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The zone of proximal development in an online Esl composition course

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THE ZONE OF PROXIMAL DEVELOPMENT IN AN
ONLINE ESL COMPOSITION COURSE

by

Jennifer Ann Paver

Bachelor of Arts
University of Wisconsin-Madison
1991

A thesis submitted in partial fulfillment
of the requirements for the

**Master of Science Degree in Curriculum and Instruction
Department of Curriculum and Instruction
College of Education**

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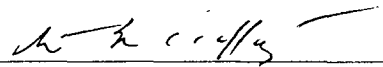
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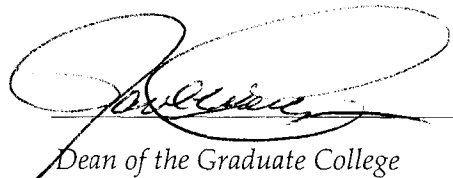
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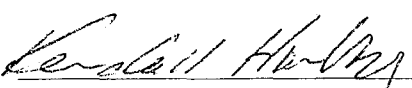
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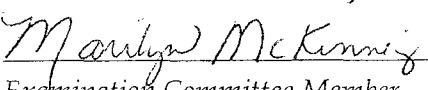
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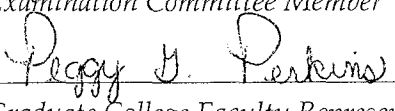
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ABSTRACT

The Zone of Proximal Development in an Online ESL Composition Course

by

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This qualitative study investigated the Zone of Proximal Development (ZPD) in an online ESL composition course. The study analyzed the correspondence between three Koreans and one Russian participant with their instructor that occurred through the WebCT computer-mediated communication (CMC) software tools of asynchronous e-mail and discussion boards and synchronous chat. The results indicated that, 1) personal background issues, 2) personal views of the instructor, and 3) motivation, attitude, and personal awareness of tool utilization impacted the participants' use of the CMC tools and this in turn impacted the ZPD. The implications of the study are discussed in terms of the impact of the ZPD in relation to the students, tools, materials, and instructor in the online second language classroom.

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Dedicated to the memory of my “virtual grandparents”

Virginia Modrinski (1926-1999) and George Modrinski (1926-2003).

CHAPTER I

INTRODUCTION

Background

While teaching English in Hamburg, Germany, I began to break out of my private school's rather monotonous and constricting direct method approach and started to experiment with teaching from a mediational approach. I found the results of this experiment most intriguing, for not only were students able to grasp concepts that had seemed out of reach at the beginning of the lessons, they were also able to relate the material directly to their lives, which actually seemed to transform the students themselves. Even more fascinating was the fact that in many cases, when looking back on the students' progress, it seemed as though such mediational lessons marked a turning point, not only with their approach to language learning, but also in their approach to life. While exhilarating for an instructor, I found this experience also perplexing; what exactly brought on this revolutionary transformation? In the interaction between the instructor, the student, the materials, and the environment, what was the formulaic equation that allowed this magical process to unfold? The mediational approach I stumbled upon in my teaching career is the Zone of Proximal Development (ZPD), which is a cornerstone of sociocultural theory.

Theoretical Framework

This study was grounded in the revolutionary work of Lev Vygotsky, the father of sociocultural theory. Lev Vygotsky viewed human cognition as a two-tiered system in which biologically based, lower-ordered mental functions transform through psychological tool mediation, such as language, in their sociocultural setting, into higher-ordered mental functions that enables mediation of social and mental activities and humans to pass down culture (Lantolf, 2000, pp. 1-2; Lantolf & Appel, 1994, pp. 5-8; Wells, 1999, pp. 6-7). The cornerstone of Vygotsky's explanation of how learning leads development was the ZPD that was defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving" between a child and adult (Vygotsky, 1978, p. 86). Because the ZPD was born out of the clash of competing educational theoretical frameworks that are still battling today, the ZPD remains an extremely relevant concept through which to examine second language learning (Kinging, 2002, pp. 240-241). Vygotsky developed the ZPD as an alternative to IQ testing because the ZPD tests for potential development by examining functions currently developing, not fossilized development (Dunn & Lantolf, 1998, p. 418; Lantolf & Appel, 1994, pp. 24-25; Vygotsky, 1978, pp. 63-64 & 86-87). Developing a study to examine the ZPD in an online classroom is invaluable because the ZPD is where social mediation occurs (Lantolf, 2000, p. 16) and where productive learning takes place (Mitchell & Myles, 1998, p. 146). Vygotsky believed this learning occurs due to the general law of cultural development, which states that higher mental processes occur two times, first when an individual interacts with others or artifacts on the intermental plane (other- or

object-regulated) and then, connected by speech, within the individual on the intramental plane (self-regulated) (Lantolf 2000, p. 17; Lantolf & Appel, 1994, pp. 11-12; Vygotsky, 1978, p. 57; Wells, 1999, p. 22).

Conceptualizing the ZPD for this study's purpose was an extremely daunting task due to the fact that Vygotsky's early death prevented him from finishing his conceptualization of the ZPD and therefore, the ZPD model in language learning research has been both manipulated to fit other theoretical frameworks and celebrated within its own proper sociocultural context (Kinging, 2002). Overall, this study's conceptualization of the ZPD is based upon the work of Newman and Holzman (1993). To succinctly explain their definition of the ZPD, it is best to describe what it is not; it is not a place or zone, nothing is located within it, and it is not located in a place (pp. 88-89). After stripping away all of the falsehoods surrounding the ZPD, we are left with its true identity according to Newman and Holzman, which is that the ZPD is "revolutionary activity," (p. 147). The ZPD is not a historically removed, stand-alone "tool-for-result"; it is a "tool-and-result," which is where revolutionary activity is located (pp. 65-66) in which normal human activity changes human existence (p. 46). It is believed that this "tool-and-result" ZPD when united with "co-authoring" may enable all types of language awareness to foster cognition which can help alleviate the current tension between progressive and conservative foreign language teaching agendas (Kinging, 2002, p. 257).

Researching the ZPD in this new century is quite different than in the past; no longer is it limited to the face-to-face speech discourse dyad because the child "novice" can be replaced with adults, and the adult "expert" can be replaced with written materials (Wells, 1999, pp. 330-331). It is important to remember that when researching the ZPD

one is able to conduct assessment not only of the ZPD but also in the ZPD itself (Allal & Pelgrims Ducrey, 2000). Researchers need to remember that Vygotsky defined effectiveness of the ZPD as not only enabling the individual to do what they couldn't do on their own, but also as something that truly met the individual's needs (Wells, 1999, p. 25). It is important to note that measuring outcomes of the "tool-and-result" ZPD is more complicated than for the "tool-for-result" ZPD outcomes as the changes move beyond cognitive functions to include the individual as a whole and their community (p. 331). The "tool-and-result" view of the ZPD dramatically impacts the instructor-student relationship; the instructor's role must move beyond authority figure to co-learner who is concerned with letting their students create their own future (pp. 331-332).

Based upon previous research the ZPD in this study was grounded in activity theory because the purpose of the activity in the ZPD is not to complete the task but to develop higher mental processes and the individual in the ZPD transforms themselves, the activity, and the cultural artifacts (Lantolf, 2000, p. 17; Lantolf & Appel, 1994, p. 10; Wells, 1999, p. 42). In addition, activity theory lent itself to this study because Kuutti (1996) and Nardi (1996) believed that this should be used as a framework for human-computer interaction (HCI) research. It is within this framework that the researcher is able to determine meaning through the analysis of the participants and the artifacts used in the activity (Nardi, 1996, pp. 7-8). By examining the activity, motivation, the action, and the conditions/operational level, it explains why, what, and how something is completed (Kuutti, 1996, p. 26; Lantolf & Appel, 1994, p. 21; Lantolf & Pavlenko, 1995, pp. 109-110). This study was also grounded in the theoretical work of Nardi & O'Day (1999) who created an ecological view of technology integration that enables technology

to be implemented with heart. This information ecology consists of “people, practices, values, and technologies in a particular local environment” (p. 49) and focuses on the relationship between technology affordances and human values (p. 64).

Research that examines the “tool-and-result” ZPD with different computer-mediated communication (CMC) tools is important based upon Wertsch’s (1998) analysis of cultural tools. Wertsch found that the historical narrative, which was believed to help American students write, can actually hinder their self expression, while official narratives such as those used to control people in the former Soviet Union were transformed into a resistance tool (chap. 3 & chap. 5). Thus, when researching the ZPD, one must remember that tension between the agent and the mediational tool depends upon the local sociocultural context and that the relationship between the two cannot be predicted by examining either in isolation from the other (p. 183). It is also important to remember that when examining the classroom setting, all of the students might not be performing the same activity at any given moment (Lantolf, 2000, p. 12) due to the characteristics of the activity which are non-linear, constantly evolving, and are historically unique (Kuutti, 1996, p. 26). Having the students transform their activity is not something an instructor should fear because it supports Van Lier’s (1996) “AAA curriculum” by allowing the students to incorporate rich language and other subjects into their language opportunities, thus fostering the intrapersonal principles of awareness, autonomy, and authenticity (p. 19). It is necessary to study language “as relations (of thought, action, power), rather than as objects (words, sentences, rules)” of semiotic meaning-making activities which are measured as affordances between the learner and the environment, instead of input amounts (Van Lier, 2000, pp. 251-2 & 257).

Research Questions

Based upon my personal teaching experiences, computer background, and readings in sociocultural theory, I decided to create a study that would investigate the ZPD in an online ESL composition course. While developing the WebCT course, I had many questions in mind, such as:

1. How do CMC tools impact the ZPD?
2. How does CMC impact different forms of mediation such as peer and instructor mediation in relation to the ZPD?
3. How is the ZPD in second language learning impacted by CMC?
4. How does CMC impact ESL students?
5. How is the instructor's role impacted by the ZPD of a computer-mediated course?

While teaching the course, it became evident that the most salient and intriguing aspects of the course that I wanted to focus on were how the tools impacted the ZPD for each of the participants of the study, and more specifically, while engaged in the ZPD with their instructor. Therefore the study will focus on the following question:

1. How do CMC tools such as asynchronous e-mail and discussion boards and synchronous chat impact the ZPD when students work with their instructor in the online environment?

CHAPTER II

REVIEW OF RELATED LITERATURE

Computer Assisted Language Learning (CALL)

The history of computer assisted language learning (CALL) is divided into three major periods that correspond to the three main theoretical frameworks found in the recent history of language learning (Kern & Warschauer, 2000; Warschauer, 1996a, 2000c; Warschauer & Meskill, 2000). In the 1970's and 1980's, Structural CALL focused on accuracy goals through drill software that supported the audiolingual and grammar-translation methods. Then from the 1980's through part of the 1990's, Communicative CALL used problem-solving multimedia to support the accuracy and fluency goals of communicative theory. Currently we are in the Integrative CALL phase in which multimedia/hypermedia, the Internet, and CMC tools mesh with the goals of social interaction, agency, fluency, and accuracy of sociocognitive theory.

The purpose of Integrative CALL is to enable a community of learners to learn new types of genres and discourse through their participation in activities (Warschauer, 2000c, New Pedagogies section, para. 4). Just as in activity theory, this interaction depends on the sociocultural context, the student's approach to learning and communicating in this environment, and their actual interaction (Kern & Warschauer, 2000, p. 17). Furthermore, the CMC features of hypermedia, text-based computer mediation, space and time

independence, and many-to-many communication enables CMC to support the principles of sociocultural language learning because it can be used for long distance exchange projects, service learning, World Wide Web research projects, and web page creation (Warschauer, 1997b, p. 477; Warschauer & Meskill, 2000, pp. 306-307).

According to Warschauer (2000b), the rise of technology from the global economy impacts English teaching because technology is creating new types of “electronic literacy” (pp. 520-524). Electronic literacy expands beyond information literacy to include being able to write and read in an electronic medium and includes being adept at meaning-making and being able to analyze others communication when using a computer (Shetzer & Warschauer, 2000, p. 173). In order for ESL instructors to develop electronic literacy, activities need to incorporate multiliteracies, project-based learning, agency, and build new communication skills (e.g., e-mail and synchronous chat), construction skills (e. g., multimedia, hypertext, and co-constructor), and research skills that in turn will lead to student empowerment (Shetzer & Warschauer, 2000; Warschauer, 2000b, pp. 527-528 & 530; Warschauer & Meskill, 2000, p. 308).

