. Some goals such as helping peer with the grammar, which were conducted by some participants but not discussed during CMPR tasks, were not displayed. Emergent language functions were identified and analyzed through the constant comparison method (e.g. Lincoln & Guba, 1985) to ensure the accuracy and to avoid redundancy. A definition and an

example were given to the newly identified language functions and added to the coding scheme (Appendix K). In addition, the types and frequency of the non-text communication tools participants used such as the use of emoticons (e.g. ☺, ☹), wink and nudge (animated emoticons) were also analyzed. All identified language functions and non-text tools employed in the CMPR task were filled in a matrix. The newly identified language functions were italicized to differ from those in Lockhard and Ng's scheme.

Table 24

Language Functions and non-Text Tool use in the CMPR Task for the Exploratory Essay

Participant	HC	HO	HR	HF	SH	MC
Anton	GS (3)	GS(2)	GS(2)	GS(4)	AS(1)	*GR(2)*
	EM(1)				PH(2)	COM(2)
					EA(2)	EI(1)
					CR(1)	STR(5)
					EM(1)	*EM(3)*
Iron	GO(3)	GO(1)			EA(1)	GR(2)
	GS(2)	PH(1)				*IA(1)*
	AG(1)	*AP(1)*				EI(3)
						AG(2)

Note. HC = Help peer with content; HO = Help peer with organization; HR = Help peer with reference; HF = Help peer with format; SH = Seek help from peer with the essay; MC = Maintain conversation; GS = Give suggestion; EM = Emoticon; GO = Give opinion; AG = Agree; PH = Phatic; AP = Apologize; AS = Ask suggestion; EA = Express appreciation; CR = Clarification request; GR = Greeting; COM = Compliment; STR = Structure; EI = Express intention; IA = Inform action.

As shown in Table 24, because of the online chat mode, both Anton and Iron used greetings (e.g. *hello, hey!)*, express appreciation (*Thank you a lot. Thank you.*), inform action (*I am reading your essay about learning style now*), and emoticon (☺), which rarely exist in face-to-face peer response.

Anton and Iron had different peer response styles. First of all, Anton directly used the function: give suggestions when she helped Iron. After giving suggestions on Iron's organization but failing to receive any response from Iron, Anton used compliment to end her suggestions which were followed with a smiley emoticon. She was also very active in seeking help from Iron for which she used language functions such as ask for suggestion, express appreciation, and clarification request. Due to Iron's slowness, Anton used the language function structure several times to check Iron's status, accelerate his actions, and finally suggest they continue the task the next day. When she structured the conversation, she used emoticons to soften her tone to avoid sounding overly critical.

As for Iron, he was not familiar with online chat as well as peer response. So when he helped Anton, he mainly used the language function give opinion to express his opinion about Anton's essay rather than providing helpful suggestions to improve it. He also did not understand that he was expected to discuss rather than just provide feedback in a peer response task. As shown in Excerpt 4.6, he failed to answer a clarification request from Anton.

Excerpt 4.6

5Iron says:Furthermore, i think you should improve your conclustion pargraph.
5Anton says:you are to broad for me... could you be more accurate please?
6Iron says:Ok. I am sorey.
7Iron says:m y opinon obaut your essay is over. than you

Because of his slowness and his misconception about peer response, Iron only used one language function: express appreciation, in discussing his essay. He did not use any emoticon although he enjoyed seeing emoticons sent by Anton according to the follow-up interview. The discrepancy between Anton and Iron's IM chat style disappointed and bored Anton so much that she decided not to engage in the second task.

A variety of language functions were used by participants in the second CMPR task in which Anton was paired with Iron, Nicky with Rocky, and Diane with a non-participant student. Table 25 showed the emergence of new language functions such as comment on feedback (*What you say is unreadable...* by Anton), indicate lack of confidence as a reader (*haha actually,,,, I am not a good writer so i afraid to give you any suggestion* by Nicky), check readiness (*so,,,,did you read mine?* by Nicky), comment on topic (*that's a easy topic to understand it* by Nicky), linguistic self-correction , creative language use (*oh, cc, umm, haha*), encourage (*opinion no it is your* by Rocky), and request edition (*oh..if you want i don't mind you correct for me* by Nicky).

Table 25

Language Functions and non-Text Tool Use in the CMPR Task for the Summary-Analysis Essay

	HC	HO	HG	HR	SHC	SHO	SHG	SHR	IP
Anton					DA(5) PH(1)				*COF(1)* CL(1) CR(1)
Diane	GO(1)	GS(1)			AO(1) *EA(1)*	*EA(1)* CFM(1)			
Iron	GO(0) EI(2) AG(1) CL(2)	GO(1) GS(1)	GO(1)						
Nicky	CC(1) GO(3) *ILC(1)* *IA(1)*			GO(1) GS(2) CC(1) PH(2) EI(1)	*CRD(2)* AO(1) *COT(1)* PH(1) AS(1)	AS(1) DA(1) PH(3) AG(1) AO(1) ID(1) *LSC(1)* EM(1) *CLA(5)*	*RE(1)*		
Rocky		GS(4) PH(5) COM(2) GO(2)	GO(1) CFM(1)		CFM(3) COM(1) AG(1)	CFM(1) CR(1) AG(1) *EC(2)* AO(1) PH(2) *EA(1)* DA(1) *EM(1)*		CR(1) CFM(1) AG(2) ID(1) PH(1) *EA(1)* *EM(1)*	

Note. HC = Help peer with content; HO = Help peer with organization; HG = Help peer with grammar; HR = Help peer with reference; SHC = Seek help with content; SHO = Seek help with organization; SHG = Seek help with grammar; SHR = Seek help with reference; DA = Disagree; PH = Phatic; COF = Comment on feedback; CL = Clarify; CR = Clarification request; GO = Give opinion; GS = Give suggestion; AO = Ask opinion; EA = Express appreciation; CFM = Confirm; EI = Express intention; AG = Agree; CC = Confirmation check; ILC = Indicate lack of confidence; IA = Inform action; CRD = Check readiness; COT = Comment on topic; ID = Indicate difficulty; LSC = Linguistic self-correction; RE = Request edition; COM = Compliment; EM = Emoticon; EC = Encourage; CLA = Creative language; AS = Ask suggestion.

Because Anton was disappointed by the chat with Iron in their first CMPR session, she did not initiate any question nor greet Iron in this session. She boldly objected most opinions and suggestions offered by Iron, which was reflected in the language function: disagree. She used disagree five times and merely used phatic when Iron provided his opinion on the organization in her essay. After Iron explained why he disagreed on the analysis Anton did in her essay, Anton directly commented on Iron's feedback style to express her dissatisfaction, as shown in Excerpt 4.7:

Excerpt 4.7:

7Anton says:What you say is unreadable... and I'm wondering why bcs your essay is sooooooooo clear! there is a contradiction between the way you express yourself on the Internet and the way you write....
....
8Anton says:I didn't talk about the the fact that you are slow... but about your style

Aware of his slowness in the first task, Iron tried to do better in this task. He initiated most of the conversations and offered his opinions and suggestions on Anton's essay. Compared to the first CMPR task, Iron started to use give suggestions more consciously in the second task as shown in his turn "*3Iron says: on the other hand, your summary paragraph include main idea, but you know, you need more body paragraph"*. He also started to negotiate with Anton about his opinions. As shown in Excerpt 4.8, after his opinion about Anton's analysis approach was objected, Iron clarified his intention and explained his rationale for giving the opinion, rather than dropping the topic as he did in the first task.

Excerpt 4.8

4Iron says:You know, I can comment about your analysis if reasonable or not. I am sorry, in my oponion, your analysis is not reasonable why.
6Anton says:I don't give a .... of what you say.... do your work and try to be objective!

5Iron says:Yes, you are right. I just want to you help. for example, I think writer presents both side idaes that attacs and definets, both you focus only one aspect so your anaysis loos its reasonable.

As for Diane, she was not motivated to work with her partner Jillil in this task. With only one opinion and one ambiguous suggestion from her partner, "*your introduction and conclusion look good to me*" and "*you may work more on your spellings*", she only offered one opinion and one suggestion, confirmed one question, and appreciated the opinion and suggestion given by her partner.

Nicky and Rocky had very active interactions during the chat. Table 25 showed that Nicky used a whole set of language functions such as give opinion, give suggestion, ask for opinion, ask for suggestion, confirmation check, clarification request, to help and seek help from Rocky. Prior to the peer response chat, Nicky used check readiness to verify whether Rocky has read her essay. When Rocky failed to point out any weakness in her content, she re-checked whether he had read her essay. During the chat, she noticed one typo in her message and immediately corrected it in the next e-turn. When hearing compliments from Rocky, she used five creative symbols or onomatopoeias such as *oh, cc, haha, umm*, and *jiji* to indicate her emotions. Some of these words actually were originated in her native language: Mandarin. When Rocky pointed out there were some grammar mistakes in her essay, she requested him to edit those mistakes directly. On the other hand, when she offered feedback on Rocky's essay, rather than directly giving the suggestions, she used confirmation check to check whether Rocky was aware that he did not include an important writing feature in his organization. When giving opinions on Rocky's organization, she indicated she was not confident in her English at

all so she was not sure whether she could provide helpful feedback. She also used phatic seven times to maintain the conversation.

As for Rocky, he mainly responded to requests and suggestions from Nicky throughout the chat. So he used give opinion, give suggestions, confirm, and agree frequently. But because he was confident in his academic writing ability, he used give suggestion more frequently than give opinions. He also used phatic such as "*really"* and smiley emoticons frequently to show he was still in the conversation and to show his positive attitude toward obtaining feedback from Nicky.

In the third CMPR task, Anton was paired with Diane, Iron with Nicky, and Rocky with a non-participant student. Compared to the previous two tasks, there emerged the use of new language functions such as comment on collaboration (*We make a excellent duel!* by Anton), permission request (*I was wondering if you'd mind letting me offer you some addional things* by Iron), and permit (*ofcourse, i am glad if you can gine me some suggestion, I don't mind*, by Nicky) as well as IM tools such as wink (a multimedia file to show emotions), nudge (a screen-shaking tool), and online poker game invitation which is supported in MSN IM game.

Table 26

Language Functions and non-Text Tool Use in the CMPR Task for the Argumentative Essay

	HC	HO	HE	HG	SHC	SHO	SHG	SH	SW	FUN	CF
Anton			COM(6) CR(1) GS(4) AG(1) *EC(2)* *EM(1)*					DS(1) AG(1) ID(1) CL(4) STR(1) EI(1) *EA(1)* *COC(1)* *LSC(1)* *RE(1)* *EM(2)*	EI(1) STR(1)		STR(1) *GR(3)* *EM(3)* *IML(1)*
Diane			COM(2) CR(2) GO(3) AG(3) PH(1)		AO(2) PH(1) ID(2) CL(1) AS(1) DA(2) AG(1) *WIN(1)* *EA(1)*	*EA(1)* AG(2) ID(1) PH(1) EM(3)	AG (1)			*NUD* *(1)* *EM(2)* *INV* *(1)*	
Iron	GO(1) GS(2) *APM(1)* *IA(1)*	EI(1) *IA(1)*						AS(2) CL(2)			
Nicky			COM(2) GO(1) PH(1) CR(1) AG(1) *EM(1)*		PH(1) *PER(3)* EM(1)	AO(1) PH(1) EA(1) AS(1) *EM(1)*					

Table 26 (continued)

Rocky	PH(1) GO(1)	PH(1) GS(2) *CFM(1)* *EC(1)* *LSC(1)*	GO(5) GS(2) PH(1) LSC(2) EM(1)

Note. HC = Help peer with content; HO = Help peer with organization; HE = Help peer with the essay; HG = Help peer with grammar; SHC = Seek help with content; SHO = Seek help with organization; SHG = Seek help with grammar; SH = Seek help with the essay; SW = Seek ways to help each other with grammar and organization; FUN = Have fun on the Internet; CF = Communicate with online friend; DA = Disagree; PH = Phatic; CL = Clarify; CR = Clarification request; GO = Give opinion; GS = Give suggestion; AO = Ask opinion; EA = Express appreciation; CFM = Confirm; EI = Express intention; AG = Agree; CC = Confirmation check; ILC = Indicate lack of confidence; IA = Inform action; ID = Indicate difficulty; LSC = Linguistic self-correction; RE = Request edition; COM = Compliment; EM = Emoticon; EC = Encourage; CLA = Creative language; AS = Ask suggestion; COC = Comment on collaboration; STR = Structure; IML = IM language; GR = Greeting; WIN = Wink; NUD = Nudge; INV = Invite friends to play online poker; APM = Ask for permission; PER = Permit.

Table 26 showed that Anton used a bigger diversity of language functions when she collaborated with Diane than in the previous two tasks. When she provided help with Diane's essay, she used compliment frequently. She used emoticons three times when she gave suggestions on Diane's content and used direct encouragement when she gave suggestions on Diane's organization. When she sought help from Diane with the content in her essay, she disagreed with Diane's opinion that her essay was perfect. She also used emoticons and indicate difficulty to comfort Diane that she was in the same situation with her. She expressed her appreciation every time Diane offered suggestions. When Diane pointed out there were some spelling mistakes in her essay, she immediately agreed and requested her to edit them on the paper. She used express intention and structure to suggest Diane and she help each other with the grammar and organization in a face-to-face meeting after class. Since Anton also was motivated to communicate with Diane, she greeted Diane with four e-turns and one emoticon as shown in Excerpt 4.9:

Excerpt 4.9:

1Anton says:I sweetie!
2Anton says:Hi!
3Anton says:I'm online
4Anton says:so.. no pocker today!
1Diane says:hi honey
5Anton says:☹

As for Diane, she always admired Anton's English proficiency. Except pointing out misspellings in Anton's essay and complimenting her writing, she did not provide many productive suggestions. She only requested Anton to clarify what she meant in her essay without imposing any suggestion on her. Instead, she actively sought help from Anton by frequently using ask for opinions, ask for suggestions, agree, disagree, and

indicate difficulty throughout the chat. She used a wink, to express her appreciation for Anton's compliment. Since she was also motivated to have fun in IM chat, she uses two special communication tools in IM: nudge to remind Anton to respond as soon as possible, and the online poker game invitation to invite Anton for an online game during the chat.

Although Iron contributed a limited number of comments on Nicky's essay during the CMPR session, he used *give opinion* and *give suggestion* to provide comments on Nicky's content. Due to his negative experience with Anton in the previous CMPR task, Iron asked for Nicky's permission to comment on her essay before he offered his feedback. When he asked for suggestions from Nicky, he did not clearly state whether he expected suggestions on content, organization, or grammar. In addition, he made several typos as well as ungrammatical sentences, which prompted Nicky to request for clarification.

On the contrary, Nicky complimented both Iron's content and his organization. She said she was even learning new vocabulary from reading his essay. She used one emoticon to indicate her confusion when she could not understand one of Iron's messages due to his typos. But she immediately explicated her confusion in text in the following e-turn. When she saw Iron asked for permission to give her his suggestions, she was exhilarated which was shown in her three e-turns with three different expressions to welcome Iron's suggestion followed with a big smiley emoticon (see Excerpt 4.5). When Iron informed her that he would continue reading her essay and offer more suggestions on her organization, she expressed her appreciation with another emoticon.

As for Rocky, he worked with a partner Francia who was constantly struggling with her English. Motivated to maintain the friendship between him and his partner, Rocky gave her many tips for writing in general besides giving opinions and suggestions on her essay. He pointed out that there were some grammatical errors in his partner's essay. He also repeated 5 times that she only had minor grammar errors in her essay to comfort his partner. In addition, since Rocky focused on giving opinions on the grammar in his partner's essay, he was very conscious of misspellings and ungrammatical sentences he produced during the chat. Whenever he noticed he had a typo, he immediately corrected it in the following e-turn as shown in Excerpt 4.10:

Excerpt 4.10:

10Rocky: my advice to you is that you have read
11Rocky: have to read
….
19Rocky: trust your essay was good
20Rocky: trust me

Only Diane, Nicky, and Rocky participated in the last CMPR task. Diane was paired with Rocky and Nicky was paired with a non-participant student Percy. Because Diane did not receive Rocky's essay before the CMPR session, she started the conversation by checking whether Rocky had finished his essay and whether he read hers. After hearing Rocky did not finish his essay but read hers, she used an emoticon and a bowing WINK to show her appreciation for Rocky's work. Because Rocky did not finish his essay, Diane mainly focused on receiving feedback from Rocky. She used the language functions such as indicate difficulty, comprehension check, and ask for suggestion to seek help. After Rocky mentioned she had some misspellings in her essay, she used diverse language functions such as ask for suggestion, agree, explain,

clarification request, confirmation check, clarify, confirm, comprehension check and express appreciation to ensure his suggestions were appropriate. Diane did not ask extensive suggestions on her organization.

Nicky worked with a non-participant student. As she usually did, she complimented her partner before providing opinions and suggestions. She used give opinion more often than give suggestion when she offered feedback on her partner's content. She did not offer any suggestion when she commented on the organization. When seeking help from her partner, she used ask language functions such as ask for opinion, ask for suggestion, agree, confirm, and clarify frequently. In addition, she always appreciated the help from her partner. She used two emoticons when she expressed her appreciation to show her positive attitude toward her partner's feedback.

As for Rocky, Rocky first complimented Diane's essay and then offered extensive opinions and suggestions on her spellings. He also used a variety of language functions such as clarification request, confirmation check, confirm, and clarify to make sure the words he suggested were what she really needed. He also used linguistic self-correction four times throughout the chat to correct his typos.

Table 27

Language Functions and non-Text Tool in the CMPR Task for the Problem-Solution Essay

	HC	HO	HG	SHC	SHO	SHG
Diane	GS(1) AG(1) *IR(1)* *CRD(1)* *EM(1)*			ID(1) CC(1) AS(1) *CRD(1)* *EA(1)* *WIN(1)* *EM(1)*	AS(1)	AS(5) AG(2) CFC(3) CL(5) CFM(3) CC(1) CR(1) *EX(1)* PH(3) *EA(1)*
Nicky	COM(1) GO(2) GS(1)	COM(1) GO(3) CR(1)		AO(2) AS(2) CFM(1) *CL(1)* AG(1) *EA(2)*	AO(1) AS(1) AG(1) CL(1) *EA(2)* *EM(2)*	
Rocky		COM(1) *LSC(1)*	IA(1) GO(5) GS(9) CFC(2) CFM(1) CR(3) *LSC(3)*	AG(1) *PI(1)*		

Note. GS = Give suggestion; AG = Agree; IR = Information request; CRD = Check readiness; EM = Emoticon; ID = Indicate difficulty; CC = Comprehension check; AS = Ask suggestion; EA = Express appreciation; WIN = Wink; CFC = Confirmation check; CL = Clarify; CFM = Confirm; CR = Clarification request; EX = Explain; PH = Phatic; EA = Express appreciation; COM = Compliment; GO = Give opinion; IA = Inform action; LSC = Linguistic self-correction; CFC = Confirmation check; PI = Provide information.

As shown in Table 27, the analysis of participants' use of language functions and non-text communicative tools in CMPR tasks indicated that ESL participants employed diverse language functions supplemented with non-text communicative tools to fulfill their conscious goals in the tasks, which differed extensively from those used in face-to-face peer response as discovered by Lockhart and Ng (1995) as well as other researchers (e.g. Zhu, 2001). First of all, participants used the language function *indicate actions* frequently to inform their partner what they were doing due to the lack of physical contact. They also used greetings and express appreciation frequently to show the courtesy in online communication. Secondly, some participants became very conscious of the grammar and spellings they produced in IM chat. Whenever they were aware of that there were misspellings or grammar mistakes in the messages, they immediately corrected them. Thirdly, participants frequently used non-text communication tools such as WINK, NUDGE, and emoticons to show their emotions or remind their partners to fill in the silent periods during the chat. When the emotion was negative, such as frustration or confusion, participants usually followed up with one text message to explain why he or she was confused. Fourthly, some participants such as Rocky frequently discussed word-level mistakes frequently when they noticed it was easy to show the correct and incorrect words on the screen.

Regarding the use of regular language functions, none of the participants intended to dominate the conversation by consciously imposing suggestions or focusing on deficiency except the confrontation between Anton and Iron in the second CMPR task. In contrast, the majority of the participants tended to use compliments before pointing out deficiency in the peer's essay. In other words, they tried to balance the negative and

positive comments. Participants such as Anton and Rocky frequently encouraged their partners when they indicated lack of confidence as a reader and a writer. They also frequently used emoticons and other non-text communication tools to mitigate the embarrassment that might arouse on the side of their partners. All these indicated that ESL students tried hard to maintain a friendly environment in the CMPR tasks despite their diverse cultural backgrounds which might shed light on their behaviors in peer response (Nelson, 1997) because of the use of IM chat, which is consistent with Thorne's (2002) notion of "hyper-personal relationship", a unique phenomenon in IM chat.

A comparison of the use of language functions across the tasks also showed that the number and types of language functions employed by some participants in each CMPR task were evolving throughout the semester, which was influenced not only by the partner they collaborated with in different tasks but by their development of the competence in CMPR tasks. For example, Iron only used language functions such as give opinion or give suggestion in the first CMPR task. In the second task, he not only used the language function give opinion, but used give suggestion. In the third task, he even created a new language function: ask for permission before offering suggestions. He also started to use language functions such as clarify to negotiate the feedback exchanged during the task.

As for Nicky, her changes of the use of language functions were reflected not only in the increasingly diverse language functions she employed in different tasks, but in her unusually prolific contributions in the computer-mediated environment, compared to her performances in regular class discussions. The IM environment afforded Nicky an unthreatening environment to freely present her personality and her English skills.

Throughout the three CMPR tasks she participated in, she had been playing a very active writer's role. She also was very frank and open about her lack of self-confidence in her English to her partner. She used emoticons frequently to express her emotions, which was quite different from her image in regular class meetings.

As a reader, in the first task, she very politely used the language function confirmation check to confirm whether Rocky knew his problem, which conformed to Nelson's (1997) claim that students from collectivism cultures such as Chinese culture, tend not to sound critical to make the peer embarrassed during peer response. Before she offered her opinion, she told Rocky that her English was not good and she was afraid to give any opinion, which conformed to Nelson's another claim that students from countries with a large power distance such as China/Taiwan usually value the feedback from the teacher and they usually are hesitant to offer critical opinions. However, after Rocky's constant encouragement, she started to offer her opinions and suggestions. In the following two tasks, she actively offered her opinions and suggestions mostly about ideas, organization, and references to her partners although she noticed their English proficiencies were higher than her, which indicated that she overcame the power distance in IM chat.

Interpersonal Relationships in CMPR tasks

This section provides a deeper analysis of the interpersonal relationship built throughout the CMPR tasks that were generated and maintained by the use of IM, mainly on the operation level. The analysis of participants' on-and off-screen behavior observations as well as interview transcripts showed that the use of IM in the CMPR tasks cast distinctive influences on the establishment, maintenance, and evolvement of

the interpersonal relationships among participants. Since Anton only collaborated with Iron and Diane, Iron collaborated with Anton and Nicky, Nicky with Rocky and Iron, and Diane with Anton and Rocky, only the relationship between Anton and Iron, Anton and Diane, Diane and Rocky, Iron and Nicky, as well as Nicky and Rocky will be discussed in this section. There were three types of mediation that took place in the CMPR tasks: (1) perishing, e.g. Anton and Iron; (2) sprouting, e.g. Iron and Nicky, Rocky and Nicky; and (3) maintaining, e.g. Anton and Diane, Diane and Rocky.

Perishing relationship. Anton had been attending the ELI for 7 months while Iron just arrived at the ELI one month before the first CMPR task was conducted. Although both Anton and Iron took the same courses at level 4, they seldom communicated with each other in or out of class except in class-based cooperative tasks such as CMPR due to their gender, age, and cultural differences. It was actually the first direct contact between Anton and Iron in the CMPR task for the expository essay. The tension between Anton and Iron was triggered by Iron's slow responses as well as his IM style. Based on the on-screen behavior recordings, Iron contributed only one message when Anton did five. In the first CMPR task, due to Iron's slowness, Anton had to use two class periods to finish the tasks. In addition, Iron only provided opinions rather than specific suggestions on Anton's essay. When Anton requested specific suggestions, Iron seemed not to understand her request. Anton ended up being bored and disappointed. Out of politeness, she did not complain or report this to the instructor. In their second CMPR task, Iron directly pointed out the problems in Anton's essay without using any emoticon or buffering strategy, which further irritated Anton, as illustrated in the following excerpt:

Excerpt 4.11:

2Iron says:Firstly, You have chosen very intresting subject, but I don't agree with your analysis approch and your idea.
1Anton says:Iron... You shoudn't make any judgement concerning my ideas
2Anton says:The work consists in helping in wrting better
3Anton says:Therefore, I will ask you not to say thinga like that
4Anton says:they don't inprove my writing

As shown in the Excerpt 4. 11, Anton not only directly rejected most of the opinions and suggestions from Iron, but also criticized his unhelpfulness. Anton's dissatisfaction with Iron was also reflected in the number and types of emoticons she used during the chats. She used four smiley emoticons in the first CMPR task whereas zero in her second CMPR task. After the CMPR task for the summary-analysis essay, she confessed to the instructor/researcher,

"*Iron is not good at IM. He is a good writer. But he doesn't know how to use instant messenger… We were ok. It is just he was a little bit aggressive. . . Oh, Diane wants to work with me? That's great! I can work with her*." (interview with Anton, 7/17/06).

Although Anton did not explicitly express her unwillingness to collaborate with Iron, her excitement after hearing Diane wanted to work with her indicated that the use of IM played an extraordinarily influential role in the relationship between Anton and Iron. Anton did not talk to Iron in any other class activities afterwards.

In the interview with Iron, he described Anton and the relationship between Anton and him,

"Anton? I don't know. She knows English very well. And I think she is maybe level 5. …. Last Tuesday, maybe you have seen the conversation. Maybe she said

complained me now, I don't want to complain… I think lots of time she didn't read my article. I think, I think, because she didn't give me any suggestion." (interview with Iron, 7/13/06).

Iron did not want to complain about Anton, but he thought she was not willing to help him. Thus in the third CMPR task, he requested to have another partner. It seemed that the unsuccessful relationship consequentially destroyed the online collaboration between Anton and Iron.

Sprouting relationships. Nicky had been in the ELI for about 7 months by the time of participating in the CMPR tasks. She was not familiar with Iron before this class. Nor did she have constant communication with Iron in or out of class. Since she took a level-3 academic writing class with Rocky for several months, she was more familiar with Ricky although she seldom talked to him. Nicky was a very reserved Taiwanese girl. Due to her personality, she seldom reached out to other students in the ELI. She was not confident in English, especially her grammar and writing. So she constantly felt she needed help from anyone whose English was better than hers. But Nicky was very familiar with IM technology. She constantly communicated with her Taiwanese friends online mostly in Chinese and occasionally in English. Thus when Nicky participated in the CMPR tasks, she did not encounter any technical problems.

Because of the familiar environment and longer time for reflection allowed in IM chat, Nicky turned into a very active and outgoing student, which was reflected in her prolific contributions as well as her frequent use of emotions in online chat. Rocky described this "*Nicky was a different person*! *You can tell. She was very talkative online*."(interview with Rocky, 7/17/06). She freely expressed her feelings such as lack of

confidence and difficulty she encountered in front of both Rocky and Iron. Rocky was initially surprised and then touched by Nicky's honesty. He constantly encouraged her and gave her tips of being a critical reader like a good friend. This online collaboration helped Rocky know more about Nicky's true personality and gave Nicky more chances to communicate with people in English. Both of them really enjoyed working with each other. Nicky said in the follow-up interview, "*Rocky is nice….. His English is good…He help me. He taught me give my opinions*."(interview with Nicky, 7/17/06) while Rocky described Nicky, "*she wants to talk. She is just shy in class. She is a nice person. I think we can become good friends. You know, we all are like friends in class, anyway*" (IM interview with Rocky, 7/18/06). .

When collaborating with Iron, Nicky was imminently impressed with Iron's writing skills after she read his first draft for the argumentative essay. Thus, she considered Iron a helpful partner for the task. During the chat, Nicky tolerated Iron's slowness in IM chat. When he encountered difficulty logging onto his IM account, she voluntarily walked over to help him. She expressed her appreciation for Iron's help as well as admiration for his writing. Thus, Iron decided to give her more suggestion on her organization after the CMPR session, which was exactly what Nicky expected. Nicky and Iron built a close relationship during the CMPR task. They even started to share thoughts on the assignments from other courses. During the interview, Nicky commented on Iron and the relationship between her and Iron, " *Iron is a good writer… He helped me. He give suggestions about my grammar, ideas, … paragraph… Yes, we discuss other classes too. Sometimes we discuss (other) assignments.*" (interview with Nicky, 7/20/06). It indicated that Nicky's tolerance of Iron's IM style and her admiration for Iron's writing,

which might only be expressed by her in IM, won Iron's friendship, which extended beyond the Internet.

Maintaining relationship. Anton and Diane had been taking courses together for 6 months before they joined the academic writing IV class. Diane admired Anton's writing skills and she never hid this feeling. Both of them had already developed a very good relationship before collaborating on the CMPR task. Both of them were veteran users of IM. Thus, once knowing all peer response tasks would be conducted on the IM, they added each other into their buddy lists. Whenever Diane saw Anton online, she would chat with her. During the second CMPR task, Anton opened another chat window and complained about Iron to Diane. When they both finally collaborated in the third CMPR task, Diane and Anton addressed each other as "honey" and "sweetie", complimented each other frequently, and used many IM communication features such as wink, nudge, and numerous emoticons that were seldom used with other students. They also tended to play online poker when they decided to finish one part of CMPR in a face-to-face meeting after class. When asked about their relationship online and in face-to-face, Anton attributed their collaborative relationship to their existing friendship in real world.

"I think it is better to be with someone you get along with and ... But it is good, I mean it works with Diana and me. .... You feel, well, you feel comfortable with the very person. You think you can tell everything. We are already good friends. So we feel very comfortable talking to each other like that. She won't get it like, ... I mean it is Diana. I know that I can give her advice and she won't take it like an aggressive thing, or something… We always have the relationship. Nothing changed after the chat."
(interview with Anton, 7/25/06)

Diane commented on their relationship as ,

"*Oh, Anton, she is my friend. We chat in class, out class. Her English is good. I want to learn from her. We also chat other time… in instant messenger, you know, just chat because we are friends. …. The way I talk? The 'honey'? oh, that's instant messenger. We always talk like that.* " (interview with Diane, 7/25/06).

To them, whether it was conducted in a physical or virtual environment, they would help each other.

As for the relationship between Diane and Rocky, both of them were familiar with each other, but not good friends, before participating in the CMPR tasks. Both of them knew IM chat very well. In the follow-up interview, Diane described Rocky and the relationship between Rocky and her,

"*I don't know. I feel like sometimes he is here because he has to…. because you know when somebody wants to learn, different, or you know when some people stay here just because have to be here. oh, you know, you can tell who wants to learn, right?... No, because I know this. We know each other very well. We have other courses together in the ELI. All the classes I have him. Something like that. He is ok. Also he has a kidney stone. So he doesn't seem so bad. He works in class…. Instant messenger just another way for us to talk. Nothing changed. "* (interview with Diane, 8/3/06)

Thus, she was still willing to work with Rocky even though she was aware that Rocky was not quite serious about his study in the ELI. She already had ample communication with Rocky before the CMPR task and their relationship was neither strengthened nor weaken because of the IM. It seems the pre-IM relationship played a dominant role if both partners knew each other and IM chat well. In other words, IM had

become an ordinary communication venue after both partners mastered its functions and operation, thus could not cast dramatic influence on ESL students' interpersonal relationship establishment.

It seems the use of IM cast differentiated effect on the interpersonal relationship among participants who were paired to collaborate in CMPR tasks. To some students, IM operation proficiency rather than writing proficiency played a bigger role in relationship establishment. For others, the provision of a free IM environment fosters the participation and personality exposure which was conducive to relationship building. Dialectally, friendly relationship between dyadic pairs promoted constructive collaboration in the tasks.

Mediation of the use of IM in Off-screen behaviors

As mentioned above, the use of IM also mediated participants' off-screen behaviors at the operation level. First of all, participants tended to ask their partner to mark down or directly edit the mistakes on the essay paper due to the lack of a hard copy of their own essay. Secondly, some participants spent long time editing the message or merely paused to write down the suggestions from their partner in the middle of the chat, which left the partner without knowing what happened. It usually caused the partner to look at his or her direction to check the status.

In sum, at the operation level, participants' e-turn contributions and e-turn taking, the use of language functions and non-text communicative tools, the establishment of interpersonal relationship as well as their off-screen behaviors were influenced to diverse extent by the use of IM. Different from face-to-face peer response, participants regardless of their English proficiency and motives were more active in terms of e-turn

contributions if both were familiar with IM chat. They also tended to share the floor and build equal status in online chat, which led to more frequent use of collaborative language functions and positive emoticons. For some participants, the interpersonal relationship established in IM chat was influenced by the operation style of the partner whereas for others a friendly interpersonal relationship was naturally established in the IM environment.

Section Summary for IM Mediation in ESL Students' Participation in CMPR Tasks

This section reported on the findings of the mediation of IM in five ESL participants' involvement in the CMPR tasks. Data from the on- and off-screen observations, chat transcripts, and interview transcripts were analyzed at the activity, action, and operation levels respectively.

At the activity level, it shows the use of IM mediated participants' agency-execution in terms of choosing which activity system to join as well as generation of new motives. Because students were equipped with both various IM chat software as well as the powerful and wall-penetrating Internet browser, they were exposed to a myriad of activity systems driven by diverse motives or objects, such as socializing with people on the Internet, having online entertainment, or collecting non-task related information from the Internet. Despite the presence of an instructor in the lab, it was impossible to monitor all students' online behaviors. Thus, theoretically, as a mentally functional agent, students had all the liberty to choose whatever activity systems they were interested in. Therefore, the mediation of IM in the CMPR tasks was reflected in the affordance of the central activity system in the academic writing classroom--improving academic writing skills in each essay, the stimulation of new motives such as learning how to operate IM

and having fun in IM chat, and the support for discursive motive shift even within one learning task. On the other hand, participants' involvement in multiple activity systems also influenced their operation of IM within each activity system. IM use mediated ESL participants' perceptions about the CMPR tasks, which can be summarized in two aspects: (1) learning-affordance, and (2) learning-constraint.

At the action level, the mediation of IM was reflected in its facilitation in new goal generation as well as externalization of participants' actions that did not belong to the central activity system. Because of the use of IM, Iron created new goals such as login to the IM account, IM communication, as well as type fast in IM chat. And Anton set up a goal to find a good way to discuss grammar and organization. On the other hand, because of the use of IM, ESL participants' actions that belonged to alternative activity systems, such as listening to online music or video, and chatting with other online friends, were easily exposed to the instructor if certain technologies such as screen motion capturing software were employed.

At the operation level, the use of IM mediated ESL participants' involvement in CMPR tasks in four aspects: (1) e-turns and e-turn-taking, (2) the deployment of language functions and non-text communicative tools, (3) establishment and maintenance of interpersonal relationship, and (4) mediation in off-screen behaviors. Firstly, participants contributed a greater number of e-turns more equally if they had similar IM chat skills and styles regardless of their English proficiency and motives. Unbalanced contribution of e-turns during the chat was caused by participants' conscious or subconscious emotion breakout. Secondly, participants freely employed a variety of language functions such as give suggestion, confirmation check, as well as non-text

communicative tools such as emoticons, nudge, wink, and creative language to fulfill their goals and to establish a friendly peer response environment. None of the participants consciously adopted a dominant or authoritative role during the chat. Thirdly, participants' interpersonal relationship with their partner in each task was more or less influenced by the use of IM, depending on what pre-CMPR relationship they already established and the IM communication styles each interlocutor had. Finally, the use of IM also influenced participants' off-screen behaviors in terms of grammar error edition and physical movements during the chat sessions.

Mediation of Social Cultural Contexts

Research Question 3: How do current social and cultural contexts influence ESL students' participation in CMPR tasks?

When clarifying the concept of activity, Wertsch (1985) emphasizes that a context is "not a setting within which activity takes place, rather it is activity that produces the very arena of human conduct" (Lantolf & Thorne, 2006, p.215). Expanding Vygotsky and Leont'ev's interpretation of an activity, Engeström's (1987) proposes a new model of activity system which is comprised of six constantly interacting components: *subject, object, mediational artifacts/tools, rules, community,* and *distribution of labor.* Since this study was guided by cultural historical activity theory advocating the unit of analysis as the context or activity system in which each human subject is involved when he or she participates in a learning task, the researcher concentrated on the central activity systems, that is, the activity systems driven by the motive of improving writing skills in each mode by looking at the interactions between the six components within each activity system.

According to the principle of multi-voicedness in CHAT (Engeström, 2001), each subject in an activity system has his or her own perspective about the object. Because each participant in this dissertation study bore a heterogeneous historical background when participating in each CMPR task, the first unit of analysis adopted in this section was the learning activity in which each participate was engaged within each CMPR task. Then, the focus of the investigation was placed on the collective activity all participants participated in to unfold the mediation of the social cultural context in participants' learning and development processes across the four CMPR tasks.

Before presenting the results of mediation, I would like to restate that the object driving each learning activity system discussed in this section was knowledge and skills of writing an expository essay, summary-analysis essay, argumentative essay, and problem-solution essay, respectively. Because the focus of this study was the learning and development that occurred in the tasks, the non-learning activity systems in which participants were engaged such as those driven by the motives of having fun in IM chat, or maintaining a good-student image, were beyond the scope of the current study. In addition, as each activity system consisted of a chain of actions such as taking lectures, writing the essay, conducting CMPR tasks, receiving teacher's feedback and submitting the final draft, each participant's participation in CMPR tasks were investigated in connection with other actions as well.

As mentioned earlier, all five participants in the study had different prior experiences with English academic writing instruction, peer response, and IM chat. When they participated in the CMPR tasks, they embarked with different skills, understandings, and expectations of conducting CMPR tasks despite the pre-CMPR demonstration, which

resulted in their different adoptions of the CMPR instruction sheets, the CMPR reader's and writer's worksheets, as well as varied performances in the tasks. This section focused on the interactions among the six components within each learning activity system (from now on, it will be called *central activity system* (Engeström, 1987)) as well as those interactions between multiple neighbor activity systems and the central activity system in each CMPR task.

In each central activity system, the *subject* was the participant. The *object* was knowledge and skills of writing an essay in each mode, which drove the entire activity system. The *mediational tools* were comprised of physical tools such as the computer, MSN instant messenger or Yahoo! instant messenger, and psychological tools such as English, documents about writing an essay in each mode, the CMPR instruction sheet (Appendix D), and the CMPR reader's and writer's worksheets (Appendix E1 & E2). All participants were required to use English to communicate in class, particularly with his or her partner in IM chat. Before conducting each CMPR task, one or two lectures were given by the instructor to demonstrate how to write the essay such as how to outline the essay, what content information should be generated, and what particular writing strategies should be used. Pertinent documents such as an example outline and sample sentence structures that could be used in the essay were distributed. Before each CMPR session, the instructor gathered all students to the front of the lab and instructed how to use IM to communicate with the partner by both distributing an instruction sheet detailing steps students needed to take and demonstrating how to log onto the IM and to exchange messages with a partner.