While some studies have found disadvantages to technology integration in the language classroom, such as e-mail use producing anxiety and typing concerns (Kelm, 1998, pp. 149-150) or that utilizing solely synchronous chat instead of traditional face-to-face peer editing writing conferences may be ineffective (Schultz, 2000), overwhelmingly, studies have found many benefits from Integrative CALL (to be discussed) and CMC tools can foster language learning as defined by sociocultural theory (Warschauer, 1997a, 1997b, 1998a, p. 69). For example, research on synchronous chat in the foreign language classroom indicated that it aided in developing principal language

skills such as discourse, interactive, sociolinguistic competence (Chun, 1998), and grammatical competence (Pellettieri, 2000). Davis and Thiede (2000) found when examining L1 and L2 students using asynchronous discussion in a linguistics course that while the L1 students focused on producing writing for their peers, the L2 students were able to benefit linguistically by becoming cognizant of their written discourse (pp. 87 & 112). Not only does this study support the view that CMC tools enable language students to develop their language skills in an authentic environment, it also supports the view of activity theory in which students engaged within the same task are in actuality performing different activities.

Further supporting the view that CMC tools support sociocultural learning and development, in two studies that examined the use of e-mail in correspondence, the first between Portuguese language students with either fellow students in the class, at other universities, or native speakers, and the second, between Bulgarian EFL literature students and American graduate students, it was found that the students were able to produce real target language in authentic communication (Kelm, 1998) set within a cultural context (Meskill & Ranglova, 2000), and it revolutionized both the students and the teachers understanding of teaching and learning in the second language classroom (Meskill & Ranglova, 2000, p. 35). In a similar study that examined the use of synchronous chat in two ESL composition classes, Markley (1998) determined that because this tool enabled the Asian students to overcome culturally-based participation hesitancy in the activities (p. 91), instructors need to utilize synchronous chat as a demographically unbiased tool for authentic, student-centered communication that enables writing awareness (p. 92).

The sociocultural goal of being able to produce real communication within a community directly impacts the student's language learning because it has been identified as a student CMC tool motivational factor (Beauvois, 1998; Skinner & Austin, 1999). Additional motivational factors identified with synchronous chat include supporting personal confidence, as Japanese students indicated that they felt they had learned how to express their individuality while using synchronous chat, and eliminating writing anxiety because the students felt that they could practice writing more with synchronous chat than in the face-to-face classroom (Skinner & Austin, 1999, pp. 272 & 275). Beauvois (1998) determined that the synchronous environment motivated students because it enabled them to use the language for meaningful conversational purposes (p. 114), which also produced linguistic, affective, and interpersonal benefits (pp. 104-112). With regard to linguistic benefits, the students felt that synchronous chat time issues enabled them to pace, monitor, and analyze their correspondence, they reported increases in comprehension and reading, and they realized that more writing practice was needed in the face-to-face classroom (pp. 104-107). Affective benefits included feeling that they: 1) were less stressed in this environment because the students felt they had more time for input and output, 2) didn't have to produce forced responses, 3) were able to participate in student-centered conversations, and 4) were exposed to more student interlanguage input (pp. 108-110). For interpersonal benefits, the students felt they knew their classmates better because the freedom of expression fostered a risk-taking environment (pp. 110-111). Because the interviews revealed that the students were cognizant of this safe participation environment and because they indirectly discussed issues of the ZPD and scaffolding, Beauvois stated that this not only supported Vygotsky's theories, but

also suggested that this student-student scaffolding may only be able to happen in a networked environment (p. 111).

In a similar study, Warschauer (1996b) examined ESL and EFL student motivation when they used computers for communication and writing and found that students viewed computers positively regardless of class, ESL/EFL classification, or teacher, and that factors of motivation were achievement, learning, empowerment, and communication (pp. 38-40). What is particularly interesting is that upon further analysis, it was found that computer use in the classes that had the lowest scores did not support course goals while computer use in the classes that had the highest scores supported course goals (p. 40). Thus Warschauer concluded that the activity impacted the motivation (p. 40).

Building upon this line of thinking, Warschauer (1998a, 2000a) examined the impact of the sociocultural context in online learning. In the first study, Warschauer examined an advanced ESL composition course, primarily of Pacific Islanders and Asian students at a conservative religious school in Hawaii, and found that the use of technology in this course was impacted by four sociocultural contexts: 1) the college and the church, 2) the English Language Program's role of assimilation, 3) the teacher's teaching philosophy, and 4) the relationship between teacher-student-researcher (p. 78). The instructor structured this course to support the institution's focus on regulations and her philosophy on form writing by utilizing the computer to support activities such as taking online quizzes, taking typing tests, and writing letters for the purpose of testing grammatical accuracy. The outcome of such use of technology integration in the language classroom was that the students did not learn how to utilize higher cognitive processes with the

computer and were only able to develop basic computer skills (p. 81). The students' initial positive view of using computers in writing soured to such a degree that by mid-semester the instructor was forced to re-structure her use of computers in the course. Warschauer felt that technology integration needs to guard against being teacher-centered and not developing skills such as collaboration and critical thinking in minority students, and that instructors need to take sociocultural contexts into consideration when integrating technology (p. 85).

In the second study, Warschauer (2000a) expanded his research on the sociocultural context to also include an examination of why electronic literacy and literacy task purpose is important. In addition to the conservative religious college of the previous study, Warschauer also examined an Asian dominated public university graduate level ESL writing course, a Hawaiian dominated public university undergraduate level Hawaiian language course, and an immigrant dominated community college undergraduate level English writing course, and again found that the teachers' beliefs and the institutional context impacted technology integration (p. 42). For example, technology was used in the ESL writing course to access new discourse communities (p. 43), in the Hawaiian language course to promote Hawaiian and Hawaiian language rights (p. 44), and in the English writing course to prepare students for university or the workforce (p. 44).

With regard to electronic literacy, the students viewed learning in terms of new literacy skills that combined language *and* technology skills (pp. 45-46). However, similar to the previous study, there was evidence of resistance as some of the students in all of the courses resisted activities that were inauthentic (pp. 52-54). Warschauer again

reiterated his view that this occurred due to the purpose of the activity, as activities grounded in busywork were unsuccessful while authentic second language activities were successful (p. 56). These successful activities must be grounded in authentic conversation, be learning-centered, and enable the students to both explore their identity and impact society (p. 57). Warschauer concluded that students will not only be able to be successful online but also be able to integrate their culture and languages in the Internet world that is dominated by the English language through the development of their electronic literacy (p. 57).

The only known study that directly examined CMC tools and the ZPD was a study by Zähler, Fauverge & Wong (2000) that investigated the feasibility of student collaboration in task-based language learning when using audiovisual networks by small groups of English and French language learners (p. 186). The results of the first trial indicated evidence of high-level metaconscious processing and reciprocal peer tutoring (p. 195) and the second trial found occurrences of spontaneous tutoring (p. 198). The researchers concluded that the audiovisual network supported peer collaboration with the ZPD (p. 203). Based upon sociocultural theory, the researchers stressed that this success was not “caused” by the technology; it was based upon the tasks, environment, written communication, and outside support (p. 203).

The Zone of Proximal Development

The past decade of the ZPD studies were quite varied and can be examined from a number of different angles including examining the studies from agent, tool, purpose, and most importantly, the ZPD perspectives. With regard to examining the agents creating the

ZPD, some studies examined the ZPD in a more traditional Vygotskian manner of the interrelationship between expert and novice, such as between K-12 children and parents/teachers, as in a study by Schinke-Lleno (1994) that compared the ZPD of limited English proficiency children/adult dyads to learning disabled children/adult dyads, and Nassaji & Cumming (2000) that examined the ZPD between an ESL student and his teacher. In another study, Wells (1999) examined the student-adult ZPD in both communal and individual settings and also student-student ZPDs (to be further discussed). The concept of the novice-expert dyad was advanced through neo-Vygotskian studies (Aljaafreh & Lantolf, 1994; Lantolf & Aljaafreh 1996; Nassaji & Swain, 2000; Washburn, 1994) that examined the ZPD between adult-adult, which was addressed in these studies by focusing on the ZPD between ESL university students and tutors.

Other researchers further expanded upon the concept of the ZPD by studying novice-novice pairings, such as those between school-aged children of different ability pairings (Tudge, 1990). Novice-novice studies between adult university students were quite varied as they examined dyads (Guerrero & Villamil, 2000; Ohta, 2000), groups (Donato, 1994; Nyikos & Hashimoto, 1997), and compared dyads to teacher-fronted activities (Ohta, 1995). Some of these studies found that multiple ZPDs can exist at the same time. For example, individuals engaged in the ZPD can be both a novice at the individual level while becoming an expert at the group level (Donato, 1994, p. 46) and that they can form a group ZPD, defined as “Group Zone,” which is the overarching ZPD created by individuals within a group setting (Nyikos & Hashimoto, 1997, p. 507). Further expanding upon the agent interpretation of the ZPD, some researchers examined the ZPD

between the members of a cultural household (Moll & Greenburg, 1990) while others examined the dichotomous dialogue of the self (Verity, 2000).

Other characteristics of the ZPD studies involved the type of mediating tool and the purpose of the study. While many studies were based upon the traditional examination of spoken discourse, others examined the use of writing such as through dialogue journals (Nassaji & Cumming, 2000), notetaking (Wells, 1999), and written texts such as compositions (Aljaafreh & Lantolf, 1994; Guerrero & Villamil, 2000; Lantolf & Aljaafreh, 1996; Nassaji & Swain, 2000). Many ZPD studies examined aspects of the learning process such as negative feedback (Aljaafreh & Lantolf, 1994), fossilization (Washburn, 1994), corrective feedback (Nassaji & Swain, 2000), regression (Lantolf & Aljaafreh, 1996), narrative text revision (Guerrero & Villamil, 2000), and oral tasks such as translation, role-play and interview (Ohta, 1995 & 2000). However, other studies began to incorporate the other necessary component of effective learning by examining both teaching and learning in the ZPD (Hedegaard, 1996; Nassaji & Cumming, 2000; Wells, 1999).

As this study utilized the Newman and Holzman “tool-and-result” definition of the ZPD, it is interesting to note that very few studies on the ZPD utilized this approach. Unfortunately, most studies discussed thus far can be classified as conceptualizing the ZPD as “tool-for-result.” Noteworthy exceptions were the Lantolf and Aljaafreh (1996) study which defined ZPD as Newman and Holzman’s “revolutionary activity.” The research showed that regression is a normal part of second language learning and that a student could regress and yet still perform at a higher level than her beginning point (p.

626) and that a student refocused her interlanguage by regressing when attempting to appropriate language structures at the higher edge of her ZPD (pp. 625-628).

While not specifically defining the ZPD as “tool-and-result,” several activity theory studies did fit with the “tool-and-result” framework because they illustrated how “revolutionary activity” resulted in transformation. For example, in the Wells (1999) study that examined the implications of the ZPD in teaching and learning in a second grade science experiment, his results were discussed in terms of how the task was transformed, how the future attempts of the task were impacted, how the students transformed the tools, and how successful teacher assistance was determined (p. 302). Wells found that the instructors were able to use the ZPD to re-analyze their teaching and learning practices and concluded that the ZPD enables the roles of teacher and learner to be reciprocal, but teachers need to be willing to do this (pp. 310 & 312). Further supporting this view of the ZPD, Coughlan & Duff’s (1994) examination of how one task produced many different activities in second language learning found that a) students in different contexts created different activities, b) students within the same context created different activities, and c) a student who repeated a task at a later date again created a different activity. The production of different activities was dependent upon aspects such as the subject’s motivation to personally connect with the interviewer, their personal understanding of the task, and their reshaping of the task in order to make it more pleasing (p. 185). Additionally, Gillette (1994) found that the students’ goals, which were based upon their view of the worth of learning a foreign language and their social history, determined second language success (p. 210). In conclusion, Gillette questioned the

belief that second language achievement is solely determined by the use of good language learning strategies in isolation of other factors (p. 211).