The *community* who shared the same object with each participant in each activity system consisted of particularly the participant's partner, the instructor, the class, the ELI and USF of which each participant was a member. *The rules* that regulated the interactions between each participant and the community included the norms of interaction between the instructor and students, students and students, particularly in IM interaction. The procedures all students in the class needed to follow for each CMPR task included finishing the first draft, exchanging a hard copy with the partner, conducting CMPR task, and revising the first draft and submitting a second draft to the instructor. During the IM communication, there were some general rules students needed to follow, such as actively exchanging messages to provide and seek opinions and suggestions on each other's essay. Constructive negotiation was encouraged in CMPR tasks. Verbal communication among students during online chat was avoided as much as possible.

On the other hand, to achieve the object collectively, all people in the community had to *divide the labor*. In CMPR tasks, each student was required to play both a reader's and a writer's role. As a reader, a student needed to carefully read his or her partner's essay with or without the CMPR reader's worksheet and provide critical and productive feedback. As a writer, a student needed to prepare several questions to solicit opinions and suggestions from the partner on his or her own essay. The role played by the instructor was to provide instruction and demonstration of the content as well as facilitation in both language and technology during the CMPR tasks. All the other students were required to work on their own computers.

To answer the research question, data from the beyond- and on-screen behavior recordings, IM chat transcripts, interview transcripts, reflective journals, and collected

documents were first analyzed at each individual level, then at a collective level. In other words, both the researcher's interpretation through the observation of the field and participants' perceptions were taken into consideration to understand the complex and dynamic interactions between components within each activity system. At the individual level, each participant's central activity systems was illustrated in a triangle diagram respectively to show the relationship among all components in the activity system. It will be followed with a detailed explanation of learning and development that took place in each activity system. At the collective level was presented the interactions between the six components in the collective activity system of which all participants were considered the subject driven by a collective motive: learning how to conduct CMPR tasks.

Mediation of Social Cultural Context in Anton's Participation

As discovered in the first section, Anton was involved in two central activity systems throughout the three CMPR tasks in which she participated throughout the semester. The two activity systems were oriented toward the objects of knowledge and skills of writing an exploratory essay and knowledge and skills of writing an argumentative essay, respectively.

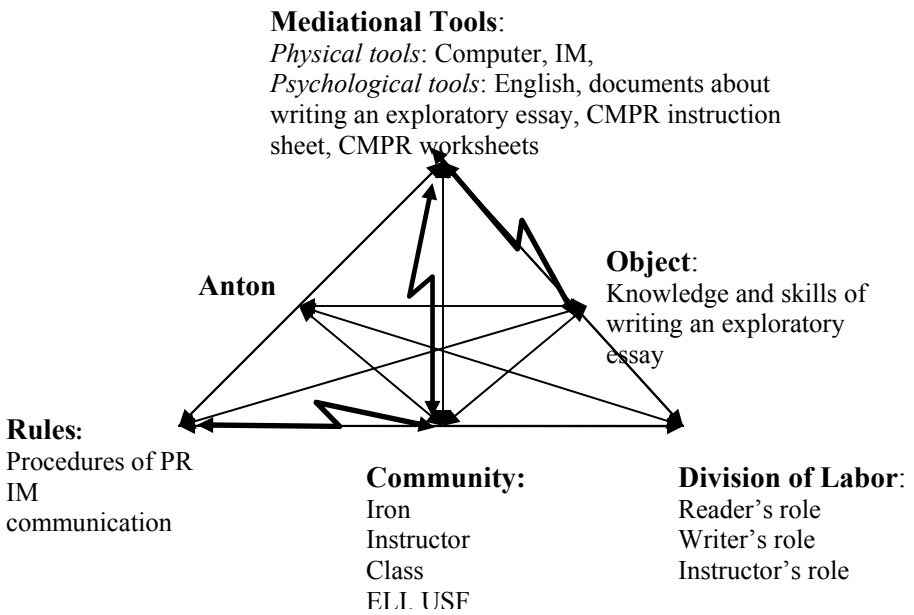


Figure 10. Anton's Central Activity System in the CMPR Task for the Exploratory Essay

In the follow-up interview, Anton reflected on what she did for the first CMPR task,

"What did I do? You mean concrete thing? I gave Iron my essay and he gave me on Monday. Then I read his essay and tried to use the worksheet you gave me. I answered the questions… he doesn't have many problems. I just found he did not follow the format. You know, you should follow an essay format, right? My teacher in level 3 told me… then I found his conclusion is not that balanced compared to his introduction. You have seen it in our conversation, right? I told him my suggestions. And I asked him to give me some." (interview with Anton, 6/21/06)

The interview showed that during the first CMPR task, Anton employed the psychological tools: the reader's and the writer's worksheets, and her concepts of an expository essay as well as the documents about writing an expository essay she obtained in the earlier mini-lecture about writing an expository essay, to judge whether there was

inappropriateness in Iron's essay. As shown in her first comment "*So, Iron.... Your writing is well-organized and very interesting... I have nothing very important to tell you actually.... But, this is a peer review... so I will try to help you to do better that you do!"*, Anton used the reader's worksheet and her knowledge about the standards of an expository essay such as the organization and the content to judge Iron's essay. She also used her knowledge about the format of a paragraph, the in-text quotation, and the correspondence between the introduction and conclusion paragraph to identify mistakes in Iron's essay. Anton learned the format of a paragraph, such as double-space, no bold words, and spaces between paragraphs in her Level-3 academic writing class. She learned the strategy of balancing the introduction and conclusion paragraph in the first writing session of the semester which focused on a compare/contrast essay and the strategy of in-text quotation in the current session. Her comments indicated that she had internalized these new and previous skills and knowledge and externalized them by providing suggestions to improve Iron's essay in these aspects.

"*But usually when I make peer review, I try to answer the questions you ask from the paper. About the questions, I mean, maybe it is too broad. Too general? … So we have to answer yes or no. We do very quickly, usually. I think it is for all students the same.*" (interview with Anton, 6/21/06)

As shown in the above interview excerpt, Anton used the reader's worksheet to help her identify problems. However, she thought the guiding questions on it were too general to help her identify specific mistakes in Iron's essay, which caused the tension between the reader's worksheet and the object. This tension later stimulated a new activity system of which the subject-- the instructor produced a new CMPR reader's

worksheet containing more specific questions students could use to identify problems and offer suggestions to their partners.

It also indicated that Anton was using her conceptions about what were important issues for an expository essay and what was the purpose of peer response in the task. During the chat, she told Iron that she did not have anything important to tell Iron except his problems with the format, the in-text quotation, and the correspondence between the introduction and conclusion paragraph, which indicated she thought these mistakes were not serious for an expository essay. On the other hand, she also indicated the purpose of peer response in her mind was to "help you to do better than you do".

During the chat, Anton collaborated with Iron through two physical tools: the computer and the IM software. She employed one psychological tool: comprehensible English, followed the online communication rules, and abided by the division of labor by taking her dual roles as a reader and a writer. Regarding the mediation of English language, Anton did not have many misspellings or ungrammatical structures. She used the connectors: first, second, also, last to organize her three suggestions for Iron, which shows she handled the language very well. The other interesting phenomenon was Anton capitalized the first letter in each of the e-turns when she offered opinions and suggestions while she used lower case letters in all other e-turns. It seemed she considered providing feedback was similar to a writing assignment whereas receiving feedback was conducted in an informal discourse.

Mediated by the division of labor, she asked Iron to give her his opinions and suggestions on her essay after she finished her reader's role. She only obtained one suggestion from Iron about how to provide a good thesis statement in the introduction,

which she integrated in her revision. Although he commented on her conclusion paragraph, Iron did not provide specific suggestions to tackle the problem. Anton's precepts about online communication particularly mediated her behaviors during the chat. For example, she greeted Iron at the beginning and said good-bye at the end of the chat. She produced only one complete sentence per e-turn when she gave suggestions to Iron. She also used compliments when giving opinions, expressed appreciation after receiving feedback, as well as used emoticons and colloquial expressions such as ok, hey, and usually short sentences in chat. She always responded to Iron right after Iron sent over a message.

As pinpointed by Engeström (1987), an activity system is never stable or static. All components in the system constantly interact, shape and are shaped by each other, which triggers tensions and dissonances between each other in the activity system. Some tensions became ostensible as shown by the three double-headed lightening signs in Anton's activity system, the first one between the mediational tool and the object, the second one between the rules and the community, and the third one between the community and the technology.

As mentioned earlier, the first tension emerged when Anton found the CMPR reader's worksheet did not help her identify problems in Iron's essay as shown in the follow-up interview, "*About the questions, I mean, maybe it is too broad. Too general? … So we have to answer yes or no. We do very quickly, usually.*"(interview with Anton, 6/21/06). The second tension lied in between one mediational tool, IM, and the community, particularly Iron. It was Iron's first time to use IM. He did not know how to type very fast. Neither did he know how to chat with people in a polite way in IM. At the

beginning of this task, Anton typed five messages before Iron did one. After Iron informed Anton that he had some suggestions on her essay, Anton waited three minutes but saw nothing. So she started to worry that they would not be able to finish the task in time. After another minute without response from Iron, Anton had to say "*we will continue this conversation tomorrow morning*."

Another tension was engendered by Iron's lack of IM skills and existed between Iron as a community member and the rules. Iron used very formal written form such as complete sentences with formal sentence connectors and started each sentence with a capitalized letter in all his e-turns. He never used emoticons to soften his tone or show some emotions, which made him sound uptight and critical. In addition, Iron did not know how to show online communication courtesy, which made Anton think he was impolite and critical. For example, during the chat, Iron very boldly stated, "I think your thesis statement is not appropriate" and he seldom complimented Anton. The tension between the rules and Iron was also illustrated in his communication style as shown in the following excerpt:

Excerpt 4. 11:

5Iron says: Furthermore, i think you should improve your conclustion pargraph.
5Anton says: you are to broad for me... could you be more accurate please?
6Iron says: Ok. I am sorey.
7Ironn says: m y opinon obaut your essay is over. than you

In this excerpt, Iron pointed out there was some problem in Anton's conclusion paragraph. However, when Anton asked him to specify his suggestion, he failed to provide more information. Instead, he just apologized for his unclearness and then concluded the conversation, which sounded very unhelpful. To this, Anton commented

on Iron, "*It's slow. and it 's bored He is slow… yes, maybe he doesn't know how to chat. He didn't answer my question*. " (interview with Anton, 6/21/06)

Anton reported the tension with the reader's worksheet to the instructor who revised it, which successfully solved the tension. However, she did not take efforts to deliberately solve the tensions between her partner and the tools and the rules. On the contrary, she tried to avoid these tensions by refusing collaborating with Iron, which triggered the destructive collaboration between her and Iron in the second CMPR task, which Anton was not engaged in the central activity system.

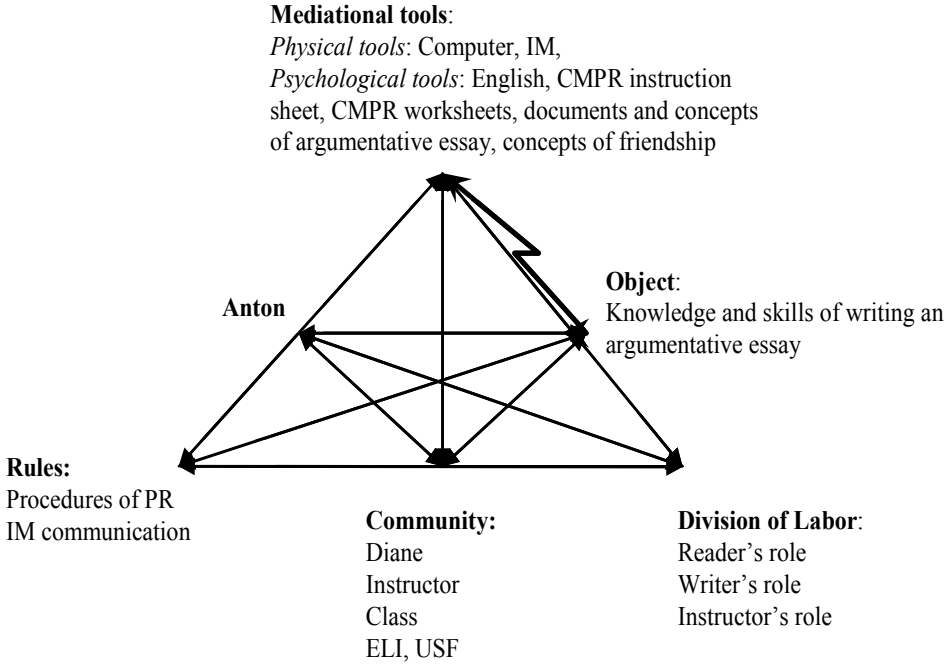


Figure 11. Anton's Central Activity System in the CMPR Task for the Argumentative Essay

In her reflection on the third CMPR task, Anton said,

"It was fine… How did I comment? You know, we already learned how to write argumentative essays. But I still not sure… well, we talked about the ideas of the essay. She gave me some advice. I gave her some too. I don't remember…. I don't know. Maybe

it is easier to form of the.... For example, there is a sentence which is grammatically incorrect. It is difficult on the net to write it down again. So I prefer to show her face to face. So here is the mistake, here... It is just ... I mean it is not good for everybody. I mean it is not good for Iron because he doesn't know how to type very quickly. But it is good, I mean it works with Diane and me." (interview with Anton, 7/25/06)

Anton was engaged in the central activity system when she collaborated with Diane in the CMPR task for the Argumentative Essay. In this task, Anton's participation was mediated by the mediational tools, particularly her newly internalized concepts about CMPR, documents and her concepts of argumentative essay, the rules, community, division of labor as well as the object which motivated her to participate in the activity system.

When reviewing Diane's essay, Anton first deployed her knowledge of a good argumentative essay and the CMPR reader's worksheet to form her opinions and suggestions for Diane. According to the chat transcripts, Anton commented on Diane's grammar, the organization and content in her introduction paragraph, and the conclusion paragraph. Using her knowledge of English, Anton identified some misspellings and ungrammatical structures in Diane's essay. Mediated by her concept of peer response, she planned to correct them directly on Diane's paper rather than merely mark them out and let Diane correct them by herself. With her knowledge of the organization and content in an argumentative essay, Anton discovered that Diane's introduction paragraph had a hook sentence which hooks the reader but some information provided in the paragraph was not accurate.

During the IM chat, Anton's actions were mediated by the mediational tools she used, the community, particularly her partner Diane, the rules of IM communication, and the division of labor. The tools that mediated Anton's actions in the chat included IM, the computer, English, her concepts of an argumentative essay, peer response, and friendship. Anton did not feel comfortable to discuss grammar issues on the IM. She told Diane during the chat "*I prefer to correct the grammar mistakes directly on your sheet*".

During the chat, she also discovered that both Diane and she had the same problem with the organization, and she felt it was not easy to discuss about it on the IM either. So she suggested they work together at noon. Anton's actions were strongly mediated by her concepts of friendship as she revealed in the follow-up interview, "*I know Diane for a long time. We are good friends… I don't know. It is the way you talk to friend on the computer*" (interview with Anton, 7/25/06). She and Diane were good friends. Thus, she gave many emotionally positive comments on Diane's essay such as "*I love your ideas! you always have goods ideas! ☺", "I really LOVE you introduction sweetie!"* She also encouraged Diane frequently. As shown in Excerpt 4.12, when Diane indicated her lower proficiency compared to that of Anton's, Anton immediately objected to her judgment and tried to lift up her spirit.

Excerpt 4.12

19Diane says:you know!! we have similar ideas, but your are eassy to understand. mine are so difficult
22Anton says:don't say that!
23Anton says:you are easy to understand
24Anton says:and yes... we have excatly the same ideas.. that's funny!

From collaborating with Diane, Anton also realized some problems in her own essay. As shown in Excerpt 4.13 below, Anton did not realize the problem in her

conclusion paragraph until Diane pointed out the problem in her own conclusion. Anton was not sure what problem it had. But she seemed to want to comfort Diane so she said "*don't worry, I think it's good*". But Diane insisted in obtaining some suggestion from Anton. After a quick re-check of Diane's conclusion, Anton discovered she also had some problem with her own conclusion. Then she called for an additional meeting on the common problem in their essays. It indicated that Anton was prompted by Diane to recheck her own essay. In the follow-up interview, Anton reported, "*Actually I get new idea.I changed some grammar mistakes. Well, that's the one I hope. And what did I do? I tried to extend a little bit*" (interview with Anton, 7/25/06).

Excerpt 4.13:

10Diana says: but, my essay has problem with tthe conclusion
...
10Anton says: What do you mean?
11Diane says: I don't know if it was ok...
11Anton says: maybe you should work on it...
12Anton says: but don't worry... I think it's good
12Diane says: yes. do you have some recommendation
13Diane says: (waiting for answers)
13Anton says: Mine has problem too.... it's too short compared w/ others paragraphs!
14Diane says: yes. the same like me
...
14Anton says: Maybe we should work together at noon!

As for the mediation of the rules of IM communication, Anton immediately greeted Diane when she logged onto the IM, expressed her appreciation when she received suggestions from Diane, and said good-bye to Diane at the end of the chat. During the chat, she produced one sentence in each e-turn. She mainly had one-to-one e-turn exchange with Diane. Anton also used different strategies to avoid confrontation in the chat. As shown in the following excerpt:

Excerpt 4. 14

17Anton says: Just one thing... in your first paragraph... you should specify that you are talking about the ELI
18Anton says:because all programs don't provide teachers with PhD
19Anton says:and all programs are not 25h a week
17Diane says:ok. just they promet it
20Anton says:I really LOVE you introduction sweetie!
18Diane says:but here it is
21Anton says:☺

She pointed out there was some inaccurate information in Diane's introduction paragraph. When Diane insisted the information was still true because those programs promised it although they did not do it actually, Anton immediately complimented her and used a smiley face "☺" to dismiss the argument.

Mediated by the division of labor, she explained to Diane why she thought the organization of her introduction paragraph was good and why some information was not accurate. When Diane pointed out the misspellings in her essay, Anton asked Diane to provide direct edition.

As indicated in the above analysis, this activity system also embodied tensions. The first tension existed between the symbolic tool Anton used, her concepts of a good argumentative essay, and the object. It was actually rooted in the tension between the object and the earlier lectures in which Anton probably did not develop plenty of knowledge about writing a conclusion paragraph in an argumentative essay. During the chat, both Anton and her partner felt difficult to revise their conclusion paragraphs. Anton thus suggested Diane and she work together on this after class. They compared each other's essay with the documents for the argumentative essay and helped each other

revise the essay during the noon meeting. The other tension was between the physical tool IM and the object. Anton realized it was not easy for both her and Diane to discuss grammar mistakes in IM. So she suggested an alternative way to solve this tension: correct the mistakes directly on Diane's paper.

In addition, some tensions also existed between Anton's central activity system and the neighbor activity system in which she was simultaneously involved: having fun in IM chat. This non-central activity system constantly distracted her from participating fully in the central activity system. As shown in Excerpt 4.13, during the chat about the problem in Diane's conclusion paragraph, Diane was waiting for Anton's suggestions while Anton was chatting with another online friend as shown in the on-screen behavior recordings. After being urged by Diane's emoticon, Anton came back and started to recheck Diane's essay. However, the delay of response was short because Anton usually immediately went back to Diane's chat window from her additional chat window whenever the IM system reminded her that a new message arrived.

Mediation of Social Cultural Contexts in Diane's Participation

Diane was only fully engaged in two CMPR tasks throughout the semester. As mentioned earlier, she was not motivated to collaborate with her partner in the CMPR task for the summary-analysis essay due to his sluggishness and her perceptions of his English proficiency. Instead, she actively participated in the CMPR task for the argumentative essay in which she collaborated with Anton and the task for the problem-solution essay in which she worked with Rocky.

Diane reflected on what she did throughout the task,

" *what I did… I email Anton my essay. She email me her essay. … worksheet? I*

use it. Of course. I am not sure… I use it to help me find problems in her essay…. You know, she is a good writer, she doesn't have lots of problems. I found some misspellings, something like that. And I told her these in the chat. I want her to help me. So I asked her a lot of questions. She is helpful…. yes, I learned how to write an argument essay. But …Because sometimes when you wrote, you don't realize your own mistakes. Sometimes when you write, you say, oh, that's excellent, you didn't define your own mistakes, or some mistakes from the first one" (interview with Diane, 7/25/06)

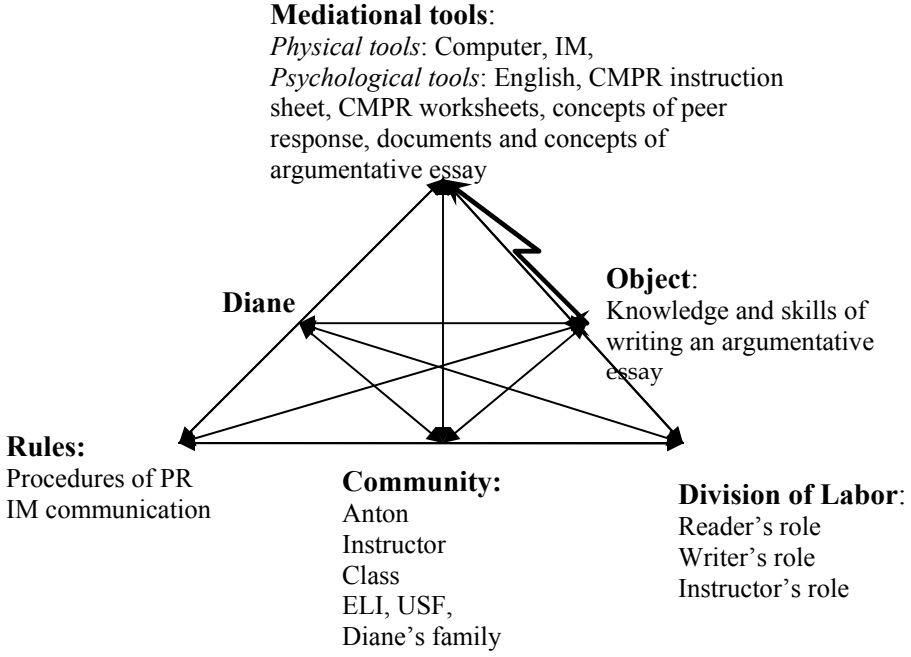


Figure 12. Diane's Central Activity System in the CMPR Task for the Argumentative Essay

As shown in Figure 12, Diane's participation in the CMPR task was driven by the *object*: knowledge and skills of writing an argumentative essay. Simultaneously, her participation was mediated by *mediational tools* such as the use of Internet-connected computer, IM, CMPR instruction sheet, CMPR worksheets, English, and the documents and her concepts of a good argumentative essay.

As recollected by Diane in the interview, she was mediated by her knowledge of English and the standards of a good argumentative essay when she was reviewing Anton's essay. Although she found several grammar mistakes, she thought Anton's introduction was very original in terms of content. She also identified some content-related ambiguity in Anton's conclusion paragraph. However, she failed to identify any organization or reference-related problems due to her limited proficiency of writing an argumentative essay. And she was aware of her own problem. Mediated by her concepts of peer response, she counted on Anton, who she thought had higher English proficiency than her, to help her identify those problems, which were reflected in the questions she asked during the chat and the revisions she made in her second draft.

Diane was very familiar with the use of computer and IM because of her previous experience with IM. During the chat, she employed the physical tool IM and the psychological tool English dexterously playing her roles as a reader and a writer. She frequently employed the emoticons, wink, nudge and even online poker game feature supported in IM to express her emotions as well as to indicate what she intended to do. Although Diane had many misspellings in her essay, she tried to use correct spellings in her IM messages to avoid confusion from Anton.

As for mediation from the division of labor, she still played her reader's role actively in the chat despite her lack of confidence in her writing and eagerness to obtain help from Anton. She commented on Anton's essay that she had some misspellings and her introduction paragraph had very interesting information. She then pointed out some content-level ambiguity in Anton's conclusion paragraph. Regarding the mediation from the community, Diane moved to the U.S. after she married her Columbia-born

American husband. Although her husband was a native speaker of English, he seldom helped her with her English. Thus, she particularly looked forward to collaborating with Anton to improve her English.

Mediated by the rules of IM communication, Diane responded to Anton's message immediately after she received it. In the follow-up interview, she revealed that despite her problems with spellings, she never stopped to verify them in a dictionary during IM chat because she wanted to chat quickly. She greeted Anton at the beginning and said good-bye to her at the end of the chat. She always expressed her appreciation after receiving a suggestion from Anton. She also used emoticon frequently to show her emotions and attitudes toward Anton's comments. When she pointed out some weaknesses in Anton, she either preceded her negative comments with a positive comment as shown in Excerpt 4. 15 or used an intimate greeting and clarification request to express her different opinion about Anton's argument approach in her essay as shown in Excerpt 4. 16.

Excerpt 4.15:

7Diane says: but, you don't have a lot mistakes. just I saw spelling problem
5Anton says: Yes

Excerpt 4. 16:

20Diana says: honey... in your conclusion you wrote about bad accent in ours teachers???? but just in your country???

In Diane's central activity system, there existed tensions that were triggered by the interaction between her central activity and the neighboring activity system in which she was simultaneously participated: having fun on the Internet. The tension within her central activity system resided between the IM and her object. Diane was a music fan.

Whenever she got online, she would check online music video no matter what she was obligated to accomplish. Thus, even if she was attentively collaborating with Anton, she still managed to find some time to browse other music video websites and listened to her favorite music, which actually formed the tension between her central activity system and her adjacent activity system driven by her motive: having fun on the Internet. The tension between the two activity systems was projected in the tension between the IM and her object in her central activity system. During her chat with Anton, she invited Anton to have an online game which was supported in the MSN IM system before they finished the task. Diane did not deliberately seek solutions for these tensions. Instead, she considered these as normal activities in IM chat.

In the CMPR task for the problem-solution essay, Diane collaborated with Rocky. She reflected on her collaboration with Rocky,

"*This was a hard-done job. I don't get what he says. So we working on mine. I just gave him my essay before we chat. Yes, I read his essay. I am not sure.... I am not sure... Yes, yes, (Rocky helped me.)…. because when I finish to write it, I did not correct before print out. So all the mistakes that I had were corrected. no suggested different than I have. When I read him, I omit some information then it made me improve my essay, for example, data. Also I got data. But I think for that time, I didn't get that. But when I read his essay,all of a sudden, it is data. All is data. So when I think of my essay, oh, I forget to put data. And I have to...*" (interview with Diane, 8/3/06)

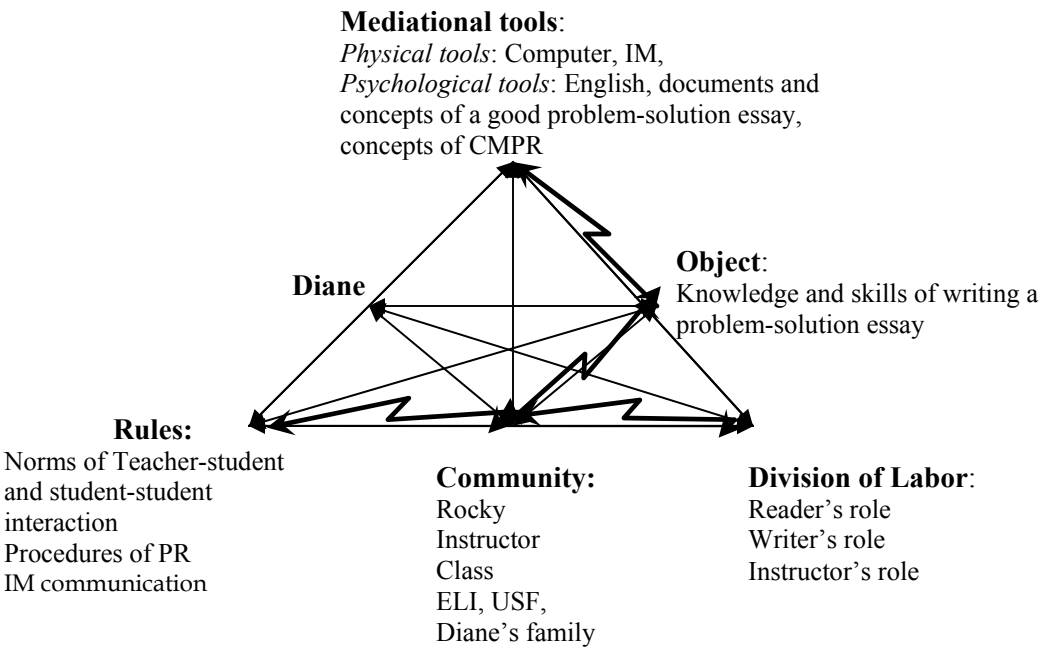


Figure 13. Diane's Central Activity System in the CMPR task for the Problem-Solution Essay

Diane's participation in the task was driven by the object: knowledge and skills of writing a problem-solution essay. Because Rocky did not finish his essay before the IM chat, Diane did not get a chance to read his essay. Thus, the entire IM chat was focused on Diane's essay. In the task, Diane's actions were mediated by the mediational tools including the use of computer and IM, English, and her knowledge and concepts of a problem-solution essay as well as concepts of CMPR since this was her third time to participate in the tasks, the community, the rules of CMPR and class interaction, and division of labor, particularly her writer's role.

First of all, Diane's participation was mediated by her community. As mentioned earlier, Diane immigrated to the U.S. as a bride. She took classes in the ELI as a full-time student and worked as a part-time cashier in a local grocery store. She had a very busy schedule. She revealed in both the interview and the IM chat with Rocky that she did not finish her problem-solution essay until 1 am the night before the class. It severely

influenced the grammatical accuracy in her essay, which became the focus of the CMPR chat.

Diane's participation was mediated by the use of IM and the rules of online communication. She greeted Rocky once she logged onto the MSN IM and expressed her appreciation from Rocky's help and said goodbye to him before she withdrew from the conversation. She maintained one-to-one e-turn exchange with Rocky in the vast majority of the chat. She also used several emoticons including one wink to express her emotions. She also invented some special expressions such as "*mmm…*" to show she agreed that she made some errors, which she thought made the conversation more fun and lively, as she revealed in the follow-up interview.

Mediated by the division of labor, Diane first checked whether Rocky had finished his essay and whether he had read her essay. After she confirmed that Rocky had read hers, she asked him what suggestions he could give to her. When Rocky mentioned he found several misspellings and ambiguous words in her essay, she immediately requested him to identify them. She respected the suggestions from Rocky as well. As shown in Excerpt 4. 17, when Rocky questioned the accuracy of the word intrafamily in her essay, Diane explained her intention. Then Rocky suggested she use another word intra-family. She questioned that she saw people used this word in their articles. However, Rocky had moved to the next problem in her essay and did not get a chance to answer her question. Although her question was not answered, Diane still incorporated Rocky's suggestion into her essay.

Excerpt 4. 17:

28Rocky says: what do you mean by the word intra?
27Diane says: intrafamily?
28Diane says: interior of the family
29Rocky says: you mean entire?
29Diane says: it is other word to replace domestic violence
30Diane says: no into
31Diane says: you got it?
30Rocky says: ok
31Rocky says: but you should write like this: intra-family
32Diane says: it is better??? because i read a lot about it and i saw that word kd like that

In the follow-up interview, Diane said, "*Yes, yes, (Rocky helped me.)…. because when I finish to write it, I did not correct before print out. So all the mistakes that I had were corrected*" (interview with Diane, 8/3/06). To fulfill her reader's role, Diane also prompted some discussions about Rocky's essay although she was aware he did not finish it. As shown in Excerpt 4.18, Diane first asked what topic he wrote about and then offered some ideas under the mediation of her knowledge of a problem-solution essay.

Excerpt 4.18:

15Diane says: and what topic did you choose for your essay?
16Rocky says: it is about aids
16Diane says: oh! Big problem... and what kind of solutions do you have
17Rocky says: donation i guess
17Diane says: just $
18Diane says: i think that education is the best
18Rocky says: yes i was going to say that
19Diane says: :-D

Except the tension between the computer and Diane's object of her central activity system, which also emerged in her central activity system in the CMPR task for the argumentative essay, there were three other tensions within Diane's central activity system that were triggered by her partner Rocky. The first one was between the rules of

the class and the object. Rocky did not finish his essay before the CMPR task, which led to the second tension: his failure to play his role as a writer. This in fact reduced the opportunity for Diane to use her concepts of a good problem-solution essay to critique and learn from critiquing a problem-solution essay. This tension was solved when Rocky finally finished his essay and gave it to Diane. Diane reported that she learned how to provide examples with appropriate references to support her argument from reading Rocky's essay, "*I learned… add information, data in my essay ….. to support my argument. I didn't realize that until I read Rocky's essay. He is really good about it.*." (interview with Diane, 8/3/06).

The second tension was between Rocky and the division of labor. Although Rocky provided many word-level suggestions to Diane, she revealed in the follow-up interview that "*you know, Rocky only told my mistakes in words. He did not help me about other mistakes. But it is ok. I know Rocky. Because you know when somebody wants to learn, different, or you know when some people stay here just because have to be here. But it is ok. You will correct my mistake, right?*." (interview with Diane, 8/3/06). She seemed to look forward to more feedback on the organization, which she thought was important for the essay. This tension was not solved during or after the CMPR task. As shown in her reflection in the interview, she did not mind this tension since she believed the instructor would help her through the teacher's feedback.

The third tension existed between the object and Rocky. Rocky was not motivated to participate in the CMPR task. However, to maintain a good-student image, he had to read Diane's essay and provided feedback. He chose to only comment on the misspellings in Diane's essay which was the easiest to discuss. Therefore, his feedback

was far from helping Diane improve the true quality of her essay. Despite this tension, Diane was not disappointed by the collaboration because she was aware he at least helped her identify some mistakes she could not identify by herself and the instructor would provide further feedback regarding her organization and content later.

In sum, through the two CMPR tasks, Diane's participation was constantly mediated by her object, the mediational tools she employed, the community of which she was a member, the rules governing the interaction between her and other community members, as well as the division of labor. Each component in her central activity system constantly mediated each other, thus triggered conflicts and tensions. Some tensions were solved but others remained. While seeking ways to reconcile the tensions, Diane learned and development certain knowledge and skills. For example, she learned how to improve the grammar and organization of her argumentative essay by working with Anton and how to select accurate words and to make a statement stronger by negotiating with Rocky and reading his essay. Those tensions that were not solved did not afford learning and development opportunities to Diane.

Mediation of Social Cultural Contexts in Iron's Participation

Iron was fully engaged in two out of three CMPR tasks in which he participated. Therefore, this section discussed the mediation of social cultural contexts in Iron's participation in the CMPR tasks for the expository essay and the summary-analysis essay respectively. As shown in Figure 14, Iron collaborated with Anton in his first CMPR task for Exploratory Essay. In this activity system, as mentioned in Anton's case, Iron was mediated by the same *object*: knowledge and skills of writing an exploratory essay.

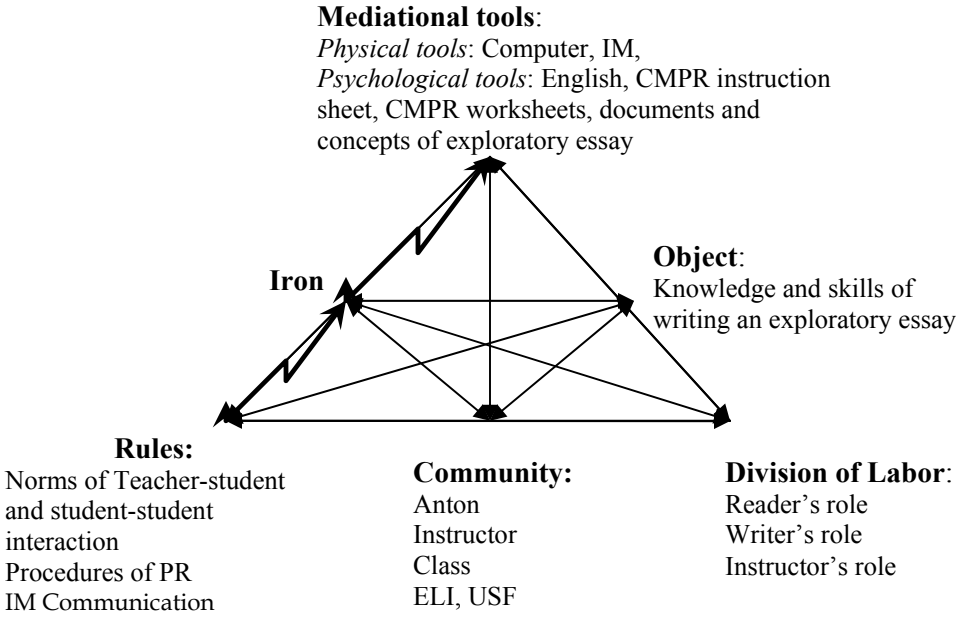


Figure 14. Iron's Central Activity System in the CMPR task for the Exploratory Essay

According to the data from the interviews, observations, reflective journals, and document reviews, Iron's actions in the task were simultaneously mediated by the *mediational tools* including physical tools and psychological tools, the *community* sharing his object such as Anton, the instructor, the class, the ELI and USF, the *rules* governing the interaction between him and the community both online and face-to-face, and the *roles* he was required to play as well as the roles other community members needed to play.

Reflecting on his work with Anton, Iron said,

"*I think I must learn English. I must improve my English language. I used my knowledge to help her. It is about helping each other. Anton? I don't know. She knows English very well. And I think she is maybe level 5….. Very quickly. Very quickly. Last Tuesday, maybe you have seen the conversation…. I am learning it… but it is not easy*." (interview with Iron, 6/21/06)

As reflected by Iron in the interview, he used his knowledge that a thesis statement should address all the ideas in an exploratory essay to identify whether Anton's thesis statement was good or not when reviewing Anton's essay. Mediated by the CMPR reader's worksheet, he wrote down the suggestions he had for Anton. He also identified there was something wrong with Anton's conclusion paragraph.

During the chat, Iron was mediated by the use of IM and computer, English, his concepts of peer response and online communication, the rule of online communication, the community, and division of labor. Iron was not familiar with IM chat, particularly typing. He also needed ample time to plan his sentences, which was reflected in his online behaviors: he constantly edited his messages before sending each one out. Mediated by his slow typing skill and his English-processing ability, he contributed fewer messages than Anton did throughout the chat. In addition, Iron was not familiar with oral English and he was not aware IM chat provided an informal chat environment. Thus, all his messages in the chat were in a very formal academic writing language, e.g. "*I'l concern and evaluate your suggestion*", and "*On the other hand, I have some suggetinons obut your essay too*", which looked very incompatible with the IM environment.

Mediated by his concepts of peer response which only contained receiving and providing opinions and suggestions and the division of labor, he said "*I'l concern and evaluate your suggestion"* after Anton sent him her suggestions. He did not intend to discuss or negotiate those suggestions with her. As shown in Excerpt 4.19, when Anton asked him to explicate what problems she had in her conclusion paragraph, Iron did not know he should follow up the question and clarify himself. Instead, he apologized for his

ambiguity and then concluded the peer response.