Three studies that examined the ZPD as “tool-and-result” were Moll and Greenberg (1990), Verity (2000), and McCafferty (2002). Moll and Greenberg (1990) attempted to understand the ZPDs of Latino households in order to connect them to the formal educational process. This ethnographic study traced how a classroom demonstration evolved into a student initiated project outside of the classroom and how a course unit reached out into the students’ community (p. 327). In the first study, a female Spanish monolingual student, who was initially having difficulty writing in English, became more adept at writing when she was allowed to choose her own topic and, when working with her father and aunt, created a video on Tucson in which she interviewed a community member. What is significant with this project was that the ZPD enabled the student not only to become more adept at writing, but also to use writing as a pre-activity self-mediation tool (pp. 330 & 334-335). In the second case, a sixth-grade bilingual teacher built upon a construction-themed lesson by not only having the students write about their personal experiences of building a model based upon their research, but also by inviting parents and community members to speak to the class (pp. 337-338). Tapping into the funds of knowledge enabled a transformation in how the students and instructors viewed the community (p. 342). Moll and Greenberg stated that utilization of new literacy activities must be the result of the successful integration of “the funds of knowledge” (p. 345).

Verity’s (2000) study examined how she used the ZPD for professional identity self-reflection while teaching in Japan. Because she regressed to that of a novice teacher at the

beginning of her experience, she formed an expert-novice self-relationship in which she used a private diary as “a zone for thinking” (p. 184) in order to find resources (p. 191) that enabled her to move from object- and other-regulation to self-regulation. In conclusion, Verity found that this ZPD diary allowed her to adapt to teaching in a new environment by using the expert-teacher tools she had developed over the course of her career (p. 196).

McCafferty’s (2002) study, grounded in Newman and Holzman’s view of the ZPD and set within an activity theory framework, examined how gestures created the ZPDs. This study examined a dyad consisting of an intermediate level ESL university student and a research assistant who, in order to co-construct meaning, used gestures to scaffold (p. 196). McCafferty determined that the students, the setting, and the artifacts played a role in creating the ZPDs (p. 200). Furthermore, McCafferty found evidence of four types of transformation of the ZPD as identified by Wells (1999) which included transformation of the activity setting, the social ground, and the learner’s identity, and the co-construction of a cultural tool kit (pp. 200-201).

CHAPTER III

METHODOLOGY

Course Background

Designing the Course

This study examined the distance education section of English Composition I for International Students in the spring 2002 semester at the University of Nevada, Las Vegas, which was the first semester it was offered as an online course. I served as the course designer and the instructor for this course. Because there wasn't an e-pack (publisher created online course content) available for the course's textbook, *Writing with a Purpose* by Joseph Trimmer, I designed all of the WebCT content based upon the textbook, and modified rubrics and project descriptions previously developed by a fellow English Language Center (ELC) instructor. The designing of the course took approximately 250-300 hours and occurred over the span of six months prior to the beginning of the spring semester in which the course was offered. The course was designed using WebCT software and consisted of content sections which included the syllabus, course content and assignments, the WebCT communication tools such as asynchronous e-mail and discussion boards, synchronous chat rooms, a glossary, a references area, and reader's and writer's corners.

Instructor's Teaching Philosophy

This course was grounded in sociocultural pedagogical principles and utilized process writing, student-centered learning, and collaborative groupwork. Due to this approach, formative assessment was used for this course in order to create ideal conditions for true learning, as defined by the “tool-and-result” ZPD. Except for the students’ last assignment, which was to turn in the final draft of the final paper, all assignments could be considered formative in nature as they generated feedback. Evaluative assessment using rubrics and traditional letter grades was kept to a minimum and used only for the final drafts of the three required rhetoric papers, the midterm, and some collaboration work. With regard to the instructor’s personal philosophy in teaching with technology, I support the views of Nardi and O’Day (1999) that technology integration needs to have a heart, and Warschauer and Meskill (2000) who believed that technology in the L2 classroom needs to be based upon the principles of ‘humanware’ in which computers humanize, instead of automate, the language learning process (p. 316). I also agree with the teaching philosophy that ESL needs to take into account the impact of the global economy on employment, new varieties of English, and technology (Warschauer, 2000b, p. 512) and that technology should not be viewed as how it relates to language learning needs, but how language learning relates to technology needs (Kern & Warschauer, 2000, p. 12-13).

Participants

Approval to conduct this study was granted on December 17, 2001 by the university's Office of Human Protections prior to its commencement. Participants² were those students willing to be a part of this study who enrolled in the distance education online version of ENG 113. While taught by ESL instructors from the ELC, this course is listed as an English department course, not an ESL course. Registration for this course occurs in person at the ELC. With regard to this study's distance education section, students were placed in the course by the ELC director based upon either a variety of combination of test scores including the TOEFL (Test of English as a Foreign Language), the TWE (Test of Written English), the MTELP (Michigan Test of English Language Proficiency) and the MTELP writing sample, or having passed English A, the prerequisite course. In addition, the students were questioned about their experience with utilizing computers and their willingness to take this course via distance education.

The students in this online course consisted of eight ESL students of which two students did not complete the course. Of the six remaining students, four agreed to volunteer for this study. These participants will be referred to in this study as SA, SB, SC, and SD. With regard to their demographics by gender, nationality, student status, and background, SA was a male Korean graduate student majoring in accounting. SB was a female Russian undergraduate student majoring in communications who transferred from St. Petersburg State University and had previously lived in Las Vegas as a high school exchange student. SC was a female Korean sophomore undergraduate student who transferred from Hanyang University and the University of Maryland in order to study hotel administration instead of English literature and language. And SD was a female

² The names of the participants have been changed to protect their identities.

Korean sophomore undergraduate student majoring in hotel management and had spent four years at a high school in Vermont. Because of the nature of both the registration process and logging on to the WebCT course, SA and SB joined the course the first week of term and SC and SD joined the class the second week of term.

Procedures

Sociocultural Issues

As this study was grounded in sociocultural theory, it followed the prescribed protocols by both Neo-Vygotskian and second language technology integration researchers in that this study was qualitative, ethnographic, longitudinal in nature, set within a historical framework in a societal ecology, and used action research principles (Lantolf 2000; Lantolf & Pavlenko, 1995, p. 109; Shetzer & Warschauer, 2000; Warschauer, 1997a, 1998b, 2000a, 2000b). Procedures followed qualitative ethnographic methodology of researcher as participant since the researcher was the instructor of this course. Because of this, two precautions were made in order to not bias the study. First, during the course of the semester the teaching and researching of this course were kept separate. After the initial request for participants, direct discussion of the study during the teaching of the course primarily occurred at the beginning of the semester when reminding the participants to turn in signed informed consent forms, and at the end of the semester when requesting interview appointments. Discussion of the study was kept to a minimum; when students asked about the progress of this study, I told them that I was concentrating on being their instructor, not researcher. Secondly, while the e-mails, discussion board posts, and chat transcripts were printed out every few weeks as a

precautionary hard copy backup, analysis of the data did not occur until after the course had ended and grades were submitted.

Data Sources and Collection

The data sources included: a) documentation (written transcriptions and documents) of e-mails, bulletin board posts, and chat session transcripts, b) an examination of coursework, and c) an interview. Documentation consisted of all written communication that occurred between the participants and the instructor using WebCT, such as online instructor-student writing conferences and consisted of approximately 641 e-mails, 427 discussion board posts, and 13 chat session transcripts. E-mails consisted of direct one-on-one correspondence between each participant and the instructor and group e-mails from the instructor to all the students in the course. With regard to the discussion boards, there were two types of boards: general discussion boards in which all of the students and the instructor had access, and closed discussion boards which were boards with restricted access, such as those used between student dyads for peer essay conferencing. For this study all participant posts that were threaded (linked) to the general discussion boards were included while the restricted access posts were not because the focus of this study was on student-instructor interaction, not student-student interaction. Because the general discussion boards were designed to be the “virtual classroom” for this course that would be dominated by student-centered learning and limited instructor correspondence, it may seem questionable to even consider general discussion board posts as instructor-participant communication. However, as will be discussed further in Chapter IV, Results, the students did not follow the course requirements and rarely, if ever, commented on

each other's posts or directed posts to anyone in particular. Therefore, as most of the threads consisted of the instructor's initial question followed by the student's post and then the instructor's feedback, the general discussion boards were considered participant-instructor communication. Chat sessions in this course were classified as sessions between: 1) participant-instructor, 2) multiple participants-instructor, such as during a "virtual class meeting," and 3) participant-participant. For this study, only chat sessions between the participant-instructor were analyzed.

The participants' coursework included the diagnostic essay, online quizzes, the mid-term exam, various journal writing pieces, special assignments, and the three compositions: the descriptive/narrative essay, the causal analysis essay, and the argumentative essay. Because this was a process writing course, pieces of these essays in addition to the final draft included subject, audience and purpose statements, thesis sentences, freewriting samples, outlines, introductory paragraphs, first drafts, and revisions.

Three of the study's participants scheduled interviews. Two interviews were held back to back the week after the end of term and the other participant was interviewed approximately one week later. The interviews were based upon a framework of four open-ended questions and lasted from a minimum of a half an hour to one and a half hours. The questions were as follows: 1) How would you describe your experience of learning English composition in an online environment? 2) How would you describe your experience of working with your instructor in an online environment? 3) Do you think you had more opportunities to practice English with your instructor in an online ESL classroom? 4) How would you describe your experience using: a) e-mail, b) the

discussion boards, and c) the chat rooms to complete your activities in this course? With regard to the collection of the data from the actual course itself, this was done through WebCT which automatically recorded all written communication such as e-mails, discussion board posts, and chat room transcripts and easily allowed for hard copy archiving. Collection of the interview data was done by tape recording the interviews.

Data Analysis

Data analysis utilized a microgenetic approach and analyzed learning through the unit analysis of the consciousness meaning of the word (Lantolf, 2000, pp. 3 & 7). The ZPD was defined as “tool-and-result” (Newman & Holzman, 1994) and set within an activity theory framework. Based on the work of Wells (1999) and Nardi (1996), I analyzed the data by examining the tension created between the agent (participant) and tools when engaged in activity with the instructor. In order to do this with such copious amounts of data, I decided to create salient domains that would: 1) find instances of both the ZPD as “tool-for-result” and “tool-and-result,” and 2) determine the relationship between the participant and each of the CMC tools in order to see if this in any way impacted the ZPD occurrences.

While the examination of the ZPD was between the participant and the instructor, I decided to leave out a thorough discussion of the domain analysis of the instructor because I wanted to focus primarily on discussing the student relationship with the CMC tools and their impact on the ZPD in relation to language learning. However, before coming to this decision I did code all of the data, both examining the participants’ interaction with the tools and the instructor’s interaction, and the ZPD for both, of which

the ZPD for the instructor was classified as “course transformation.” When comparing participant domains and instructor domains, the results indicated that they were complementary. Therefore, focusing the Results chapter on a discussion of the participants’ domains in no way changed the purpose or goals of this study, nor changed the findings or conclusions of this study. However, a brief discussion on how the instructor’s ZPD was impacted by the participants’ use of the CMC tools will be included in Chapter V, Discussion, because according to activity theory the instructor’s participation in the course will transform the participants, tools, and materials.

When coding the data, in order to distinguish between the ZPD as a Tool and the ZPD as Transformation, I based the codes upon the previous theoretical work on the ZPD, specifically Newman and Holzman (1993), Wells (1999), and Kinginger (2002). Occurrences of the ZPD as Transformation needed to demonstrate the following characteristics: “revolutionary activity” for human change (Newman & Holzman, 1993), individual and communal transformation (Wells, 1999), and cognition through language awareness (Kinger, 2002). Thus, when the participant *specifically* related her learning to aspects of her personal life or society at large in relation to the world *outside* the ENG 113 classroom, either by discussing the past, present, or future, this was considered the ZPD as Transformation. In regard to coding the data for the ZPD as a Tool, these occurrences were classified as such because the participant related her learning specifically to the course, in terms *inside* the ENG 113 classroom; ZPD as a Tool occurrences reflected student learning as having occurred “inside the box.”

For example, a comment such as “i guess i’m a visual learner” (EM-658-SB) was considered the ZPD as Transformation because the participant was discussing her

learning in terms outside the ENG 113 classroom, while a comment such as “When I was doing freewriting...I read many materials and I thought more about my outline” (EM-386-SC) was coded as representing the ZPD as a Tool because the student was engaged in learning as it related to the course. In addition, general comments about writing transformations were classified as the ZPD as a Tool if there was no *explicit* indication that the context of the discussion applied to situations *outside* of the classroom. If a student discussed the need to change her writing it would be considered the ZPD as a Tool, whereas if a student discussed that she needed to change her writing in order to thrive in the American corporate world this would be considered the ZPD as Transformation. Thus, “my critical problem in writing is logical thinking” (Chat-Feb.15-Line 46-SA) would be considered the ZPD as a Tool.

It must be noted that because the research was terminated at the end of the semester, the statements that were considered the ZPD as Transformation were only *potentially* transformative, as I am unaware if they actually came to fruition. Similarly, it is possible that occurrences of the ZPD as a Tool may have evolved into the ZPD as Transformation upon the completion of the semester; the participant may have applied what she learned in this ENG 113 course to other classes or relation to her personal life or to society. Due to these unknowns, the ZPD was coded based only upon what was known concretely within the participants’ statements.

Table 1 identifies each of the domains developed and used to analyze the data and examples. In addition to the domains used to identify the ZPD as a Tool (implement) and the ZPD as Transformation are four domains that can be sub-grouped into domains that dealt with course issues, identified as course content and course management issues, and

domains that dealt with communication, which were identified as interpersonal communication and personal issues. It is believed that these four domains in addition to the ZPD domains provided a clearer understanding as to how the individual participants engaged the course from an activity theory perspective.

Data were analyzed line by line for each of the e-mail messages, discussion board posts, and chat session transcripts. Domain frequency was marked three different ways. For example, in one e-mail message there could be occurrences of different domains, multiple occurrences of the same domain due to different topics, and additionally, the same line of correspondence could be classified into multiple domain categories.

After analyzing the domains, descriptive statistics were used that consisted primarily of frequency bar and pie charts as a means to count occurrences in order to organize the data, find trends, and find the most salient points. With regard to the descriptive statistic tables in Chapter IV, Results, most of the frequency percentages compared the participant's domain occurrences to the total amount of participants' domain occurrences. Comparisons of two different domains to each other for an individual participant occurred when comparing course content to course management issues. It should also be noted that discussion of homework-based e-mail referred to those messages in which, from an activity theory standpoint, it could be said that the participant's primary motivating factor for correspondence was to turn in homework assignments. If these messages also contained additional issues they were classified into their corresponding domain categories accordingly.

Table 1

Qualitative Domains Relating to the Participant

Domain & Description		Examples
SCASKI: Course content issues	1	Please read and give me some advice (EM-810-SC)
	2	Do you understand what I am trying to mean? (DB-113-SA)
	3	now, what i saw impressed me so much that i'd like to change my essay topic (Chat Feb. 14-Line 17-SB)
SMASKI: Course management issues	1	i could not figure out how to send e-mail in web CT (EM-Feb. 13-SD)
	2	plz give me some time to catch up this class (DB-53-SC)
	3	I did those, but when I check my grade, I missed one discussion (Chat-Feb. 28-Line 109-SA)
SSTRCT: Interpersonal communication: Includes affective issues, openings, closings, and emoticons	1	hope it's not too boring! (EM-744-SB)
	2	:) (DB-627-SD)
	3	sorry for being little bit late (Chat-April 23-Line 12-SC)
SINTER: Personal issues: Small talk, personal issues, and background	1	i'm taking 8 classes right now and i'm working (EM-525-SD)
	2	Wish me luck . . . I'm gonna have a driving test today (DB-53-SC)
	3	i'm going back home for the summer (Chat-Feb. 19-Line 88-SB)
IMPLMT: The ZPD as a Tool: Participant engaged in self-discovery, brainstorming, and realizations as relating to the course	1	When I was doing freewriting . . . I read many materials and I thought more about my outline (EM-386-SC)
	2	maybe its just me who always tries to make more difficult than it is (DB-399-SB)
	3	Oh, great. I understood what tension is (Chat-Feb. 7-Line 15-SA)
TRANSF: The ZPD as Transformation: Major transformation due to the participant seeing the course material being applied in ways outside of the course	1	i guess i'm a visual learner (EM-658-SB)
	2	I feel like I became a writer (DB-96-SC)
	3	I never imagine I can chat in English. I did not have self-confidency on that (Chat-Jan. 24-Line 38-SA)

Limitations

With regard to the placement of the students in this course, the researcher was not present to witness the enrollment process; it is unknown exactly what was discussed between the students and the director with regard to comfort levels for the course or if motivational factors were discussed as to why taking the online section would be beneficial. Furthermore, it is unknown if any other staff members may have been involved in enrolling the students for this course. Another limitation is the fact that the experimental “virtual class meeting” held during the semester was attended by SA and SD, and then directly after it ended, SD had her descriptive/narrative essay conference with the instructor. As only the writing conference with SD was included in the data analysis and not the “virtual class meeting,” her data did not include some domain occurrences such as personal communication because they occurred during the “virtual class meeting” and therefore were left out. However, as will be evident to the reader, the minor omission of data did not affect SD’s overall results regarding her use of the CMC tools and her occurrences of the ZPD.

CHAPTER IV

RESULTS

This chapter was organized to examine the domain analysis of the ZPD for each of the four participants by tool use for communication purposes with their instructor and consists of qualitative analysis followed by a table of descriptive statistics. This is followed by a brief section examining the overall CMC tool results which again consists of qualitative analysis followed by a table of descriptive statistics. Table 2 is a summary table of all of the participants' data that enables one to easily compare the participants' results.

Table 2

Overall Summary of Participant Results

Tool type & domain categories	Participant							
	SA		SB		SC		SD	
	%	R	%	R	%	R	%	R
E-mail								
% of TP messages	32%	1	21%	3	30%	2	17%	4
% of homework-based messages	43%	4	46%	2	45%	3	58%	1
% of TP course content	25%	2	16%	3T	43%	1	16%	3T
% of TP course management	25%	2	17%	4	39%	1	19%	3
% of course content vs. management	23%	2	21%	3	24%	1	20%	4
	vs.		vs.		vs.		vs.	
	77%		79%		76%		80%	
% of TP interpersonal communication	35%	1	22%	3	27%	2	16%	4
% of TP personal issues	73%	1	7%	3	17%	2	3%	4
% of TP ZPD as a Tool	43%	1	38%	2	19%	3	0%	4
% of TP ZPD as Transformation	0%	2T	100%	1	0%	2T	0%	2T
Discussion boards								
% of TP posts	22%	3	33%	1	29%	2	16%	4
% of TP course content	19%	3T	35%	1	27%	2	19%	3T
% of TP course management	60%	1	0%	3T	40%	2	0%	3T
% of course content vs. management	45%	4	100%	1T	64%	3	100	1T
	vs.		vs.		vs.		%	
	55%		0%		36%		vs.	
							0%	
% of TP interpersonal communication	24%	3	29%	2	31%	1	16%	4
% of TP personal issues	31%	2	44%	1	25%	3	0%	4
% of TP ZPD as a Tool	13%	4	44%	1	26%	2	17%	3
% of TP ZPD as Transformation	39%	1	33%	2	22%	3	6%	4
Chat								
% of TP course content	40%	1	30%	2	27%	3	3%	4
% of TP course management	27%	2	48%	1	4%	4	21%	3
% of course content vs. management	85%	2	71%	3	96%	1	37%	4
	vs.		vs.		vs.		vs.	
	15%		29%		4%		63%	
% of TP interpersonal communication	32%	2	43%	1	16%	3	9%	4
% of TP personal issues	13%	2	82%	1	5%	3	0%	4
% of TP ZPD as a Tool	39%	1	37%	2	24%	3	0%	4
% of TP ZPD as Transformation	75%	1	25%	2	0%	3T	0%	3T

Note. R = Rank (1=most, 4=least); TP = Total Participant; T = Tie

Participant SA

E-Mail Results

SA sent the highest percentage of participant e-mail messages (Table 3) which were the lowest percentage of homework-based messages of the participants and primarily addressed course management issues in comparison to course content issues such as when he addressed an online conference time conflict (EM-686) and clarified an embarrassing (as viewed by the participant) typing error (EM-202). SA also had the highest percentage of interpersonal communication and personal issues within e-mail messages. In addition to interpersonal communication openings and closings such as “How are you doing?” (EM-481) and “Thank you. Have a good day” (EM-500), SA also expressed fears and anxieties that were sometimes mixed in with apologies, such as “What an embarrassed moment! . . . I made worst situation” (EM-872), “I am sorry for bother you with my stupid mistake” (EM-242), and “I am sorry for my poor second draft” (EM-472). SA’s personal issues consisted primarily of a theme of graduate school, career, and family pressure issues, and he used e-mail as a tool to discuss personal issues.

With regard to the ZPD as a Tool, SA had the highest percentage of e-mail occurrences that included: “I didn’t print out the transcript. I felt regret . . . I was struggling with reminding of chatting” (EM-94), “After online conference yesterday, I changed my topic” (EM-660), and “I am going to put more time into my final draft after CPA exam. I want to do my best for my final essay” (EM-785). However, with regard to the ZPD as Transformation, SA had no e-mail occurrences.

Table 3

Overall Percentage of SA's E-Mail

Category	Percentage	Rank (1=most, 4=least)
% of TP messages	32%	1
% of SA homework-based messages	43%	4
% of TP course content	25%	2
% of TP course management	25%	2
% of SA course content vs. management	23% vs. 77%	2
% of TP interpersonal communication	35%	1
% of TP personal issues	73%	1
% of TP ZPD as a Tool	43%	1
% of TP ZPD as Transformation	0%	2 (tie)

Discussion Board Results

With regard to general discussion board posts (Table 4), SA did not participate very strongly as his overall participation percentage ranked third, and SA addressed course management issues such as web tool difficulties (DB-122) and course requirements (DB-248) slightly more often as course content issues. SA's use of interpersonal communication occurred mainly when posts required non-course related community building conversation such as for the "Introduce Yourself" board at the beginning of the semester and the "Welcome Back from Spring Break" board. SA's personal issues found in posts corresponded to themes consistent with those found in e-mail such as language anxiety: "I am being harassed by double burden, causal analysis essay and English" (DB-170), and personal pressures such as when discussing balancing family life and graduate school "when I came back home, whenever I saw . . . (my son) . . . I felt guilty" (DB-185).

SA had the lowest percentage of the ZPD as a Tool, which occurred when the discussion board post question requested self reflection upon personal experiences with

writing. When reflecting on the writing process, SA discussed how he had trouble creating the story for an essay because he spent too long on topic development (DB-43) and when he discussed causal analysis rhetoric SA stated, “but I am still not good at that kind of essay” (DB-329). While SA ranked last in the percentage of occurrences of the ZPD as a Tool, he had the highest percentage of occurrences of the ZPD as Transformation, which again occurred primarily on discussion boards that asked for personal reflection and experience with writing. SA transformed writing to a variety of outside areas of the classroom that seemed to radiate like concentric circles of identification from SA’s personal life to relations with culture and society. For example, when relating the course to personal development goals SA wrote, “I am sure this course will be helpful in CPA exam” (DB-163), and “Actually, I don’t like the argument. Whenever I was faced with argumentative situation on my job, intentionally I tried to avoid the moment!” (DB-485). In relation to SA’s life in the United States, he wrote, “I think writing style is a result of a culture. Therefore, if I am studying in America, I need to learn and practice to be used to American style. If I insist my writing style based on our culture that is such a stupid thing” (DB-398), and “I need to learn how Western people develop productive argument without physical conflicts” (DB-485). Lastly, SA was able to transform a classroom discussion of argumentative writing into a discussion of SA’s culture and country’s history. “In our history, there are many argumentative issues. Unfortunately, the results were destructive. Therefore, many Koreans are afraid of arguments” (DB-205).