Excerpt 4.19:

5Iron says: Furthermore, i think you should improve your conclustion pargraph.
5Anton says: you are to broad for me... could you be more accurate please?
6Iron says: Ok. I am sorey.
7Irfan says: m y opinon obaut your essay is over. than you

Iron's participation also was mediated by the rules of online communication. He greeted Anton after being greeted by her and expressed his appreciation for Anton's help after receiving suggestions from her. However, he never said goodbye to Anton at the end of the conversation although he said "*thank you*" in his last message. In addition, he was aware he needed to give responses to maintain the conversation. So after receiving five messages consecutively from Anton, he posted one message "*I am reading your essay about learning style now*" to explain why he had not responded. However, he violated the rules seriously when he spent ample time editing his sentences and spellings before sending them out, which caused severe response delay.

Iron's activity system contained constant conflicts between some components. The first conflict existed between the IM and Iron. As analyzed in earlier sections, Iron never used IM before this task. Although he spent some time figuring out how to use it with the help from the instructor, he was still very unskillful during the chat. For example, he typed messages with only one hand, which delayed his contributions extensively and consequently limited the number of e-turns he contributed in the task.

The second tension was between the psychological tool- English and Iron. Although Iron was very proficient in writing, which was demonstrated in his essays, he made many typos and sometimes even grammatical mistakes in his IM messages when

he had limited time to compose messages. The on-screen behavior data also showed that Iron spent long time editing his sentences before he sent them out.

The third tension emerged between Iron and the rules, particularly the CMPR chat rules. Although the instructor demonstrated how to chat for the CMPR chat such as what questions to ask and what responses to give at the beginning of the semester, Iron did not follow some rules when he participated in the chat. For example, as discussed in earlier analysis, he failed to provide appropriate response when Anton asked a question. Since Iron was not familiar with the IM communication rules, all his messages were in a formal written style. He never used emoticons or any other colloquial style. In the follow-up interview, he revealed that he considered the CMPR a serious class task. When asked whether he even used IM and knew how to use emoticons, he said "If you are young, generally, you can chat.like that… (my children)… Yeah, yeah. They can. Many young people do." (interview with Iron, 6/21/06). It seemed using emoticons and other cute expressions in chat looked very foreign and too "young" to him although he enjoyed receiving those messages from his partner.

Iron was aware of the first two tensions. He endeavored to solve these tensions during and after the task. During the chat, he was very focused on reading his partner's messages and intensively typed down messages. When he realized he was delaying the conversation, he sped up typing, unfortunately, which aggregated the tension between English and him. He even stayed in the lab to practice typing after class. In the follow-up interview, he revealed that he seldom typed on the keyboard in Turkey although he used email to communicate with customers. It was very hard for him to type fast. Because of these unsolvable tensions and the impression he felt Anton had on him, he was involved

in another activity system: to change his image as an incompetent partner in the following CMPR task.

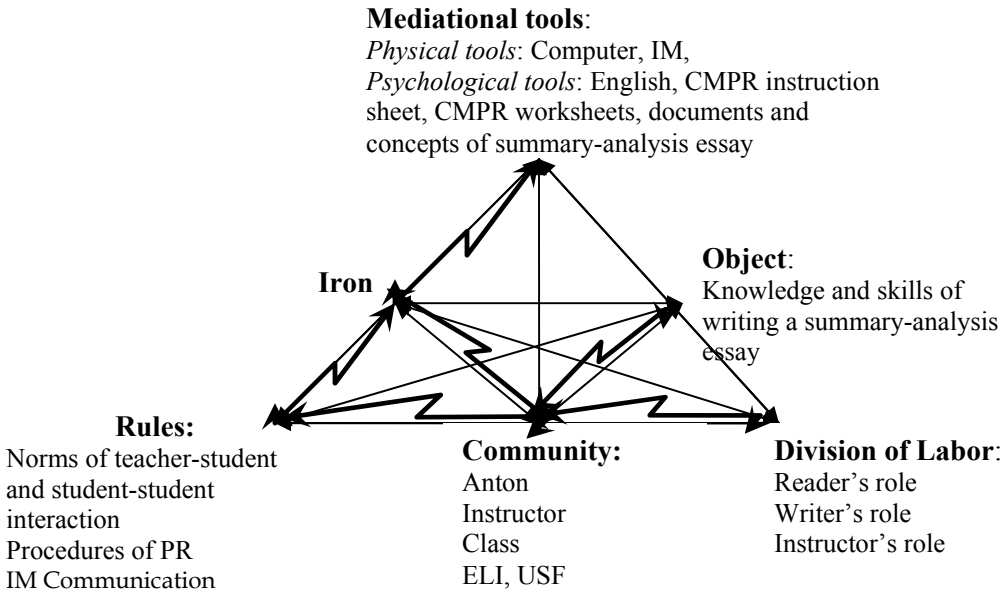


Figure 15. Iron's Central Activity System in the CMPR Task for the Summary-Analysis Essay

In the CMPR task for the summary-analysis essay, Iron's activity system was mediated by the object: knowledge and skills of writing a summary-analysis essay. Before the CMPR chat, his review action was mediated by his knowledge and concepts about summary-analysis essay as well as the CMPR reader's worksheet. After reading Anton's essay, he identified the problems with the organization, the content and the grammar. In the lectures for summary-analysis essay, Iron was instructed that a summary-analysis essay usually has three body paragraphs and each of them analyzes and evaluates one idea in the summarized essay. However, he found Anton only focused on one idea the original author had. Guided by the CMPR reader's worksheet, he thought neither the content nor the organization in Anton's essay was complete, which indicated that he was externalizing what he internalized about how to write a summary-analysis

essay. During the IM chat, Iron's actions were mediated by the use of IM, computer, English, his concepts of summary-analysis essay, the CMPR instruction sheet and worksheets, the rules, and division of labor. However, his collaboration with Anton in this task was a total failure due to the collective mediations from these components. All the tensions he had in the first CMPR task still existed in this task which was devastated by a new emerging tension between him and Anton, who did not collaborate with him in his central activity system.

Still constrained by his slow typing skills and language editing behaviors, he posted the messages very slowly at the beginning. As shown in Excerpt 4.20, Iron still did not internalize some essential rules for IM communication although he greeted Anton at the beginning of the chat. In the conversation, although he first pointed out a positive aspect in Anton's essay, he straightforwardly criticized her content and organization, which triggered Anton's rejection of his comments. Rather than using strategies such as emoticons or comforting words to ease Anton's defensiveness, Iron, who was probably mediated by the division of labor at the moment, bluntly insisted he could do so and continued explaining why he thought her approach was not appropriate, ignoring Anton's anger. Iron's violation of implicit IM communication rules that dictate complimentary and friendly rather than critical and demeaning atmosphere obviously irritated Anton who returned with a rude message as shown in e-turn 6. This eventually caused communication breakdown between Anton and Iron, who did not say good-bye to conclude the conversation as usual.

Excerpt 4.20

2Iron says: Firstly, You have chosen very intresting subject, but I don't agree with your analysis approch and your idea.
….
4Iron says: You know, I can comment about your analysis if reasonable or not. I am sorry, in my oponion, your analysis is not reasonable why.
6Anton says: I don't give a .... of what you say.... do your work and try to be objective!
5Irfan says: Yes, you are right. I just want to you help. for example, I think writer presents both side idaes that attacs and definets, both you focus only one aspect so your anaysis loos its reasonable.

Excerpt 4.20 also showed that the quality of Iron's language output was severely affected by Anton's negative attitude. He sensed Anton's anger and tried to immediately defend himself. However, his quick response left him little time to edit his message, which caused many misspellings that were too rampant to be comprehensible.

As shown by the double-headed lightening arrows in Figure 15, there existed multiple tensions among the components in this activity system. First of all, the tensions such as the one between Iron and IM, Iron and English as well as between Iron and the rules still existed. In addition, these tensions generated the tension between Iron and Anton, which in turn aggregated the tension between Iron and IM, and particularly the one between Iron and English.

Iron reflected on his work in the second CMPR task:

"*if you want to help each other, it is useful. But only for … not so good. I think willingness is very important. I just want to help her. I read her essay. I think lots of time she didn't read my article. I think, I think, because she didn't give me any suggestion. …. she misunderstands me. We are writing, it is good. You know. But I want to help. Maybe wrong, but I try. For example, she only likes only one paragraph. I said you maybe needs more body paragraphs*." (interview with Iron, 7/13/06).

On the other hand, new tensions also emerged, which was rooted in Anton's unwillingness to collaborate as shown in the above interview excerpt. Due to the unsuccessful experience in the previous CMPR task, Anton did not plan to work with Iron, which was illustrated in the tensions between the object and Anton, the rules and Anton, and division of labor and Anton. Anton was involved in two other completely different activity systems driven by her motives of maintaining a good-student image and having fun in IM chat, which caused the tension between Iron's object in the activity system and her. The tension between the rules and Anton emerged when she did not read Iron's essay before the chat. Thus, when she chatted with Iron, she did not initiate any topic as to ask or give opinions and suggestions. This tension deteriorated when she turned irritated in the middle of the chat. In other words, neither did Anton play her writer's role well nor did she play her reader's role in this task, which caused the tension between the division of labor and Anton. During the interaction with Iron, all these tensions clashed and eventually externalized the tension between her and Iron.

In addition, the interaction between Iron's central activity system and his secondary activity system driven by his motive of changing the image of a dysfunctional IM user, also tightened the tension between Anton and Iron. As shown in Excerpt 4. 21:

Excerpt 4.21:

7Anton says:What you say is unreadable... and I'm wondering why bcs your essay is sooooooooo clear! there is a contradiction between the way you express yourself on the Internet and the way you write....
1Iron says:That is right, I couldn't use internet and competer much quickly. my staff does these things why I don't have free time for chat etc. But I try. Otherwise my artical about my profeciancy I am a CPA in Turkey. Also I relaise my English is not enough.
8Anton says:I didn't talk about the the fact that you are slow... but about your style

When Anton complained she could not understand Iron's message due to his ungrammatical structures and misspellings, he defended himself by explaining he had reasons to be unable to type fast, which was not received well by Anton.

Although Iron tried to solve the tensions, such as the one between IM and him, the one between Anton and him, it did not work very well, which caused a complete breakdown between him and Anton, who refused to collaborate with him in the following CMPR task. Iron did not get any feedback from Anton, which did not help him to achieve his object of the activity system.

In sum, Iron's participation in the two tasks was severely mediated by the use of IM. However, the tension between the IM and him varied depending on whom he collaborated with in the task. It showed no single component in Iron's activity systems played the dominating mediational role. Despite the communication breakdown between him and Anton as well as the remained tensions, Iron still developed the skills of using IM, conducting CMPR, as well as his knowledge about writing an exploratory essay in terms of format, references, content and organization, summary-analysis essay in terms of content, organization, and grammar, and argumentative essay in terms of content and organization in the process of seeking solutions for and reconciling the tensions within each CMPR task.

Mediation of Social Cultural Contexts in Nicky's Participation in CMPR Tasks

Nicky attentively participated in the CMPR tasks for the summary-analysis essay, the argumentative essay, and the problem-solution essay. She had been fully engaged in three central activity systems. In this section, the mediation of social cultural contexts in her participation was explained in three central activity systems respectively.

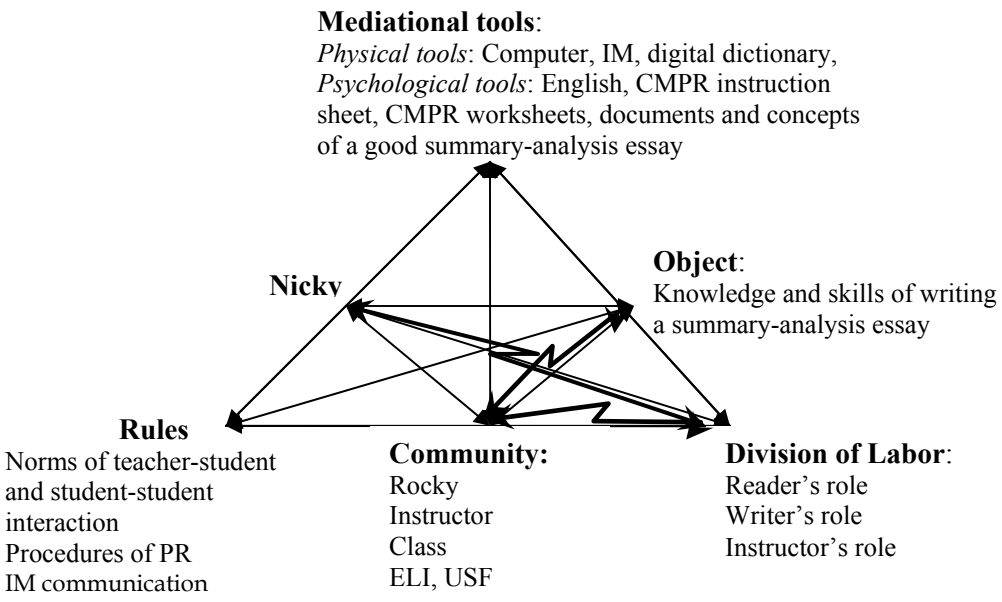


Figure 16. Nicky's Central Activity System in the CMPR Task for the Summary-Analysis Essay

In the CMPR task for summary-analysis essay, Nicky collaborated with Rocky. As shown in Figure 16, Nicky's activity system was mediated by the object: knowledge and skills of writing a summary-analysis essay. Her actions were oriented toward the object throughout the task. First of all, Nicky, as the *subject* of the activity system, was mediated by the *meditional tools* including using the physical tools such as the computer, IM, digital dictionary, English, the CMPR instruction sheet and the CMPR worksheets and symbolic tools such as English, and her concepts of a good summary-analysis essay.

Following the rules of the peer response task, Nicky exchanged her essay with Rocky although he did not finish his before the CMPR lab session and completed the chat after he finished his essay. Nicky had been using IM for years. Thus, she completely embraced the use of IM in the task. Following the IM communication rules, she greeted Rocky at the beginning. And she used a very casual chat style which was reflected in her use of lower-case first letter in each message, short and simple sentence in each e-turn,

and emoticons to show her emotions. However, she was still not confident in her English, especially vocabulary. During the chat, she constantly checked words in a portable digital dictionary whenever she felt uncertain of her English. Nicky's actions were also mediated by on the CMPR writer's worksheet. She occasionally compared her own essay with the writer's worksheet to check whether she asked the appropriate and relevant questions in which she asked for suggestions on her topic, the introduction paragraph, the organization of the entire essay, the structure of the conclusion as well as her grammar.

Excerpt 4.22:

12Nicky says:how was my topic that is too long ?
10Rocky says: for a summary my opinion is that you should start with questions
13Nicky says:oh...
11Rocky says:that is a good tip
.....
16Nicky says: so,,,the summary was similary ot article or...how do you think?
15Rocky says: it was related
17Nicky says: but, this assignment is about summary-analysis...
16Rocky says: i know
18Nicky says: i don't know it was wrote the right way or not
17Rocky says: well i liked it
19Nickysays: :-p good

Nicky's actions during the chat also reflected her internalization and externalization process of the knowledge about a summary-analysis essay. As shown in Excerpt 4.22, when Rocky suggested Nicky use questions to start the introduction of her summary-analysis essay, she, mediated by her knowledge that this strategy was only used in a summary article, disagreed that the introduction paragraph in a summary-analysis essay might be written in a different way than a summary article. However, despite her doubt and disagreement, Nicky incorporated this suggestion into her revision. In the follow-up interview, she revealed that she did so because "*he sound very sure*" (interview

with Nicky, 7/14/06). Considering that Nicky was not confident in her English proficiency, it seemed the community mediated Nicky's decision to incorporate the comments. With Rocky's help, Nicky also realized one problem in her introduction that she forgot to use a hook sentence to attract readers, one writing strategy she learned in the lectures but did not internalize it yet, as she revealed in the follow-up interview, "*he told me I should use a hook. Yes, I learn it. I just did not remember to use it*" (interview with Nicky, 7/14/06)

However, sometimes Nicky's knowledge about summary-analysis essay cast more influence on her actions. As shown in Excerpt 4. 23, when Rocky said the rest of her essay was fine to him after commenting on her introduction paragraph, Nicky, mediated by her concepts of a good summary-analysis essay and her belief that her essay was not perfect questioned whether Rocky read her essay carefully. Even after Rocky confirmed it, she still had the doubt.

Excerpt 4. 23:

12Rocky says: but anyway the rest of the essay was good
14 Nicky says: you didn't read the auticle ,right?
13Rocky says: no i did
15 Nicky says: oh you read

Mediated by the division of labor, Nicky read Rocky's essay after he finished it and conducted a CMPR with him at home. Mediated by the documents and her concepts of a good summary-analysis essay as well as the CMPR reader's worksheet, Nicky identified some problems in the organization and references in Rocky's essay. However, she did not have confidence in offering suggestions. Rather than directly expressing her opinion, she used a rhetoric sentence in her e-turn 24 to solicit Rocky's own opinion.

When she sensed Rocky disagreed with her, she immediately explained she was not sure because her English was not good enough, which created one tension between Nicky and her reader's role. Fortunately, Rocky constantly encouraged her and even gave her some tips of being a critical reader. She finally was able to provide further comments and suggestions on Rocky's essay.

Excerpt 4. 24:

24Nicky says: do you think, your introduction have a ho?
23Rocky says: I think so.
24Rocky says:Why
25Nicky says: I think it's a good topic sentence,,, but if be a ho i think,, a little bit not strong
25Rocky says:I see
26Nicky says: haha actually,,,, I am not a good writer so i afraid to give you any suggestion

Although Rocky was a good encourager for Nicky, he was neither motivated to participate in Nicky's activity system, which was reflected in the tension between the object of Nicky's central activity system and Rocky, nor responsible for the roles he was required to play during the chat, which created the tension between division of labor and Rocky . Rocky's disengagement in the CMPR task also caused the tension between the rules and him and the one between the object and him. First of all, he did not finish his essay before the CMPR lab session although he finished it later and completed the CMPR with Nicky that night at home, which significantly extended Nicky's working time. Second, he did not provide very useful suggestions for Nicky's essay. During the chat, he merely suggested Nicky have a stronger hook-up sentence in her introduction paragraph. All of the other comments were very positive and general, not constructive, although he helped edit Nicky's grammar directly on her paper. Nicky was not able to find out

solutions to the tensions triggered by Rocky, which left her with a somewhat negative impression of peer response.

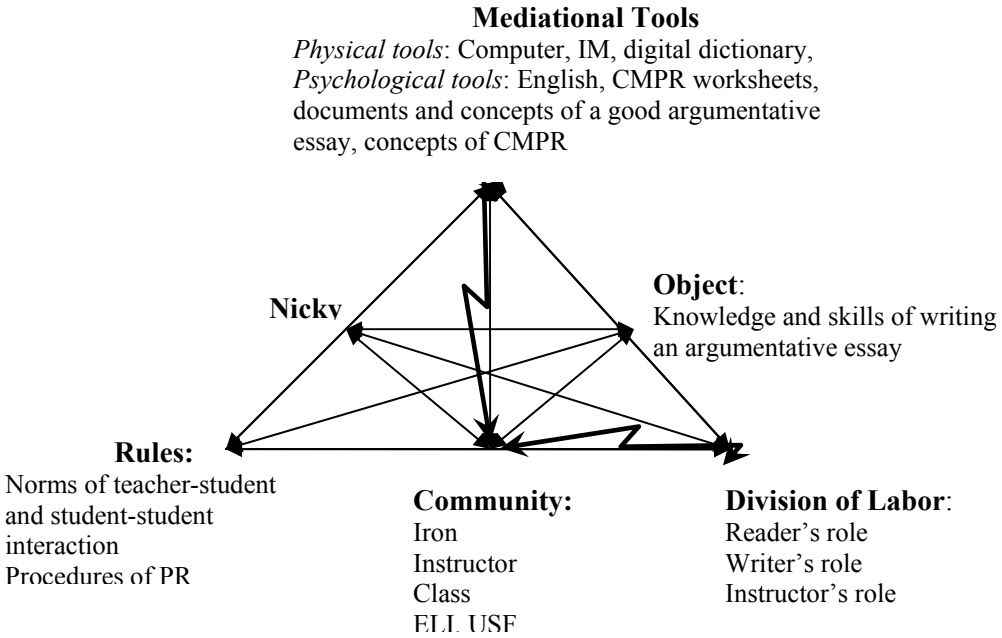


Figure 17. Nicky's Central Activity System in the CMPR Task for the Argumentative Essay

In the CMPR task for the argumentative essay, Nicky collaborated with Iron. Her central activity system was mediated by the *object*: knowledge and skills of writing an argumentative essay. In this task, Nicky did not use the CMPR instruction sheet. Since the information in the CMPR instruction sheet was similar to the one used in the previous CMPR task, her successful participation in the task indicated she had internalized the information in the instruction sheet. During her review of Iron's essay, afforded by her knowledge of argumentative essays, she discovered that Iron's essay was very well organized and clear. There was only one ambiguous place between his third and fourth paragraph.

However, constrained by her English proficiency, she encountered numerous unfamiliar words in Iron's essay, which impressed her very much. Mediated by her

concepts of writing proficiency and peer response, she immediately decided Iron's English proficiency was much higher than hers and he must be a great help for her.

During the IM chat, mediated by the use of computer, IM, English, and the rules for IM communication, she greeted Iron at the beginning, appreciated his help after receiving his suggestions, and said good-bye at the end of the conversation. She also frequently used emoticons to show her emotions. As shown in her contributions in the previous task, Nicky was very active during the chat. She expressed her opinions about Iron's essay and informed Iron of her confusion by his messages. She used her portable electronic dictionary less frequently. Although she still consulted the worksheets occasionally, she was more knowledgeable regarding how to provide and ask for suggestions.

Mediated by the rules and division of labor, she gave Iron her opinions about his essay and requested comments and suggestions from Iron. Although she still felt lack of confidence in commenting on Iron's essay as she revealed in the follow-up interview, she played her reader's role successfully this time, as shown in Excerpt 4.25:

Excerpt 4. 25:

14Nicky: i am wondering..between your third paragrph or fouth ....the word began in UNFORTUNATELY....this part is a new paragraph or it's belone to third paragraph
8Iron: Also, I will sudy your essay organization then I will offer some sugestions.
15Nicky: ok,,,thank you so much,,,don't forget tell me!!:)

Iron did not get time to read her clarification request since he was focusing on typing his following message due to the limited time left. Although she did not immediately hear back from Iron, she brought up this question again and made Iron explain why he used the word during their after-class meeting.

Nicky's central activity system contained two tensions both of which were triggered by Iron. The first tension emerged between Iron and IM. Iron could not log into his MSN IM account at the beginning of the IM chat. With the help from both the instructor and Nicky, he finally logged into his Yahoo! IM account. However, when Iron and Nicky started to chat, less than twenty minutes left. Although Iron managed to ask for Nicky's comments and suggestions on his essay and gave one suggestion on Nicky's content, he did not have time to answer Nicky's question about his essay and to discuss Nicky's organization, which led to the second tension between Iron and the division of labor. To solve this tension, Iron and Nicky had a face-to-face meeting after school two days later to finish up the peer response. In the follow-up interview, Nicky commented on her collaboration with Iron, "*he is good. I learned new vocabulary in his essay. He also told me some ideas…. and my problem of the organization*" (interview with Nicky, 7/20/06). It indicated that Nicky learned how to write an argumentative essay from collaborating with Iron. She was especially glad that she learned many new words by reading Iron's essay.

In the CMPR task for the problem-solution essay, Nicky worked with a non-participant student Percy. Nicky's central activity system was mediated by the *object*: knowledge and skills of writing a problem-solution essay, which was the last essay combining all writing strategies students learned in the entire summer semester. Since this assignment was built on all the knowledge and skills taught in the semester, Nicky was mediated by a larger repertoire of psychological tools which embodied not only specific concepts about a problem-solution essay but also knowledge about general academic writing and strategies of performing CMPR chat. When she reviewed her

partner's essay, she employed these psychological tools to help her identify both good and problematic parts in Percy's essay. She wrote down her comments and suggestions on her partner's essay on the reader's worksheet.

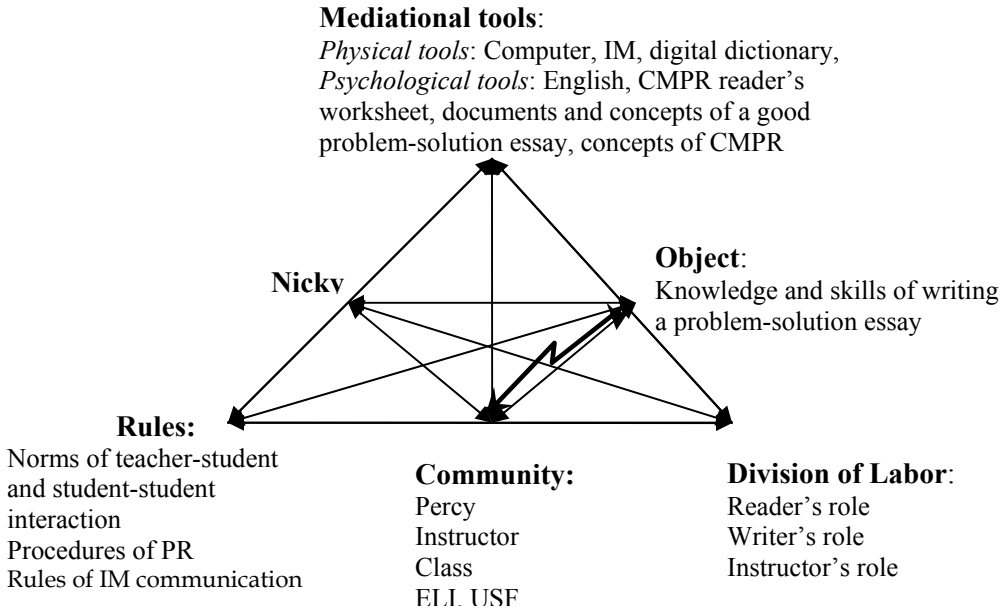


Figure 18. Nicky's Central Activity System in the CMPR Task for the Problem-Solution Essay

During the chat, Nicky completely discarded the CMPR instruction sheet although she still occasionally checked the CMPR reader's worksheet. Following the rules of CMPR as well as division of labor, Nicky first greeted Percy and then gave Percy her opinions about his essay most of which were positive. She also actively asked for opinions and suggestions on her essay from Percy. After receiving comments and suggestions from her partner, Nicky always expressed her appreciation.

There existed only one tension between the components in Nicky's central activity system: between Percy and the object. In the follow-up interview, Nicky revealed that most comments from Percy were very positive but she still felt she should have some imperfect place to improve. Thus she thought Percy might not be proficient to identify all

problems in her essay. Except this tension, both Percy and Nicky were skillful of IM chat and familiar with the procedures of CMPR. Thus, they did not encounter ostensible problem related to the technology and the CMPR. From this task, Nicky became more knowledgeable about conducting CMPR and she was more certain of her knowledge of the appropriate organization as well as relevant content that should be used in a problem-solution essay.

In sum, through the three CMPR tasks, despite various tensions she encountered in the activity systems, Nicky developed competences in conducting CMPR, writing in different modes, particularly difference organizations used in different modes and references, and increasing her vocabulary. Her perception of being a reader was also reshaped as shown in her chat with Rocky in which Rocky told her a reader even without high English proficiency could offer opinions and suggestions. She was more confident in providing comments and suggestions to other students. These changes evolved through her participation in the three activity systems in which multiple components interacted with each other and tensions were constantly engendered and solutions were sought.

Mediation of Social Cultural Contexts in the Class's Participation in the CMPR Tasks

Orthodox Vygotskians (e.g. Moll, 1990) focuses on the intellectual skills students learn and develop through social interaction. However, Wertsch (1981) argues that the very means used in the social interaction are also being internalized by learns. In other words, the means such as some psychological tools are not only the vehicles for learning. They are also "the focus of learning" (Putney, Green, Dixon, Durán, & Yeager, 2000, p.88). Besides the means, the rules and the division of labor also can be the focus of the learning.

For the vast majority of the participants, peer response was a new concept for them. Conducting this unfamiliar task in a familiar or unfamiliar (in Iron's case) communication mode is another learning experience for them. Thus, I argue here that while students were engaged in their respective learning activity systems, they were also learning and developing competences of performing well in CMPR, including how to review their peer's essay, to conduct CMPR, and finally to revise their draft. Therefore, the whole class also could be considered as a collective group of subjects (although not everyone) driven by an object of knowledge and skills of conducting CMPR tasks.

To analyze the collective activity system, all the data used in the earlier analysis of each individual activity system were used here again. Three major steps were taken to identify the interactions between the six components in the collective activity system. First, all the data were reviewed for an overall view of what occurred in all four CMPR tasks in terms of learning and developing the knowledge and skills of conducting CMPR tasks, such as what the instructor and the ELI did to help participants learn how to conduct CMPR tasks, the language functions participants learned, and what tensions or conflicts emerged that were related to learning CMPR tasks. Second, information about the tensions and participants' attempts to reconcile the tensions were loosely clustered by using the triangle model. Third, the learning and development that occurred because of participants' seeking solutions for the tensions or reconciled tensions were identified. Finally, the types of development were grouped together and named with unique themes by using the constant comparison method.

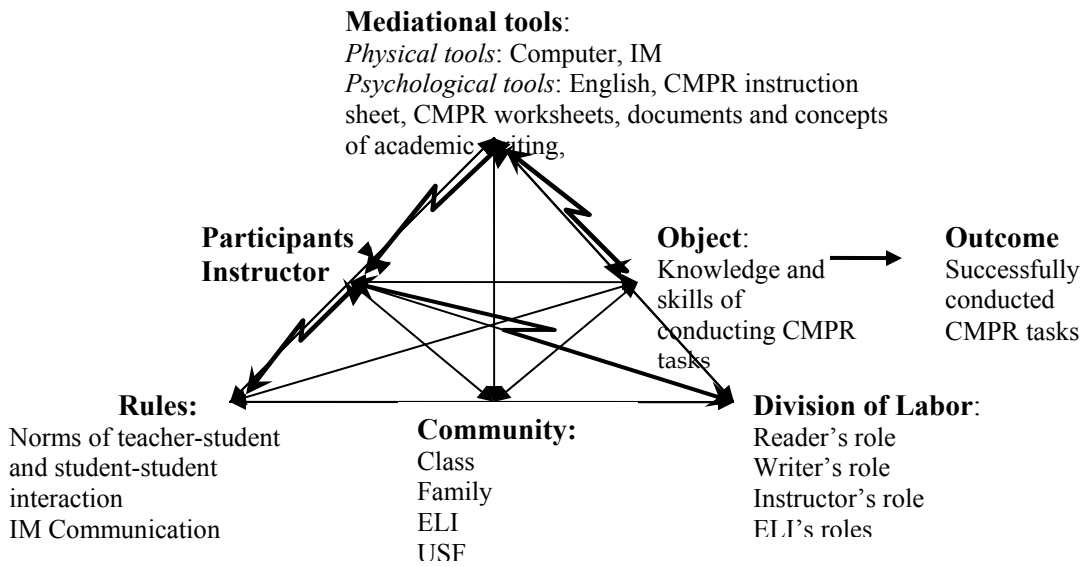


Figure 19. The Class' Activity System of Learning Conducting CMPR Tasks in Summer, 2006

As shown in Figure 19, the whole class and instructor as well as the larger community collaboratively worked to execute the transformation from the object to the ultimate outcome: successfully accomplished CMPR tasks. The tensions that were emerged in the activity system are illustrated with the double-headed lightening arrows. In the following section, mediation from each component in the activity system will be analyzed from the perspective of the collective participants.

Mediation from the Mediational Tools

Akin to the propositions of CHAT theorists (e.g. Vygotsky, 1978; Engeström, 1987; Lantolf & Thorne, 2006), the mediational tools employed by the participants in the CMPR tasks provided both affordances and constraints in the class's participation. Regarding affordances, by employing the computer and IM, students were able to conduct the peer response on the IM. Since IM supports multiple interaction features such as emoticons and winks, student were able to employ these features to compensate for the lack of physical contact in online communication. On the other hand, the use of

IM caused problems for students who were unskillful of using IM, which caused the tension between the subject and the physical tool. For example, learning how to operate IM chat costed Iron great amount of time and energy, which ultimately discouraged him from using IM. In addition, some students did not feel convenient to discuss grammar problems in each other's essay through IM chat, which caused the tension between the physical tool and the object.

Regarding the mediation of English, all students were required to use English in IM chat. Some students such as Anton, Diane, and Rocky, who were fluent in English, spent less time planning their messages. Anton and Rocky even paid more attention to their English spellings in their messages. As for students like Iron and Nicky who were less proficient in spoken English, they took longer time constructing their messages. Iron's situation was even worse. He not only spent ample time editing his messages but also was too focused on typing and editing to notice new incoming messages from his partner. Therefore, he sometimes missed the opportunity to respond to his partners' messages, which caused the tension between the psychological tool and the object. On the other hand, students were not constrained by the use of English. When they intended to express certain facial expressions such as happy, anxious for response, shy, or admiring, they used emoticons or wink rather than describing them in texts. Although students became more conscious of their own English production during the chat, they tolerated the misspellings in their partner's messages as long as the misspelled words did not interfere their comprehension.

Regarding the mediation from CMPR instruction sheet and CMPR worksheets, the mediation varied gradually along the time students participated in the tasks. In the

first CMPR task, each student relied on the instruction sheet for directions in the CMPR task. After gaining familiarity with the worksheets, students gradually discarded it. The use of CMPR worksheets varied among students. Some students used the worksheets throughout the tasks because different sample questions were provided for each CMPR task whereas other students stopped using it after they discovered that the sample questions were given in the same format across the tasks and understood that peer response merely focused on several similar aspects of an essay. On the other hand, students did not passively internalize the psychological tools. The worksheets were modified constantly to more efficiently meet their needs. For example, in the CMPR task for the exploratory essay, Anton discovered the hints given in the worksheets were too general to help her and other students analyze their peer's essay. Consequently, the instructor modified the worksheets and added more specific sample questions which assisted students to comment and request comments on each other's essay.

Students were also constantly mediated by other psychological tools such as the documents and concepts of academic writing in certain modes. A lecture about how to write an essay in each academic mode was given before students started writing their first draft. Thus, every student had certain knowledge about what is a good essay in each mode, which was internalized to some extent as the repertoire in their higher mental functions. In addition, along with the lecture they were given pertinent documents containing guidance and examples of composing essays in each academic writing mode. Participants used both the concepts they had internalized and documents about each academic writing mode to evaluate the partner's essay and provide certain suggestions although their abilities of using these concepts and documents varied. During the chat,

they used the concepts as well as English to justify their comments and suggestions on their partner's essay as well as evaluate and negotiate the comments and suggestions from their partner. In other words, they employed these symbolic tools to achieve the goals they set in the activity systems.

On the other hand, the mediation from the physical and psychological tools was neither linear nor static. As students employed the tools in the activity systems, their skills of using these skills grew. Sometimes, they had to go back to review what they learned earlier to help them internalize the new concepts, e.g. Nicky in the third CMPR task. Along with their internalization process, they constantly tried out or externalized their newly gained knowledge and skills of these psychological tools (Vygotsky, 1983). These processes were continuous and endless, sometimes troublesome, like what Iron encountered in his learning of IM.

Mediation from the Community

The community that shared the same object with the students and the instructor was composed of each student's family, the ELI, and USF. Most of the students in the class were enrolled in the ELI with their family support despite the fact that the support might not be direct support in English language. They understood they took the academic writing class with certain purposes, including internalizing the norms of teaching and learning in the university such as conducting CMPR tasks, which was reported by Anton in her first interview, "*actually, we have a culture class. In the class, we are taught what rules to follow in and outside class in the ELI. It is in the students' handbook*" (interview with Anton, 6/21/06).

As for the ELI, all CMPR tasks were conducted in the ELI computer lab. The administrative faculty fully supported the integration of computer in all kinds of in- and after-class activities. The use of IM in peer response tasks was also proved by the academic coordinator and the level-4 teaching coordinator at the ELI. In addition, students who needed extra time practicing typing or learning computer operation skills had access to computers and computer lab assistants any time when no class was given in the lab. As for the mediation from the USF, students who were enrolled in the ELI were allowed to use other facilities on campus at USF. Thus, they had access to the library including computers, staff, and books as well as the language environment.

Mediation from the Rules

According to CHAT (Engeström, 1987, 1999; Lantolf & Thorne, 2006), rules refer to the explicit and implicit regulations that govern the communication among the community members engaged in one activity system. In the CMPR-learning activity system, the rules consisted of the norms of teacher-student and student-student interaction in class as well as implicit rules of IM communication such as greeting each other and responding to each other's messages in a timely manner.

During the CMPR tasks, in particular, when the chat was conducted, students were required to sit beside their own computer and verbal communication was not encouraged. The instructor circled around the lab and answered any writing-related and computer-related questions when they were raised. The rules afforded a quiet environment for students to focus on their CMPR tasks. On the other hand, it constrained them from learning how to conduct CMPR tasks from each other, especially for those who preferred to learn from observing their peers operating a computer such as Iron.

Regarding the implicit rules of IM communication, a mini-demo of IM chat was given by the instructor before the very first CMPR task. The majority of students such as Anton and Diane were familiar with IM chat. Therefore, they had awareness of IM communication rules such as greeting, sending messages, responding to messages, and using polite words and emoticons. When they exchanged comments on each other's essay in English, they consciously or subconsciously were mediated by the online communicate mode such as how to provide negative opinions and suggestions without offending the partner and how to receive opinions and suggestions politely as well as what problems could be discussed in IM whereas others could not.

Iron was on the other end of the continuum of following the IM communication rules. Due to the lack of knowledge of IM and IM chat, Iron was not aware of the IM chat rules. Even after the mini-demo, he still had significant difficulties with following more implicit rules of IM chat, which generated the tension between him and the rules, consequently the tension between him and Anton. However, Iron endeavored to solve the tensions by practicing typing diligently. When he participated in the third CMPR task in which he collaborated with Nicky, he employed an innovative language function in IM: asking for permission to provide suggestions, which was very well received, as shown in Excerpt 4. 26.

Excerpt 4.26:

5Iron: I was wondering if you'd mind letting me offer you some addional things.
10Nicky: ofcouse Permit
11Nicky: i am glad if you can gine me some suggestion Permit
12Nicky: i don't mind Permit
13Nicky: :-D

Therefore, the rules of in-class interaction and online communication not only afforded chances for students to learn from participating in CMPR tasks but simultaneously constrained them from taking alternative ways.

Mediation from the Division of Labor

To achieve the collective object driving the activity system, all members in the community need to take certain responsibilities. In the current activity system, the instructor played the role of facilitating the CMPR such as developing and distributing the CMPR instruction sheet and CMPR worksheets as well as demonstrating the performance in CMPR tasks and providing assistance during the CMPR tasks. Although not everyone did so, each participant in the activity system was aware that he or she needed to play dual roles: reading and commenting on the peer's essay as a reader and receiving or requesting comments and suggestions from the peer as well as revising his or her own essay as a writer. The ELI played their supportive role as a provider and supporter of physical and administrative facilities to enable the implementation of CMPR tasks.