Table 4

Overall Percentage of SA's Discussion Board Posts

Category	Percentage	Rank (1=most, 4=least)
% of TP posts	22%	3
% of TP course content	19%	3 (tie)
% of TP course management	60%	1
% of SA course content vs. management	45% vs. 55%	4
% of TP interpersonal communication	24%	3
% of TP personal issues	31%	2
% of TP ZPD as a Tool	13%	4
% of TP ZPD as Transformation	39%	1

Chat Session Results

With regard to chat sessions with the instructor (Table 5), SA participated in five chat sessions that included the two required essay conferences and three non-required electronic office hour sessions. Overall, SA utilized the chat sessions to address more course content issues as compared to the other participants. SA's transcripts contained a relatively high percentage of interpersonal communication, which in addition to openings and closings included thank yous such as "thank you for having good chat" (Chat-2/28-Line 166), and apologies such as "I am sorry for misunderstanding" (Chat 4/22-Line 94). Mentions of personal issues continued themes of graduate school, "Sometimes I got regretful I made a decision to study tax" (Chat 2/28-Line 22).

Excerpt 1

The ZPD as a Tool: SA's Descriptive/Narrative Essay Chat Session with the Instructor

From	Line #	Line
SA	36	I need to pay attention to your suggestion on my essay
SA	40	I got understand. I have to be careful in writing time
I	39	Is this helping you?
SA	41	Absolutely, you are helping me
SA	43	I will try to revise the essay based on time issue
SA	46	My critical problem in writing is logical thinking
I	48	In Korean writing, what is the organizational pattern?
SA	49	Usually, the writing is focused on delivering emotional feeling
SA	50	I think that is my problem

SA's use of the ZPD as a Tool was the highest percentage for the four participants.

One example (Excerpt 1) of the ZPD as a Tool occurred near the end of the narrative/descriptive essay conference. It was clear that SA was not only synthesizing the instructor's comments on his essay for his next draft, but based upon the instructor's questioning of Korean essay genre, began to look beyond this specific essay in order to analyze why he might have had problems with writing in English in general. With regard to the ZPD as Transformation, SA had two of the three total participant chat session occurrences. The following example (Excerpt 2) occurred suddenly in the middle of a conversation about the course during office hours the first week of term:

Excerpt 2

The ZPD as Transformation: SA's Office Hours Chat Session 1/24 with the Instructor

From	Line #	Line
SA	35	I am so surprised with myself because I am chatting with American teacher in English
I	37	What are you so surprised? Can you explain how you feel?
SA	38	I never imagine I can chat in English. I did not have self-confidence on that
SA	40	I am always afraid to write or speak in English
SA	42	This class encouraged me to challenge on what I got afraid of
I	44	I am very happy that this course is already starting to make you feel more comfortable with English
SA	58	I am willing to ask you about English I have hesitated

In this example, SA clearly realized mid-conversation that the chat tool allowed him to fluently communicate in English in a way never before imagined by this participant. As stated in Line 42 and 58, this realization enabled the participant to transcend the writing knowledge in this class into the more personal goal of grappling with language learning difficulties. With regard to when the ZPD occurred during SA's chats, it was interesting to note that there was a 2:1 ratio of the ZPD as a Tool usage comparing essay conferences to office hours chat sessions; however, except for one occurrence of the ZPD as Transformation, all examples took place during office hour chats.

Table 5

Overall Percentage of SA's Chat Sessions with the Instructor

Category	Percentage	Rank (1=most, 4=least)
% of TP course content	40%	1
% of TP course management	27%	2
% of SA course content vs. management	85% vs. 15%	2
% of TP interpersonal communication	32%	2
% of TP personal issues	13%	2
% of TP ZPD as a Tool	39%	1
% of TP ZPD as Transformation	75%	1

Interview Results³

For Q1 (How would you describe your experience of learning English composition in an online environment?), SA stated, “usually I prefer face to face instruction/but this was the first time to take the online class/and the beginning of the semester/actually a little nervous/how to handle this class/and as times goes by/I was getting used to this class/its very challenging.” When questioned as to what was challenging, SA identified he was not used to typing but also added, “typing is spontaneous/that’s very good.”

In discussing Q2 (How would you describe your experience of working with your instructor in an online environment?), SA said that he is “usually . . . very shy” and in the normal face-to-face classroom he would ask a fellow participant for assistance, “but this class/I have to participate/in every class discussion/sometimes I have to ask/the teacher/very active.” For Q3 (Do you think you had more opportunities to practice English with your instructor in an online ESL classroom?), SA stated that he had more opportunities to practice English with the instructor in the online classroom than in the traditional face-to-face classroom.

³ Slashes (/) were used in the transcription of interview material to denote either breath pauses, changes in intonation and speech patterns, or to denote thought units.

When asked Q4 (How would you describe your experience using: a) e-mail, b) the discussion boards, and c) the chat rooms to complete your activities in this course?), SA stated that “e-mail is/um/personal privacy/actually . . . when I try/to make sure/that everything . . . [unintelligible] . . . usually/I use/the e-mail/cause/every time/I got a reply/so everything/was clear for me.” SA also referred to e-mail when he stated, “every time/I had a question or problem/I posted an e-mail . . . you checked everything/so very fast/that I got a reply.” With regard to the discussion boards, SA stated that “when I log into WebCT/first I check the discussion boards/very informative/every information related to class . . . we can share every information/we can share the ideas” and he said that he found reading the other participants posts helpful because, “I would check/what the other [participants] think about this topics.” When asked about specific assignments, SA found the role-playing assignments “very interesting . . . when I posted my opinion/another student post their opinion against me . . . that’s very much motivation to participate on the discussion boards.” However, SA alluded to his displeasure with the discussion boards regarding “the general topic/what do you think about [X].” SA found using the chat tool “very challenging to me [because it was] spontaneous/I have to write down/as soon as quickly,” and when asked if the typing or English made it challenging, he indicated “both English and typing.”

Participant SB

E-Mail Results

SB sent a small percentage of total student e-mail (Table 6) that was the second highest percentage of homework-based e-mail. Overall these messages contained small

amounts of course content and course management issues; however, SB tended to address course management issues over course content, particularly issues related to appointment scheduling. E-mail messages had low amounts of interpersonal communication that tended to consist of standard openings and closings such as, “Have a great weekend” (EM-96). SB also expressed some frustration over assignments such as, “i am struggling with this essay for some reason - it just doesn't flow” (EM-405), and when referring to a post which forgot to include the attached homework, SB wrote, “very smartly didn’t attach it” (EM-722). Furthermore, SB’s messages tended to not shed any light on personal issues as they were rare in occurrence and could be a bit mysterious, such as when mentioning an “emergency issue” in an e-mail request for an appointment rescheduling (EM-72), and a homework assignment that included the comment “no sleep” (EM-721).

For the ZPD as a Tool, SB had the second most occurrences, the tone of which led one to believe that in addition to the instructor as SB’s audience, SB was also involved in self-mediation: “for some reason they don’t look all that right to me . . . I guess this is the first time I’m writing things like that” (EM-299), “I am struggling with this essay for some reason – it just doesn’t flow (EM-405), and “i guess organization confuses me the most” (EM-648). Another example occurred when SB wrote the following message when turning in a revision draft: “Revising apparently is much harder than initial writing. It took me a long time and by the time I was ‘kind of done’ I was ready to start the whole thing from scratch. This is quite a new experience to me!” (EM-Feb. 22). For the ZPD as Transformation, SB had the only e-mail occurrence of the participants, which occurred when she was able to write an argumentative outline after the instructor e-mailed a

template for help. Included with the homework attachment was the message, “i guess i’m a visual learner” (EM-658).

Table 6

Overall Percentage of SB’s E-Mail Results

Category	Percentage	Rank (1=most, 4=least)
% of TP messages	21%	3
% of SB homework-based messages	46%	2
% of TP course content	16%	3 (tie)
% of TP course management	17%	4
% of SA course content vs. management	21% vs. 79%	3
% of TP interpersonal communication	22%	3
% of TP personal issues	7%	3
% of TP ZPD as a Tool	38%	2
% of TP ZPD as Transformation	100%	1

Discussion Board Results

SB’s use of the discussion board tool (Table 7) was quite different than her use of the e-mail tool. Unlike her use of e-mail, SB posted the most messages of the participants which were course content driven. SB also used the discussion board tool to express her personality at the beginning of the semester. For example, SB’s posts contained instances of interpersonal communication represented by emoticons and the highest percentage of personal issues in posts of the participants, which included personal conversations on a “participant only board” (DB-56, 120, & 254) and a spontaneous personal conversation with a fellow participant in the middle of an academic conversation (DB Posts 79, 82, & 99).

Similar to SB’s use of the e-mail tool, SB again had a high percentage of occurrences of the ZPD with the discussion board tool. With regard to the ZPD as a Tool, SB posted

in a discussion on revision writing, “I am finding the revision process very hard. The problem is that I do need to revise my essay both globally and locally and I am going through about the same stages as [the author] did, but it is difficult to focus on exactly what it should look like” (DB-399). On the discussion board topic of Western rhetoric, SB addressed her view on topic sentences when she posted, “I personally find it hard to adopt that rule even though in general I know how to create paragraphs” and further commenting on Western paragraph structure muses, “its great there is pattern but doesn’t that make it boring? [Or] maybe it’s just me who always tries to make more difficult than it is” (DB- 399).

Referring to the ZPD as Transformation, SB was able to relate writing to other course applications, which occurred during discussions on essay exam writing in relation to taking a political science exam (DB-270), and as stated during the last week of term on the farewell class board, “[The course] was very helpful – I just realized it when all the papers for other classes became due” (DB-619). Furthermore, SB was able to utilize the ZPD as Transformation in a wider arena that occurred when SB related discussions on freewriting and argumentative writing to her personal experience in public relations. In the first post SB stated, “if the writer doesn't know what he is doing neither will the audience and his efforts will be wasted! We study that a lot in public relations writing because there everything depends on those three factors. If you can't observe them you lose your job!” (DB-236), and in the second she stated, “I had to do that a lot when I was writing for the newspaper and it was hard” (DB-451). And finally, SB was able to broaden out writing to a cultural examination in which SB wrote an extensive post that compared rhetoric in Russia to the United States (DB-399).

Table 7

Overall Percentage of SB's Discussion Board Posts

Category	Percentage	Rank (1=most, 4=least)
% of TP posts	33%	1
% of TP course content	35%	1
% of TP course management	0%	3 (tie)
% of SB course content vs. management	100% vs. 0%	1 (tie)
% of TP interpersonal communication	29%	2
% of TP personal issues	44%	1
% of TP ZPD as a Tool	44%	1
% of TP ZPD as Transformation	33%	2

Chat Sessions Results

With regard to chat sessions with the instructor (Table 8), SB participated in five chat sessions, including three essay conferences, two required and one extra wrap up session, and two non-required electronic office hour sessions. In addition to addressing course content issues, SB also addressed course management issues that led her to having the highest percentage of course management issues for the participants. Beyond the course issues, SB overwhelmingly used the chat tool for interpersonal communication such as emoticons and thank yous, and for very personal issues such as asking for advice on how to break the news of her engagement to her parents back in Russia (Chat April 25). At times it was necessary for the instructor to remind SB that the online essay conferences needed to address the course issues.