During the CMPR tasks, all participants were aware of the roles they were expected to play. However, some participants, usually those who were not involved in the central activity system, voluntarily opted for not taking either a reader's role or an active writer's role. Participants who more frequently played a reader's role, such as Rocky, were more reluctant to accept suggestions from their peers. Those who preferred to play a writer's role more often, such as Nicky, were less confident in their writing skills. In other words, the mediation of division of labor actually illustrated the distribution of power among participants. Students who preferred a reader's role leaned toward playing

the traditional authority role in the task whereas those who preferred a writer's role were willing to subordinate under their peers. However, th power status was not stable. Throughout the tasks, students such as Nicky who were less confident gained confidence in their writing ability and thus sought a more active reader's role whereas those who were more dominant such as Anton gradually realized they also could learn things from reading their less competent peers' essays. The last CMPR task witnessed a more equalized and quick role switch among peers.

Although the mediation from each component in the activity system is described separately above, the mediational processes were far from segregated. On the contrary, the participants' actions were constantly influenced not distinctly but collectively by the object they subscribed to, the tools they employed, the community in which they were situated, the explicit and implicit regulations and norms in on and off-line social interaction, as well as the tacit labor division accepted by each member in the community, which discursively shaped and were shaped by each other in the interaction. Tensions flowed and ebbed along the interaction only through which the participants internalized what were the purposes of CMPR tasks and how to conduct CMPR tasks, which eventually helped them accomplish the transformational process from the object to the outcome. In other words, it was only through encountering the problems or tensions and actively seeking solutions that participants in the study learned what were the nature and functions of a CMPR task and how to play their roles in a CMPR task.

Section Summary for Mediation of Social Cultural Contexts in ESL Students' Participation in CMPR Tasks

This section unpacked the mediation of the social contexts in the actions of each participant of the study as well as the whole class during the four CMPR tasks. Adopting the triangle model of CHAT (Engerström, 1987, 1999, 2001), the interaction and tensions that emerged among the six components within each central activity system, namely, the subject, the object, mediational tools, the community, the rules, and division of labor, were analyzed in each participant's central activity system in each CMPR task as well as of the collective group embodying the entire class throughout the semester.

It shows that tensions existed omnipresently between the components within an activity system. Some of them were triggered by previous internal tensions while others were generated by the tension between the central activity system and its neighboring activity system. Some students deliberately sought ways to solve the tensions whereas others neglected them especially when they were simultaneously engaged in alternative activity systems. Successfully solved tensions led to the accomplishment of the object while neglected tensions aggregated the tensions within the activity system and ultimately resulted in collaboration breakdown. The analysis in this section unfolds both the complex relationship and the problems that existed contemporarily among the ESL students, their knowledge and skills of using both IM and English, their employment of supplementary materials distributed in class, the rules and norms governing the interaction among everybody in the class, the instructor, the ELI, USF, students' family, as well as the responsibilities each one involved in an innovative learning task: CMPR took.

Mediation of ESL Students' Prior Experience with Academic Writing Instruction and Computer Use in Their Engagement in CMPR Tasks

Research question 4: How do ESL students' prior experience with writing instruction, particularly peer response, and computer use mediate their engagement in CMPR tasks?

This section was intended to answer the fourth sub-research question. Engeström (1999) stresses one key principle of activity theory: historicity, which means "identifying the past cycles of the activity system" (p.35), considering learning as expanding cycles. He argues that because of the complexity and multiple voices in activity systems, a historical investigation of the historical origin is essential for the analysis of an activity system. According to CHAT (Engeström, 1987, 1999), beside the central activity system that is under the researcher's investigation, there exist numerous neighboring activities among which are activities that produce the mediational tools (e.g. computer manufacturing), the subject (e.g. previous schooling or family life), and the rules (e.g. administration).

Guided by CHAT, each participant's prior experiences with peer response and IM chat were perceived as the neighbor activity systems in which he or she had been involved that produced him or her as a student participating in the current activity system, shown in Figure 20. Thus, the mediation of participants' prior experiences was reported here as the interaction between the central activity systems and two neighbor activity systems: the peer response activity and the IM chat activity that existed earlier or were still existing depending on each participant's background. Following the analysis in the previous section, each participant's engagement in the CMPR tasks throughout the

semester was considered as a developmental activity system driven by the object of improving academic writing through CMPR from his or her own perspective.

The data used in the analysis of this research question included pre-study ethnographic survey, interview transcripts, beyond- and on-screen behavior recordings, and IM chat transcripts. To analyze the data, two phases were undertaken. The first phase focused on the analysis of the interaction between each participant's prior experience with academic writing instruction, particularly peer response, and his or her central activity system driven by the motive of learning how to conduct CMPR tasks. The second phase analyzed the interaction between each participant's prior experience with computer use, particularly IM chat, and his or her central activity system driven by the motive of learning how to conduct CMPR tasks. In each phase, both within- and cross-case analysis were conducted.

In Phase one, first, a within-case analysis was conducted to analyze how each participant's prior experience with academic writing instruction shaped his or her participation in the activity system. To do so, three steps were taken. First, the information related to the influence was first loosely clustered in different groups. Second, the constant comparison method was used to ensure every group contained distinctive information. Third, a theme was given to each group. After the within-case analysis was finished, a cross-case analysis was conducted in which all identified themes in each participant were constantly compared and contrasted to avoid redundancy. The finally selected themes provided information about how participants' prior experience with academic writing instruction influenced their participation in the collective central activity system. Phase two repeated the similar steps in phase one to identify how

participants' prior experience with computer use, particularly IM chat, influenced their participation in the collective central activity system.

This section consisted of three parts. In the first part, two types of interaction between participants' central activity system and their prior peer response activities in which participants were involved will be reported. The second part presents two types of interaction between participants' central activity system and their prior IM chat activities. In the third part, an integrative view of the interaction between participants' prior activities and an emergent more advanced CMPR activity will be discussed. The CHAT analysis and the constant comparison method (Lincoln & Guba, 1985) were used to analyze the data from the pre-study ethnographic survey, interview transcripts, IM chat scripts, field observation data and the researcher's reflective journals.

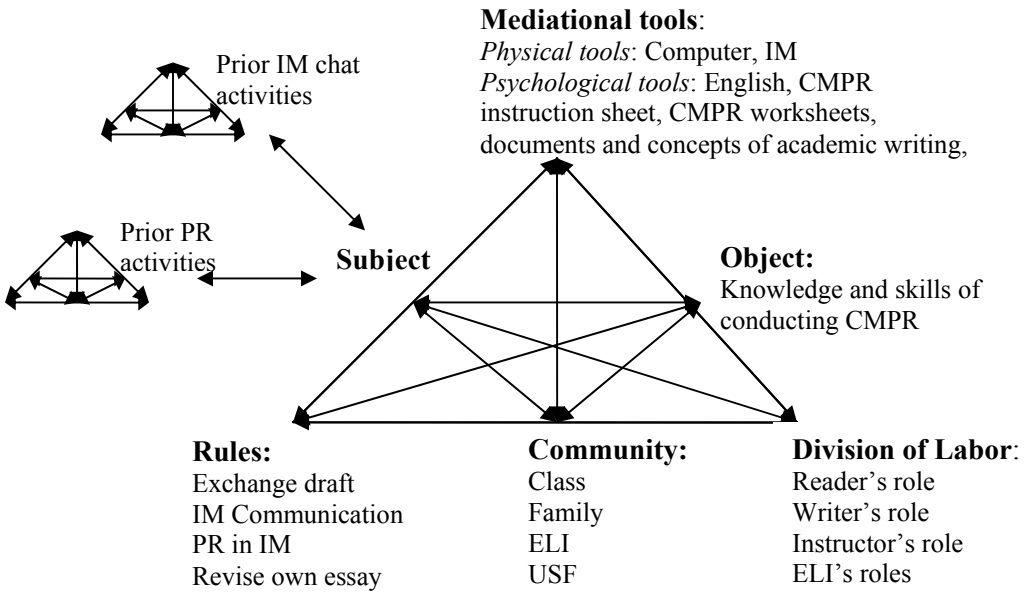


Figure 20. Central Activity System and Neighbor Activities

Mediation of Prior Academic Writing Instruction and Peer Response Activities

As shown in participants' profiles (Appendix N)), none of the five participants reported they had taken any English academic writing courses before participating in the study. Although all participants had taken a various number of years of English instruction in their home countries, only English grammar, vocabulary, and reading were required. In addition, although Anton, Diane, and Nicky took a level-3 academic writing course in the previous semester in the ELI in which they were exposed to peer response, they mainly focused on basic paragraph composition and peer editing. On the other hand, Rocky revealed that he learned most of his written English from his mom who was an English teacher. Every time he went back to visit his parents, she would give him writing assignments and help him practice writing. He never participated in peer response tasks before taking the current course.

The interview transcripts and field observation data showed that some participants did not believe or were not sure of the helpfulness of peer response in improving their own or their partner's academic writing. For example, Anton said in an informal IM chat with the researcher,

"*For peer review, actually peer review never helps me to improve my English.. Yes, maybe. Maybe for a few or... I think that is better than me. That would be really helpful. That's why when you correct my, when you fix my essay. It's really helpful for me.*" (IM chat with Anton, 6/19/06)

As indicated in Anton's reflection, this negative perception about the effectiveness of peer response was rooted in their unsuccessful prior experience with peer response or preconception generated in their prior English instruction, which

consequently generated two tensions between their central activity systems and their prior peer response activities.

The first type of interaction or tension between participants' central activity system and their prior activity lied in the requirement of the CMPR and their disbelief in peer response, particularly for Anton and Rocky. In the CMPR tasks, every student was required to read their peer's essay, write down their own comments and suggestions using the CMPR reader's worksheet, then exchange comments with their partner by using both the reader's and the writer's worksheets, finally revise their essay based on the information they obtained from the CMPR. The task assumed all students could learn from each other regardless of students' English language proficiency.

Anton obtained her B.A. degree in Belgium and spent one year writing her thesis, which gave her some experience with academic writing although it was in French. She was also confident in her English grammar because of her high scores obtained in all English courses at level 3. Thus she revealed that "*.... actually peer review never helps me to improve my English.*" (IM chat with Anton, 6/19/06) because she was used to writing an essay and revising it by herself one week later. Despite her disbelief in peer response, she participated in the first CMPR with Iron. In the first CMPR task, although she provided ample suggestions on Iron's essay, she did not deliberately seek suggestions on her essay from Iron until she heard some comments from him. However, Iron's lack of IM chat skills caused communication delay during the CMPR. Anton thus did not obtain any helpful suggestions from the task, which seemingly approved her preconception. In addition, after the first CMPR task, Anton also complained to the instructor that the guiding questions provided in the CMPR worksheets were too general so she did not

exactly know what to do in CMPR. Consequently, Anton did not engage in the second CMPR task. She did not review Iron's essay and completely rejected Iron's comments on her essay by complaining that Iron should not comment on her ideas and his suggestions on her organization were too broad. The follow-up interview revealed that Anton did not believe Iron could help her in any rate and she thought he was too defensive when receiving feedback from her.

Despite the experience in the first two tasks, Anton's third CMPR was very successful during which, she discussed by employing the revised CMPR reader's worksheet with Diane the ideas and organization in each other's essay. From the negotiation, she noticed some of her ideas were not clear and her organization was not well-structured. She also suggested that Diane and she work more on their content since they had the same argument in their essays as well as on their grammars in a face-to-face meeting. Her comment on the effectiveness of peer response was, "*Actually I get new idea. I will change some grammar mistakes. Well, that's the one I hope. And what did I do? I tried to extend a little bit, but not that much*." (interview with Anton, 7/25/06). Regarding the procedures of peer response, she reflected, "*the more you make peer review, you know what to do exactly…." and "now we don't, we didn't really emphasize on the sentences. We mainly emphasize on the ideas, how to organize the essay, how to be accurate in the essay. Because it is only a first draft, a lot of things to talk about.."*(interview with Anton, 7/25/06). It indicated that Anton internalized the knowledge about how to conduct peer response by engaging in the tasks, which was also shown in her employment of the CMPR worksheets. At the early time, she merely treated peer response as some rules she needed to follow. Consequently, she externalized her

knowledge by actively negotiating comments and suggestions with her partners on each other's essays. In other words, at this moment, peer response had turned into some psychological tools she could employ to assist her actions in the activity.

As for Rocky, he had lived in the U.S. for 5 years. He could speak English very fluently without apparent grammar mistakes. His prior experience with his mother made him confident in his writing as well. In addition, as discussed in Section 1, Rocky failed his previous Level-4 course. In order to move to the next level, he had to pass the course this time. Thus, his motive in the course was apparently merely passing the course. When asked how he thought of peer response, he merely answers, "*it is helpful for many students to improve their English*." (interview with Rocky, 7/17/06). He never expressed that peer response helped him throughout the three CMPR tasks. His motive and his view of peer response caused his tardiness in essay writing and participation in CMPR tasks.

Throughout the three CMPR tasks, he never finished his essays in time. He was only able to get feedback on his essay in the first CMPR task during which, he only provided suggestions on the organization in Nicky's essay upon her request. Although Nicky gave him very helpful suggestions regarding his organization and references, he did not incorporate them into his draft. In both his second and third CMPR tasks, he was not able to finish his essays before the tasks thus did not get any feedback from his partners. He reflected the process of the second peer response, "*I was more concerned of reading her essay than she read my essay*." (Interview with Rocky, 7/20/06). During the third CMPR, he focused on the misspellings in his partner's essay. Despite correcting them by himself, he constantly checked with the instructor who was facilitating students in the lab. He explained that he was not sure of the mistakes and he "*just wanted to*

confirm with you" (Interview with Rocky, 8/3/06), which indicated he still considered the instructor as the authority who could provide better help.

Both Anton and Rocky's case showed that ESL students' prior experience with academic writing instruction and peer response could cast negative influence on their participation in the CMPR due to the negative perceptions triggered by and formed based on their prior experience, especially in the first CMPR task they participated in. It could trigger tensions or conflicts between the central activity system and the peer response activity at an earlier time. However, the tensions could be constantly shaped by and reshaping students' participation in the central activity system. Anton successfully internalized the use of peer response and was able to take advantage of the task to improve her writing whereas Rocky never embraced the tasks and failed to internalize it.

The second type of tension resided in the requirement of the CMPR and participants' lack of self-confidence in helping the peer, such as Nicky. The observation data and the document analysis further showed that Nicky employed the CMPR reader's and writer's worksheets in every task. She had no problem with the procedures of peer response. However, Nicky only had two years of English instruction before she immigrated to the U.S. with her parents one year ago. She never took academic writing courses before she was enrolled in the ELI. She was very concerned of her English grammar and her writing skills. However, iIn her first CMPR task, Nicky confessed, "*I am not sure it is helpful or not. But for me, I will give someone suggestion. I am afraid to do …. because I am not sure I am right or correct…. I give wrong suggestions or ….*" (interview with Nicky, 7/14/06) although she agreed peer response definitely helped her. She explicitly expressed her worried in her conversations with Rocky, her first CMPR

partner: *"haha, actually,,,, I am not a good writer so i afraid to give you any suggestion"*. Fortunately, Rocky was friendly enough to encourage her to give any comments from a reader's perspective, which helped her gather some confidence. She provided very helpful suggestions to Rocky in terms of using appropriate connectors between sentences and writing correct references. In her second and third CMPR tasks, Nicky very actively offered comments and suggestions on the organization and content in her partners' essays although she very shyly admitted, "*I cannot find any grammar mistakes*" in the follow-up interview (Interview with Nicky, 7/20/06). She mainly focused on the content and organization, which she learned in the lectures and felt more confident in.

Although Rocky did not believe peer response helped him, he also was cautious of giving feedback to his partners. He only provided feedback on the grammar and spellings in his partners' essays. Unlike other students who provided both positive and negative comments on mainly the content and organization in their partner's essay, Rocky was reluctant to comment on either the content or the organization in his partner's essay. When asked why he did so, he revealed that "*they are good writers. They work really hard. And I like their ideas and the organization. But I found lots of grammar mistakes in their essays*." (interview with Rocky, 8/3/06). Considering that Rocky was very good at English grammar which he knew clearly from his scores in the grammar classes, this indicated that he either lacked the competence in or just did not want to spend time reading his partners' essays and giving feedback on the content and organization in his partner's essay. Thus, he also decided to focus on some aspects in which he felt comfortable with. Since he reported in an interview that his mother usually

edited his essays, his focus on grammar issues might also be caused by his perception of being a reader although he did not explicate this in the interviews.

Both Nicky and Rocky did not have confidence in their ability of being a helpful peer reviewer, although to different extent, before they participated in the CMPR tasks. However, Nicky deliberately internalized the process of peer response as well as the writing strategies she learned in the lectures. She gradually overcome her personal barrier and actively contributed her opinions and suggestions to her partner. In contrast, Rocky did not strive to internalize either peer response or different writing strategies delivered in lectures. Instead, he only focused on the aspects at which he was good before his enrollment in the class. Thus, the tensions between Nicky and Rocky central activity system and their prior peer response activities existed and were resolved in different ways.

In sum, although the tensions emerged between the central activity system and participations' prior experience with academic writing instruction, especially peer response tasks, the mediation varied depending on how each participant was engaged in the central activity system throughout the semester. On the other hand, neither Diane nor Iron had prior experience with English academic writing instruction and peer response. Both of them displayed no resistance to the implementation of peer response. They both actively participated in the CMPR tasks.

Mediation of the Prior Experience with Instant Messenger(IM) Chat

There also existed two types of interactions or tensions between the central activity system and participants' prior IM chat activity. One emerged between the use of IM chat as a learning environment in the current activity system and some ESL

participants' preconception of IM chat as a fun communication activity. The other existed between the requirement of IM operation in the current activity system and some ESL students' preconception of IM skills.

Although IM has been a popular personal and group communication tool since its inception in early 2000s, it is rarely used in education for academic purposes. As shown in Appendix N, four out of the five participants had been using IM chat daily to communicate with their friends and family. They all expressed enthusiasm in using IM chat because online chat was fun for them. Thus, the tension emerged between using IM exclusively for the learning purpose in CMPR tasks and using it to communicate friends online.

At the beginning, integrating a fun tool into a learning task was enthusiastically embraced by the students. For example, Anton said "*It's fun to do it with instant messenger. I use instant messenger a lot. So I love talking on computer*." (interview with Anton, 6/21/06). And Diane agreed that "*To relax. you know. Because it is something that I like. That I enjoy.*" (interview with Diane, 7/11/06). Their positive attitude toward IM chat motivated them to participate in the first CMPR task very actively. For example, Anton exclusively focused on the task during her first CMPR although she did not believe the effectiveness of peer response. Unfortunately, ESL participants soon discovered CMPR was not so fun as they imagined because they had to accomplish a task which might not work out due to the English proficiency or IM skills of their partners. Thus, they started to use IM as an entertaining tool rather than a learning tool. For example, Anton very surprisingly found her partner Iron was a newbie of IM chat:

"*As you see he is slow, that means that, well, I remember, I will type in my ideas about his essay. And he didn't reply in one hour to answer, and to put his own ideas about my essay. So we had to use another hour to make a peer review on my essay. So it took two hours. You know*". (Interview with Anton, 7/1/06)

She hardly obtained any helpful suggestions from Iron due to his slowness and she did not enjoy the chat at all. Thus, in the second CMPR task in which she collaborated with Iron again, she started to chat with other online friends, which once resumed and never remained controlled again. Even when she was collaborating with Diane in her third CMPR task, she did not stop chatting with another online friend.

As for Diane, she never distinguished IM chat for a learning purpose from for an entertaining purpose. Whenever she was online regardless of whether she was conducting CMPR tasks, she chatted with people as well as listened to online music and watched online musical video. She justified that "*I also want to have fun also. I want to enjoy every time. Because this time is my fun time when I am here. When I go to work, all the kinds of thing... so...*" (interview with Diane, 8/3/06). It indicates that Diane thought CMPR was both a fun-seeking and learning process. The use of IM in classroom activities also inspired Diane to use the IM for educational purposes after class. She revealed that she started to use IM to discuss homework with her classmates in the ELI after class or over the weekend, which she never did before participating in the CMPR tasks.

Rocky also was a long-time IM user. During two out of the three CMPR tasks, he immediately opened a chat window with one of his online friends once he logged into his IM. He constantly switched between the chat window with his online friend and the one

with his CMPR partner. Chatting with the other friend sometimes severely distracted Rocky from answering his CMPR partner's questions.

In sum, the tension between the educational use of IM in the central activity system and participants' prior activities that generated their preconception of its entertaining use varied depending on how willing individual participants were to gain help from their partners. It was aggregated when the participant, such as Rocky, was not motivated to participate in CMPR tasks, in which case, IM chat enabled a convenient and well-disguised way for him to disengage in the central activity system.

The second tension between the central activity system and participants' prior IM activities was reflected in the conflicts between participants' heterogeneous expectations toward the CMPR conversation styles. Because of participants' diverse prior IM activities, they might have different levels of IM skills. Some participants such as Anton, Diane, Nicky, and Rocky were very skillful of using IM. They could not only instantly exchange text messages in English but also use the myriad of extra communication tools provided in IM, such as emoticons to express emotions with smiley faces, nudge to remind an IM partner if a response is urgently needed, wink to show stronger emotions with multimedia animation, as well as creative IM language such as *haha, lol*, which were the fun part that attract users to adopt IM chat over face to face chat. As proficient IM users, these participants expected their partner to have the IM proficiency to make a fun conversation.

On the other hand, there was another type of students such as Iron, who knew IM chat but never used it because they thought IM chat was another online time-killing tool for younger generation. As for Iron, he was a department manager in a leading auditing

company in Turkey. He seldom communicated with people in English except occasional email with his international customers in which case his secretary drafted the letters. Thus, typing in English was a challenging task for him. In addition, Iron never used IM chat so he had no idea as to how people communicate in IM. Despite the demonstration by the instructor, Iron was not able to master all skills and communication styles that need in IM chat. The proficiency inequity between veteran IM users and novice users stimulated tensions during the CMPR tasks, which were most severe between Anton and Iron.

Anton and Iron collaborated with each other in their first two CMPR tasks. In the first CMPR task, Anton realized that Iron was a very slow typist and not familiar with IM chat, which shredded her expectation for a fun IM chat. In the second CMPR task, she found Iron was still unbearably slow and he sounded very uptight sending messages such as *"Firstly, You have chosen very intresting subject, but I don't agree with your analysis approch and your idea".* Thinking of her own parents who were at Iron's age, "*I mean my parents really want to be involved in that kind of thing. I think they are really good. They can chat. They know how to use it very well*"(interview with Anton, 7/19/06), she could not conceal her impatience in one message to Iron, "*What you say is unreadable... and I'm wondering why bcs your essay is sooooooooo clear! there is a contradiction between the way you express yourself on the Internet and the way you write....*", which she was aware was caused by the use of IM, not by his English skills because "*But Irfan is very good. I was surprised when I read his essay*" (interview with Anton, 7/25/06). .

Iron had realized his lack of online chat skills since the first CMPR task. He had been practicing typing very diligently. This message insulted him to some extent, which

triggered his immediate self-defense, "*That is right, I couldn't use internet and competer much quickly. my staff does these things why I don't have free time for chat etc. But I try. Otherwise my artical about my profeciancy I am a CPA in Turkey. Also I relaise my English is not enough."* The confrontation in the chat ended with a complete communication breakdown. Anton neither accepted any suggestions from Iron nor offered any suggestions for Iron. This confrontation with Iron made Anton realize that unfamiliar people would get defensive in CMPR, as revealed in the follow-up interview, "*You feel, well, you feel comfortable with the very person. You think you can tell everything. She won't get it like, .*" and "*I mean it is Diana. I know that I can give her advice and she won't take it like an aggressive thing, or something."*(interview with Anton, 7/25/06). In contrast, Iron thought the communication breakdown was caused by Anton's unwillingness to collaborate because she did not read his essay and she was too defensive to accept any feedback, "*Anton, you know, she cannot, she could defense, I don't understand why*."(interview with Iron, 7/21/06).

The tension was solved in the third CMPR task in which Anton was paired with Diane who was as skillful as Anton in IM chat and Iron collaborated with Nicky who was very patient with Iron's typing and respected Iron's feedback. Anton could not resist hailing their online collaboration in one message to Diane "*We make a excellent duel(duet)!"* In the follow-up interview, she commented, "*Diane types faster than Iron, so the interaction is more efficient.*." (interview with Anton, 7/25/06). On the other hand, Iron was also satisfied with his partner, "*Yeah, she study hard and she is serious. not you know*..".(interview with Iron, 7/25/06). In addition, Iron also realized the way he provided his opinions was straightforward and sounded too critical. Thus, in his conversation with

Nicky, he changed his style by asking very politely *"I was wondering if you'd mind letting me offer you some addional things."* before he offered any suggestions. It shows Iron learned some communication strategies for CMPR.

In sum, the tensions between the central activity system and ESL participants' prior IM activities shaped their preconception of IM use in the central activity system as well as their expectation of an IM-mediated collaborative conversation. Some students might confuse the educational use and entertaining use of IM when they encountered tensions during the CMPR tasks. Others might opt for the entertaining use of IM if they were not motivated to engage in the central activity system.

As for students' expectation toward CMPR conversations, some experienced IM users expected fun-infused but learning-oriented conversations by using various non-text communicative features provided in IM whereas those novice IM users thought grammatically correct text messages would be enough for the discussion. On the other hand, by experiencing and seeking solutions for the tensions caused by students' prior IM activities, students, especially Iron, also developed certain knowledge and skills that were beneficial for his or her participation in future CMPR tasks such as how and when to use IM for educational and entertaining purposes respectively, how to provide negative opinions without offending the partner. In other words, while the prior IM activities cast influence on students' participation in the central activity system, the tensions evolved and reshaped their prior IM activities by turning into part of the prior experience. Thus, the mediation from the prior experiences with IM chat was never a one-way transmission.

An Emerging Online Discourse for CMPR

According to the data, tensions were generated during the constant interactions between the central activity system and both participants' prior peer response activities and their prior IM chat activities. However, the process of seeking solutions for these tensions was undoubtedly a learning and developmental process in which participants might gain knowledge and skills of conducting peer response tasks in an IM environment. In other words, a CMPR communication discourse that differed from but integrated the features of both a casual IM chat discourse and face-to-face peer response conversations emerged throughout the CMPR tasks as the outcome of participants' engagement in the collective central activity system. This emerging online discourse was synthesized in terms of greetings, linguistic features, negotiation of opinions and suggestions, and use of multiple chat windows.

Greetings. Participants usually greeted each other at the beginning of the conversation to inform each other his or her online status and readiness for the conversation. Sometimes, participants also used smiley emoticons to indicate his or her excitement in the task, which usually lightened up the atmosphere.

Linguistic features. Although misspellings or irregular Internet words such as thanx, 4u(for you), are tolerated in general IM chat, which is particularly popular among native speakers of English, participants in the study tended to use complete and accurate English words and sentence structures throughout the chat. Some participants such as Anton, Nicky, and Rocky very consciously corrected their misspellings and ungrammatical sentences once they noticed them in their messages. In the follow-up interview, Anton revealed that "*this is an English writing task. If we cannot say correct*

English, we cannot help each other improve English." (interview with Anton, 7/25/06). In addition, participants usually wrote one sentence in each e-turn they took, which made it easier for the partner to read and follow the messages.

Negotiation of Opinions and Suggestions. The special online discourse for negotiation of opinions and suggestions was illustrated in three aspects: (1) language function use; (2) focus of the negotiation, and (3) sequence of negotiation. First of all, participants noticed that providing critical opinions and suggestions might easily stimulate offense in their partner due to the lack of physical contact if the dyad did not have very close pre-IM personal relationship. Some participants tended to start the negotiation with extensive compliments of the strengths in the partner's essay followed with opinions and suggestions. In addition, usually the opinions were expressed by employing the language function clarification request or confirmation check accompanied with smiley emoticons rather than direct opinions or suggestions such as "*honey... in your conclusion you wrote about bad accent in ours teachers???? but just in your country???"*

Secondly, the majority of participants thought IM chat provided an excellent environment to discuss the content and organization rather than grammar errors in each other's essay. Students such as Nicky and Diane liked the way the ideas and organization in each other's essay were discussed in IM because they could have extra time to organize their language and use the fun features provided in IM chat to spice up the discussion. However, Anton commented, "*Maybe it is easier to form of the.... For example, there is a sentence which is grammatically incorrect. It is difficult on the net to write it down again. So I prefer to show her face to face. So here is the mistake, here...*"

(interview with Anton, 7/25/06). It indicates that a face-to-face meeting is still necessary for ESL students who lack the vocabulary for discussing grammar problems.

Thirdly, the sequence of essay discussion was flexible in CMPR. In face-to-face peer response, students usually follow the order to discuss each other's essay. In an IM environment, because participants could post messages any time during the chat, the content in their messages could refer to any problems in either one's essay. To ease the conversation, participants tended to discuss and compare one similar issue in both essays

Use of multiple chat windows. In the CMPR chat, it was unavoidable that one student had to wait for a response from his or her partner because typing messages took time. While waiting for responses, some participants opened multiple chat windows to chat with other online friends usually on off-task topics. Usually they immediately went back to the CMPR chat window if a new message was received. However, sometimes multiple conversations severely distracted the student. Under this situation, the partner usually sent messages or a nudge to urge for prompt responses.

In sum, the tensions generated in the interaction between the central activity system and participants' prior experience with IM chat and peer response urged them to form a new conversation discourse that was helpful to achieve the task goals in the IM environment. This discourse was different from both the casual and informal multimedia discourse used in daily IM chat and the relatively formal oral discourse in classroom discussions. The IM chat transcripts showed that the new CMPR discourse emerged and continued evolving during ESL students' participation in CMPR tasks.

Section Summary

This section reported on the interaction and tensions between ESL students' central activity systems and their prior peer response activities and IM chat activities. It shows that the interaction was constant and fluid. Through the process of seeking solutions for the tensions, ESL students collectively created a new online communication discourse that was compatible with and helpful for CMPR.

Conclusion

This chapter reported on the empirical results to answer the first four research questions in this dissertation study. It unfolds the motives and goals each ESL participant held as well as the fluid nature of the motive and goal formation and maintenance during their participation in the four CMPR tasks as well as the mediational roles played by instant messenger at the activity, action, and operation level. The complex relationship between the social cultural contexts, ESL students' historical activities in terms of peer response and IM chat and ESL students' actions in CMPR tasks was interpreted diachronically and synchronically from the lens of CHAT. Chapter V will present a holistic and dynamic picture of ESL students' participation in the CMPR tasks from an integrative view of CHAT and Dynamic Systems Theory by using all the findings of the four research questions presented in Chapter IV.

CHAPTER V

A DYNAMIC VIEW OF ESL STUDENTS' PARTICIPATION IN COMPUTER-MEDIATED PEER RESPONSE (CMPR) Tasks

This chapter displays a holistic and dynamic picture of ESL students' participations in computer-mediated peer response (CMPR) tasks in summer, 2006 from an integrative view of cultural historical activity theory (CHAT) (e.g. Cole, 1996; Engeström, 1987,1999, 2001; Leont'ev, 1981; Vygotsky, 1978) and dynamic systems theory (DST) (e.g. Thelen & Smith, 1994; van Gelder & Port, 1995). The chapter consists of two sections.

The first section describes the fluid and dynamic social settings that were constantly transformed by and transforming ESL participants engaged in the CMPR tasks in the summer semester, 2006. The dynamic interactions between ESL participants' motives, goals, actions as well as activities and the social cultural historical contexts were unpacked. All findings in the previous four research questions based on the analysis of all data including formally collected data and those through the researcher's informal communication with participants were used to help the researcher interpret the dynamics in the CMPR tasks. Occasionally, new information from the analysis of interview transcripts was included to support new findings in this section.

In the second section, the transformational trajectories ESL students experienced during their participation in the CMPR tasks are presented in graphical diagrams, adopting the key tenets of DST. In this section, the main data sources included beyond-

and on-screen behavior recordings, the IM chat transcripts, as well as the researcher's reflective journals. The constant comparison method was used to identify incidents that indicated the extent to which each participant was engaged in each CMPR task.

Dynamic Social Settings in the Academic Writing IV Class

According to CHAT, social interaction is a dialectical process through which people create and develop social settings (Vygotsky, 1978; Smagorinsky, Cook, & Reed, 2005) or activity system (Engeström, 1987) affording tools through which people internalize ways of thinking and externalize them by continually changing the settings. Wertsch (1985) points out that every setting has an overriding motive based on the predominant values and social practices of people who inhibit it. The motive suggests what social actions are appropriate within the setting. However, the setting is always subject to changes and shifts because the members who have heterogeneous ways of thinking (Tulviste, 1991) in the social setting are constantly resisting or renegotiating the motive, thus create new motives and get engaged in new activities. In this section, ESL participants' motive shift and the learning and development that were derived from their motive shift will be explained by using both Leont'ev's notion of hierarchical structure of an activity and Engeström's triangle models. The purpose was to thoroughly display the fluidity of ESL students' behaviors by focusing on individual's hierarchical development as well as their horizontal development that were originated in the interaction with the social contexts.

Individual's Hierarchical Development

According to Leont'ev's (1978) proposition of the hierarchical structure of an activity, an activity consists of individual or cooperative actions, which in turn consist of

chains of operations. An activity is usually driven by an unconscious and infinite motive or object whereas actions usually have an immediately defined goal. Thus, when an action is performed in the real world, it is usually planned in the subject's consciousness and executed in chains of automatic or subconscious operations corresponding to specific conditions in which actions are performed.

When an action is practiced long enough, the conscious planning fades away and thus the action collapses into automatic and fluent operations. On the other hand, when the conditions change, an operation will return to the consciousness of the subject and turn into an action. The constant change of conditions in various social settings causes the action-operation dynamics. This dynamic also exists between action and activity. When an activity's motive becomes conscious to the subject, it turns into a goal. Thus, an activity is transformed into an action. Conversely, an action may break down into a series of successive activities, that is, the goal may break into a series of subgoals and thus turn into a subconscious motive (Davydov, Zinchenko, & Talyzina, 1983, as cited in Kuuti, 1995).

The notions of flexibility between action and operation and between activity and action provide powerful constructs to explain each individual's vertical or hierarchical development processes. The dynamics were clearly observed among the ESL participants of this study, particularly in Anton, Diane, Iron and Nicky. As shown in previous analyses, Rocky was not engaged in any of the learning-oriented activity system during all of CMPR sessions he participated in. Thus, his learning and development are not discussed here. Because of the different learning and development patterns shown in the

CMPR sessions, I will present two types of dynamics, one in Iron's development (Figure 21) and the other in the rest of three participants (Figure 22).

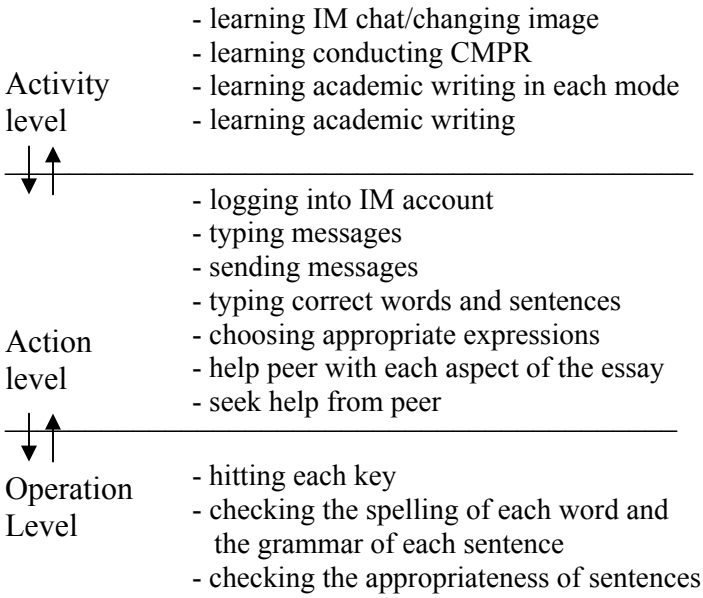


Figure 21. Iron's Activities, Actions, and Operations

When Iron joined in the first CMPR task, he could not type English words very fluently on the keyboard. Although he was involved in the activity systems of improving knowledge and skills in academic writing in the expository essay, he had conscious goals to improve his typing skills as investigated in research question 1. He was actually driven by a secondary subconscious motive: to learn or improve IM chat skills, which evolved into the motive of changing his image of an incompetent IM user in the second CMPR task. Thus, at the activity level, he was learning IM chat. At the action level, he consciously practiced logging into IM account, typing and sending messages. And at the operation level, he could find each key on the keyboard and hit the keys with one hand without any technical problems.

As he grew more skillful of tying messages at the end of the second CMPR task and in the third CMPR task, Iron could perform the IM account-login and message typing and sending without apparent problems, which indicated these actions had turned into his automatic operation. It also means his subconscious motive of learning IM chat or changing the image of being an incompetent IM user had become a conscious goal. So a new subconscious motive: use IM chat to participate in CMPR tasks, that is, learning how to conduct CMPR, emerged as his new activity. As shown in earlier analysis, while engaged in the activity of learning how to conduct CMPR tasks, Iron learned what language functions to use, which turned into his actions, to give his opinions and suggestions without offending his partner.

In addition, based on Leont'ev's hierarchical structure of activities, Iron's participation in the first two CMPR tasks also could be considered an action driven by higher-level motives: learning academic writing skills in the expository essay and learning the skills in the summary-analysis essay, if he could successfully conduct each CMPR task and gain knowledge and skills through his participation. In other words, when he mastered the skills of conducting CMPR tasks, his participation in each CMPR task would turn into an action of a larger activity. However, the earlier analysis showed that Iron was still learning how to conduct CMPR tasks upon his departure from the ELI. Due to both his and his partner's incompetence in conducting CMPR tasks, conducting the CMPR tasks did not help Iron significantly in terms of improving his writing skills in each mode.

The dynamics also occurred in a reverse direction. Iron was already a proficient English writer at the word and sentence level when he was enrolled in the course. He

knew many English words and could write grammatically correct sentences fluently on paper. However, when he chatted on the IM, typing correctly spelled words and grammatically correct sentences, which used to be his automatic operations, became his consciously planned actions due to the change of condition: fast online message exchange. In addition, since he was not familiar with the online chat environment, even producing pragmatically appropriate sentences came into his consciousness. Thus, he had to constantly check the appropriateness of his messages to avoid offending his partner. From Leont'ev's view, once Iron becomes more familiar with the IM environment, typing IM-compatible messages will turn into his operations.

On the other hand, according the researcher's reflective journals, Iron was engaged in the activity of improving academic writing when he was enrolled in the course. However, due to the complexity of the activity, it was broken into a series of smaller-scope activities, namely improving academic writing in each mode, which consisted of chains of actions such as taking lectures, writing the first draft, conducting CMPR tasks, and receiving teacher's feedback. However, because of the use of IM chat and the unfamiliarity with peer response, conducting CMPR tasks turned into an activity for Iron as described early.