Similar to SB's use of the e-mail and discussion board tools, she had a high percentage of occurrences of the ZPD with the chat tool. One example of the ZPD as a Tool occurred during the descriptive/narrative essay conference when the instructor asked SB whether she would have enough time to rewrite the essay if she changed topics, to

which SB replied, “with me writing is the matter of sitting down and actually doing it :)” (Chat-Feb.14-Line 30). In the second descriptive/narrative essay conference the following use of the ZPD as Tool took place as seen in Excerpt 3:

Excerpt 3

The ZPD as Transformation: SB's Descriptive/Narrative Essay Chat Session #2 with the Instructor

From	Line #	Line
I	174	also I would rework your conclusion [to] fit it in with the essay
SB	175	I will try that
SB	176	I know – it doesn't fit
I	177	you realize this?
SB	178	my mind went blank

In this example, SB had already realized, much to the surprise of the instructor, that her conclusion did not work for the current draft of her essay. Another example occurred during the argumentative essay conference when the instructor walked SB through a series of preliminary questions as to why she picked her topic and requested examples to support her side of the argument. After SB gave several examples, the instructor asked “ok. what else?” (Chat-April 23-Line 30) and SB stated, “see - my big problem is that i get confused whether i'm defending it or opposing it” (Chat-April 23-Line 31). Again, SB seemed to be one step ahead of the instructor when identifying aspects of her writing process that needed additional attention.

With regard to the ZPD as Transformation, this occurred during a discussion of how SB sent e-mails to her American significant other while living in Russia: “that's by the way how i first started working on my writing skills” (Chat 2/14 Line 134). This was

considered the ZPD as Transformation because SB was cognizant of ways outside the classroom to apply writing skills that in turn likened the chance that material learned during this course would be applied in a larger frame of reference. In another example, SB discussed that she picked the side of her argumentative essay because, “in a sense it's personal to me/⁴since i lived with the Hispanic family for a year” (Chat-April 24-Lines 46-47). To conclude, it was interesting to note that none of SB's occurrences of the ZPD as a Tool and the ZPD as Transformation took place during online office hours chat sessions – they only took place during the essay conferences chat sessions.

Table 8

Overall Percentage of SB's Chat Sessions with the Instructor

Category	Percentage	Rank (1=most, 4=least)
% of TP course content	30%	2
% of TP course management	48%	1
% of SB course content vs. management	71% vs. 29%	3
% of TP interpersonal communication	43%	1
% of TP personal issues	82%	1
% of TP ZPD as a Tool	37%	2
% of TP ZPD as Transformation	25%	2

Interview Results

When discussing Q1 (How would you describe your experience of learning English composition in an online environment?), SB stated that she took this course because, “I was running out of time in my time table.” SB discussed at length about some of the differences she found between the face-to-face classroom and the online classroom such as in this commentary: “I would be checking the course/like/5 times a day/who did

⁴ Slash (/) in Chat Sessions Results section denotes line breaks in chat transcript.

what/whose saying what/which was kinda cool . . . unlike in a lot of other classes/you get to . . . talk/to each other . . . on just general topics/or what ever topics are being offered . . . in regular classes . . . you don't even know their names." SB also made some insights into time management issues: "sometimes I would think/well/if I was going to regular class/I would spend this much time in the class/like three hours/and then I'm outta there/and you can forget all about it/but [with the online class] you constantly think about it . . . on the one hand/its convenient/you think you can manage your time . . . better/on the other hand/its difficult/because there's nobody/disciplining you."

In answering Q2 (How would you describe your experience of working with your instructor in an online environment?), SB stated that "there's a whole lot more [interaction] in the online class/definitely . . . you feel more free/to interact/with the person/because you think/you're e-mailing them . . . rather than asking questions in person . . . and you would get/a reply/real prompt . . . in most cases . . . in that same day . . . this would be almost impossible . . . with a [face-to-face] instructor . . . partly you felt more free/to just ask things . . . probably because the online environment helps that . . . and sometimes . . . you would be working/on your work/at various times of day/and you would come across a question/and you would type it out/and send it off/rather than waiting for a class . . . and forget[ting] about it." Later in the interview, SB stated that she appreciated that the instructor addressed general participant problems (by sending a class e-mail) "it was so cool/it was like/so you're talking about [subject X] well guess what/I'm going to tell you how to do this."

For Q3 (Do you think you had more opportunities to practice English with your instructor in an online ESL classroom?), SB felt that there were more opportunities to

practice English with the instructor in the online classroom “because there’s . . . e-mails/going back and forth/I thought the chats/were pretty useful too/because . . . sometimes/you would just/run out of ideas/and a fresh mind/is always good/plus it’s in English.”

With regard to Q4 (How would you describe your experience using: a) e-mail, b) the discussion boards, and c) the chat rooms to complete your activities in this course?), SB felt that e-mail “was prompt/cause you can always e-mail/anything/that comes across . . . your mind . . . it . . . makes the whole work/a whole lot faster . . . I . . . get an answer . . . so . . . I can get on/with my work.” SB also stated “that e-mail/is more personal . . . not everyone likes having/their problems/exposed in a bulletin board/so you just sort of feel more safe . . . just talking/straight to the instructor/than making sure/that everyone sees/that you can’t write.” SB felt that the discussion boards in general were “an important part of the course/because that was/the interaction part . . . with the peers . . . it was kind of fun/because you could see/what everybody else was saying/it wasn’t just private e-mail . . . you could see/what’s going on/in peoples lives . . . it felt/like/you were meeting the person/in person . . . you don’t have to/write back to them/or anything/you just know/that they’re there . . . you just feel like/you are part of the class.” However, SB didn’t find the general question discussion board very useful because, “there’s a lot of things/under that general category/your thinking . . . I’m going to post/my question . . . under this thing/that had other/fifty things in it/so I don’t know/if it’s going to get/attention or not/but I know/if I send an e-mail/somebody’s going to read it/right off.” Similar to SA, SB indicated that she enjoyed the role-playing assignments because, “I thought that that was really good/with people getting into their roles/and

saying [their opinions] and plus not longer did you have to complete/a certain amount of assignments/that are just a board.” With regard to the chat tools, SB felt that they “were fine” except for an incidence in which one of her peer online conferences didn’t record because they used the non-recording chat room.

Participant SC

E-Mail Results

SC sent the second highest number of e-mails (Table 9) which contained the largest percentage of course content and course management issues for any of the participants. Specifically SC tended to send e-mails that dealt primarily with course management issues such as computer/software tool problems, appointments, assignment deadlines, and grade issues such as “I tried to copy our chat but I couldn’t” (EM-453), and “I have a question of the grade” (EM-386). Essentially there were no occurrences of course content issues until after an incident of plagiarism mid-semester. SC also had the second highest percentages of interpersonal communication, dominated by thank you and apologies such as “sorry for being late” (EM-152), and personal issues, which covered issues similar to those of SA such as balancing time with school, in this case jobs and personal pressures, an illness (EM-633), and when SC had to go to LA unexpectedly to take care of a family member (EM-307).

SC’s amount of the ZPD as a Tool was second to the last of the four participants. SC wrote, “That was my mistakes and I will save everything next time” (EM-194) when she was able to turn in only several of the electronic files of her process writing because she saved over many of the files by accident. Another example occurred when SC requested

to re-do her outline for her causal analysis paper because, “When I was doing freewriting . . . I read many materials and I thought more about my outline” (EM-386). In a later occurrence in the semester that again dealt with writing outlines, SC e-mailed her outline for the argumentative paper and wrote, “I was trying to get more idea but it was not easy...so I tried use the idea that you give but I will make some changes (EM-662). In these examples SC was essentially letting the instructor know that she was self-mediating her writing experience. There were no examples of the ZPD as Transformation for SC with the e-mail tool.

Table 9

Overall Percentage of SC's E-Mail

Category	Percentage	Rank (1=most, 4=least)
% of TP messages	30%	2
% of SC homework-based messages	45%	3
% of TP course content	43%	1
% of TP course management	39%	1
% of SC course content vs. management	24% vs. 76%	1
% of TP interpersonal communication	27%	2
% of TP personal issues	17%	2
% of TP ZPD as a Tool	19%	3
% of TP ZPD as Transformation	0%	2 (tie)

Discussion Board Results

With regard to the discussion board posts (Table 10), SC had the second highest percentage of discussion board posts that also contained the second highest percentage of course content and course management issues. Of the course issues addressed, SC's posts dealt more with course content compared to course management issues. While SC had the highest percentage of interpersonal communication, which included a high amount of

emoticon usage, her references to personal issues were moderately low, occurring only during the first three weeks of the term and included the topics of moving across the United States (DB-53) and personal uncertainty due to a prolonged illness: “I don’t know what to do . . . I want to call my mom but . . . that makes my mom sad so I can’t do that . . . this is weird” (DB-179).

With regard to the ZPD with the discussion board tool, SC had the second highest percentage of the ZPD as a Tool, which included this post on freewriting: “I like to write something and actually I like the time when I write. Because I am thinking and analyzing my thought while I write . . . I seriously never thought about that. Now, I know I need to consider about those things” (DB-95). In regard to having read a series of sample revisions by a writer, SC wrote, “It was really impressive to read her whole drafting working. I really learned a lot, because I need someone else’s working to compare with my working” (DB-256), and that same week on a different board about revising in general, SC referred back to this line of thinking, “it was really nice to revise but I think I should’ve revised it two more times like [the author]” (DB-258).

With regard to the ZPD as Transformation, SC was able to relate the course material to her own personal experiences in writing such as when she stated in a post on the writing process, “I feel like I became a writer” (DB-96). SC was also able to relate her current experiences with writing to past experiences such as her previous experiences with argumentative writing, “I have done debate when I was in high school” and more recently, “I had a hard time when I took English courses at [another university]. I am still not a good writer, unfortunately, but now I like writing” (DB-179). Furthermore, SC was able to relate argumentative writing outside of her own personal experiences to that of her

culture in a post in which she discussed how argumentative writing is used in newspapers in Korea (DB-462).

Table 10

Overall Percentage of SC's Discussion Board Posts

Category	Percentage	Rank (1=most, 4=least)
% of TP posts	29%	2
% of TP course content	27%	2
% of TP course management	40%	2
% of SC course content vs. management	64% vs. 36%	3
% of TP interpersonal communication	31%	1
% of TP personal issues	25%	3
% of TP ZPD as a Tool	26%	2
% of TP ZPD as Transformation	22%	3

Chat Sessions Results

With regard to chat sessions with the instructor (Table 11), SC participated in two chat sessions, which consisted of the two required essay conferences; SC did not participate in any non-required chat sessions. While SC's chat sessions contained overall low percentages of course content and course management issues, SC overwhelmingly addressed course content over course management issues. SC's interpersonal communication occurrence was a low percentage and consisted mainly of emoticons in the first chat conference session and of opening greetings in the second chat conference session. SC didn't address many personal issues through the chat tool; they occurred only in the first conference when SC addressed having two "big tests" the next day (SC Chat 4/23).

With regard to the ZPD, SC used the ZPD as a Tool as a form of acknowledgement of comprehension and synthesis of the point being discussed, such as “I know what you mean” and “I know... but that's really what I thought” (Chat Feb. 2/18-Lines 40 & 69) in the first essay conference, and many uses of “I see” (SC Chat 4/23 Lines 89, 121 & 130) “now I got the point,” and “I got . . . the point exactly” (SC Chat 4/23 Lines 42 & 132) during the second essay conference. It was interesting to note that SC’s use of the ZPD as a Tool more than doubled from the first essay conference to the second essay conference. SC however did not utilize the ZPD as Transformation in either essay conference.

Table 11

Overall Percentage of SC's Chat Sessions with the Instructor

Category	Percentage	Rank (1=most, 4=least)
% of TP course content	27%	3
% of TP course management	4%	4
% of SC course content vs. management	96% vs. 4%	1
% of TP interpersonal communication	16%	3
% of TP personal issues	5%	3
% of TP ZPD as a Tool	24%	3
% of TP ZPD as Transformation	0%	3 (tie)

Interview Results

With regard to Q1 (How would you describe your experience of learning English composition in an online environment?), SC stated that she took this online section of ENG 113 because, “I don’t have to go to school/cause I can use a computer . . . for me/that’s much for fun/much easier and comfortable.” Actually SC was in one of the face-to-face sections the first week of term but switched to the online class because, “[the face-to-face section] looks so boring” and “too easy” and also because when placed in

group work, “like three of us/only one work/and like/other[s] didn’t work.” Whereas SC realized that in the “online class . . . I would have to participate more so I can more learn . . . more work/more personal stuff . . . it would be better for me.”