The two-direction movements constantly took place within and across the CMPR tasks. The dynamics between the actions and operations and between the actions and activities reflected the learning and development processes Iron experienced throughout the summer semester. The downward movement indicated Iron's development in competences in IM chat and conducting CMPR tasks whereas the upward movement indicated the problems that emerged during his learning process. As discussed earlier,

sometimes the movements described above did not occur in a neatly organized linear fashion. For example, in the second CMPR task, Iron was involved simultaneously in both the activity system of learning IM chat or changing his image of being an incompetent IM user and the one of improving writing skills in the summary-analysis essay which was at a higher level in the hierarchy. To be analyzed in a later section, , tensions between the two activity systems could occur when activity systems that belonged to different hierarchy juxtaposed simultaneously.

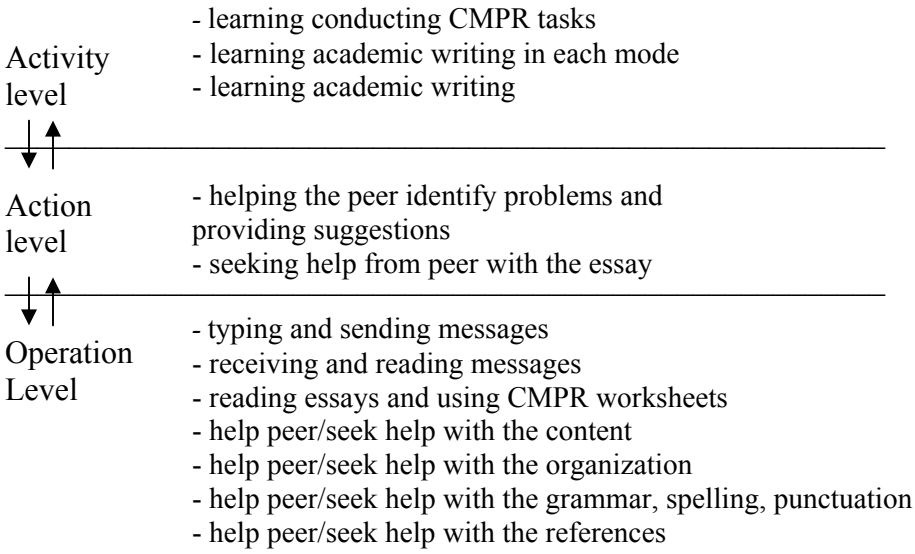


Figure 22. Anton, Diane, and Nicky's Activities, Actions, and Operations

The dynamics in Anton, Diane, and Nicky's activities, actions, and operations throughout the four CMPR tasks was presented in one diagram because all of them were familiar with IM chat before participating in the study. In other words, IM execution was at the operation level for all of them. Thus, they started the CMPR tasks at a higher hierarchical level than Iron.

None of Anton, Diane, and Nickywas familiar with CMPR tasks when they were enrolled in the class. Thus, during the first task, they all had conscious goals to help peer

with the content, the organization, grammar, spellings, the references as well as seek help with those aspects. They also tried to use the CMPR worksheets to guide their CMPR performances. In other words, help peer/seek help with certain aspects of an essay were at their action level. Throughout their participation in the CMPR tasks, they gradually internalized the procedures and purposes of providing help and seeking help with each aspect. Thus, these executions lost the consciousness and turned into their automatic operations. Especially for Anton, in the third CMPR task, she was very clear about what she was expected to do in the task. Thus, helping the peer and seeking help in a general sense rather than in the specific aspects required in the CMPR worksheets became her conscious goals.

As Anton, Diane, and Nicky had more practices with CMPR tasks throughout the semester, they all gradually internalized the CMPR tasks which were reflected in their more independent use of the CMPR worksheets and increasingly sophisticated employment of various language functions especially in their last CMPR task, which postulated their engagement in the activity of improving academic writing in each mode. Ultimately, they would develop competences in academic writing in general.

On the other hand, the movement between the operations, actions, and activities was never linear or straightforward. For example, although Nicky developed the competences to provide help to Rocky with the organization in his summary-analysis essay, she was not sure how to evaluate the organization in Iron's argumentative essay because of the introduction of new writing mode and Iron's writing style. In this case, helping peer with the organization turned into her conscious goal again. This type of fluctuation never ceased during ESL participants' engagement in the four tasks. Going

through these dynamic processes as well as internalizing and transforming the external activities, participants were transformed, that is, developed (Leont'ev, 1978).

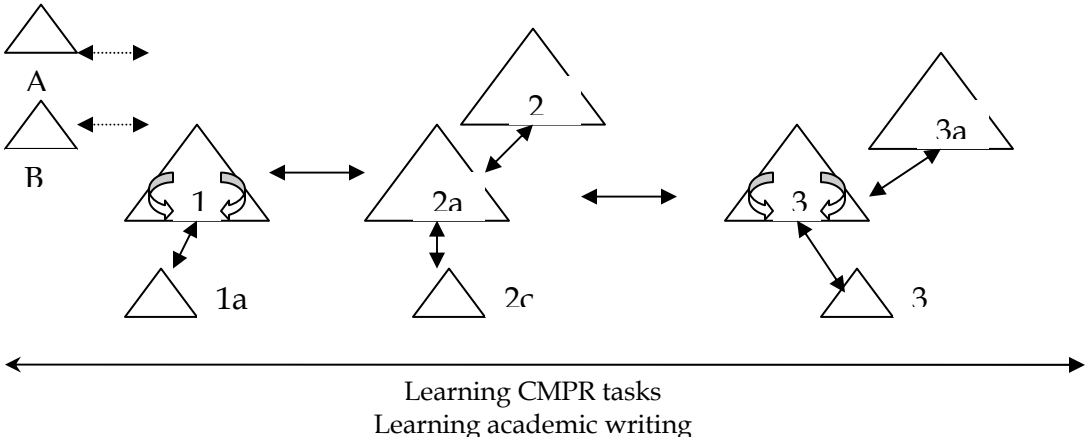
Dynamics Within and Between ESL Students' Activity Systems

Leont'ev's hierarchical structure lends a lens through which each individual participant's developments throughout the semester were analyzed. However, a human being never transforms into a more advanced entity solitarily. The dynamics also existed among the interactions with other members in certain social settings. Although Engeström's (1987, 1999) triangle model may look rigid, the relationships within and between the triangular systems are fluid and dynamic, which afforded a theoretical framework to unpack the fluid nature of the *knotworking* activity systems of each participant.

First of all, when the five ESL participants joined the academic writing IV class offered in the English Language Institute in a southeastern research-oriented public university in summer, 2006, this class already had an overriding motive that had been driving the administrative and teaching faculty as well as the overall student body: improving the academic writing proficiency. Under this overall setting, there were subsettings such as the learning modules each of which focused on one writing mode, i.g. expository essay, argumentative essay, etc. Each subsetting was driven by a similar but smaller-scale overriding motive: improving students' academic writing skills in the expository essay, the argumentative essay, etc. The subsetting afforded tools such as documents regarding how to write essays in each mode, the computers, IM used in the CMPR task, and CMPR worksheets, through which ESL students collaborated or resisted

the collaboration with each other, governed by certain norms and values commonly accepted by the community.

As shown in earlier analysis, although some students embraced the overriding motives in each subsetting, not everyone subscribed to it every moment throughout the semester. By interacting with different dyadic partner and interacting with the overriding activity systems, students developed alternative and even dissonant motives and conscious goals based on their situations and their own ways of thinking. Due to the dissonances and juxtapositions of multiple current and previous activity systems in which ESL students participated, tensions within and between activity systems emerged. Some tensions within an activity system were aroused by the ones between the central activity system and its neighbor systems. Others were generated because of the interaction between the central one and some previous ones in which the participant was engaged. The tension-generating and solution-seeking process was dynamic. In this section, the dynamics in all the activity systems in which each participant was engaged throughout the CMPR tasks will be discussed based on each participant's experience.



A: prior activity of IM chat; ***B:*** prior activity of English academic writing instruction;
1: activity of learning academic writing skills in exploratory essay; ***1a***: Iron's activity
2a: activity of maintaining a good-student image; ***2b***: activity of having fun in IM chat; ***2c***: Iron's activity
3: activity of learning academic writing skills in argumentative essay; ***3a***: activity of having fun in IM chat; ***3b***: Diane's activity

Figure 23. Anton's Dynamic Activity Systems

Figure 23 showed the dynamic relationships between activity systems that existed when Anton participated in the three CMPR tasks. The dynamics within each activity system, particularly in 1 and 3, which reflected the overriding motives of the subsettings, were illustrated in the circling arrows within activities 1 and 3, which were Anton's central activity systems: learning academic writing skills in exploratory essay and learning academic writing skills in argumentative essay.

A is her prior activity of IM chat and B is her prior activity of English academic writing instruction and peer response. Although these two activity systems resided in a different temporal scale, they constantly interacted with Anton's central learning activity systems and influenced the conscious goals she had throughout her participation in the three CMPR tasks. The other two overarching motives that penetrated all of Anton's actions throughout the CMPR tasks were learning CMPR tasks and learning academic

writing. In other words, while engaged in sub-activity systems in each writing module, Anton was also engaged in two overall activity systems.

1a represents Iron's activity system when he collaborated with Anton in the first CMPR task. 2a and 2b are two activity systems Anton were engaged in whereas 2c is Iron's activity system in the second CMPR task. 3a is the other activity system in which Anton was engaged while 3b is Diane's activity system when she worked with Anton in the third CMPR task.

The dynamics in Anton's activity systems lied in her negotiation of the tool use, the rules of interaction, the competences of a CMPR partner, and her perceptions of peer response throughout the three CMPR tasks in which she participated. As shown in Figure 23, Anton was usually engaged in multiple activity systems simultaneously, which produced conflicts and tensions in her goals within each activity system, especially her central activity systems.

dynamics in the use of IM. Although the activity systems did not exist in the same temporal space, the influence from the earlier systems penetrated the later ones. As analyzed in Chapter 4, Anton was very familiar with IM chat. Participation in this prior activity helped Anton form certain concepts in her mind regarding what to use IM for and how to use IM. During the first CMPR task, Anton noticed her partner Iron was very unskillful of IM chat. Her prior experiences with the activity system of using IM for fun and her inefficient collaboration with Iron in the first task triggered her engagement in the activity system of having fun in IM chat when she was aware she had to collaborate with Iron again in the second task. Iron's unimproved IM chat style gave her another impetus to engage in both the activity system of maintaining a good-student image and the one of

having fun in IM chat. She not only chatted with other online friends but listened to online music and played online poker with Diane. In the third task in which Anton was engaged in the central activity system, she suggested Diane and she edit each other's grammar mistakes directly on the essay papers rather than discussing them on IM after she realized the inconvenience of IM chat. While she discussed essays with Diane, she was simultaneously chatting with another online friend.

As shown in earlier analysis, Anton first used IM as a learning tool through which she could interact with her partner. After the unsuccessful experience, she dwelled on its entertaining function. Finally, she used it as a tool for both learning and entertaining purposes. She also tried to tailor the use of IM for her convenience as shown in her behaviors in the third CMPR task. This dynamic was caused by her engagement in multiple activity systems.

dynamics in the use of CMPR worksheets. In her first CMPR task, Anton was engaged in both the activity of learning academic writing skills in an expository essay and the one of learning conducting CMPR tasks. Her unfamiliarity with conducting a CMPR task caused the tension between the psychological tool: the CMPR worksheets, and her object in the former activity system. She reported her difficulty with the worksheets to the instructor who modified them and developed more helpful tools. Anton used these tools in her third CMPR task, which provided a better guide for her to identify problems in Diane's essay. As shown in her behaviors in the third task as well as her reflection, once she became familiar with the procedures of how to offer suggestions and ask for help, she gradually relied on herself rather than the worksheets in the task.

dynamics in her negotiation of the rules. During the CMPR tasks, all students were required to only communicate with their partner through IM chat. However, Anton constantly crossed the line when she was engaged in both the learning activity system and non-learning activity systems. In her first CMPR task, Anton followed the rules closely by chatting only with Iron online. In the second task, after she realized the inefficiency of the collaboration with Iron, she lost patience to work with him. Driven by her motive of having fun in IM chat, she started to chat with other online friends.

In the third task, she used IM to interact with both her partner and another online friend. In addition, when noticing some common problems in both her and her partner Diane's essays, she felt it was necessary to have a deeper discussion. Driven by her motive of learning academic writing in an argumentative essay, she formed a new conscious goal: seek a good way to discuss grammar and organization with Diane , which generated a new activity system in which Anton and Diane collaborated in a face-to-face meeting to solve the problem. Thus, the rules of online interaction were first closely followed, then broken for non-task purposes, and finally expanded for the sake of achieving her object.

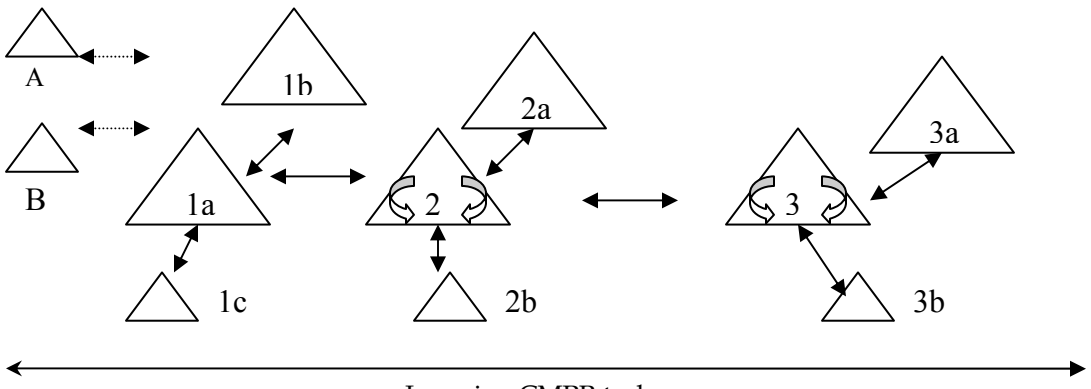
dynamics in her perception of peer response and competences of a CMPR partner. Anton had prior experience with academic writing although it was in her native language and with English language instruction which was mainly teacher-fronted lectures. She did not believe a classmate whose English proficiency was lower than hers could help her when she participated in the first peer response task. When she participated in the first CMPR task, she initially thought Iron would help her because his essay was very well-written, which was in concord with her prior concept of peer

response: a peer with higher English proficiency would help her. Later, she discovered his lack of IM chat competence severely hampered his contribution. Thus, her concept of a constructive peer response was refined by changing her standards for a competent peer. After her participation in the second task, she realized a helpful peer should not be aggressive, either. Therefore, in the third CMPR task, although she knew Diane's English language proficiency was not as high as hers, she was willing to collaborate with her because she was good at IM communication, friendly, and cooperative. She not only perceived Diane as a source to obtain suggestions but considered her as a co-constructive partner with whom she could negotiate and generate new ideas and writing strategies, which indicated Anton's concepts about peer response had been completely transformed.

In summary, the dynamics in Anton's activity systems were particularly displayed in the fluidity within her central activity systems. When the tension between the tools and her object emerged, she sought solutions to solve the tensions. When the tension between the tool and her community member emerged, she shifted to alternative activity systems. None of her objects during her participation in the tasks were static.

Dynamics Within and Between Diane's Activity Systems

As shown in Figure 24, Diane's actions in her central learning activity systems throughout the three tasks in which she participated were also mediated by her prior activities with IM chat and academic writing instruction and the two overall activity systems. The dynamics in her activity systems was mainly shown in her use of IM and her perception of peer response and her partner's role amid the constant interactions among these multiple activity systems.



A: prior activity of IM chat; ***B:*** prior activity of English academic writing instruction; ***1a:*** activity of maintaining a good-student image; ***1b***: activity of having fun in IM chat; ***1c:*** Partner Jillil's activity
2: activity of learning academic writing skills in an argumentative essay; ***2a***: activity of having fun in IM chat; ***2c***: Anton's activity
3: activity of learning academic writing skills in a problem-solution essay; ***3a***: activity of having fun on the Internet; ***3b***: Rocky's activity

Figure 24. Diane's Dynamic Activity Systems

dynamics in the use of IM. Diane had been using IM for a long time. She perceived IM an important entertaining tool. Whenever she used the Internet, she would chat with people, including during all the CMPR tasks time. Therefore, Diane was consistently engaged in the activity of having fun in IM chat throughout the CMPR tasks. On the other hand, because of her engagement in multiple activity systems, her concepts of IM chat were also transformed. She realized IM chat could be used not only for entertainment but for academic purposes such as discussing homework with classmates after class. The dynamics in her use of IM were illustrated in her switch between these two functions throughout the three tasks she participated in.

During her second CMPR task, Diane collaborated with Anton whom she admired and had been looking forward to working with. However, her engagement in multiple activity systems: the central activity system and the activity system of having fun in IM

chat still produced a tension between the use of IM as a tool and her object. During her chat with Anton, Diane was eager to have some fun with Anton as they did in the previous task. She invited Anton to have an online game supported within MSN IM even when she and Anton did not finish the task, which did not happen only because Anton was using a different version of IM which did not support the game. In addition, Diane tended to chat about off-task topics with Anton during the task. Diane failed to notice this tension, thus did not deliberately seek solutions.

dynamics in her perceptions of peer response and the partner's roles. Diane never received formal instruction in English academic writing before she was enrolled in the ELI. Thus, she believed anyone whose English proficiency was higher than hers could help her. She did not reject any feedback from a peer as long as he or she could offer helpful suggestions.

Although the overriding motive in the first task in which Diane participated was to learn academic writing skills in a summary-analysis essay, she did not uptake this motive because of the partner she was paired with. Her partner Jillil who only wanted to have fun in IM chat did not offer any constructive feedback on her essay based on the IM chat transcripts. Mediated by her partner's activity as well as her genuine motive of having fun in IM chat, Diane did not embrace the overriding motive. Instead, she participated in the task merely to maintain a good-student image.

In the task for the argumentative essay, Diane was fully engaged in the activity system of learning academic writing skills in an argumentative essay because she believed Anton with her higher English proficiency could help her identify problems in her essay. In this task, she obtained helpful feedback from Anton and offered some

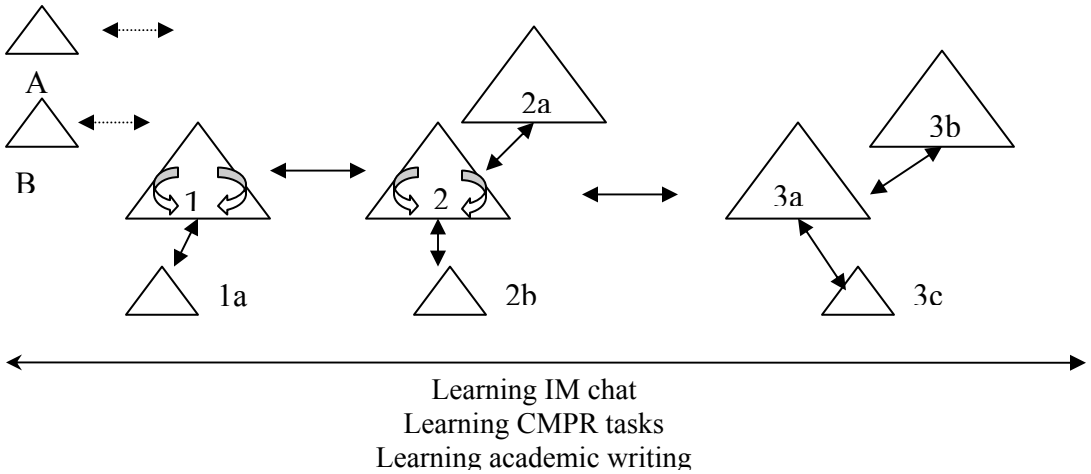
opinions to Anton. She also had a very constructive discussion with Anton after class to both develop each other's ideas and collaboratively revise each other's conclusion paragraph. From this experience, Diane learned she could help Anton although her English proficiency was lower than hers.

Diane's initial motive in the third CMPR task was just to have fun on the Internet because she was aware of Rocky's genuine motive. However, after realizing Rocky could provide some helpful feedback on her word-level mistakes, she was gradually engaged in the central activity system of learning academic writing skills in a problem-solution essay. However, the divergent objects driving Rocky's and Diane's activity caused the dissonances between the components within Diane's central activity system, such as the rules and Rocky, the object and Rocky, the division of labor and Rocky. During the task, Diane endeavored to solve the tensions by directly requesting information about Rocky's essay although he did not finish it and offering her ideas. In addition, although Diane was not satisfied with the suggestions provided by Rocky, she did not express disappointment because she was aware more suggestions could be given by the instructor to achieve her eventual object of improving her academic writing in a problem-solution essay. In the follow-up interview, she also reflected that she later read Rocky's essay and gained some writing strategies. It indicated that Diane's perception about peer response was more realistic in terms of what both she and her partner could contribute in peer response.

As illustrated above, the dynamics in Diane's activity systems was displayed especially in the constant interactions between the multiple activity systems in which she was engaged during each task. Her prior activity with IM chat and her engagement in the activity system of having fun on the Internet interfered with her conscious goals in the

activity system of learning academic writing in each mode, which produced tensions between the tool and her object. The tension either deteriorated or was ameliorated depending on the interaction between her activity system and her partners' activity systems.

Dynamics Within and Between Iron's Activity Systems



A: prior activity of IM chat; ***B:*** prior activity of English academic writing instruction;
1: activity of learning academic writing skills in an expository essay; ***1a***: Anton's activity;
2: activity of learning academic writing skills in a summary-analysis essay; ***2a***: activity of changing image; ***2b***: Anton's activity
3a: activity of maintaining a good-student image; ***3b***: activity of maintaining a good-writer image; ***3c***: Nicky's activity

Figure 25. Iron's Dynamic Activity Systems

The dynamics in Iron's activity systems was complicated by his more complex life experiences including his prior experiences with IM and English instruction as well as his social status as a respectful and powerful department manager in a prestigious finance auditing company in Turkey. To unfold the dynamic nature of all the activity systems in which Iron was engaged throughout the three CMPR tasks, the interactions within and between activity systems was discussed in the following section.

Although Iron never chatted with people via IM in the past, he saw his children using the Internet and chat. He perceived chat as some younger-generation like his children's entertainment means through which they kill time. However, he took great efforts to learn IM chat during the CMPR tasks because he thought it was an interesting communication tool and more importantly the instructor required every student conduct the task in IM. Unfortunately, he lost interest in using this tool gradually due to Anton's negative attitude toward his contributions in the second CMPR task and his uncomfortable feeling that all his IM conversations could be inspected anytime by the instructor. Although he had a pleasant chat with Nicky in the third CMPR task, he still had difficulty in producing clear and accurate messages in English quickly.

Regarding his prior experience with English academic writing instruction, especially his experience with peer response, Iron had never taken any academic writing instruction in English. Nor did he hear of peer response before he was enrolled in the current writing class. He participated in the first CMPR task with strong interest and obtained feedback from Anton. However, his performances in the task indicated he did not completely understand the purpose of peer response. He did not intend to discuss the feedback provided by Anton, which was reflected by his reaction message in the chat "*I'l concern and evaluate your suggestions. Thank you a lot"*. Neither did he discuss the suggestions he could offer to Anton. He merely offered some opinions. He only gave specific suggestions after Anton's explicit request. His attitude toward peer response changed in the second CMPR task when he noticed Anton was neither willing to obtain his feedback nor prepared to offer him her feedback. Based on the two experiences, he realized his partners did not help him much in the task. Thus, in the third CMPR task, he

was more inclined to give feedback rather than obtain any feedback. He enjoyed the feeling of helping and being admired by a classmate, which reminded him of his higher power status in Turkey.

Because Iron was engaged in the activity systems of both learning academic writing skills in the expository essay and learning how to conduct CMPR tasks, he set conscious goals to improve his IM login and typing skills. Without knowledge about the implicit rules of IM communication, Iron was so concerned about his English production that he spent enormous amount of time editing his messages before sending them out, which along with his slow typing extraordinarily delayed his message contribution in the task. At the same time, the lack of knowledge and skills of conducting peer response adversely influenced the quality of feedback provided by Iron. Driven by her own motives of learning writing an expository essay and learning CMPR tasks, Anton did not feel satisfied with Iron's contributions, which alerted Iron who never felt so incompetent as boss in a big company in Turkey, and urged him to generate a new activity: changing his image of being an incompetent collaborator in the second CMPR task.

Although Iron, driven by multiple motives in the second task, endeavored to increase his typing speed unfortunately by sacrificing the accuracy at both the word- and sentence-level, his contribution was still slow and his misspellings and grammar mistakes severely interfered with the meaning he intended to deliver. Facing the failure of achieving his new goals and object, Iron defended himself in a message to Anton by indicating his decent status in Turkey, which further dismayed Anton. Thus, the tensions between the IM tool, the rules of IM communication, and Iron gradually aggregated and were finally transformed into the tension between Anton and him. Iron neither

successfully changed his image nor obtained helpful feedback from Anton. However, the tension between Anton and him afforded Iron an opportunity to learn the CMPR rules, which was externalized in his use of an innovative opinion-giving strategy in the third task.

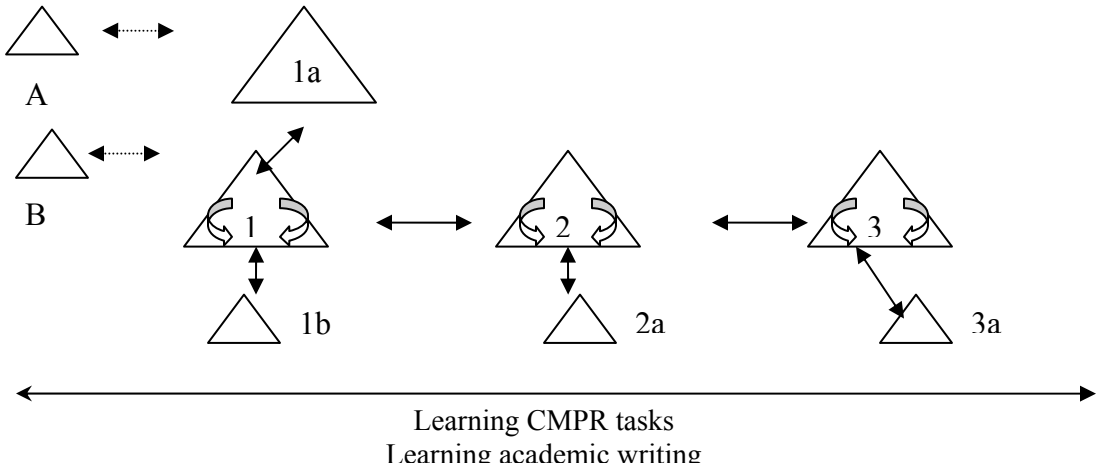
The tensions he confronted in the second task refrained Iron from getting engaged in the central activity system in the third CMPR task in which he initially was only driven by the motive of maintaining a good-student image. He did not expect to obtain any helpful feedback from Nicky despite his suggestion-request action during the chat. However, Nicky's positive comments and attitudes toward his feedback infused Iron with some confidence in his competence, which solicited his engagement in a new activity system: maintaining a good-writer image by providing opinions and suggestions to Nicky.

Iron's experiences ostensibly illustrated the fluid nature of the motive generation and goal setting during his participation in the three CMPR tasks. The activity systems in which he engaged afforded him opportunities to resist, negotiate, and change the context in terms of using tools and following rules, which produced tensions and conflicts. Regardless of the solutions to the tensions, Iron learned and developed knowledge and skills in IM chat and conducting CMPR tasks.

Dynamics Within and Between Nicky's Activity Systems

The dynamics in Nicky's activity systems were particularly displayed in her negotiation of her reader's role, her perception of peer response, and her use of the CMPR worksheets. Nicky had two-year English instruction before she immigrated with her parents to the U.S. from Taiwan. All her prior instruction was teacher-fronted

lectures. She was very respectful for the authority and people who were more proficient in English than her. She had never participated in peer response before her enrollment in the current class. She did not believe a classmate could help her significantly. Nor did she think she was competent enough to help a classmate in writing.



A: prior activity of IM chat; ***B:*** prior activity of English academic writing instruction;
1: activity of learning academic writing skills in a summary-analysis essay; ***1a***: activity of chatting with an English-speaking partner; ***1b***: Rocky's activity
2: activity of learning academic writing skills in an argumentative essay; ***2a***: Iron's activity;
3: activity of learning academic writing skills in a problem-solution essay; ***3a***: partner's activity;

Figure 26. Nicky's Dynamic Activity Systems

dynamics in the role-taking. In her first CMPR task, Nicky was very reluctant to give her opinions and suggestions to Rocky due to her lack of confidence in her English proficiency. Under Rocky's encouragement, she offered some suggestions for his essay, which boosted her self-esteem. In her second CMPR task, she pinpointed some ambiguity in Iron's essay although she knew Iron's English proficiency was much higher than hers, which indicated that she was gradually internalizing her reader's role. In her third task, although her comments were still constrained in organization and ideas due to her constant lack of confidence in her grammar, she actively offered opinions and

suggestions to her partner, which indicated a blossom growth of her skills and perceptions of a critical reader's role.

dynamics in the perceptions of peer response. As mentioned above, Nicky did not believe a classmate could be as helpful as a teacher to improve her writing. When she collaborated with Rocky in the first CMPR task, she constantly checked with Rocky whether he read her essay because he did not provide many constructive suggestions. She later reported that Rocky was helpful because he identified some although not all of the mistakes in her essay, which indicated that she considered peer response merely as an opportunity to obtain feedback that otherwise should be given by the teacher. In her second task, she noticed Iron used many new words she'd never seen. In order to understand his essay and provide helpful feedback for him, she checked every new word in her dictionary. Eventually she learned these new words and realized conducting peer response was also a process to learn something from her partner's essay. Thus, in her third CMPR task, she studied her partner's essay very carefully, which exposed her to a different approach to writing a problem-solution essay, as she reported in the interview, "*yes, I learned something. I read his essay… see his writing…he has a different way write it*." (Interview with Nicky, 8/3/06).

It showed that throughout her participation in the three CMPR tasks, Nicky's view of peer response shifted from peer response as an alternative way to obtain suggestions to edit an essay to peer response as a learning process through which she learned not only from discussing with her partner on the problems in each other's essays but also from being exposed to diverse writing approaches and language output.

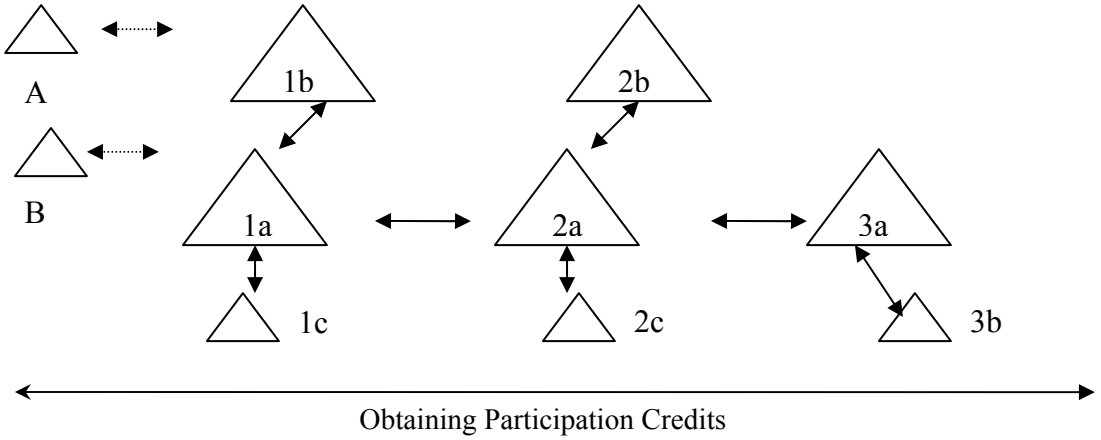
dynamics in the use of CMPR worksheets. Nicky's employment of the CMPR worksheets also varied throughout the three tasks. Although she used the worksheets in all three tasks, she closely followed all the sample questions given in the worksheets in the first task whereas she only loosely used some questions in her third task. After the three tasks, she reported to the researcher that "*the worksheet? They helped me…. for example, what to look in my partner's essay, questions I should ask to improve my essay*" (interview with Nicky, 8/3/06)

The above mentioned three types of dynamics occurred during Nicky's negotiation with her CMPR partners as well as her interaction with the entire context. In other words, these dynamics existed both within and between the activity systems in which she participated.

Dynamics Within and Between Rocky's Activity Systems

As shown in Figure 27, Rocky was not deliberately engaged in any learning activity system in the three CMPR tasks he participated in, which was mainly influenced by his prior experience with English learning in and out of the ELI. Rocky had been in the U.S. for six years when the study was conducted. Compared to other classmates, his English proficiency, particularly spoken English, was higher. In addition, his mother was an English teacher who always checked his English learning progress when he visited them during his vacations. Rocky did not like school life and all the assignments in the ELI because he thought his English was good enough. However, because he failed his previous Level-4 academic writing course, he had to retake it and pass it to get promoted to level-5 before he could graduate and obtain admission from a local private university. Therefore, he was not motivated to take the course and accomplish all the assignments.

Neither did he believe his classmates could help him improve his writing. The major motive that drove him to participate in the CMPR tasks was to maintain a good-student image in front of the instructor in order to pass the class.



A: prior activity of IM chat; ***B:*** prior activity of English academic writing instruction;
1a: activity of maintaining a good-student image; ***1b***: activity of having fun in IM chat; ***1c***: Nicky's activity
2a: activity of helping a friend in the task; ***2b***: activity of having fun in the IM chat;
3c: partner Francia's activity;
3a: activity of maintaining a good-student image; ***3b***: Diane's activity;

Figure 27. Rocky's Dynamic Activity Systems

Although Rocky was not engaged in any learning activity system, his participation in the CMPR tasks still demonstrated fluidity and dynamics which were reflected in the roles he played and his use of IM in the tasks.

dynamics in the roles Rocky played in the tasks. When Rocky collaborated with Nicky, he surprisingly discovered that Nicky was very active in IM chat, which was completely different from her quiet image in regular class discussions. After noticing Nicky was still not confident in giving her opinions and suggestions, he offered her some tips about how to provide feedback and encouraged her to offer her opinions confidently. In his second CMPR task, Rocky collaborated with a friend of his, Francia, who needed

extensive help in English language. After she told him about her extraordinary difficulties with English writing, he offered her not only feedback on her essay but general writing strategies. He also constantly comforted her by saying her mistakes were not serious. In this task, he apparently played a friend rather than a critical reader role. When collaborating with Diane who he knew had higher English proficiency than Nicky and Francia, he focused on the word-level mistakes she made rather than organization and content because he was more sure of English grammar. In this task, his role was merely an editor. The dynamics in Rocky's role-playing was caused by his engagement in the activity system of maintaining a good-student image and his interaction with different community members. The relationship between him and his partners mediated his performance as to how much he contributed his feedback.

dynamics in the use of IM. Rocky was very familiar with IM chat. Because of his engagement in the activity system of maintaining a good-student image, he seemed not concerned about what he could learn from the peer response. Driven by a secondary motive of having fun in IM chat, he consistently chatted with an online friend during the first and second CMPR tasks. However, during the third CMPR task, he stopped chatting with the online friend and focused on chatting with Diane because he noticed the instructor was sitting right behind him during the most time of the lab. In case that his off-task behaviors were caught by the instructor and cost his participation credits, he withdrew from participating in the activity system of having fun in IM chat, which indicated his IM use was mediated by the presences of and the conflicts between the activity systems in which he was engaged.

Taking a consistent anti-reductionistic stance, Vygotsky (1987) warns against "the decomposition of the complex mental whole into its elements" (p.45). Although the dynamics provided in the above analysis was presented in discrete aspects such as motive shift, the role-taking, the use of IM, and the perceptions about peer response and competences of a partner, the dynamic shifts in those aspects were generated through the constant and vibrant interactions among all components within an activity system as well as between juxtaposed multiple activity systems.

The findings of the dynamics within and between activity systems in which ESL participants were engaged through their participation in the CMPR tasks illustrated that the dynamics existed ominously in various learning activities. In a learning environment such as the level-4 ESL academic writing class in the ELI, ESL students participated in the learning task CMPR by accomplishing which they were expected to improve their writing skills in each mode through dyadic interaction, which also were the motives imposed by the existing social context. In spite of the overriding motives, each ESL participant perceived the social cultural contexts in a different way because of their heterogeneous historical backgrounds, consciously and subconsciously resisted and renegotiated constantly with the social contexts, and formed their own motives and goals which were either consistent or dissonant with the overriding motives.

Through the resisting and renegotiating processes, tensions and dissonances within their central learning activity system and between the central activity system and its neighbor activity systems such as having fun in IM chat emerged. The process of seeking solutions led to learning and development either promptly or in a long run. In other words, due to their unfamiliarity with the format and procedures of the CMPR

tasks, ESL participants who were genuinely engaged in the learning-oriented activity systems not only learned writing through participating in the tasks but learned how to conduct the tasks. The following section will present the developmental trajectories each participant had while he or she was engaged in the CMPR tasks by using an integrative view of CHAT and DST.

ESL Participants' Dynamic Developmental Trajectories in CMPR Tasks

Wertsch (1998) argues that it is fruitless to unpack the nature of mental development only through investigating the static products of development. Because of the vibrant and accidental influences from the environment, none of the development can be interpreted following the same standards. However, it is impossible to speak of development without positing a preferred direction. To untangle this dilemma, developmental dynamists (e.g. Thelen & Smith, 1995; Smith & Thelen, 2003;van Geert, 1998; van Gelder, 1995) advocate the Dynamical Systems Theory, particularly, the nonlinear developmental model, a.k.a. chaos theory, to capture the nature of human's dynamic and emergent development that is sensitive to the changes to the environment without only considering the static products. This section presents each ESL participant's dynamic development that unfolded in his or her participation in each CMPR task in a graphically represented trajectory, considering each student as a complex dynamic system which comprised interaction of multiple different components and processes in specific contexts. Data sources for the analysis included field notes, participants' beyond- and on-screen behavior recordings, IM chat recordings, and the researcher's reflective journals.

According to DST (Thelen & Smith, 1995), to represent the trajectory of a complex system at a particular timescale, it is necessary to identify its collective variable(s) which acts as a dependant measure of change in the system. The trajectory and phase shifts of the system through its state space are graphically displayed by the successive values of the collective variable, which can be performed through quantifying qualitative data through empirical observations. The current study focused on both the microgenetic and ontogenetic changes in ESL participants' performances throughout the CMPR tasks. To record the microgenetic changes, each ESL participant's performances were identified every 10 minutes in each CMPR task. Since each CMPR session usually lasted for 50 minutes, students' performances were evaluated five times in each task. In other words, the collective variable was each ESL participant's performances every 10 minutes during each CMPR task whereas the dependent variable was the entire semester.