In reference to Q2 (How would you describe your experience of working with your instructor in an online environment?), SC indicated that unlike the face-to-face classroom, in the “online class/I can e-mail you/before I finish my first draft . . . so you can more/help me [whereas in the] face-to-face [classroom] my deadline is tomorrow/and . . . I’ll just finish it/and . . . see comments for me/correct them later” and that she had more opportunities to talk to the online instructor than a face-to-face instructor because “e-mail is more convenient/so I can just e-mail you.” SC indicated for Q3 (Do you think you had more opportunities to practice English with your instructor in an online ESL classroom?) that while the face-to-face classroom affords more opportunities to practice English such as grammar, “in [the] online class/we can talk/to each other/you know/even though/it was [on different topics] it was writing.”

With regard to Q4 (How would you describe your experience using: a) e-mail, b) the discussion boards, and c) the chat rooms to complete your activities in this course?), SC described using e-mail as “really easier/to contact with each other/and that/comfortable/convenient.” Similar to the opinion of SB, SC additionally stated that she liked to use e-mail because, “I check my e-mail/every day/like five times a day/or three times a day/so when I e-mail to/another people/they check immediately If I post/on the board/you can check/your e-mail first/and then the boards/it’s like/if I use e-mail/I can contact you/fast or very quickly.” With regard to the discussion boards, SC said she “would like to read/what other [participants] writing/so . . . I can know/their writing styles/or their

way of thinking/or like/opinion . . . so I can compare my style . . . to the other people I can learn more/so I can say/if this style/or structure/is better for me/and take it/by using later.” When asked what SC thought about her experience with the chat tool, she stated, “I really wanted/to have more chance/to talk with classmate/or instructor/but [I had] time [constraints] I really think . . . the chance/to more spending/the time/with each other/that would be/much better/for each other/cause we can/express our opinions/and in chat/it’s more easy/to have a conversation.”

SD

E-Mail Results

SD sent the lowest percentage of participant e-mail messages (Table 12) which were primarily homework-based and overwhelmingly dominated by course management issues because SD had extensive difficulty operating WebCT tools and complying with deadlines with the result that most of SD’s assignments were submitted late. In addition SD had the lowest percentage of interpersonal communication, which consisted mainly of closings such as “Thank you for concerning” (EM-694) and emoticons. Over the course of the semester SD had only one occurrence of personal issues, which occurred late in the semester in an apology for turning in late homework: “i’m taking 8 classes right now and i’m working” (EM-525). With regard to the ZPD as a Tool and the ZPD as Transformation, SD did not have any e-mail occurrences. Essentially SD’s use of the e-mail tool was to turn in homework.

Table 12

Overall Percentage of SD's E-Mail

Category	Percentage	Rank (1=most, 4=least)
% of TP messages	17%	4
% of SD homework-based messages	58%	1
% of TP course content	16%	3 (tie)
% of TP course management	19%	3
% of SD course content vs. management	20% vs. 80%	4
% of TP interpersonal communication	16%	4
% of TP personal issues	3%	4
% of TP ZPD as a Tool	0%	4
% of TP ZPD as Transformation	0%	2 (tie)

Discussion Board Results

Again SD finished last in a tool use category (Table 13) as she contributed the smallest percentage of discussion board posts. While not addressing many course content issues, SD did not address any course management issues on the discussion boards. Similar to the findings of SD's use of the e-mail tool, there was a low percentage of interpersonal communication, which consisted of a handful of emoticons and thank yous, while there were no occurrences of personal issues in discussion board posts.

However, unlike e-mail, there were a few occurrences of the ZPD as a Tool such as when SD wrote, "I realize my style of writing could make readers bored because of no emphasis which I've not tried" (DB-135) and in regard to the causal analysis rhetoric style SD posted, "I think I need to read many materials which is related with the topic and practice a lot of express my opinion" (DB-335). With regard to the ZPD as Transformation, SD had one occurrence during the last week of term on the discussion board topic of what the participant's future writing would be like: "I had problems copying words from sources . . . but for the next time when I write any of essays I should

be really careful with them . . . I will be always keeping plagiarism in mind for next essays” (DB-616).

Table 13

Overall Percentage of SD's Discussion Board Posts

Category	Percentage	Rank (1=most, 4=least)
% of TP posts	16%	4
% of TP course content	19%	3 (tie)
% of TP course management	0%	3 (tie)
% of SD course content vs. management	100% vs. 0%	1 (tie)
% of TP interpersonal communication	16%	4
% of TP personal issues	0%	4
% of TP ZPD as a Tool	17%	3
% of TP ZPD as Transformation	6%	4

Chat Sessions Results

SD only participated in one chat session with the instructor (Table 14), which was the first required essay conference for the descriptive/narrative essay. SD's occurrences of course content issues tended to be feedback on instructor comprehension verification and occurrences of course management issues addressed scheduling a face-to-face appointment to sort out SD's computer software issues because SD was still having difficulty operating WebCT at this time. As stated in the limitations section, while SD's results for interpersonal communication and personal issues were skewed because SD's conference occurred after the class chat session it can be said that SD's use of interpersonal communication once the class ended were dominated by emoticons and there were no mention of personal issues. With regard to the ZPD there were no occurrences of the ZPD as a Tool or the ZPD as Transformation.

Table 14

Overall Percentage of SD's Chat Sessions with the Instructor

Category	Percentage	Rank (1=most, 4=least)
% of TP course content	3%	4
% of TP course management	21%	3
% of SD course content vs. management	37% vs. 63%	4
% of TP interpersonal communication	9%	4
% of TP personal issues	0%	4
% of TP ZPD as a Tool	0%	4
% of TP ZPD as Transformation	0%	3 (tie)

Interview Results

Unfortunately SD never responded to repeated requests to be interviewed. However, SD did write an extra credit piece on her experience of taking an online course that related to the interview questions and will be discussed in this section. SD stated that she took this course because “it saves time and money.” SD discussed how she didn’t have to drive to campus and therefore saved money both on gas and meals. In regard to how SD saved time, she referred both to physically not having to attend class and to her writing. SD stated “Usually [in the face-to-face classroom] I have to wait the next class and take a note for my question, but for online class I just had felt free to ask any question at any time” and “I could . . . and e-mail to the instructor.” However, SD admitted that her preconceived notions of how she would save time by taking an online class did not come to fruition: “I had taken seven classes and did not have time during weekdays, so I chose to take online class because I could participate during weekends I really misunderstood with due dates. I thought I could send the project before the day ends because we do not need to go to class.” With regard to participation SD wrote, “It seems students could be involved more than the regular class. For example, we had a role-play,

which . . . students had to express their opinions If I were at the [face-to-face] class looking at other students, I could not express what I really wanted to say, but I could fully express my thoughts about the struggle through [WebCT].” SD summarized, “Other than due date, I had enjoyed the online class Even though I felt online class requires more work to do than a regular class, it had saved money and time.”

Overall Computer-Mediated Communication Tool Results

In summary of overall participant occurrences by tool (Table 15), e-mail had the highest percentage of course management issues and interpersonal communication. It seems logical that the most occurrences of interpersonal communication would occur for the e-mail tool as there are proper protocols for writing an e-mail such as starting with an opening and ending with a closing. While the discussion board tool ranked first in only one category, it is interesting to note that it was for the most important domain in this study, the ZPD as Transformation. Chat had the most occurrences of highest percentages including the domains of course content issues, personal issues, and the ZPD as a Tool. As there was also a high percentage of ZPD as Transformation occurrences with the chat tool it can be stated that the majority of the ZPD took place with the chat tool.

Table 15

Overall Percentage of Participant Tool Use

Domain	E-mail	Discussion boards	Chat
% of TP course content	11%	6%	83%
% of TP course management	60%	4%	36%
% of TP interpersonal communication	58%	11%	31%
% of TP personal issues	20%	11%	69%
% of TP ZPD as a Tool	19%	27%	54%
% of TP ZPD as Transformation	3%	51%	46%
% of Total ZPD	14%	34%	52%

CHAPTER V

SUMMARY AND CONCLUSIONS

Discussion

RQ: How do CMC tools such as asynchronous e-mail and discussion boards and synchronous chat impact the ZPD when students work with their instructor in the online environment?

E-Mail Tool and the ZPD

It was very interesting to see from the data that each of the four participants utilized the e-mail tool in their own unique way. SA and SC were the most well rounded in their overall use of the e-mail tool as they both had high ranks in course and communication issues, except that SA used e-mail primarily as a tool to discuss personal issues while SC primarily addressed course issues. Because their overall results were so similar but yet differ dramatically when comparing the ZPD as a Tool occurrences, it is thought that this might be explained by the difference between SA being preoccupied with using the e-mail tool to address personal issues and language learning while SC focused her use of the e-mail tool more on the “course mechanics” of grades and deadlines. SA’s personal use of the e-mail tool afforded him the opportunity to work through language anxiety issues thereby facilitating language learning and more specifically enabling for more occurrences of the ZPD. SB and SD’s use of the e-mail tool was similar in that they used the e-mail tool primarily as a vehicle to turn in homework and get answers to course

management issues. However, SB and SD were complete opposites when examining the ZPD; not only did SB have a high frequency of the ZPD as a Tool occurrences, she was also the only participant to have any occurrences of the ZPD as Transformation with the e-mail tool while SD did not have any occurrences of the ZPD with the e-mail tool. SB's results could seem quite odd for someone who did not utilize the e-mail tool to its full potential but perhaps this can be explained by SB's view of the e-mail tool. As mentioned in the data analysis, SB proudly announced in a chat session that e-mailing her significant other across the ocean enabled her to learn written English. Also, in SB's interview she stated, "I think that e-mail is one of the most wonderful things that have ever been invented." While it is troubling that SB's thought, that she *utilized* the e-mail tool to enable her to ask spontaneous questions and receive quick answers from the instructor, was not supported by the data (specifically the results of course content and course management issues), it is thought that her personal attitude toward the e-mail tool itself explains why she was still able to have such a high frequency of the ZPD without utilizing the tool very often and to its full classroom potential.

With regard to why SD did not have the ZPD occurrences with the e-mail tool, her personal struggle with the WebCT tools, including the e-mail tool at the beginning of the semester needs to be examined. A few weeks into the semester it became clear that SD was having great difficulty using WebCT because she was not using the WebCT e-mail tool (she was sending e-mail to the instructor's personal account), not threading discussion board posts, and not following course requirements and deadlines. Examination of the data showed that the instructor's mantra of "If you need any help, let me know!" (EM-135) was ignored by SD and she did not show up to a requested face-to-

face mandatory meeting to solve her WebCT tool problems. Because SD continued to send e-mail to the instructor's private e-mail account, she was warned that this was no longer acceptable. Finally SD started using WebCT e-mail; it is unknown if she learned how to use this tool with assistance from another individual or through self-mediation. It was also interesting to find that similar to SB, SD's personal view of how she utilized the e-mail tool to spontaneously e-mail questions to the instructor was somewhat conflicted with her actual use of the e-mail tool as she used this tool very little and asked few questions when compared to the other participants. However, SD's personal attitude towards the e-mail tool as a "time saver tool" was very different compared to SB's personal attitude of the e-mail tool as a "personal communication tool." Taking into account both SD's problematic experiences at the beginning of the course that most likely meant that her comfort level with this tool was not very high and her personal attitude toward the e-mail tool, it became clearer as to why SD did not have any e-mail tool ZPD occurrences.

Attitude towards the tool and tool comfort level must have played a very important role with these results. It is interesting to note that unlike SD, SA, SB, and SC all had occurrences of the ZPD and all three indicated in their interviews that they found e-mail to be one of the most important course tools. Additionally, all three indicated that e-mail allowed them to address specific course questions to the instructor without fear of embarrassment in front of their classmates. This seemed to be especially important in the case of a shy, reserved participant like SA.