To systematically quantify each participant's performances every 10 minutes, a Scale for Quantifying ESL Students' Engagement in CMPR Tasks (Appendix O) was created. According to the data analysis in Chapter IV, participants who were actively engaged in providing constructive feedback and negotiating feedback from the partner were genuinely engaged in the activity system of learning writing essays in each mode. Those who only asked for and/or received opinions and suggestions were less confident in their own English proficiency or did not believe in peer response. Those who merely provided opinions rather than specific suggestions were either less engaged or competent in the task. Students who spent ample time reading the essay and/or the worksheets were less familiar with CMPR and those who had verbal communication with the instructor or had technical problems were either uninterested in the peer collaboration or not skillful

enough to get engaged in the task. To the contrary, those who provided no feedback and objected the majority of his or her partner's feedback, or discussed off-task topics, or used the IM and the Internet for entertainment purposes were disengaged in the task. Considering this was a computer-mediated task, students who continuously chatted with neighbors on some topics unrelated to the task for more than two minutes were considered least engaged in the task. Based on the above understanding of ESL students' engagement in CMPR tasks, the researcher assigned an ordinal score to each type of performance to indicate the extent of a student's engagement due to either his or her willingness of or competence in conducting the CMPR task.

To use the scale to quantify each ESL participant's performance, five steps were undertaken. First, the participant's beyond- and on-screen behavior recordings as well as IM chat transcripts were reviewed. Behaviors that occurred every 10 minutes within each CMPR task were grouped together. Second, data collected every 10 minutes were scrutinized to identify the types of performances based on the aforementioned scale. Third, the constant comparison method was conducted to ensure the data under each category were accurate and not redundant. Step 2 and 3 were repeated to identify the performances during all of the 10-minute slots. Fourth, after the types of performances every 10 minutes were identified, each type of performance was given a score based on the Scale. If a participant conducted multiple types of performances, his or her score would be the accumulated scores of all performances. For example, during the second 10-minute slot in the first CMPR task, Iron both gave opinions to Anton, which was scored 3, and read the essay and the worksheet, which was score 2. Thus, his score in this slot was 5. The same steps were repeated to score every participant's performances. Since

Rocky was considered unengaged in the activity system of learning how to conduct CMPR tasks, his performances were analyzed here.

To increase the trustworthiness of the data, a peer researcher also was asked to conduct the scoring. The obtained two sets of scores were compared and an average score for the controversial item was used. The final scores are shown in Table 28:

Table 28

ESL Participants' Performances in CMPR Tasks

	A 1	A 2	A 3	A 4	A 5	B 1	B 2	B 3	B 4	B 5	C 1	C 2	C 3	C 4	C 5	D 1	D 2	D 3	D 4	D 5
Anton	2	6	4	5	1	0	-4	-4	-7	-3	0	0	-2	2	5					
Diane						0	4	-2	-3	-3	2	-1	3	2	2	-3	1	1	5	5
Iron	0	5	6	3	1	0	5	5	-2	1	2	2	2	9	5					
Nicky						2	4	8	7	3	2	2	2	9	7	7	3	7	6	1

Note. A1,2,3,4,5: CMPR Task for expository essay; B1,2,3,4,5: CMPR Task for summary-analysis essay; C1,2,3,4,5: CMPR Task for argumentative essay; D1,2,3,4,5: CMPR Task for problem-solution essay.

In the following charts, the trajectories of ESL students who participated in the same tasks were placed in one chart for the convenience of comparison. Figure 28 showed Anton and Iron's performances in CMPR tasks 1, 2, and 3 while Figure 29 illustrates Diane, Nicky, and Rocky's in CMPR tasks 2, 3, and 4.

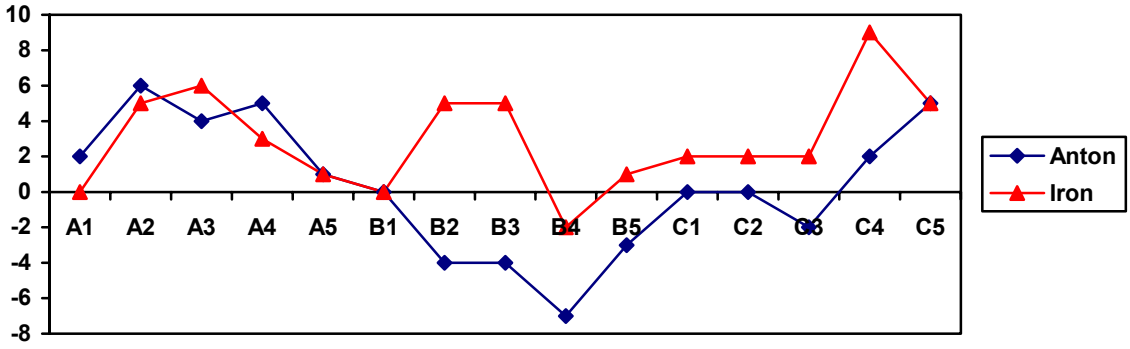


Figure 28. Anton and Iron's Performance Dynamics in CMPR Tasks

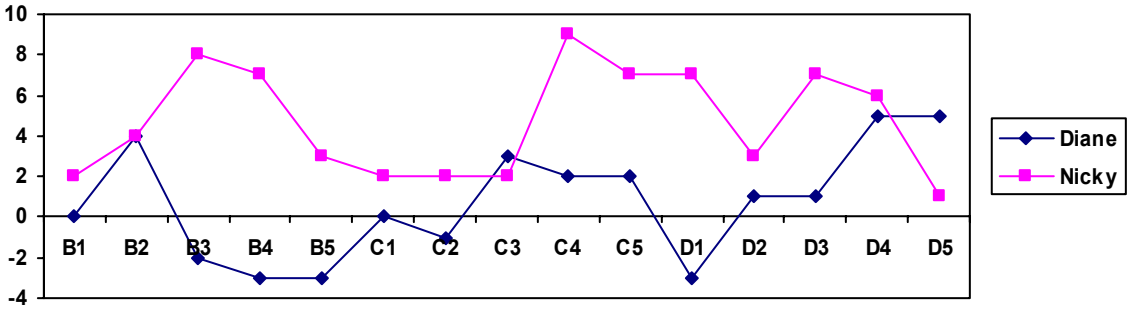


Figure 29. Diane and Nicky's Performance Dynamics in CMPR Tasks

Figures 28 and 29 illustrated the fluctuating engagement of each ESL participant except Rocky in the CMPR tasks they participated in, which resonates with the dynamics observed through the lens of activity theory. As shown in Figure 28, Anton and Iron's trajectories did not show ostensible disparity in Task 1 while they diverged dramatically in Task 2 due to the mediation of their heterogeneous motives in the two tasks. In the third task, Anton worked with Diane while Iron worked with Nicky. According to their trajectories, both of them were more engaged in task 3 compared to the second task. However, although Anton was motivated by the learning knowledge and skills of writing an argumentative essay, she was distracted by her involvement in the activity system of having fun in IM chat. Hence her scores in Task 3 were not as high as in her first task.

Figure 29 showed that Diane and Nicky all tended to have higher scores in CMPR Task 4, compared to their performance in the first two tasks. Diane was not engaged in Task 2 because she did not believe her partner back then could be of significant help to her. Although she enjoyed working with Anton in Task 3, she was severely distracted by her involvement in the activity system of having fun in IM chat. In Task 4, she did not do anything except checking her email and browsing on the Internet during the first 10 minutes of the task. The reason that Nicky obtained a lower score in the last ten minutes in Task 4 is she finished her peer response earlier than the required time. Hence she mainly tried to maintain the conversation with her partner till the end of the class.

To analyze learning and development, developmental dynamicists (e.g. Lewis,, Lamey, & Douglas, 1999; Thelen & Smith, 1994) use the constructs of *state* (the position of each element and relation at a particular point of time), *state space* (the space defined by the set of all possible states that they system could path through), *trajectory* (the particular succession of states through the state space), and *attractors* (a point or path in the state space toward which the trajectory will tend) to explain the process of development. They contend that human beings are complex systems composed of diverse elements and situated in complex contexts which constantly interact with each other and eventually become coordinated or coupled and produce coherent patterns over time. The behavior of the system at a particular point of time is called the state. The path of the behaviors the system has throughout a certain amount of time is called trajectory. And the behaviors that are iteratively performed by the system and eventually become stable are called attractors in the state space of the system.

As graphically displayed in Figures 28 and 29, the attractors in all participants' systems, which were the states they most frequently resided in, were around 2 upon the end of the semester. It means that the majority of the five ESL participants' engagement in the CMPR tasks was at level 2 throughout the semester. However, it did not mean that they will remain at this level forever. Given a longer time to practice the CMPR tasks, they may achieve a higher level in terms of engagement in the CMPR tasks. On the other hand, the trajectories displayed in Figures 28 and 29 also demonstrated the multiple unstable states each ESL participant visited throughout the semester. Each of them had heterogeneous behaviors in each CMPR task.

In summary, DST provided significant constructs through which the developmental dynamics of each ESL participant in the CMPR tasks was explained with graphical illustrations. This complemented the findings from the lens of CHAT.

Conclusion

This chapter answers the sub-research question 5: What is the dynamic nature of CMPR? The findings were presented through two distinct but complementary views: Cultural Historical Activity Theory (CHAT) and Dynamical Systems Theory (DST). From the lens of CHAT, the dynamic developmental processes each participant went through were analyzed by employing both tenets in Leont'ev's hierarchical structure of activity system and those in Engeström's triangle model. The analysis through Leont'ev's hierarchical structure showed that the blurring boundaries between each ESL participant's activities, actions, and operations due to their different competences of operating IM chat, conducting CMPR tasks, and writing an academic essay in a certain mode caused dynamic movements between their motives and goals. The analysis through

Engeström's triangle model illustrated that the dynamics was engendered and thus maintained due to the conflicts each participant had within each central learning activity system as well as between juxtaposing social cultural and historical activity systems each participant was involved in during their participation in each task. Employing the central tenets of DST, the researcher also was able to graphically illustrate the developmental trajectories each participant had throughout their participation in the CMPR tasks, which unfolded in a dynamic and fluctuating manner.

As emphasized by both activity theorists and developmental dynamists, learning and development are far from being a self-contained neutral process. Instead, development is always situated in a complex context full of conflicting and mutually shaping components. Going through the development means learners need to confront these conflicts and discover solutions collectively one way or another, which is usually reflected in their unstable behaviors that have potential to produce a coherent pattern over time. In the case of CMPR, the introduction of instant message situated ESL students who were unfamiliar with computer-mediated communication in an unfamiliar physical environment and left those who had been using instant messenger for entertaining purposes confused as to how to balance IM's entertaining and learning functions. It might perplex them more seriously if they had no prior experience with peer response and/or suspected the benefits of peer response. In this complex and unfamiliar environment, the dynamics was inevitable, which, however, premised the learning and development.

CHAPTER VI

SUMMARY, DISCUSSION, RECOMMENDATIONS, AND IMPLICATIONS

This chapter provides a summary of the research findings, a discussion relating the results from this study with pertinent previous studies and theories, recommendations for future research and pedagogical implications based on the findings of the study.

Summary of Research Findings

This section contains a summary of research findings for each research question. As for the research question 1, it was discovered through the analysis of observation data, IM chat and interview transcripts as well as the researcher's reflective journals that each ESL participant held heterogeneous motives within and across computer-mediated peer response (CMPR) tasks. Some motives conformed to those expected by the teacher such as learning academic writing skills in each mode whereas others could be categorized on an engagement continuum the one end of which was peripheral to learning such as maintaining a good-student image and changing the image of an unhelpful partner and the other end of which was oriented to completely fun-seeking, e.g. have fun in IM chat or have fun on the Internet. Participants were usually driven by multiple motives within and across tasks, in other words, they were involved in multiple activity systems, which also usually diverged from his or her partner's in each CMPR task.

Participants' engagement in multiple and heterogeneous activity systems triggered conflicts between activity systems, which in turn stimulated diverse conscious goals held by each of them. Participants who were driven by learning-oriented motives usually had

specific goals to help the partner or seek help from the partner regarding the content, organization, grammar, etc as dictated in the CMPR worksheets. The actions driven by these conscious goals usually advanced into operations in the following tasks after the participants gained acquaintance with the procedures of CMPR. On the contrary, those who were not driven by these motives, i.e. Rocky, usually held goals such as providing superficial feedback merely on the aspects which they thought were easier to comment on. They did not intend to seek help actively. Hence there were no ostensible changes in their goals across tasks.

Through Leont'ev's (1981) view of activity theory, the findings for the second research question illustrated the mediation of instant messenger (IM) in ESL participants' participation in CMPR tasks at the activity, action, and operation levels respectively. At the activity level, it was discovered that the use of IM stimulated new activity systems such as having fun in IM chat as well as facilitated participants' flexible shifts between the central learning activity system and its neighbor activity systems. In addition, conforming to Thorn's (1999) findings regarding students' perceptions about computer-mediated language learning, at the end of the semester, ESL participants in this study developed alternative views of peer response that was conducted in a synchronous computer-mediated environment. The views were manifested in two dialectical aspects: learning-affordance and learning-constraints. As for learning affordance, the participants thought that (1) CMPR tasks were affectively appealing and could be conducted flexibly in class or after school; (2) IM could be used for other academic purposes; and (3) multiple learning purposes could be fulfilled in this task. In terms of learning constraints, participants realized that some topics such as grammar mistakes might not be easily

discussed in IM due to their limited language repertoire to describe grammar issues in pure texts and that the task might cause extra cognitive and affective burden on students who lacked the IM chat skills.

At the action level, IM influenced participants' conscious goal-setting. Iron as the only one who was unfamiliar with IM chat set conscious goals such as creating an IM account and being able to conduct IM chat in his first task and being able to type faster in the second task. Participants who were familiar with IM operation but had difficulties with discussing certain issues in IM would set conscious goals such as seeking alternative ways to collaborate.

At the operation level, the mediation of IM was analyzed from four aspects. First, despite the unconstrained speech environment enabled in IM chat, the number of participants' e-turn contributions varied based on their IM communication skills and personal IM chat styles regardless of whether they were driven by a learning-oriented motive. In addition, they tended to maintain a balanced e-turn-taking pattern when they collaborated with a familiar and equally IM-skillful partner. Second, compared to face-to-face peer response, participants in the study created innovative language functions such as inform action, constantly used conversation-maintaining strategies, i.e. greetings, express appreciation, high frequency of compliments and encouragement even if the pair was not familiar with each other, as well as embedded numerous non-text communication symbols such as emoticons, winks, and nudges to spice up their conversations as well as explicate personality (in Nicky's case). Participants also were more competent in employing appropriate language functions to achieve their goals in each CMPR tasks. Third, the interpersonal relationships between partners were reshaped to different extent

by the use of IM depending on ESL students' IM operation skills, IM communication styles, and pre-CMPR relationship. Lastly, participants sought alternative ways to obtain grammar-related feedback and performed special actions to check their partner's status if the partner was within their sight area in the lab.

To answer the third research question, the mediation of contemporary social cultural contexts was analyzed first within each ESL participant's individual activity system driven by discrete motives then in the collective activity system in which the whole class was the subject under investigation and oriented to the object of knowledge and skills of conducting CMPR tasks. It showed that tensions and conflicts existed omnipresently in participants' activity systems regardless of task types and partners. Each participant's activity system entailed different tensions because of his or her divergent thinking and constant negotiation with the social setting. Students such as Iron and Nicky actively sought solutions to the tensions in their activity systems whereas those like Diane and Rocky ignored the tensions, which were rooted in their divergent motives in the tasks and thus resulted in distinctive learning results.

In terms of the collective activity system in which the whole class was engaged during the CMPR tasks, the majority of the participants participating in the CMPR tasks were subconsciously involved in the activity system of learning conducting CMPR tasks due to the fact that none of them were familiar with peer response, not mention computer-mediated peer response. Although there were assumed roles for each student and rules to be followed, participants from their individual perspective constantly negotiated with the context regarding how to use the mediational tools, either physical tool such as instant messenger or psychological tools such as CMPR worksheets, English use in informal

settings, and their concepts of academic writing, and how to play the roles and how to follow the rules in the CMPR tasks. Because of these constant and vibrant negotiations, there emerged conflicts and tensions within the activity system as well. Collectively, some tensions were solved, which led to learning and development whereas other tensions remained and had potential in engendering further development in terms of knowledge and skills of conducting CMPR tasks.

The answer to the fourth research question provided a historical view of the phenomena in ESL participation in CMPR tasks in summer, 2006, which helped explain why ESL participants were driven by different motives and adopted different perspectives and means to negotiate with their social cultural contexts. Two types of interactions or tensions were unpacked between participants' central learning activity system and their prior activity of peer response, including the one between the CMPR requirements and participants' disbelief in peer response and the other between the division of labor and participants' lack of self-confidence as a critical reader. There also existed two types of interaction between participants' central activity system and their prior activity of IM chat, one between IM as a learning tool and IM as an entertaining means and the other between IM operation as a necessary skill and participants' preconception of IM skills. In addition, the mediation of the historical activity systems not only existed in the first CMPR task but penetrated into all following CMPR tasks. With participants' accumulated experiences in each task, the mediation was never unfolded in the same form. In other words, the mediation between the central learning activity system and the historical activity systems was dynamic and dialectical. In addition, the dialectical mediational process was also a progressive process through

which participants learned and developed certain knowledge and skills that were reflected in the emergence of a CMPR discourse. The CMPR discourse embodied unique communicative features regarding greetings, linguistic features, negotiation of opinions and suggestions, and use of multiple chat windows when participants were engaged in CMPR tasks.

The fifth research question uncovered the dynamic nature of ESL students' participation in CMPR tasks. Employing Leont'ev's hierarchical structure of activities as well as Engestrom's triangle model, the researcher unfolded the fluctuation among activity, actions, and operations, which showed the learning and developmental process throughout the CMPR tasks and the discursive and constant negotiation of each participant as an active agent with his or her social settings through which both the agents and the context were transformed. To illustrate the transformational process, constructs such as state, state space, attractors, trajectory, and timescale from Dynamical Systems Theory (DST) were adopted, which crystallized the fluctuating transformational process each participant went through in his or her participation in the CMPR tasks.

Collectively, the results for the five research questions explained and illustrated how ESL participants were engaged or disengaged in the computer-mediated peer response tasks in the Level-4 academic writing class in the summer semester, 2006, providing a thorough answer to the overarching research question of this study.

Discussion

As part of the writing-as-a-process approach to teaching L2 writing, peer response has been a widely adopted task in ESL academic writing classes (e.g. Grabe & Kaplan, 1996; Ferris, 2003). Due to ESL students' diverse linguistic, cultural, and educational

backgrounds, ESL peer response has been deemed a complex learning task. Although peer response as a L2 classroom task has been investigated from various aspects since the mid-1980s, research on computer-mediated peer response as an emerging area is still scarce. With the Internet-connected computer an increasingly pervasive communication tool in the modern society, CMPR, particularly in a synchronous mode, merits more attention from researchers and educators. The current study investigated the dynamics in computer-mediated peer response in an ESL academic writing class innovatively from the cultural historical activity theoretical perspective. The following section discusses how the findings from this study resonate with, differ from, as well as advance the existing knowledge of ESL peer response, especially those conducted in a computer-mediated synchronous environment, particularly in three aspects: the dynamic motive shifts and the discursive social cultural contexts in CMPR tasks, tensions and conflicts in CMPR tasks, and the learning and development that occurred in CMPR tasks.

Dynamic Motive Shifts and Discursive Social Cultural Historical Contexts in CMPR Tasks

First of all, different from the majority of previous research on ESL peer response (e.g. Carson & Nelson, 1996; Hedgcock & Lefkowitz, 1992; Leki, 1992; Lockhart & Ng, 1995; Storch, 1998, 2001, Tin, 2003; Zhu, 1995, 2001), I did not assume every participant was driven by the same motive and goal with the instructor's. In other words, ESL participants might not subscribe to the overriding motive of the social setting when they participated in each CMPR task. Neither did their motives and goals maintain unchanged within and across tasks.

When ESL students joined in the Level-4 academic writing class, the social setting of each CMPR task, was endowed with multiple overriding motives and goals (Smagorinsky, Cook, & Reed, 2005) which did not determine but rather served to afford and constrain particular kind of actions (Cole, 1996; Valsiner, 1998), for example, what norms or communication rules should be followed in CMPR, what roles each student should take, and what tools they could employ during the tasks. The findings indicated that as active agents (Vygotsky, 1981), each ESL participant accepted, rejected, and negotiated with the social contexts embodying a myriad of physical and psychological tools accessible or inaccessible to him or her, the community members, the communication norms and division of labor, based on his or her own thinking that was shaped and continuously being shaped by his or her prior and current experiences. Therefore, there existed participants' heterogeneous and fluctuating motives and goals which derived divergent performances in CMPR tasks. For instance, Anton first used the IM as a learning tool then switched to its entertaining function, and finally used it for both learning and entertaining purposes. Nicky was initially shy to play her reader's role because of her lack of self-confidence in her English grammar. After two tasks, she grew into a critical reader providing both opinions and suggestions actively.

The negotiation and transformational interaction between ESL students and the social cultural contexts reflected ESL participants' agency (Ahearn, 2001, in Lantolf & Thorne, 2006; Roebuck, 2000). Students did not passively fulfill all the expectations preset by the instructor or whoever set up the task. Instead, they actively transformed the relationship between them and the contexts, i.e. how to use the mediational tool and how to play their roles, and consequently were transformed through the negotiation process.

The findings conformed to those in Zhu and Mitchell's (2005) study in which they discover that ESL students hold different general goals for peer response. The incongruence also exists between the goals held by the instructor and those by students. They also identify that students' stances during peer response are consistent with their preset goals and the stances reflect their beliefs about the peer response process and the roles the instructor and students should play in learning a second language.

Students entered the activity systems with historical bearings (Engeström, 1987). The interaction between prior experiences and the current ones can generate conflicts and instability which can in turn lead to changes. Through the lens of activity theory, Storch (2004) discovers that students' goals, which are shaped by both their pre-existing attitudes and beliefs and their actual experience of dyadic interactions and the perceived roles they should play rather than the task type determine how they conduct the peer response task. These goals may differ from the one held by the teacher and the one held by the peer, but may eventually evolve into a mutual goal shared by the dyadic partners.

Conforming to Storch's findings by focusing on the motive shift, this study discovered that ESL participants were driven by heterogeneous motives that were influenced by their prior experiences with English academic writing instruction, particularly peer response and instant messenger chat, as well as shaped by their current experience in CMPR tasks. For example, both Anton and Rocky did not believe their partners who did not have high English proficiency could provide helpful feedback. However, participants' perceptions were constantly reshaped as they were engaged in the tasks (in Rocky's case, his perception change was not investigated due to his disengagement in the CMPR tasks). When collaborating with Diane who Anton knew

had lower level of English proficiency than her, she noticed her discussion with Diane helped her identify content and organization problems in her essay. The constantly reshaped perceptions in turn could influence what activity systems the participants were willing to join in, which led to the motive shift within and across tasks. Consequently, motive shifts were reflected in changes in participants' conscious goal-setting. Hence, both the subconscious motives and conscious goals held by ESL participants in each CMPR task were neither predetermined nor static within and across tasks.

The influence of preexisting perceptions of peer response and IM chat and the actual experience with CMPR on the motives might weigh variously for different participants. As for the preconception of peer response, findings indicated that some students' perception about peer response did not change throughout their participation in CMPR tasks due to the fact that they never genuinely engaged themselves in the learning activity systems. Rocky's primary motive in the writing class was to pass it. In addition, because of his previous experience with his mother's private writing instruction and his self-perceived English proficiency, he did not believe his peers who had lower English proficiency could help him. Thus, he never managed to completely engage in the tasks. Throughout the three CMPR tasks in which he participated, he never finished his essay before the task sessions. Although he obtained helpful feedback from his partner, he did not incorporate them into his second draft. For him, his preconception of peer response overrode his positive actual experiences with CMPR tasks.

The integration of IM technology into the peer response task cast tremendous influence on ESL participants' motive negotiation and shifts. Many participants had prior experience with IM chat, mainly for entertaining purposes. The fun-infused and familiar

environment motivated students to actively join in the discussions regardless of their prior perception of peer response and their extent of engagement in the activity of learning writing. In addition, the familiar and low-anxiety environment presented the peer interaction as a less daunting task for students like Nicky who had less confidence in their English proficiency, which dramatically boosted their participation and more importantly provided a stage for them to have their voices heard. On the other hand, the use of IM also constrained some students' engagement in the central learning activity systems. The relaxing and fun-infused environment afforded by instant messaging easily allured those who had less self-control such as Diane or who did not plan to join any learning activity such as Rocky away from the central learning activity system.

For students who had no or very little prior experience that shaped their perceptions about peer response and IM chat, such as Iron, their cultural backgrounds, general language learning and technology-enhanced communication experience, and actual experience in the tasks might cast more influence on their motives. As shown in the findings, Iron never had IM chat before. Thus when he participated in the first CMPR task, he did not know that he should have a discussion or negotiation with Anton after she offered her suggestions. Influenced by his prior experience with communicating with people in English via email, he simply thanked her for her suggestions and said he would consider it by using very formal language. On the other hand, since CMPR was a required task, he set up conscious goals to learn how to operate it. After taking great efforts learning it, he still encountered significant amount of difficulty during the chat, which triggered and aggregated the tension between him and Anton in the second CMPR task. Due to his negative experience with CMPR tasks in the first two tasks, he lost his

interest and belief in CMPR. Thus, he withdrew from the central learning activity system when he participated in the third CMPR task. This indicates that the use of computer technologies not only changed the physical conditions which led to the change of human's operations and actions (Kuutti, 1996; Thorne, 2000; Wertsch, 1998), but mediated and even directly urged the formation of new motive and motive shifts, which is consequential for an appropriate and thorough understanding of the influence the employment of an innovative computer technology in the social practices, in particular, our learning activities.

The other uniqueness of the current study is the approach to analyzing ESL students' performance in the tasks in particular social cultural and historical contexts which afforded various opportunities as well as constrained the subjects' performances. Most of the previous ESL peer response studies (e.g. de Guerrero & Villamil, 2000; Lockhart & Ng, 1995; Mangelsdorf & Schlumberger, 1992; Storch, 2002; Villamil & de Guerrero; 1998) focus on the various strategies and stances undertaken by students without situating them in the specific social cultural and historical contexts. Accounting for the social contexts of peer response that may have an impact on the quality of peer response, Liu and Hansen (2002) identify several important factors in the social contexts of ESL peer response such as the language used in peer response, the purpose of L2 writing, the L1 and L2 literacy development of students, the teacher's linguistic and cultural background, and the participation patterns of students in whole-class and group activities.

Perceiving ESL students with individual historical bearings as an integral part of the contemporary social cultural context, the current study explained participants'

performances during the CMPR tasks as a result of their constant negotiation with the social cultural and historical contexts. For example, Anton employed the IM for different purposes when she collaborated with different partners. Nicky used different language functions when she participated in different CMPR tasks. Analyzing students' performances in specific social cultural and historical contexts helped the researcher identify the actual and potential problems that existed or would exist in the tasks.

Tensions and Problems Emerging in CMPR Tasks

From the CHAT perspective, some tensions and conflicts that existed in ESL students' participation in CMPR tasks were identified. Some of them shared commonality with face-to-face peer response tasks. Others were unique in a computer-mediated learning environment. Researchers (e.g. Liu & Hansen, 2002; Tin, 2003; Zhu, 2001) discover some problems in face-to-face ESL peer response that emerge due to ESL students' limited proficiency in the language, the task type, and their perceptions of the helpfulness of peer response. These conflicts also existed in the CMPR tasks. For example, in the CMPR task for an argumentative essay, both Anton and Diane knew the organization in their essays was not accurate. But they could not help each other due to their lack of knowledge of the organization. Nicky did not offer much feedback on Iron's argumentative essay because she did not understand many words in his essay. Moreover, students' perceptions about peer response had an impact on their participative performances. For example, having obtained the majority of her English instruction in a teacher-led learning environment, Anton thought only people had higher English proficiency than hers could help her improve her essay when she participated in the first CMPR task. Similarly, Nicky thought she was not qualified to offer any opinions or

suggestions due to her low English proficiency, which constrained her from confidently taking her role as a reader at the beginning of her first CMPR task.

On the other hand, conducting peer response in a CMC environment enables some affordances as well as constraints that engendered unique conflicts and tensions. Many researchers (e.g. Nelson & Carson, 1995; Liu & Hansen, 20002; Nelson, 1997; Zhang, 1995) caution that communication breakdown might occur in ESL peer response due to students' different linguistic and cultural background and their unfamiliarity with the interaction norms during peer response. Surprisingly, there did not emerge much communication breakdown during the CMPR tasks except between Anton and Iron in their second task which was caused by the unbalanced IM operation skills. Most participants were very friendly to their partner even though some of them had never talked to each other prior to the task. They constantly complimented each other and used smiley emoticons along with their explanations. Students more skillful of peer response provided suggestions naturally following his or her opinions. In addition, students tended to build amiable relationship with their partners even if they knew their partner could not offer much help. None of the participants took a dominant role during the interaction. Some more proficient students constantly encouraged and offered peer response tips to their partner when he or she expressed lack of confidence in his or her English proficiency.

The results indicated that the reason that students acted extremely friendly in CMPR tasks was that they perceived IM as a fun and friendly environment in which conflicts and confrontations should be avoided as much as possible. Compared to face-to-face peer response, CMPR afforded a low-anxiety and fun-infusing communication

setting with its emoticons and writing-speaking discourse features (Beauvois, 1992; Jin, 2005). Since most ESL participants were already skillful users of IM and familiar with the discourse norms such as turn-taking and conversation maintenance, they naturally maintained the friendly discourse norms and minimized the critical tones in peer response. Even Nicky, a shy Taiwanese girl who seldom talked in regular classroom discussions due to her lack of confidence in her English (Nelson, 1997; Zhang, 1995), became an active participant in CMPR tasks. Students such as Rocky who were not motivated to learn academic writing through peer response also contributed significant amount of input in the IM discussion because they enjoyed IM chat.

Although the IM environment afforded unique opportunities for peer response, it also caused tensions that exclusively existed in a CMC, particularly IM environment. Some students such as Anton and Diane felt it very inconvenient to discuss in text messages grammar issues such as describing what type of word- and sentence-level mistakes were in the essay and how to correct the mistakes due to their lack of vocabulary and lack of the physical presence of the essay under discussion. The other tension existed in the interference or temptation from the fun-oriented activity system inherently supported by IM chat for the learning-oriented activity systems. Many participants had been using IM for fun chat with friends and family long before they started to use the IM to conduct peer response. They were constantly distracted when outside-class friends were also online. The blurring boundary between the classroom and outside world did not help those who had weaker self-control in the task, which partially caused the dynamic motive shift within CMPR tasks.

In addition, the use of IM caused extra cognitive burden for those who were not familiar with IM chat such as Iron. Although Iron was a good writer and willing to collaborate with his partners in the CMPR tasks, he had to spend extra time typing messages and planning his language due to his misconception of IM chat as a written rather than spoken form. His clumsiness exhausted him and the objection from Anton frustrated him, which gradually eroded his interest in the task. On the contrary, Iron really enjoyed his after-class face-to-face talk with Nicky because it was easier for him to express himself clearly in a face-to-face meeting. Apparently, rather than facilitating the dyadic communication, IM hampered the participation of students like Iron who were not familiar with IM chat or the discourse of IM chat. To this type of students, certain social-material conditions may impoverish their transformational development (Lantolf & Thorne, 2006).

Learning and Development during ESL Participation in CMPR Tasks

Regarding learning and development in peer response, L2 writing researchers have been concerned with both the short-term effects such as whether students can detect errors in their peer's essays (e.g. Belcher, 1990; Hedgcock & Lefkowitz, 1992; Villamil & Guerrero, 1998) and whether peer response leads to quality revision (e.g. Berg, 1999; Paulus, 1999; Villamil & Guerrero, 1998) and long-term effects such as students' language development (e.g. Villamil & Guerrero, 1996). In a synthesis of previous studies in L2 peer response, Liu and Hansen (2002) conclude that peer response in a traditional mode has positive short-term and long-term effects on ESL students' writing and language development. The current study also discovered that peer response tasks

conducted in a synchronous multimedia-enhanced communication environment had positive short-term and long-term effects.

First of all, as identified in Chapter IV, participants used a wide range of language functions regardless of whether he or she was genuinely engaged in the task, through which they not only discussed the ideas and structures in each other's essay but shared comments on the grammar and references in the essays. In other words, contrary to Liu and Sadler's findings, the majority of participants in the study focused on the global issues, i.e. ideas and organization. Some students even complained IM did not conveniently support the discussion of grammar issues. Students who only discussed the superficial issues usually were merely motivated to maintain a good-student image rather than learning how to write an essay. The disparity between the current study and Liu and Sadler's study may be caused by the use of different synchronous tools. Since IM supports a myriad of multimedia communicative features and the majority of students were quite familiar with it, they felt it was more fun to negotiate meaning rather than grammar even in their first participation in the task. In addition, participants in the current study usually incorporated the suggestions given by the partner into their second draft if they were driven by the motive of learning how to write the essay. They also gained new ideas and learned new writing strategies when reading their partner's essay.

In Liu and Sadler's (2003) study that compares peer response in the traditional and electronic modes (using text-based MOOs), they discover that text-based synchronous peer response generated more superficial than substantive comments compared to asynchronous commenting mode (i.e. Word editing). They conclude two reasons that may affect the quality of comments ESL students give in a synchronous

commenting mode: (1) quick turn-taking and topic shift due to multiple speakers in one discussion window; and (2) enormous turns on conversation maintenance rather than on-task comments due to the lack of nonverbal communication.

Although the current study did not exclusively focus on the quality of the comments provided during CMPR, it had both contradictory and conforming findings to Liu and Sadler's. As for the contradictory findings, for example, in the third CMPR task, Anton and Diane exchanged enormous amount of on-task comments. They discussed the ideas and the organization in each other's essay and planned for a peer response meeting. Among the exchanged comments, both Anton and Diane not only offered opinions but gave specific suggestions and explanations. As for the conforming aspect, some participants were distracted by multiple IM conversations during the CMPR tasks.

There are several reasons that the current study discovered different CMPR interaction patterns from the ones in Liu and Sadler's. First, all the CMPR tasks in the current study were conducted in one-to-one IM chat, which means only two speakers participated in the discussion. In addition, the two speakers could choose different fonts and personalized username to distinguish the messages from each other. In addition, participants could deliberately maintain a balanced e-turn-taking in IM chat if both speakers were skillful of IM chat and familiar with the IM chat discourse. This to some extent diminished the flow of overwhelming amount of messages. Second, IM chat supports multimedia communication features such as emoticons, wink, and nudge, not like the purely text supported in MOO. These multimedia communication features could help participants express emotions such as happy, accepting, frowning, thinking, etc, informing the partner what they were doing and feeling, which to some extent

compensated for the lack of physical presence. If both users are familiar with these features, conversation maintenances do not have to cost many turns. Thus, for those who were already skillful of IM chat, they did not spend much time maintaining the IM conversations if they were genuinely engaged in the learning activity systems, not distracted by these features, such as Nicky. Thus, I would argue that synchronous CMPR could be an efficient mode if both speakers are familiar with IM operation and IM chat discourse as well as driven by a learning-oriented motive.

In terms of the long-term effects on language development, CMPR also played a facilitative role in the process of ESL students' English language development. The chat transcripts showed that students like Anton, Nicky, and Rocky became very conscious of their language output. Whenever they noticed any misspellings and grammatical mistakes in their messages, they immediately corrected them in the following turn (Gonglewski, 1999; Salaberry, 2000). Although informal shortened forms of words or acronyms were found in L1 messaging (Cziko & Park, 2003), students in this study seldom used the informal word spellings with the awareness that their use of informal spellings could cause confusion on the part of their partner. In fact, only Anton and Nicky occasionally used some informal spellings such as "pls" to mean "please" during the online chat. In addition, students like Nicky had more opportunities to practice her English in a low-anxiety environment. Nicky usually used a portable electronic dictionary during the chat whenever she was not sure of some words she used in the conversations. The flexible response time afforded her longer time to reflect on her language and the virtual chat environment reduced the chances of being embarrassed or anxious because she did not have to concern her pronunciation. In addition, corresponding to the findings in studies

on traditional ESL peer response (e.g. Villamil & Guerrero, 1996), students in the current study were exposed to richer language input when they read each other's essay. For example, Nicky learned many new words by reading Iron's essay.

According to sociocultural theory (Vygotsky, 1978; Wertsch, 1985) and cultural historical activity theory (Chaiklin, Hedegaard, & Jensen, 1999; Cole, 1996; Engeström, 1987;1999; Leont'ev, 1981), human beings constantly interact with the social contexts through mediation of social groupings, material and symbolic resources, and the constantly transformed objects, which inevitably entails tensions, conflicts and breakdowns. The attempts to reconcile tensions and conflicts catalyze changes, and in turn, afford opportunities to transformational development (Lantolf & Thorne, 2006). Besides writing and language development in the current study, a myriad of learning and development occurred throughout students' participation in CMPR tasks regardless of whether they were motivated to learn or not.

During the chat, students employed both physical such as computer and instant messenger and psychological tools such as English, their prior concepts of writing in the respective mode, the concepts of online communication rules that were only accessible to those experienced IM users, and their emerging concepts of CMPR regulations. Wertsch (1998) argues that all human minds are mediated actions. People learn the mediational tools by using them. As mentioned earlier, students were exposed to a wide range of language input and afforded with ample opportunities to use the language during each CMPR task, which augmented their appropriation of the language (Wertsch, 1998).

Students also needed to employ the concepts they learned in earlier lectures in each mode to help them identify problems, particularly ideas and organizations, in each

other's essay. Some of them did not master the tool quite well through the lectures. When they participated in the peer response, they had chances to discuss or merely obtain help on these concepts from their peers by exchanging comments and/or asking for help. Even if neither of the pair could use the tool effectively such as Anton and Diane in the task of argumentative essay, they collectively figured out a way to make improvement either by going through the lecture materials together. In other words, students were conscious of the contingent help they needed in the dialectically shaped collaborative dialogues.

Although students were taught and demonstrated how to conduct CMPR tasks, the concepts such as what kind of communicative norms they should maintain and what content they should discuss during CMPR tasks were not clear to them until they participated in each CMPR task and endeavored to solve tensions. For example, Anton did not realize how difficult providing feedback was until she participated in the first CMPR task in which she noticed the sample questions provided in the CMPR worksheets were too general to assist her role as a critical reader. This engendered the tension between the mediational tool and her object. To reconcile this tension, she reported this problem to the instructor who revised the worksheet. Anton successfully conducted the third CMPR task under the guidance of the new worksheet. As for Iron, he was not familiar with the procedures of peer response. So he used exclusively used the language function of give opinion in the first task. But after his conflict with Anton in the second task, he understood his IM style might be too straightforward. So he employed a new language function: ask for permission, before he started to offer negative opinions and suggestions.

Among all the tensions and conflicts entailed in various activity systems during CMPR tasks, the researcher was particularly concerned with how students reconciled or ignored those caused by the physical tool: IM chat in the activities. The findings showed that the use of IM chat caused tensions between the tool and the subject, the rules, the community, the division of labor, and the object of the activity, and even the tensions between activity systems. Some tensions directly caused by the tool even further triggered tensions between the subject and the community.

Some students voluntarily sought solutions to the tensions such as Anton who suggested a supplementary face-to-face meeting with Diane to further their discussion of the grammar and organization issues in each other's essay when she realized neither of them was able to solve the tension between the IM chat and their objects during the allotted CMPR time. Similarly, Iron took efforts to improve his IM chat skills. Sometimes, although students were not able to reconcile a tension in one activity system after it emerged, they consciously avoided the similar tension by trying new performances in the following activity system, e.g. Iron's creation of a new language function: asking for permission, to avoid Nicky's potential defense. Through the process of collectively reconciling tensions within and between activity systems, students developed knowledge and skills as to how to conduct CMPR tasks in an IM environment. Gradually, a new online discourse emerged and kept evolving, which was compatible with the physical situations and facilitative to the fulfillment of each of their needs and achievement of their eventual objects.

In contrary, there were students who were either unable to notice or unwilling to solve the tensions originated from the use of IM chat. For example, Diane consistently

ignored the tension between her central learning activity and the neighbor activity of having fun in IM chat because she was driven by the bifurcating motives and was not willing to withdraw from either activity system, which did not help her concentration in the learning activity. Those who were not motivated to join in any central learning activity such as Rocky, also were unwilling to contribute efforts to help their partners reconcile the tensions. Thus, their learning and development in terms of conducting CMPR tasks were not as evident as those who were genuinely engaged in the learning activity.

In addition, throughout the CMPR tasks, students also developed new visions regarding how to use IM for other academic purposes, how to maintain interpersonal relationship on and off-line. New conceptions were generated regarding what a peer response was and what roles they needed to play in each CMPR task when they were dealing with the tensions and conflicts between the tool and the object, the community and the object, the community, the rules and the subject, etc.

In summary, the findings of the study unfolded the heuristic and dynamic nature of ESL students' performance in CMPR tasks. When participating in each CMPR task, ESL students did not passively achieve the goals set by the instructor, but actively and constantly negotiated with and dialectically transformed their social contexts, which was reflected in their constant motive shifts within and across tasks. The negotiation and dialectic transformation were triggered and maintained by multiple components in both contemporary social cultural contexts and historical activities.

The dynamic interaction with the social contexts also entailed tensions and problems many of which were caused by the introduction of a new physical tool: IM. The

tensions caused due to the integration of IM into the task were quite consequential and might catalyze changes, even transformational development. Hence, participation in CMPR tasks is not only a collaborative task in which ESL students can develop writing skills in a short term and language proficiency in a long run (Liu & Hansen, 2002), but a complex and chaotic learning and development process in terms of students' proficiency in and perception of conducting CMPR tasks. This has a rather fundamental influence on their future employment of peer response in a writing project and/or participation in a potential community by negotiating the rules, the roles they should play, and the relationship with other members in the community, as well as expressing their voices.

Recommendations for Future Research

Although computer-mediated communication is gaining its popularity in the field of ESL instruction, research on computer-mediated peer response, particularly in a synchronous environment, is still at its infancy. Only a handful of empirical studies have been conducted in the past five years. The majority of these studies focus on asynchronous such as email or online-forum peer response tasks. As synchronous multimedia-supported communication devices such as instant messengers become increasingly pervasive in our daily life, especially for the new generation of ESL students who grow up in an electronic media-laden world, the influence of integrating these technologies into collaborative tasks in ESL writing classes merits more attention from researchers as well as educators.

The current study investigated ESL participants' performance in the CMPR tasks in an IM environment by unpacking the dynamic relationship between the participants and their social cultural historical contexts. As a matter of fact, the relationship between

ESL students and their social cultural and historical contexts may be more complex and intangible than what we expect. Issues such as the power relationship between the instructor and ESL students, students' identity formation, and students' perceptions of English literacy and English learning were not thoroughly analyzed due to the scope of the study. In addition, each student has involved in much more complex prior activities such as their family life and ethnical cultural life which may cast influence on their perceptions and behaviors in school life. The current study did not look at how participants' involvement in these prior or contemporary activity systems mediated their performances in the CMPR tasks. Further research can be conducted in these areas. The knowledge of the relationship of these issues with students' performance in CMPR tasks can advance our understanding of ESL students' motive formation in CMPR tasks.

The study only focused on five participants. Other students who collaborated with the participants were not investigated due to their unwillingness to be involved in the study. As an integral part of the community regardless of the activity systems, their perceptions and performances during the CMPR tasks are consequential to the understanding of the whole dynamic picture of CMPR tasks. Future research can account for all the students and the instructor in an ESL class that participate in a CMPR task.

Only three CMPR tasks for each participant were investigated in this study. The developmental trajectories analyzed through the lens of dynamic systems theory demonstrated that some participants' behaviors had not reached the attractor position stably, which indicates that they had not fully developed the competences of conducting CMPR tasks by the end of the study. Future studies can be conducted to continuously track the growth of participants in four or even more tasks, accounting for their

consequential progressions (Putney, Green, Dixon, Duran, & Yeager, 2000), which can depict a fuller picture of CMPR tasks.

CHAT was introduced to the western world in the 1970s and has not been widely used to explain learning and development phenomena in the U.S. until two decades ago. Recent years have witnessed some efforts in the field the second language acquisition to employ this theory to explain second language development (e.g. Lantolf & Thorne, 2006). There is even scarcer research in second language writing (e.g. Bazerman, 1997; Russell, 1997; Wiemelt, 2001) that seeks for theoretical guidance from CHAT. Employing the major constructs of CHAT and DST, the current study unfolded the dynamic and multifaceted nature of a computer-mediated collaborative task in an ESL academic writing class. ESL students, especially adult ESL learners, do not come to the English language learning environment from a vacuum. They have already formed certain values and perceptions. They do not and never swallow whatever is offered in the environment. They may desire to have their voices heard. CHAT can help L2 writing researchers and educators uncover the relationship between the agents and their social cultural contexts from a historical and heuristic view, which is usually not offered by other Cartesian cognitive theories guiding the majority of current research in the field. Hence, a call for more studies investigating second language writing and any learning that occurs throughout the second language writing instruction, particularly students' moment-to-moment microgenetic and ontological developments, is urgent.

CHAT also provides a useful theoretical framework to research on computer-mediated communication. Analyzing technology's genotypic and phenotypic existence to users, Thorne (1999, 2000) discovers that foreign language students' employment of a

text-based synchronous communication technology was related to their prior experience with the technology as competent exogenous digital speech communities. The current study not only focused on the influence of ESL students' prior experience with IM chat but contended that their use of IM in CMPR tasks was related to both their prior experience and current involvement in the tasks by using both Leont'ev's and Engeström's constructs of activity theory. In other words, the mediation of CMC in L2 learning environment is evolving rather than static. Every technology contains its own history and helps shape users' perceptions and behaviors when they are used. Researchers interested in uncovering the mediation of different emerging computer technologies in L2 learning and teaching can follow this line from a CHAT perspective.

Neither is Dynamic Systems Theory (DST) a widely acknowledged theoretical framework for research on second language acquisition (e.g. De Bot, Lowie, & Verspoor, 2005; Larseen-Freeman, 1997) or computer-mediated communication. The current study innovatively adopted some DST constructs to graphically present the dynamics in participants' engagement in the CMPR tasks, which conveniently complemented the findings based on the CHAT constructs. Despite the different constructs and metaphors used in CHAT and DST, both of them hold a dynamic and context-sensitive view of learning and development. More empirical research need to be conducted to illustrate the compatibility and feasibility of the two theories to explain computer-mediated second language learning.

Implications for Pedagogical Implementation

The findings in the study have significant pedagogical implications for ESL teachers intended to adopt instant messenger (IM)-mediated peer response as well as for

teachers and administrators with interest in integrating various synchronous communication technologies into ESL curriculum.

The study showed that computer-mediated peer response, particularly through IM, can be used in an ESL academic writing class, especially with ESL students who are already familiar with the technology because of the considerable benefits afforded in CMPR. However, appropriate perceptions about the functions of the technology on the part of teachers and well-thought preparation on the part of students should be in place before the task is implemented. In addition, prompt and appropriate reactions to students' behaviors during the task also are important.

First, the teacher needs to understand that not every student is savvy in using instant messenger although it is pervasive especially in younger students' daily life. For those untraditional students, like Iron, who have never used IM, the teacher needs to find out before the implementation of CMPR whether they are willing or comfortable to employ the new technology to replace a traditional class discussion. However, sometimes, students still encounter extensive difficulties with IM operation, which may devastate their engagement in the peer response task, although they are willing to try the technology. Under this situation, the teacher needs to be observant and provide contingent help when necessary. The teacher also can be flexible about grouping in CMPR. Students who are familiar with IM can be paired while those who are not familiar with it can work either in a traditional mode or in IM at their pace to avoid the tensions created between unbalanced IM skills between a pair.

The teacher also needs to keep in mind that CMPR has its unique digital speech discourse and students may get confused or even shift their motives during the task even

if they are familiar with IM chat. As the findings showed, students may be a competent member of a non-academic discourse. Different from face-to-face peer response, CMPR supports a special discourse in which students need to discuss academic issues in a casual and usually friendly environment. In their first-time participation in a CMPR task or even when they are paired with a new partner, students may feel confused as to whether they should maintain a friendly and unjudgmental relationship with the partner or play their role as a helpful and critical reader. A single demonstration or modeling is not enough because the discourse is emergent and may vary depending on who the student collaborates with. To solve this problem, the teacher can not only demonstrate an example discourse pattern in terms of how to provide critical and gain helpful suggestions from the partner while maintaining the friendly environment usually embedded in IM chat, but prepare a mock-CMPR task and encourage students to practice CMPR skills. Based on their performances in the task, the teacher can analyze along with the students what discourse features such as the use of emoticon and the way to give opinions and suggestions are appropriate or not for the task.

Another piece of crucial knowledge the teacher should have when organizing CMPR tasks is that students may have divergent and dynamic motives and goals when participating in the tasks. Neither the teacher's task objectives nor students' pre-formulated conscious goals can determine what they perform during a task. Due to their prior experience with IM chat, they may be easily distracted and get involved in non-task chat. Or they may encounter difficulties due to their lack of knowledge of how to discuss certain topics in IM, e.g. grammar mistakes. In the former situation, the teacher can set up special new IM accounts that are only used for CMPR tasks. When students need to

conduct CMPR tasks in the computer lab, they are randomly assigned with an account, which can minimize the distraction from the outside-class online buddies if they use their own accounts. Another way to solve this problem is to allow students to conduct CMPR tasks whatever and whenever they want as long as it is before the deadline after the CMPR training session. But students will be required to submit their online chat transcripts afterward so that the teacher can track how they conduct the task. If the latter issue emerges, students can be encouraged to conduct blended peer response in a both online and traditional mode. At any rate, once students develop certain competences in peer response, the task can be flexibly conducted, either online or blended, in or out of classroom as long as it is conducive to their learning and development.

The final implication is the implementation of CMC technologies in general ESL writing curriculum. Undoubtedly, the integration of various computer technologies such as instant messenger, online forum, wiki, and even blogs, has gained increasing attention from ESL educators. More and more ESL students who choose to learn English in the U.S. may have been exposed to or even skillful of using these technologies. Before making the decision to integrate any technologies into their pedagogy, teachers need to concern students' prior experience with these technologies, which may significantly influence students' performance during the tasks. In addition, ESL students' motives and goals may shift during their participation in a task. To be aware of any emergent issues and provide contingent help, teachers may be more observant or even conduct mini-action research on the dynamics in a classroom. Only if the teacher understands the students and the context can helpful instruction be provided.

Conclusively, the current study investigated the dynamics in CMPR tasks in a level-4 ESL academic writing class by uncovering its social cultural contexts as well as the historical activities that were related to the contemporary contexts. Due to ESL students' diverse prior experiences and discursive social cultural contexts in which they are situated, none of the students may share the exactly same learning and developmental process. The social cultural contexts as well as historical activities provide both affordances and constraints to students' learning. A more radical responsibility a teacher can take is to be sensitive to the contexts students are negotiating with and amplify the affordances rather than to impoverish the conditions conducive to their learning.

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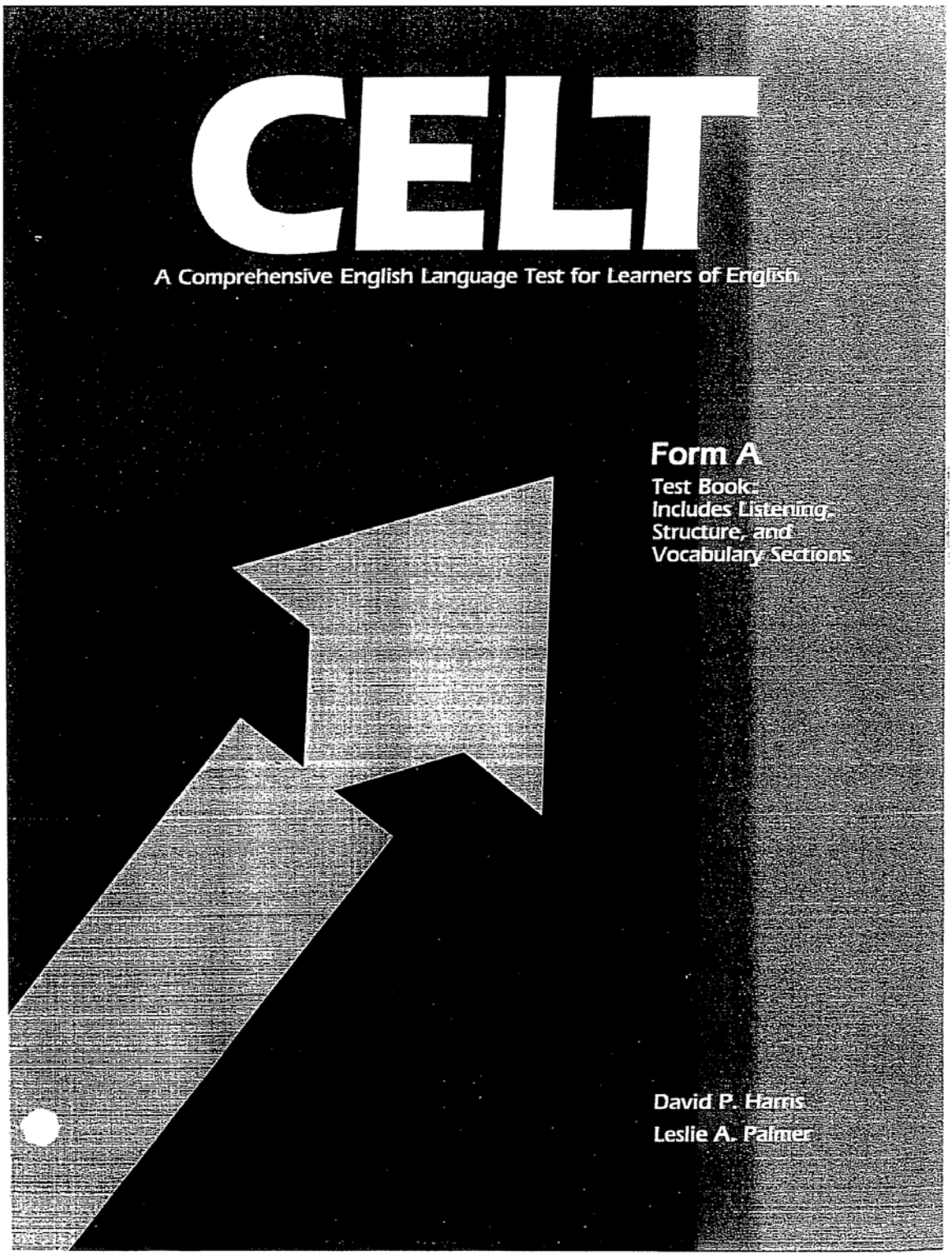
APPENDICES

Appendix A CELT



Section One
LISTENING

Part I: Answering Questions

Directions: In this part of the test you will hear 20 questions. Each question will be spoken *just one time*, and it will *not* be written out for you. Therefore, you must listen very carefully. After you hear a question, read the four possible answers that are printed in this test book and decide which one would make the *best answer* to the question you have heard. Then find the number of the problem on your answer sheet and mark your answer by putting an × in the space over the letter A, B, C, or D — whichever goes with the answer you have chosen.

Listen to the following example.

You will hear: "When are you going to New York?"

You will read:
(A) To visit my brother.
(B) By plane.
(C) Next Friday.
(D) Yes, I am.

The best answer to the question "When are you going to New York?" is choice (C), *Next Friday*. Therefore, if this problem were in the test, you would find the number of the problem on your answer sheet and mark choice (C) as shown below.

( ) ( ) (×) ( )
A B C D

This is the way to mark all the problems in Part I.

Now let us begin the test with question number 1.

1. (A) Yes, I do.
   (B) About twenty minutes.
   (C) Take a Number 30.
   (D) Yes, you should.

2. (A) Yes, I will.
   (B) Just $50.
   (C) Yes, I have to.
   (D) Just two days.

3. (A) I believe he does.
   (B) I think it's a drugstore.
   (C) Yes, it's his own.
   (D) Yes, he's very kind.

4. (A) Since last April.
   (B) Yes, I do.
   (C) At the new Hilton Hotel.
   (D) Until the end of this month.

5. (A) About noon.
   (B) By bus.
   (C) To the baseball game.
   (D) Certainly we should.

6. (A) Until about ten o'clock.
   (B) Yes, I usually do.
   (C) At my brother's house.
   (D) Yes, in the evening.

7. (A) Yes, I see her.
   (B) They're very nice.
   (C) Yes, I see them.
   (D) Whenever they come to Washington.

8. (A) Yes, I often used to.
   (B) It was Mary's.
   (C) Yes, I took them.
   (D) I'm quite used to it now.

9. (A) Yes, I always do.
   (B) In the library.
   (C) Right after dinner.
   (D) Yes, I did.

10. (A) At the new department store.
    (B) No more than $40.
    (C) As soon as you can.
    (D) Yes, I think you should.

11. (A) I'll be glad to.
    (B) Yes, he did.
    (C) At about four o'clock.
    (D) No, he hasn't.

12. (A) Yes, I do.
    (B) Next fall, I believe.
    (C) Yes, she does.
    (D) It's an excellent idea.

13. (A) It's hanging in the hall.
    (B) Yes, it's tonight.
    (C) At about eight o'clock.
    (D) Yes, I think you should.

14. (A) Yes, he does.
    (B) In two days.
    (C) Since 1984.
    (D) By plane.

15. (A) Yes, it will be the last one.
    (B) At eight o'clock.
    (C) No more than two hours.
    (D) Yes, it begins in an hour.

16. (A) I've just met him once.
    (B) Yes, he's quite well now.
    (C) I've known her for years.
    (D) Yes, I certainly do.

17. (A) Yes, on the hall table.
    (B) No, I don't know when he left.
    (C) No, I don't know where he is.
    (D) Yes, I know he did.

18. (A) Yes, Mary has two sisters.
    (B) No, one is a teacher.
    (C) Yes, Mary has two nurses.
    (D) No, Mary is a doctor.

19. (A) No, he isn't here just now.
    (B) About once a month.
    (C) Very little, really.
    (D) Yes, I can hear him.

20. (A) Yes, she likes him very much.
    (B) He's a very amusing man.
    (C) Yes, George likes her very much.
    (D) She's a very charming woman.

This is the end of Part I. Now turn the page and listen to the directions to Part II as they are read to you.

Part II: Understanding Statements

Directions: In this part of the test you will hear 20 statements. Each statement will be spoken *just one time*, and it will *not* be written out for you. After you hear a statement, read the four sentences that are printed in this test book and decide which one is *closest in meaning* to the statement you have heard. Then find the number of the problem on your answer sheet and mark your answer by putting an × in the space over the letter A, B, C, or D – whichever goes with the sentence you have chosen.

Listen to the following example.

You will hear: "George has just returned home from his vacation."

You will read:
(A) George is spending his vacation at home.
(B) George has just finished his vacation.
(C) George is just about to begin his vacation.
(D) George has decided not to take a vacation.

Choice (B), *George has just finished his vacation*, is closest in meaning to the statement you heard, "George has just returned home from his vacation." Therefore, choice (B) is the answer to this problem and you would mark your answer sheet as shown below.

( ) (×) ( ) ( )
A B C D

This is the way to mark all the problems in Part II.

Now let us begin Part II with problem number 21.

21. (A) Jim likes neither tea nor coffee.
(B) Jim likes tea better than coffee.
(C) Jim likes coffee just as much as tea.
(D) Jim likes coffee better than tea.

22. (A) Paul came to visit us.
(B) Paul sent us a letter.
(C) Paul attempted to call us.
(D) Paul wanted to help us.

23. (A) We had trouble finding Carl's letter.
(B) Carl had trouble reading the letter.
(C) We had trouble reading Carl's letter.
(D) Carl had trouble finding the letter.

24. (A) I think George is a poor driver.
(B) I've never seen George drive.
(C) I think Helen is a poor driver.
(D) I've never seen Helen drive.

25. (A) We couldn't find John's homework.
(B) The homework was difficult for John.
(C) We couldn't understand John's homework.
(D) John thought the homework was easy.

26. (A) Mary has found the children.
(B) Mary raised the children herself.
(C) Mary likes the children very much.
(D) Mary is playing with the children.

27. (A) We saw Harry although he was late.
(B) We saw Harry although we were late.
(C) We didn't see Harry because he was late.
(D) We were too late to see Harry.

28. (A) Bob will be here but Betty won't.
(B) Neither Bob nor Betty can come.
(C) Betty will be here but Bob won't.
(D) Both Betty and Bob can come.

29. (A) There were 50 people in the theater.
(B) There were 75 people in the theater.
(C) There were 100 people in the theater.
(D) There were 150 people in the theater.

30. (A) We were sorry that Ruth didn't attend the party.
(B) Neither Ruth nor we attended the party.
(C) We enjoyed attending the party with Ruth.
(D) Ruth enjoyed the party more than we did.

31. (A) The Smiths left at eleven-thirty.
(B) The Smiths left at twelve o'clock.
(C) The Smiths left at twelve-thirty.
(D) The Smiths left at one o'clock.

32. (A) Alice wants the box.
(B) Alice wants the suit.
(C) Alice wants the hat.
(D) Alice wants the case.

33. (A) There probably are six eggs left.
(B) There probably are eight eggs left.
(C) There probably are ten eggs left.
(D) There probably are sixteen eggs left.

34. (A) Mary didn't believe what John said.
(B) Mary believed what I told John.
(C) Mary didn't believe what I told John.
(D) Mary believed what John said.

35. (A) We took the train and it was late.
(B) We took the bus and it was on time.
(C) We took the train and it was on time.
(D) We took the bus and it was late.

36. (A) We had just seen a movie when we met Helen.
(B) Helen was going to a movie when we met her.
(C) Helen had just seen a movie when we met her.
(D) We were going to a movie when we met Helen.

37. (A) Jane and Ann are very different.
(B) Jane doesn't like her sister.
(C) Jane and her sister are alike.
(D) Jane doesn't like Ann's sister.

38. (A) Only Jack's first attempt was successful.
(B) Only Jack's second attempt was successful.
(C) Both of Jack's attempts were successful.
(D) Neither of Jack's attempts was successful.

39. (A) Paul likes living here very much now.
(B) Paul hasn't become accustomed to our climate yet.
(C) Paul used to like living here, but he doesn't anymore.
(D) Paul is accustomed to our climate now.

40. (A) We haven't known her long, and neither has Bill.
(B) We've known her longer than Bill has.
(C) Bill has known her longer than he's known us.
(D) Bill has known her longer than we have.

This is the end of Part II. Now turn the page and listen to the directions to Part III as they are read to you.

Part III: Comprehending Dialogues

Directions: In this part of the test you will hear 10 short conversations between a man and a woman. You will hear each conversation *just one time,* and it will *not* be written out for you. At the end of each conversation, a third voice will ask a question about what was said. After you hear a conversation and the question about it, read the four possible answers that are printed in this test book and decide which one is the *best answer* to the question you were asked. Then find the number of the problem on your answer sheet and put an × in the space over the letter A, B, C, or D—whichever goes with the answer you have chosen.

Listen to the following example.

You will hear: (man) "Are you still planning to leave for New York next Monday?"

(woman) "I'm afraid not. My husband just found out he'll be in a meeting until late that afternoon, so we won't be able to get started until the following morning."

(3rd voice) On what day does the woman expect to leave for New York?

You will read:
(A) Sunday
(B) Monday
(C) Tuesday
(D) Wednesday

From the conversation we learn that the woman and her husband cannot leave on Monday, but will have to wait until the following morning, which would be Tuesday. Therefore, the correct answer to the question is choice (C), which you would mark on your answer sheet after the number of the problem.

( ) ( ) (×) ( )
A B C D

Now let us begin Part III with problem number 41.

41. (A) He liked it, but she didn't.
(B) She liked it, but he didn't.
(C) Both of them liked it.
(D) Neither of them liked it.

42. (A) That Helen is still in the hospital.
(B) That Helen's friend is still in the hospital.
(C) That Helen's brother is still in the hospital.
(D) That Helen's boy is still in the hospital.

43. (A) Take the children to the beach.
(B) Get her coat at the cleaner's.
(C) Take her and the children to dinner.
(D) Get something at the post office.

44. (A) Fifty cents.
(B) Seventy-five cents.
(C) Eighty cents.
(D) One dollar.

45. (A) She visited George's parents in Chicago.
(B) She visited her sister in Boston.
(C) She visited George's parents in Boston.
(D) She visited her sister in Chicago.

46. (A) In a doctor's office.
(B) In a clothing store.
(C) In a shoe repair shop.
(D) In a furniture store.

47. (A) That he has decided to look for a house.
(B) That he is moving to a new apartment.
(C) That he has bought a house.
(D) That he has decided to stay where he is.

48. (A) Thirty cents.
(B) Forty cents.
(C) Fifty cents.
(D) Sixty cents.

49. (A) In a bus station.
(B) In a ticket office.
(C) In a bank.
(D) In a furniture store.

50. (A) Six-thirty (6:30).
(B) Seven o'clock (7:00).
(C) Seven-thirty (7:30).
(D) Eight o'clock (8:00).

This is the end of the Listening Section. Do not turn the page until you are told to do so.

Appendix B MTELD

This form of the MTELP is no longer used by the ELI Testing Service. Scores on this test should not be used for initial admission purposes or sending out score reports.

FORM P

MICHIGAN TEST OF ENGLISH LANGUAGE PROFICIENCY

PREPARED BY A. CORRIGAN, B. DOBSON, E. KELLMAN, M. SPAAN, L. STROWE, AND S. TYMA.

The Michigan Test of English Language Proficiency (MTELP), a test of grammar, vocabulary, and reading, was used as one part of the official Michigan Test Battery by the English Language Institute Testing Service of The University of Michigan. At the time this form of the MTELP was used by the ELI Testing Service, a Michigan Test Battery consisted of a written composition, a listening test, and an MTELP.

1. "Did you have lunch with your brother yesterday?"

   "No. I waited _____ two hours, but he never came."

   (A) by
   (B) since
   (C) for
   (D) until

2. "Is this Sue's coat?"

   "Yes, I think it's _____ ."

   (A) hers
   (B) of her
   (C) her
   (D) of hers

3. "Did you enjoy visiting the Empire State Building?"

   "Yes, I believe it's _____ building in the world."

   (A) tallest
   (B) the most tall
   (C) the taller
   (D) the tallest

4. "Someone left this book in the classroom."

   "See if _____ a name inside it."

   (A) is there
   (B) it may be
   (C) there is
   (D) it is

5. "I hear the Smiths bought a new house."

   "Yes. They bought the one _____ ."

   (A) next to our
   (B) next to ours
   (C) next of ours
   (D) next from our

6. "Where's Bob?"

   "I just saw him in the _____ ."

   (A) lunches room
   (B) room of lunches
   (C) room for lunches
   (D) lunch room

7. "May I please see Mr. Wilson?"

   "I'm sorry, but he _____ ."

   (A) any more doesn't live here
   (B) doesn't any more live here
   (C) doesn't live any more here
   (D) doesn't live here any more

8. "Did Lisa pass the test too?"

   "Yes. In fact her score was the same _____ ."

   (A) to mine
   (B) with me
   (C) as mine
   (D) to me

9. "I saw the Johnsons at the bank today."

   "They've been on vacation, _____ ?"

   (A) aren't they
   (B) haven't they
   (C) weren't they
   (D) hadn't they

10. "Let's get a cup of coffee."

    "Not now. I don't want to stop _____ yet."

    (A) study
    (B) to study
    (C) for studying
    (D) studying

11. "Can you read the sign on the door now?"

    "No. Please hold _____ ."

    (A) the light a little closer to it
    (B) the light to it a little closer
    (C) a little closer the light to it
    (D) to it the light a little closer

12. "Why isn't the painting done yet?"

    "John _____ his share of the work yesterday."

    (A) doesn't
    (B) didn't do
    (C) doesn't do
    (D) didn't

13. "Have you seen Frank recently?"

    "No, I guess he must _____ away on vacation."

    (A) be
    (B) being
    (C) been
    (D) to be

14. "We've finally decided we ought to try to sell our old car."

    "How long _____ it?"

    (A) you've had
    (B) have you
    (C) had you
    (D) have you had

15. "I don't see Betty anywhere."

    "She'll be right back. She just went out _____ Bill."

    (A) to calling
    (B) for call
    (C) to call
    (D) for calling

16. "How did you like the lectures?"

    "I thought they were _____ ."

    (A) interested
    (B) interest
    (C) interesting
    (D) of interests

17. "Did you hear that Bill finally sold his house?"

    "Yes, but I don't know who _____ it."

    (A) bought
    (B) buys
    (C) had bought
    (D) did buy

18. "The old Smith house is certainly in bad condition."

    "There's nobody living there now, _____ ?"

    (A) is it
    (B) is there
    (C) do they
    (D) is he

19. "Do you know how to work this radio?"

    "Yes. It's very similar _____ mine."

    (A) of
    (B) to
    (C) from
    (D) with

20. "Do you want to go to the bank with me?"

    "No, thank you. I think I'll wait until the mail _____ ."

    (A) should come
    (B) is coming
    (C) comes
    (D) will come

21. "We can eat dinner either before or after the show."

"Which _____ do?"

(A) would you rather
(B) do you rather
(C) you would rather
(D) will you rather

22. "That's a beautiful coat in the window."

"It certainly is. If I had the money, _____ buy it."

(A) I'll
(B) I may
(C) I shall
(D) I'd

23. "Won't Mark come with us?"

"No, he said he wasn't interested _____ swimming."

(A) in going
(B) for going
(C) going
(D) to going

24. "I see the Director coming down the hall."

"Then we'd better quit _____ and get back to work."

(A) talk
(B) from talking
(C) talking
(D) to talk

25. "There's a very good program on television at eight tonight."

"Maybe we'll get home _____ to see it."

(A) enough early
(B) so early
(C) early enough
(D) so early enough

26. "We'll be ready to leave at six."

"Well, Mike certainly _____ to be back by then."

(A) must
(B) ought
(C) can
(D) should

27. "Are you going downtown?"

"Yes. _____ to do some shopping."

(A) I'd like
(B) I'll like
(C) I like
(D) I'm liking

28. "Have you moved into your new house?"

"No. It _____ until next month."

(A) won't finish
(B) isn't finishing
(C) doesn't finish
(D) won't be finished

29. "No one was prepared for Dr. Grey's questions."

"We _____ have read the lesson last night."

(A) should
(B) can
(C) would
(D) ought

30. "The children are coming back from their walk."

"Don't let them come in without _____ their wet shoes."

(A) they've taken off
(B) to take off
(C) taking off
(D) they'll take off

31. "May I help you?"

"Yes, please. I would like to look at _____."

(A) table lamps
(B) tables lamp
(C) table lamp
(D) tables lamps

Go on to the next page.

32. "Haven't you been outside all afternoon?"

"No. How much snow _____ on the ground now?"

(A) it is
(B) is it
(C) there is
(D) is there

33. "This lamp looks terrible since the baby knocked it over."

"I agree. Why don't you get rid _____?"

(A) of it
(B) from it
(C) it
(D) with it

34. "What did the policeman say to you?"

"He told us _____ so noisy."

(A) don't to be
(B) not to be
(C) we shouldn't been
(D) not to been

35. "Do the students in your class study a lot?"

"Some of them do. _____ just don't care."

(A) Anothers
(B) The other
(C) Some other
(D) Others

36. "I wish we'd gone to the beach this weekend."

"You should _____ it sooner."

(A) mentioned
(B) had mentioned
(C) to mention
(D) have mentioned

37. "When do you think we'll leave tomorrow?"

"You'd better _____ ready at eight o'clock."

(A) to be
(B) be
(C) being
(D) been

38. "Isn't old Mr. Brown coming to the meeting tonight?"

"I doubt it; _____."

(A) he hardly ever leaves his house now
(B) hardly ever he leaves his house now
(C) he hardly leaves his house ever now
(D) he leaves hardly ever his house now

39. "Would you like to go to a movie tonight?"

"No, thanks. I'm _____ tired to go anywhere."

(A) so
(B) much
(C) too
(D) quite

40. "Was the job difficult?"

"Yes, we found _____."

(A) the work hard for doing
(B) hard to do the work
(C) it hard for doing the work
(D) the work hard to do

41. "Will you go home this weekend?"

"No, and _____."

(A) neither George will
(B) George won't too
(C) neither will George
(D) so won't George

42. "Here are the books you wanted."

"Would you mind _____ on the desk, please?"

(A) to put them
(B) putting them
(C) put them
(D) to them putting

Go on to the next page.

43. "Did you meet Nancy White at the party?"

"No, _____ by the time I arrived."

(A) she was left
(B) she's left
(C) she'd left
(D) she must leave

44. "You've come just in time to help us, Tom."

"Fine. What needs _____?"

(A) to do
(B) done
(C) to be done
(D) I do

45. "Were any of the Smiths hurt in the fire?"

"No, and the firemen got _____ to save their house."

(A) quickly enough there
(B) there quickly enough
(C) there enough quickly
(D) enough quickly there

46. "Isn't your radio very much like your brother's?"

"Yes, they're exactly _____."

(A) sames
(B) likes
(C) same
(D) alike

47. "What did the boys buy?"

"Nothing but a couple of _____."

(A) thirty-cents candies bars
(B) thirty-cent candy bars
(C) thirty-cent candies bars
(D) thirty-cents candy bars

48. "I'd like some more coffee, please."

"I'm sorry, but there doesn't seem to be _____."

(A) any left
(B) left any
(C) leaving any
(D) some left

49. "Paul's been ill for several days now."

"I know; I wish _____ see a doctor."

(A) he should
(B) he can
(C) he'll
(D) he'd

50. "Mary has had a lot of teaching experience, hasn't she?"

"Yes, indeed. _____ English since 1970."

(A) She's taught
(B) She's teaching
(C) She was teaching
(D) She'd taught

51. "Have you heard from Bill recently?"

"Yes. I got a letter yesterday, but there wasn't _____ news in it."

(A) some
(B) much
(C) many
(D) lots

52. "Do you still have your job at the bank?"

"Oh, no. _____ there for the past two years."

(A) I don't work
(B) I haven't worked
(C) I'm not working
(D) I didn't work

53. "We're all going to the movie tonight."

"I wish _____ go with you, but I have to finish my homework."

(A) I can
(B) I'll
(C) I could
(D) I'd

54. "What does Mrs. Williams do for a living?"

"She owns one of the best _____ in the city."

(A) dress shop
(B) dresses shops
(C) dresses shop
(D) dress shops

55. "Can you carry all those boxes?"

"Yes. They're _____ than they look."

(A) more lighter
(B) much lighter
(C) more light
(D) very lighter

56. "Have you ever studied French?"

"No, but I wish I _____."

(A) have
(B) do
(C) had
(D) will

57. "Isn't it getting dark early tonight?"

"I think so; I see _____ is on already."

(A) the street light
(B) the light of the street
(C) the street's light
(D) the light street

58. "Did you have trouble with your car this morning?"

"Yes, but I finally managed _____."

(A) to get starting it
(B) it to get started
(C) to get it started
(D) getting started it

59. "Is Martha very sick?"

"No, _____ a little cold."

(A) she's just got
(B) she just gets
(C) she's just get
(D) she just gots

60. "Where did you see the notice of the meeting?"

"It was on _____ of tonight's paper."

(A) page second
(B) the page two
(C) the page second
(D) page two

61. "I'd met Mr. Jones many times before last night."

"So _____."

(A) did I
(B) had I
(C) I had
(D) I did

62. "Are Carla and Jane still here?"

"Yes, the storm prevented them _____ yesterday."

(A) leave
(B) to leave
(C) from leaving
(D) of leaving

63. "Did you hear the six o'clock news?"

"No, I forgot to listen _____."

(A) it
(B) them
(C) to them
(D) to it

64. "I'm sorry to have to leave, but I've got to catch my train."

"I've enjoyed _____ to talk with you."

(A) to be able
(B) being able
(C) to been able
(D) of being able

65. "Were you able to borrow Helen's camera?"

"No, she said _____ lend it to anyone."

(A) she'll rather not
(B) she wouldn't rather
(C) she'd rather not
(D) she doesn't rather

66. "Do you still plan to go to Miami this vacation?"

"Yes, and I wish you'd consider _____ with us."

(A) going
(B) that you'll go
(C) to go
(D) to going

67. "Did Harry see Professor Carr yesterday?"

"He did, and the Professor gave him one of the best _____ I've ever heard."

(A) piece of advice
(B) pieces of advices
(C) piece of advices
(D) pieces of advice

68. "Will the Smiths be going abroad this summer?"

"No, they finally decided _____."

(A) not going
(B) not to
(C) not to be
(D) not to going

69. "Let's stay in New York another day."

"Fine, but we _____ better change our plane reservations then."

(A) have
(B) would
(C) will
(D) had

70. "We just saw John at the bookstore."

"That's strange; I didn't think he _____ back until tomorrow."

(A) will come
(B) was to come
(C) is coming
(D) is to come

71. "I wish Bill would drive us to the train station."

"He has _____ to take us all."

(A) too small a car
(B) very small a car
(C) a too small car
(D) such small a car

72. "Will you and your brother visit your parents this summer?"

"I imagine _____."

(A) it
(B) that
(C) so
(D) we'll

73. "Haven't you eaten yet?"

"No, and I'm not used _____ so long without lunch."

(A) to go
(B) to going
(C) that I go
(D) of going

74. "How was your examination?"

"It wasn't very difficult, but it was _____ long."

(A) too much
(B) so much
(C) very much
(D) much too

75. "Have you heard that Peter is going home tomorrow?"

"No, I thought he _____ until next week."

(A) wasn't going
(B) won't go
(C) isn't going
(D) doesn't go

This is the end of the Structure Section. Do not turn the page until you are told to do so.

Appendix C Academic Writing IV Syllabus

ACADEMIC WRITING IV SYLLABUS
ENGLISH LANGUAGE INSTITUTE
University of South Florida
Summer Semester 2006

Instructor: Li Jin
e-mail: **lijin@mail.usf.edu** *Phone*: 813-974-1203
Office: FAO130 *Office hours*: 11:00-12:00 (W)
Class Time: 10:00 – 10:50 MRF 10:00—10:50 TW (CPR 467)
Classroom: M-SOC205, T& W-CPR467;R- CPR340;F-CPR250

Required Materials:
1. Textbook: Reid, J. (2000). *The process of composition* (3rd Ed.). White Plains, NY: Prentice Hall Regents.
2. A 3 ½" computer disk or a thumb drive (or you can e-mail your documents to yourself)
3. Any Writing Folder (for all exercises, information, and drafts for each writing assignment);
4. A Moodle Account (Go to http://steinemail.com/moodle/ to register. Class Key: AW4)

Suggested Book (not required):
Longman Language Activator (Advanced). The cost is about $56 new or $46 used.

Course Goals:
This course will prepare you for the writing assignments required in university courses. Two days per week we will meet in the computer lab. During the the semester you will:

- gain proficiency with Microsoft Word
- write paragraphs and essays using various styles, such as *definition, process, classification, compare/contrast, cause effect.*
- use peer review before revising your papers
- practice editing for grammar and punctuation
- practice revising for vocabulary, content, organization, coherence
- practice paraphrasing, summarizing, and synthesizing information, as well as using direct quotation and reported speech
- conduct research on the Internet and the USF library
- become familiar with academic documentation procedures (APA in-text citations and bibliography)

Policies:
- Attendance is mandatory. If you are absent from class, remember to get notes from a classmate. You should additionally call or e-mail the instructor

- You must send me an e-mail if you are absent the day of a test and want to make it up.
- "Pop" quizzes and reading checks are to be expected. Be prepared.
- The final exam can only be taken during its scheduled day and time.

Labs:

- Writing IV meets in the lab on Tuesday and Wednesday. Be sure to bring a disk or a thumb drive.
- NO FOOD or DRINK is allowed in the lab.
- The lab is open for you to work on assignments from 8:00 to 5:30 M-R and 8:00-1:00 F.

Course Requirements and Evaluation:

An overall grade of 85% in core courses (Grammar, Writing, Culture) is necessary to successfully complete level IV.

The grade for this course is based on:

10% Attendance
30% Writing Folder
30% Assessments
30% Final Exam

- **Writing Folder:** a two-pocket folder where you will save all of your writing assignments: free writing, charts, outlines, summaries, drafts, gathered information, peer reviews, teacher comments, revisions, final drafts, etc. The Writing Folder will be collected on the due date of <u>each</u> writing assignment.
- **Assessments:** chapter quizzes, timed writings, paragraphs, and essays that are not reviewed by the teacher prior to grading.

Tentative Schedule:

Week 1 May 18-19	Chapter. 1 (Paragraphs) 1. understand your audience 2. difference between written and spoken English 3. Purpose for writing **Reading assignment**: Chapter 1 (pp.1-31) Writing assignment: *Write a paragraph* to describe yourself
Week 2 May 22-26	Chapters 1 & 2 1. Topic Sentences and Controlling Ideas; Outline a Paragraph; 2. Developing and supporting ideas: process, extended definition, comparison/contrast, classification, and cause/effect. **Reading Assignment**: Chapter 2 (pp.32-64) **Writing Assignment**: Write a ***Compare/Contrast Paragraph*** about two different advertisements.
Week 3 May 30-	(*May 29, Memorial Day, no classes*) Chapter 3: Planning an essay (essay organization, Internet resources, and

June 2	APA citation) **Reading Assignment**: Chapter 3 (pp.65-98) Peer Response Session
Week 4 June 5-9	Continuation of week 3: Chapter 3 **Writing Assignment**: Write a *500-word* ***Expository Essay*** in which you ***explain learning styles***. Use at least 2 in-text APA citations.
Week 5 June 12-16	Chapter 4: Introduction to Academic Research (topic selection, surveys and interviews, using Internet resources, nontext materials, coherence device) **Reading assignment**: Chapter 4 (pp.99-133) Computer-mediated Peer Response Session
Week 6 June 19-23	Chapter 5: Academic Written Responses **Reading Assignment:** Chapter 5 (pp.134-169) **Writing Assignment**: Write a ***Summary-analysis Essay*** (at least 3 paragraphs)
Week 7 June 26-30	Chapter 5 (continue) MIDTERM EXAM TUESDAY Computer-mediated Peer Response Session
Week 8 July 5-7	(July 3: catch-up day; July 4, Independence Day. no classes) Chapter 6: Persuading an Audience: The Arguing Essay **Reading Assignment**: Chapter 6 (pp.170-204) **Writing Assignment**: Write an ***Argumentative Essay*** arguing for a viewpoint (at least 5 paragraphs)
Week 9 July 10-14	Chapter 6 continued Computer-mediated Peer Response Session
Week 10 July 17-21	Chapter 7 & 8: Evaluating in Academic Writing **Reading Assignment**: Chapter 7 (pp.205-240) **Writing Assignment**: Write a ***3-4 page Problem-solution Essay including evaluations of information from multiple sources***, at least 6 in-text citations, and 4-6 references
Week 11 July 24-28	Chapter 7 & 8 (continued) **Reading Assignment**: Chapter 8 (pp.241-281) Computer-mediated Peer Response Session
Week 12 July 31- Aug 4	finishing up **Reading Assignment**: Chapter 9 (pp.282-313)
Week 13 Aug 7-11	Final Exam

Appendix D Sample Peer Response Instruction Sheet

Class Activity Instruction

July 5, 2006

1. Please read your partner's essay and the original article he or she summarized carefully.
2. Write down your comments and suggestions on the worksheet.
3. Find your partner on the messenger and discuss about your comments and suggestions.

Appendix E Peer Response Worksheets

Peer Response Worksheet 1 – Reading

Date: June 20, 2006 Topic: Expository Essay Draft #1

Reader: _____ Writer: _____

	Problems you found out in your partner's writing	The changes you suggest your partner to make to improve his or her essay (e.g. add or delete some information)
Content		
1. Is all information relevant?		
2. Has all necessary information about learning styles been discussed in the essay?		
3. Do both the introduction and the conclusion paragraph include the thesis of statement?		
4. Is there anything you think your partner should add into		
5. Any other aspect you find interesting in the essay?		
Organization and Style		
1. Does the essay have a clear thesis of statement?		
2. Does the introduction paragraph include a hook or a grabber and a thesis of statement?		
3. Does the conclusion paragraph include a restated thesis of statement and a clincher?		
4. Does each paragraph start with a topic sentence? Is all information provided in the paragraph related to the main idea in the topic		

sentence?		
5. Are the main ideas discussed in the topic sentence of each paragraph related to the thesis of statement of the essay?		
6. Are all transition words used correctly? Is the given-new principle of coherence followed in the essay, such as the use of he, she, they, this, and that?		
7. Any more thing you want to share with your partner regarding the *organization and style*?		
Punctuation, capitalization, spelling		
1. Are all types of punctuation used correctly?		
2. Is there any mistaken capitalization or misspelling in the essay?		
References		
1. Is the quotation or citation used correctly in the text? (e.g. the author's name and the year of publication)		
2. Are the references listed out correctly?		

Peer Review Worksheet 1--- Reading

Date: June 20, 2006 Topic: Expository Essay Draft #1

Reader: _____ Writer: _____

	Problems you found out in your partner's writing	The changes you suggest your partner to make to improve his or her essay (e.g. add or delete some information)
Content		

2. Is all information relevant?		
2. Has all necessary information about learning styles been discussed in the essay?		
3. Do both the introduction and the conclusion paragraph include the thesis of statement?		
4. Is there anything you think your partner should add into		
5. Any other aspect you find interesting in the essay?		
Organization and Style		
1. Does the essay have a clear thesis of statement?		
2. Does the introduction paragraph include a hook or a grabber and a thesis of statement?		
3. Does the conclusion paragraph include a restated thesis of statement and a clincher?		
4. Does each paragraph start with a topic sentence? Is all information provided in the paragraph related to the main idea in the topic sentence?		
5. Are the main ideas discussed in the topic sentence of each paragraph related to the thesis of statement of the essay?		
6. Are all transition words used correctly? Is the given-new principle of coherence followed in the essay, such as the use of he, she, they, this, and		

that?		
7. Any more thing you want to share with your partner regarding the *organization and style*?		
Punctuation, capitalization, spelling		
1. Are all types of punctuation used correctly?		
2. Is there any mistaken capitalization or misspelling in the essay?		
References		
1. Is the quotation or citation used correctly in the text? (e.g. the author's name and the year of publication)		
2. Are the references listed out correctly?		

Appendix F Informed Consent

Informed Consent
Social and Behavioral Sciences
University of South Florida

Information for People Who Take Part in Research Studies

The following information is being presented to help you decide whether or not you want to take part in a minimal risk research study. Please read this carefully. If you do not understand anything, ask the person in charge of the study.

Title of Study: Computer-mediated Peer Response in an ESL Academic Writing Class: An Activity Theoretical Perspective
Principal Investigator: Li Jin
Study Location(s): Tampa Campus, the University of South Florida
You are being asked to participate because this study is intended to investigate the process of computer-mediated peer revision in which you and your partner in the writing class will exchange comments on each other's writing through synchronous and asynchronous communication technologies.
General Information about the Research Study
The purpose of this research study is to explore how ESL students perform in a peer response task in a computer-mediated communication environment. Students will use an instant messenger (synchronous communication technology) and the discussion board (asynchronous communication technology) to exchange feedback on each other's writing.

Plan of Study

By participating to this study, participants will be asked to review their partner's writing draft and write down feedback they have on the partner's writing as well as what they expect to hear from their partner regarding their own writing. At the outset of the study, voluntary participants will fill up a pre-study survey that is used to collect demographic information of all participants. During the study, three writing tasks will be undertaken with online peer revision activities, one with Yahoo! Messenger and one with discussion board. For the Yahoo! Messenger-assisted peer revision, pairs will be required to sit in front of different computers and exchange their comments through the Yahoo! messenger. All conversations will be archived and sent by the conversants to the researcher at the end of each peer response session. As for the discussion board peer response activity, different boards will be created for each pair. Participants in each pair will be asked to post their essays for each writing task in their respective board. After reviewing each other's essay, they will post their feedback. At the end of each online peer revision activity, each participant will also receive a follow-up interview from the researcher that will help participants recollect what occurs during the peer response session and reveal how they think of the online peer response activities. All interviews will be audio-taped and later transcribed. At the end of the study, each participant will be

required to fill up a post-study survey that is intended to collect data regarding how participants think of the computer-mediated peer revision activities as a reviewer and a writer, respectively.

Payment for Participation
You will not be paid for your participation in this study.

Benefits of Being a Part of this Research Study
By taking part in this research study, you may benefit more from peer review activities, obtaining more helpful information from your partner and gain more knowledge and develop your skills of using English language.

Risks of Being a Part of this Research Study
There will be no known risk to participate to this study. This study is only intended to investigate the process of computer-mediated peer revision. No physical or mental risks will exist. All records of each participant will be kept confidential. The detailed confidentiality process is described below.

Confidentiality of Your Records
Your privacy and research records will be kept confidential to the extent of the law. Authorized research personnel, employees of the Department of Health and Human Services, and the USF Institutional Review Board, its staff and other individuals acting on behalf of USF may inspect the records from this research project.

The results of this study may be published. However, the data obtained from you will be combined with data from others in the publication. The published results will not include your name or any other information that would personally identify you in any way. Fake names will be used instead in any future publications.

Volunteering to Be Part of this Research Study
Your decision to participate in this research study is completely voluntary. Your decision to participate or not to participate will in no way affect your student status. You are free to participate in this research study or to withdraw at any time. There will be no penalty or loss of benefits you are entitled to receive, if you stop taking part in the study.

Questions and Contacts

- If you have any questions about this research study, contact Li Jin at (813)784-1139 or via lijin@mail.usf.edu.
- If you have questions about your rights as a person who is taking part in a research study, you may contact the Division of Research Compliance of the University of South Florida at (813) 974-5638.

Consent to Take Part in This Research Study
By signing this form I agree that:

- I have fully read or have had read and explained to me this informed consent form describing this research project.

- I have had the opportunity to question one of the persons in charge of this research and have received satisfactory answers.
- I understand that I am being asked to participate in research. I understand the risks and benefits, and I freely give my consent to participate in the research project outlined in this form, under the conditions indicated in it.
- I have been given a signed copy of this informed consent form, which is mine to keep.

_____	_____	
Signature of Participant	Printed Name of Participant	Date

Investigator Statement

I have carefully explained to the subject the nature of the above research study. I hereby certify that to the best of my knowledge the subject signing this consent form understands the nature, demands, risks, and benefits involved in participating in this study.

_____	_____	
Signature of Investigator Or authorized research investigator designated by the Principal Investigator	Printed Name of Investigator	Date

Appendix G Pre-Study Survey

This survey is intended to obtain information about all participants' ethnographical and academic backgrounds, the prior experience of computer use, and experience of online synchronous communication. Please provide genuine information. I sincerely appreciate your cooperation!

I. Ethnographical Information
(1) Gender
□ Male □ Female

(2) Age
□ under 20 yrs. □ 20-30 yrs. □ 30-40 yrs □ above 40 yrs.

(3) What country are you from?
_____

(4) Your native language(s)
_____

(5) What degree have you obtained in your home country?
□ High school diploma □ Baccalaureate
□ Master or above □ other degree, please identify it here _____

(6) For what purpose(s) are you taking courses in ELI?
□ Preparing for entering a undergraduate program in USF or another U.S. higher education institution
□ Preparing for entering a graduate program in USF or another U.S. higher education institution
□ Just improving English proficiency
□ other reason. If yes, please specify
_____

(7) How many years have you learned English before you are enrolled in ELI?
□ less than 1 year □ 1-3 years
□ 3-5 years □ more than 5 years

(8) Have you taken any English academic writing course before you register for this course?
□ Yes (please continue with question 9) □ No (Please go to question 12)

(9) How many English academic writing courses have you taken?
□ 1 □ 2-3 □ more than 4
(10) What kinds of class activities were conducted in those English academic writing courses? (Please check on major activities in which you participated in those courses)
□ lectures from the instructor

□ writing practice
□ instructor provides feedback on a sample writing
□ instructor provides individual feedback
□ peer feedback
□ multiple drafts
□ others, please identify what other activities you participated in _____
_____

(11) What were you expected to achieve in the English academic writing courses?
_____
_____
_____

(12) Do you know what peer response is?
□ Yes □ No

II. Computer Use
(13) Do you have personal computer?
□ Yes □ No

(14) How long have you been using the computer?
□ less than six months □ less than 1 year
□ 1~3 years □ more than 3 years

(15) How do you feel when using a computer?
□ enthusiastic □ very comfortable
□ just fine □ hate it

(16) Do you use computer to communicate with other people?
□ Yes □ No

(17) If your answer to question 16 is yes, what kind(s) of technology do you use?
□ email □ discussion board
□ chat room □ instant messenger
□ other technology. If yes, please specify _____

(18) Do you enjoy using computer technologies to communicate with other people?
□ very much □ it's ok.
□ not at all □ hate it, but have to

(19) If you use instant messenger, for what purpose(s) do you use it?
□ exchanging academic information with colleagues or classmates
□ exchanging entertainment information with friends
□ exchanging information with family members
□ other. If so, please specify _____

(20) What type of messenger do you usually use?
□ MSN messenger □ Yahoo! messenger □ AOL messenger
□ other messenger. If yes, please specify _____

(21) How often do you communicate with other people via instant messenger?
□ daily □ weekly
□ monthly □ occasionally

(22) If you use instant messenger daily, on average, how long do you chat with people every day?
□ less than 1 hour □ 1~3 hours
□ 4~12 hours □ more than 12 hours

(23) If you use discussion board, for what purpose do you use it?
□ exchanging academic information with colleagues or classmates
□ exchanging entertainment information with friends
□ exchanging information with family members
□ other. If so, please specify _____

Appendix H Sample Interview Questions with Student Participants

Questions about CMPR:

1. Could you tell me what you and your partner did during yesterday's (or any other day) peer response session?

Questions about Goals:

2. Can you tell me why you participated in the online peer response?
3. What did you plan to learn or obtain when you participated in the online peer response?
4. If you could choose, what would you do rather than participating in the online peer response?

Questions about mediation of CMC:

5. What kind of relationship do you think you and your partner had when you two were exchanging comments on your writing online?
6. How do you think of your partner? Do you think there could be different relationship between you if you two could talk face-to-face?
7. How do you think of online communication? Do computer technologies change the way you interact with your classmates?

Questions about the social cultural context:

8. What do you think your institute expects you to do when you take this course? Do you think they expect you to obey some rules when you are participating in online activities?
9. What did your instructor expect you to do during the computer-mediated peer response session?
10. Did you do everything your instructor asked you to do? Why or why not?
11. What did your instructor do during the online peer response session?
12. What did your classmates do during the online peer response session?
13. Did they influence your communication with your partner?
14. How do you think of the interaction between you and your partner? Was there any problem during your communication? If yes, what did you and your partner do?
15. Was your partner helpful? Why or why not?

Questions about prior experience:

16. What do you think of this peer response session? Did you have any problems in the session? If yes, what were they? Why do you think you have these problems?
17. What did you do to deal with those problems you had during this peer response session?
18. How do you think your prior experience of peer response influences your participating in this peer response session?
19. Did you have problems with computer technologies during this peer response session? If yes, what were they? Why do you think you have these problems?
20. If you used this technology before, do you think you still have these problems in the peer response activity?

21. What did you do to deal with the technology problems you had during this peer response session?

Questions about revisions students make in the 2nd draft: (questions will vary according to the revisions each participant has made)

22. Can you tell why you made revisions here?

Appendix I Observation Protocol

Date and Time of Observation:
Objectives of the Class:
Student Observed:
Event Observed:
Length of Observation:

Observation Focus		**Time**	**Description**	**Field Notes**
1. Context and Atmosphere of the class				
2. Interactions with other students in class	2.1 What did the student say to other students?			
	2.2 What body language did the student have during interaction?			
	2.3 What did the student do during interaction?			
3. Interactions with the instructor in class	3.1 What did the student say to the instructor?			
	3.2 What body language did the student have during interaction?			
	3.3 What did the student do during interaction?			
4. Interaction between pairs during CMPR	4.1 What facial express and physical movement did the student have during CMPR?			
	4.2 Whether and/or what did the student talk to his/her peer?			
	4.3 Whether and/or what did the student talk to other students?			
	4.4 Whether and/or what did the student talk to the instructor?			

Appendix J Coding Scheme for Revision Analysis

Level	Example
Clause	We sat down and took a long rest. → After reaching the top of the mountain, we sat down and took a long rest.
Paragraph	I find that this movie is not making light of one of the most horrific events in human history at all. It shows us simply how horrible this was and how it tore families apart, and shows the determined strength and great love of a father in a dire situation. I don't know whether it is right or wrong to depict war comically. However I appreciate this movie making us rouse such opinions.
Phrase	Jesse waited for the call.→Jesse waited in her office for the call.
Punctuation	Then he admitted what he did; he killed his horse.→Then he admitted what he did. He killed his horse.
Sentence	He got off the bus slowly.
Word	Look *at* the ball.→Look *on* the ball.→Look on the *mirror*.

Type	Example
Add	Salome went out the door.→When she heard the gun shots, Salome went out the door.
Combine	Debra was looking for the keys to the house. She found them under the plant.→Debra was looking for the keys to the house *and* found them under the plant.
Delete	Jeff took his shoes off *all* by himself.→Jeff took his shoes off by himself.
Move	The old man walked *slowly* off the ramp. The old man *slowly* walked off the ramp.
Replace	Thomas *runs* to the phone.→Thomas *ran* to the phone.
Rewrite	I got angry at my father when I learned what he had done.→Having discovered the terrible crimes he committed, Alice became enraged at her own father.
Split	Jill liked the new home well enough, *but* she had a strange feeling because it was in the middle of the woods.→Jill liked the new home well enough. *But*, she had a strange feeling because it was in the middle of the woods.

Purpose	Example
Grammar	We try to hit the ball over the fence.→We *tried* to hit the ball over the fence.
Impact	My father read quickly through the manual to find out what to do next.→ My father *raced* through the manual to find out what to do next.
Meaning	Why do athletes *do doping* anyway?→Why do athletes *take drugs and steroids* anyway?
New info	Swimming was lots of fun for the kids.→Swimming was lots of fun for the kids. *But they did not know an enemy was lurking under the surface—a snake*.
Not needed	A particular section is deleted because the contents changes or are

	redundant making the section unnecessary.
Structure	My father had many reasons for not trusting us. *First of all*, we all had a criminal record.
Surface	We tried to hit the ball ove the fence.→We tried to hit the ball *over* the fence.

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Appendix K Coding Scheme for Language Function in Online Chat

Language Function		Definition
Structure		The speaker structures the movement of the conversation, or announce a new topic, e.g. *Let's talk about X*
Summarize Essay		The speaker summarizes or interprets the essay.
Express intention		The writer expresses his or her intention with reference to revising or drafting the essay, e.g. *I want/wanted to do X.*
Indicate difficulty		The speaker indicates difficulty with reference to a. writing the essay, b.his or her own understanding of concepts related to the essay, c. understanding the essay.
Complete interlocutor		The speaker completes an idea that the interlocutor began, but did not finish.
Clarification request	Interlocutor	The speaker asks the other person to clarify what he or she has said, e.g. *what do you mean by X?*
	Essay	The speaker asks the other person to clarify what has been written in the essay, *e.g. what do you mean in paragraph 3?*
Clarify		The speaker clarifies what he or she has said earlier, in response to a clarification-request.
Confirmation check	Interlocutor	The speaker asks the interlocutor to confirm that he or she understands what has been said, e.g. *Do you mean…? So what you mean is…?*
	Essay	The speaker asks the interlocutor to confirm that he or she understands what is written in the essay, e.g. *do you mean that …?*
Confirm		The speaker confirms what has been said or gives a negative confirmation, in response to a confirmation request.
Ask suggestion		The speaker asks for a suggestion for revising the essay.
Give suggestion		The speaker gives a suggestion for revising the essay. It can either be direct, e.g. *you should do…*, or indirect, e.g. *ask rhetorical questions to indicate possible ideas*
Ask opinion		The speaker asks for an opinion, an evaluation, or a perspective about the essay
Give opinion		The speaker gives an opinion, an evaluation, or expresses his or her perspective about the essay.
Disagree		The speaker disagrees with what the interlocutor has said.
Accept		The speaker clearly and explicitly accepts or agrees with the interlocutor has said, e.g. *I see your point*, or *I agree*
Accept/Phatic		a. utterances that have no content, but serve to maintain the flow of the conversation, e.g. *oh, yeah*, to show he or she is still following the conversation, or prompt for more information, e.g. *really?* b. utterances that are ambiguous as to whether the speaker agrees with the interlocutor or whether the speaker is supplying a phatic expression.
Compliment		The speaker tries to compliment the interlocutor's writing or suggestions, e.g. *your essay is great!* or *your comments are*

	really helpful!
Ask for permission	The speaker asks for permission to give comments or suggestions on another speaker's essay, e.g. *I was wondering if you'd mind letting me offer you some addional things*
Check for readiness	The speaker checks whether the online partner is ready to offer or ask for feedback, e.g. *so,,,,did you read mine?*
Comment on topic	The speaker comments on the easiness and difficulties of a topic of an essay, e.g. *that's a easy topic to understand it.*
Encourage	The speaker encourages the online partner to be more confident in him or herself or in providing feedback, e.g. *you are easy to understand. trust your essay was good*
Express appreciation	The speaker appreciates the help from the online partner, e.g. *thank you for you help.*
Indicate lack of self-confidence	The speaker talks about his or her own weakness and indicates incompetence in doing something, e.g. *haha actually,,,, I am not a good writer so i afraid to give you any suggestion.*
Inform action	The speaker informs the online partner what he or she is doing off-screen, e.g. *I am reading your essay about learning style now.*
Linguistic self-correction	The speaker remedies the linguistic mistakes in his or her earlier message, e.g. *Rocky: my advice to you is that you have read* *Rocky: have to read*
Permit	The speaker permits the online partner to offer opinions or suggestions upon the partner's request, e.g. *of course, i am glad if you can gine me some suggestion.*

Appendix L Beyond-screen Behavior Matrix

Beyond-screen Behaviors Matrix: 1st CMPR Task

Participants	Interaction with the Instructor	Verbal interaction with peers	Body movement	Facial expression
Anton	Informed the instructor of her situation at the end	Returned Iron's paper at the end	1.concentrated on typing; 2.checked Iron's essay; 3.paused to wait for response; 4.checked Iron's behaviors	smiled once
Iron	none	1.Chatted with Anton shortly at the beginning; 2.chatted with Anton at the end	1.concentrated on typing with one hand; 2.checked Anton's essay, CMPR worksheets and teaching materials; 3.typed with one hand; 4.wrote down words on the worksheet	smiled while reading a message

Beyond-screen Behaviors Matrix: 2nd CMPR Task

Participants	Interaction with the Instructor	Body movements	Facial expression	Verbal interaction with peers
Anton	Came late and obtained the instruction about the task	1.Checked Iron's status; 2.looked at her essay to check the appropriate of the comments; 3.filled up the reader's worksheet; 4.marked down mistakes in Iron's essay' 5. checked the location of the instructor; 6.put on earphones to listen to music	1.smiled constantly and laughed a couple of times;2.made face toward other students	1.checked whether Iron was online; 2. chatted briefly with neighbors at the beginning; 3. confirmed a web link with a neighbor
Diane	The Instructor came over to help Diane find her partner online	1.read Jillil's essay using the CMPR worksheets; 2. marked out mistakes on the paper and filled out the worksheet; 3. did not type frequently. 4. laughed out loud several times while chatting with a friend online. After chatting online for a while, she took out the essay and started to read it. But once there were messages coming from friends online, she started to chat. She looked around to check whether the instructor was watching her.	smiled while chatting online	1. showed Francia how to use IM; 2.chatted with Francia; 3. Percy walked over to check what she was doing. 4. showed Francia what she chatted online
Iron	none	1.typed intensively with both hands; 2.compared the essay with the worksheet while waiting for responses; 3. paused to read the essay and wrote down notes on the worksheet	Serious-looking, frowned occasionally	none
Nicky	Nodded when the instructor checked her	1. typed and occasionally paused to wait for responses; 2. occasionally checked the worksheet; 3. checked	No facial expression	none

	task completion.	vocabulary in the portable electronic dictionary;4. paused for a long time to wait for response. 5. took notes while reading the comments from the screen on the worksheet; 6. checked her watch.		
Rocky	Informed the instructor of his completion of task	1.occasionally checked Nicky's essay while chatting; 2. occasionally looked around to checked what other students were doing and whether the instructor was observing him; 3. continued chatting with friends after telling the instructor that he finished the PR task.	Occasionally smiled in chat; laughed out loud once	walked over to Nicky to make sure she had him on her contact list at the beginning

Beyond-Screen Behaviors Matrix-3rd CMPR Task

Participant	Interaction with the Instructor	Verbal interaction with peers	Body Movement	Facial expression
Anton	none	1.briefly chatted with classmates passing by; 2.talked to Diane about the essay and exchanged her essay	1.smiled at other students in the lab and listened to their talk; 2. read Diane's essay and constantly checked the messenger while waiting for response; 3. read messages on the screen for a long time.	Smiled for the majority of time
Diane	Saved the chat records with help from instructor	1.walked over to ask her essay back from Anton; 2. discussed with Anton for a PR meeting after class; 3. chatted briefly with a neighbor	1. read Anton's essay at the beginning; 2. put on earphone to listen to music; 3.occasionally checked whether the instructor was observing her. 4. read Anton's essay while waiting for response.	Smiled during the chat
Iron	spent ample time logging into IM with the help from the instructor	Informed Nicky what problem he had and what he was doing when Nicky checked	1.read Nicky's essay while the instructor was helping him solve the problem; 2. constantly checking the CMPR worksheet; 3. typed intensively when the IM was on; 4. constantly checked Nicky's essay, the worksheet, the messages.	Constantly smiled in chat
Nicky	Instructor checked Nicky's ability to chat to Iron at the beginning	Walked over to check Iron's problem and helped him.	1.took out her essay to read while waiting for responses from Iron; 2. constantly checked the screen for new messages; 3. constantly checked Iron's essay; 4. filled up the worksheets while waiting for responses from Iron; 5. occasionally looked at Iron's direction to check his status.	none
Rocky	Explained to instructor why he	1.discussed with Francia where her problems were when	1.typed without checking the worksheet; 2.read Francia's essay while waiting for responses	none

	could not chat with Francia at the beginning	she walked over; 2; walked over to help Francia log into IM; 3.explained verbally to Francia; 4. joked with Francia; 5. walked over to tell more about Francia's essay		

Beyond-Screen Behaviors Matrix-4th CMPR Task

Participants	Interaction with instructor	Verbal interaction with peers	Body Movement	Facial expression
Diane	none	1.told Rocky her IM username when he came over; 2. chatted briefly with someone in the lab; 3. got her essay from Rocky at the end of class	chatting and surfing on the Internet throughout the time. She put on the earphone to watch online video.	Smiled throughout the chat
Nicky	none	Nicky talked briefly with her partner to see whether her partner was ready. Nicky's partner didn't finish his essay.	Nicky spent the first half lab time reading her own essay while waiting for her partner to finish his essay.She also used the worksheet to help her identity any problems in her essay. She used her e-dictionary to check some words. She used the worksheet while discussing her essay with her partner.	smiled in the middle of her talk with her partner.
Rocky	checked 4 times with instructor some grammar mistakes in Diane's essay.	1.walked over to ask for Diane's essay and IM user account. 2. talked to Diane to confirm one word she used in her essay.	1. took out Diane's essay and the worksheet;2. put on the earphone while reading the essay; 3.wrote down notes in Diane's essay ; 4. sent messages; 5. concentrated on typing without using the worksheets;; 6. brought out his portable drive.7. occasionally he turned over to confirm with the instructor sitting behind him.	none

Appendix M On-screen Behavior Matrix

On-screen Behavior Matrix: 1st CMPR Task

Participants	On-task/ Off –task e-turns	Language Function	Emoticon use	Online Resource check	Multiple chat window	Notes
Anton	26/0	Greeting: 2 Compliment: 2 Give suggestion: 8 Indicate intention: 1 Phatic: 5 Structure: 5 Ask suggestion: 2 Express appreciation: Ask clarification: 1	4	none	none	Anton initiated most topics.
Iron	14/0	Greeting: 2 Indicate intention: 3 Give suggestion: 3 Give opinion: 3 Phatic: 1 Agree: 1 Inform action: 1	none	none	none	

On-screen Behavior Matrix: 2nd CMPR Task

Participants	On-task /off-task e-turns	Language Functions	Emoticon use	Online Resource checking	Multiple Chat windows	Notes
Anton	7/2	Disagree: 5 Phatic: 1 Clarification request: 1	none	1.Check email 2. Check online music video 3. online poker	3 other windows	Initiated 2 chat windows
Diane	5/5	Give opinion 1 Give suggestion 1 Ask opinion 1 Express appreciation 2 Confirm 1	2	1.Checked online music video 2.Played online poker with Anton	1 with Anton	Initiated the chat window with Anton
Iron	8/1	Give opinion: 4 Give suggestion: 2 Indicate intention: 2 Clarify: 2 Agree: 1	none	none	none	Initiated chat with Anton
Nicky	36/5	Greeting: 2 Ask opinion: 3 Structure: 1 Confirmation check: 3 Ask suggestion: 2 Check readiness: 2 Phatic: 7 Comment on topic: 1 Linguistic self-correction: 1 Indicate lack of	1 Using Internet languag e: *cc, jiji, haha, ummm, oh*	0	1 before the chat; closed 2 chat windows during the chat.	Nicky initiated most topics during the chat

		confidence: 1 Agree: 1 Disagree: 2 Indicate difficulty: 1 Give opinion: 4 Give suggestion: 2 Indicate intention: 1 Inform action: 1				
Rocky	39/5	Greeting: 2 Confirm: 4 Confirm readiness: 2 Compliment: 3 Give opinion: 3 Give suggestion: 4 Agree: 4 Phatic: 8 Disagree: 1 Clarification request: 2 Encourage: 2 Express appreciation: 2	3	0	1	Initiated one chat window in the middle of chat with Nicky; immediate response

On-screen Behavior Matrix—3rd CMPR Task

Participants	On-task /off-task e-turns	Language Functions	Emoticon use	Online Resource checking	Multiple windows	Notes
Anton	34/12	Structure: 3 Express intention: 1 Indicate difficulty: 2 Compli: 6 Give opinion: 1 Disagree: 1 Agree: 2 Give suggestion: 4 Ask for suggestion: 1 Clarify: 5 Clarify request: 1 Encourage: 2 Self-correct lapse: 1 Self-identify problem: 1 Express gratitude: 1 Phatic: 7	7(happy, unhappy, "you got it", wink) Phatic	None	2 windows: one with boyfriend, the other with a classmate	Initiated one off-task window; Initiated chat with Diane
Diane	25/9	Express appreciation: 3 Compliment: 3 Phatic: 4 Ask opinion: 2 Give opinion: 3 Ask suggestion: 1 Agree: 6 Disagree: 1 Clarification request: 2 Clarify: Express intention: 1 Indicate difficulty: 2 Express appreciation: 3	Wink Nudge Online Game request 4 emoticons	1. checked email 2.reviewed own essay 3. watched online music video	none	
Iron	8/0	Greeting: 1	none	none	none	Spent

		Inform action: 1 Ask suggestion: 1 Express intention: 1 Give opinion: 1 Give suggestion: 2 Clarify: 1 Ask for permission to give suggestion: 1				long time logging into MSN IM, then changed to Yahoo!
Nicky	15/0	Greeting: 1 Compliment: 2 Agree: 1 Phatic: 4 Ask suggestion: 1 Clarification request: 2 Ask opinion: 1 Permit: 4 Express appreciation: 1	3		Revised another assignment before Iron got online,.	Initiated the chat with Iron
Rocky	23/0	Greeting: 2 Phatic: 4 Give opinion: 6 Give suggestion: 4 Linguistic self-correction: 2 Confirm: 1 Accept:2 Disagree: 1 Encourage: 1	3	did some editing in his own essay before talking with Francia	1	Rocky seemed enjoying playing the instructor's role in PR.

On-screen Behavior Matrix—4th CMPR Task

Participants	On-task /off-task e-turns	Language Functions	Emoticon use	Online Resource checking	Multiple Chat windows	Notes
Diane	38/0	Greeting 1 Check for readiness 2 Indicate difficulty 1 Phatic 6 Comprehension check 2 Express appreciation 2 Ask suggestion 5 Accept 4 Explain 1 Information request 2 Give suggestion 1 Clarification request 1 Confirmation check 3 Clarify 5 Confirm 3	2 emoticons. 1 wink	1.first checked her email, then checked an e-greeting card website to send an e-card to a friend; 2.she checked her online album. 3.checked an online MTV site during the chat with Rocky	0	Initiated the chat with Rocky
Nicky	25/0	Compliment 2 Give opinion 5 Give suggestion 1 Clarification request Ask for opinion 3 Ask for suggestion 3 Express appreciation 2 Confirm 1 Clarify 2	2 emoticons	None	None	Initiated the chat with Percy

		Agree 2 Agree 1 Express appreciation 2				
Rocky	35/0	Compliment 1 Linguistic self-correction 4 Inform action 1 Give opinion 5 Give suggestion 9 Confirmation check 2 Confirm 1 Clarification request 3 Phatic 1 Provide information 1 Agree 1	1; Intended to use another one, but didn't find an appropriate one.	none	none	

Appendix N The Profiles of the Participants

		Anton	Diane	Iron	Nicky	Rocky
1	Gender	F	F	M	F	M
2	Age	20-30	30-40	43	20-30	23
3	Original Country	Belgium	Colombia	Turkey	Taiwan	Saudi Ara
4	Native Language	French	Spanish	Turkish	Chinese	Arabic
5	Degree obtained	Bachelor	master	master	certificate	High school
6	Purpose at ELI	Improve English	Grad school	Improve English	Graduate school	undergrad
7	Years of English before ELI	3-5 years	1-3 years	1-3 years	Less than 1 year	More than 5 years
8	Exp of Eng AW	no	no	no	no	no
9	# of AW course					1
10	Activities in AW					Lectures, writing practices
11	Expectation AW			Express self in a correct way		
12	Know PR?	yes	yes	no	yes	no
13	own PC?	yes	yes	yes	yes	yes
14	Years of Com	More than 3 years	More than 3 years	More than 3 years	More than 3 years	Less than 6 months
15	Feel about Com	enthusi	Very com	enthusiastic	Very com	Very com
16	Communicate	yes	yes	yes	yes	yes
17	What technology	Email, IM, VOIP	Email, chat room, IM	email	Email, IM	Email, chat room, IM
18	Enjoy degree	Very much	Very much	Very much	Very much	Very much
19	IM purpose	Entertain with friends, com with family	Entertain with friends Com with family	No (academic exchange with class mates)	Academic exchange, entertain with friends	Entertain with friends
20	What IM tech	MSN	MSN & Yahoo!	Yahoo!	MSN	MSN & Yahoo!
21	How often IM	daily	daily	occasional	daily	daily
22	Time/day	Less than 1 hour	Less than 1 hour	Less than 1 hour	4-12 hours	Less than 1 hour
23	CELT & MTELP Pre-test	200	147	135	112	190

24	CELT & MTELP post-test	dropped	163	dropped	137	190

Appendix O Scale for Quantifying ESL Participants' Performances in the CMPR Tasks

Performance	Score
Negotiate suggestion with the partner e.g. *Nicky says:so,,,the summary was similary ot article or...how do you think?* *Rocky says:it was related* *Nicky says:but, this assignment is about summary-analysis...* *Rocky says:i know* *Nicky says:i don't know it was wrote the right way or not*	5
Ask for and receive suggestion or provide opinions and suggestions e.g. give suggestion*: Just one thing... in your first paragraph... you should specify that you are talking about the ELI* ask for suggestion: *I am waittting you suggestions abbout my essay. Thank you*	4
Ask for opinions or provide opinions e.g. ask for opinion: *what do you think about... my topic... is better studi englis abroad* give opinion: *your introduccion is really original*	3
Read the essay or worksheets	2
Maintain conversation e.g. *Anton says: :-p* *Diane says: ok. see you later :'(* *Anton says: byebye!* *Anton says: ;) see you in grammar!* *Diane says: bye*	1
Have verbal communication with the instructor or have technical difficulties	0
Provide no feedback and object opinions and suggestions e.g. *You shoudn't make any judgement concerning my ideas*	-1
Discuss off-task topics online and/or off-line	-2
Open multiple chat windows and/or surf on the Internet for non-task purposes	-3
have verbal communication with classmates on off-task topics over 2 minutes	-4

ABOUT THE AUTHOR

Li Jin received two Bachelor's Degrees: one in English and the other in Financial Management from the Huazhong University of Science and Technology in People's Republic of China. She has taught English as a foreign language in college-level programs in China. While being a Ph.D. student at the University of South Florida, Li Jin was a graduate assistant in the Institute for Instructional Research and Practice in the College of Education as well as an instructor in the ESOL Endorsement Program in the College of Education. She was also an ESL instructor in the English Language Institute and an instructor of Chinese in the World Language Department in the College of Arts and Science. On weekends, she taught Chinese to heritage speakers in a local Chinese community school. She developed several teacher-training software and websites and was the content expert of the Tune-In to Mandarin software, an interactive multimedia Mandarin-learning software. She actively presented papers and delivered workshops in international and national conferences of professional organizations in the fields of applied linguistics and educational technology such as AAAL, AERA, ACTFL, CALICO, and TESOL. She published one article in the CALICO Journal and one book chapter. She has two more peer-reviewed book chapters in press.