Discussion Board Tool and the ZPD

SA's use of the discussion board tool as measured in his domain results and percentage rankings indicated that he did not do as well with the discussion board tool compared to his use of the e-mail tool. SA's overall use of the tool made sense in relation to his views and attitude toward language anxiety, student-student and instructor-student participation. While SA's occurrences of the ZPD as a Tool were quite low, quite surprisingly SA had the highest amount of the ZPD as Transformation for the discussion board tool. However, I think this can partly be explained when examining the factor of attitude. Just as SB had a positive view of the e-mail tool, SA in his interview indicated that overall he had a positive view of the discussion board tool. However, because he also indicated that he wasn't particularly motivated to answer "general questions" and that most of the ZPD as Transformation occurred for questions regarding personal experience with writing as it did as well for the other participants, one must also consider that while not motivated, SA's background, including his status as husband, father, and graduate student, allowed him to thrive when answering these questions. Furthermore, SA's results were also similar to SB and SD's e-mail results in that it again seemed as though the participants own personal views of how they utilized a tool contradicted with the data on actual tool utilization; while SA's posts for the "general question" topics were quite rich in the ZPD as Transformation, SA most likely was not cognizant of the value in his posts and thought that they were "busywork."

SB thrived using the discussion board tool as she had the most posts and primarily ranked either first or second in percentages of total occurrences of course and communication issues and for both the ZPD as a Tool and the ZPD as Transformation.

SB's use of the discussion board tool related to her personality and her attitudes towards this tool. It was clear from SB's interview that she was a very social, outgoing student and her opinion about how the discussion boards were important because they were the "interaction part" of the course and her description of her classmates on the discussion boards in such an intimate relationship illustrated the personal value she placed on the discussion board tool.

While SC in her interview described her personality as "being shy with people," her use of the discussion board tool was quite effective as SC ranked second in total percentage of occurrences in many domain categories and furthermore, SC ranked second for percentage of occurrences of the ZPD as a Tool and third for percentage of occurrences of the ZPD as Transformation. Again it is believed that this was based upon the fact that SC had a very positive view of the discussion board tool. Whereas similar to her e-mail results, SD had the fewest percentage of total posts and ranked near or at the bottom in total percentage of occurrences for most domain categories. However, the discussion board was the only tool in which SD was able to have the ZPD occurrences in both the ZPD as a Tool and the ZPD as Transformation. While SD also had trouble with this tool at the beginning of the semester, perhaps SD felt more comfortable with this tool than e-mail or perhaps she enjoyed the social aspects of the discussion boards.

Because of the evidence that many of the discussion board results seem to conflict and refute each other and that this was the only tool in which all of the participants were able to have the ZPD, further discussion is needed. Overall, it should be said that almost all of the ZPD occurrences for the four participants occurred when the questions asked the participant to discuss their personal experience of writing or asked for views of their

cultures' viewpoints on writing. Overall, these discussion board questions seemed to get some of the most dynamic and reflective posts from the four participants. However, the data of the course yet again did not mesh with the data from the participants' interviews. The participants interviewed only mentioned the role-playing boards; they never mentioned these personal experience discussion questions and if mentioned indirectly the participants seemed bored and unmotivated by these "general questions." While not directly coded as affecting the ZPD, the role-playing discussion boards must be taken into consideration as these activities directly helped the students with their writing, thus amounting to the ZPD as a Tool, and might have helped transform the students personally, thus amounting to the ZPD as Transformation. Also, it was interesting to note that the ZPD as Transformation on the discussion board posts for the participants was similar to the effect of tossing a pebble into a pond. With ever widening concentric circles, the students were able to relate their current classroom writing to ever expanding personal, social, and cultural issues.

However, it must be noted that student-student interaction on the discussion boards was almost non-existent in spite of the course requirements that students needed to post a specific number of replies to each other and constant reminders of these requirements from their instructor during the course of the semester. As noted in Chapter III, Methodology, on first examination, the discussion boards seemed to consist primarily of instructor-student conversations. However, it became clear in the interviews that the participants still engaged the ZPD with their fellow participants by simply reading each other's posts. Because the participants did not use this tool in the traditional online manner, it was addressed in the interviews. When asked why SA thought student-student

participation on the discussion boards was minimal, he stated, “we are getting used to listening/speaking we have a kind/of anxiety/to write something in English so usually they only post/their opinion/to get their grade/satisfy the requirement.” SA also mentioned later in regard to his opinion as to why the second role-playing task participation levels were lower than the first that “usually the Asian student/we don’t like/the debating discussion/so one of the reasons why/one didn’t post too much/was due to/the/Asian culture . . . we just follow the teachers guidance.” SB also echoed some of SA’s themes: “there’s the problem/that the students/aren’t so used to talking to each other/in class/you know/basically/other classes don’t encourage/interaction with each other/so you think/if the instructor/asks a question/it is supposed to be answered/to the instructor/rather than/whatever/everybody else is saying/so it just felt odd/to a certain degree.” And SC voiced similar opinions: “I read what they write/and then I just close it . . . I tried to do/but I don’t have much time . . . and I think all right/only my duty for . . . this/just post my opinion/that’s it.” Clearly the students voiced that traditional student classroom participation patterns, minimum grade requirements (there must have been confusion between the participants’ and instructor’s definition of minimum requirements), cultural factors, and time constraints impacted the participation patterns on the discussion boards.

Chat Tool and the ZPD

Based upon SA’s statements about feeling comfortable in a private, student-instructor setting, it makes sense that SA would have tied for the most chat sessions, had a high percentage of personal issue occurrences, and ranked first for percentage of total occurrences of course content, the ZPD as a Tool, and the ZPD as Transformation.

Clearly attitude towards the chat tool played a greater role in SA's ZPD occurrences with this tool than skill level. While SA voiced that he found this tool challenging due to typing and English and had never engaged in chatting before, his wonder and amazement that he could actually talk to his English instructor through this tool actually helped him break through these barriers and enabled him to work on language anxiety and language learning issues. SA would become so comfortable with this tool that during one chat session he readily provided suggestions to the instructor on ways to make the course navigation easier for the students, something that one could not easily picture coming from such a shy student. However, it must be noted that during writing conferences it could be quite difficult to get SA to voice his opinion on his essay topics and opinions, which corresponded to SA's cultural framework of the student-instructor relationship.

SB was the student who tied with SA for the most chat sessions and she ranked either first or second in percentage of total occurrences for course and communication issues, and second in percentage of total occurrences for the ZPD as a Tool and the ZPD as Transformation. SB's use of the chat tool was related to her outgoing, gregarious nature. SB used this tool in a very personal nature in order to share her personal life and express her personality with the instructor. SB was the only student who would readily take the lead during writing conferences, which at times made it difficult for the instructor to keep SB on track and lead her through the ZPD, and her speed at which she typed and sent her lines further added to this situation. It was clear that SB's comfort level and attitude impacted her use of the chat tool and the ZPD.

SC overall ranked third in the percentage of total occurrences in most domain categories with the chat tool, including the ZPD as a Tool, and there were no occurrences

of the ZPD as Transformation. Unlike SA and SB, SC only participated in the minimum requirements for the chat sessions and never attended any non-required sessions, like office hours. Unlike SB and to an extent SA, SC did not set her own agenda with the chat tool and was quite passive in her conversations with her instructor and essentially let the instructor dictate the agenda and dominate the conversation. It is thought that this passive stance was related to the cultural factors as discussed by SA in regard to the student-instructor relationship. Overall, this passive stance and the fact that SC only utilized the tool to the minimum requirements (most likely due to the time constraint issues she referred to in her interview) were the main reasons for SC's low occurrences of the ZPD when utilizing the chat tool.

SD ranked last in percentage of total occurrences for almost every domain with the chat tool and did not even attend the minimum number of chat sessions required. Similar to her use of the e-mail tool, there were no occurrences of the ZPD as Tool or the ZPD as Transformation. Again, a student's comfort level with the tool must come into question. SD's struggle to keep her head above water with the course in general was a factor in her infrequent occurrences of the ZPD. While SD did seem to have fewer WebCT tool problems during the course of the semester, her participation levels and constant deadline violations did not abate. By mid-semester, the instructor advised the student that if she couldn't participate and turn in assignments that it might be best to drop the course because it was in question whether or not she would pass the course. While SD became very concerned and wanted to know how to pass, her participation was still sporadic for the remainder of the semester. While we do not know very much about SD's motivation and attitude because of her limited participation during the course of the semester, we do

know based upon her extra credit assignment that while she liked the course, she had a different perception of what she thought the course would be than what the course was in reality which in turn caused problems for her such as the inability to turn in work on time due to other life commitments. Also, we know that the driving motivational factors for SD taking this online course were time and money. It seems fair enough to state that from an activity theory perspective that SD's main concern regarding ENG 113 was to pass in order to earn the undergraduate credits and this motivation greatly impacted her total course experience including occurrences of the ZPD.

Participant Awareness of the ZPD

Since SA, SB, and SC had the majority of the ZPD occurrences, it is worth focusing on their experiences in more detail. When analyzing the chat transcripts, at times it looked as though SA and SB were engaged in self-mediation/private speech; one wondered what impact this had on the participants' ZPD and learning processes. Perhaps it was almost or even more effective for the students to see their thoughts in writing when reading the transcripts than it was to read the instructors response on the next line. Perhaps this was similar to Aljaafreh and Lantolf's (1994) findings in which the mere presence of an expert allowed the students to engage in the ZPD. Similar to a study by Beauvois (1998) in which the students were able to describe the ZPD in their interviews without formally knowing the concept, SB and SC seem to have had this awareness of the ZPD. For example, during SB's interview, she indirectly discussed the ZPD in relation to the instructor-student relationship and the online tools available to foster this process: "I thought it was really cool . . . in the sense that people would address their problems . . . and you would send an e-mail to everybody/cause everybody would have the same

question in their mind/and half the people would ask/and half wouldn't . . . cause then everyone was thinking it . . . it was so cool/it was like/so you're talking about [X] well guess what/I'm going to tell you how to do this." SB again related to the ZPD when discussing this course's online classroom community: "you could always get/bright idea/ from people/and if you were in trouble/there was always somebody/who would come and save you/which is important." In SC's interview, she discussed the ZPD in relation to student-student peer essay work, specifically graduate students paired with undergraduates in the online classroom: "I feel/oh/they're graduate students . . . so I feel like/there's some gap/they are very good at . . . their opinion/or philosophy idea of topic . . . when I worked with [SA]/I read paper/oh/he's much better than me/and I really don't write this way . . . so I learned more when I worked with [SA]." And finally, SC discussed the ZPD in relation to the interaction in the online classroom: "if I were in an offline class/and . . . instructor ask me the same questions/probably I cannot . . . answer in class [in the online classroom it is] more comfortable writing/and opposed to just work/I can express more easily/or comfortably/writing my opinion."

Lack of the ZPD

While there were occurrences of both types of the ZPD by all the students, overall for the course of a semester, they were few and far between. Why did this happen? In order to answer that question we need to look beyond the occurrences of the ZPD for each course tool and examine the ZPD in a bigger spectrum. It was thought that the enormous life pressures that each of the participants were under greatly impacted the ZPD. Through the WebCT tools and the participants' course writing, one comes to a better understanding of each of the participants' lives: in addition to graduate school pressures,

SA was worried about passing his CPA exam in order to be able to find gainful employment in the United States so that he could keep his family here. SB had just moved back to the United States the week before term began and during the course of the semester became engaged to and then married her American boyfriend. SC had just moved across the country before the start of the term to transfer universities and during the course of the semester passed her driver's license test, worked on the side while going to school, and hoped to find employment in the hotel industry after her degree so she could remain in the United States. With regard to SD, she was juggling an enormous number of college courses with employment. Additionally, at one point or another during the semester, several of the participants touched upon personal experiences with racism and cultural conflicts and feelings of loneliness and self-doubt.

Furthermore, SA and SD's participation both decreased at the end of the semester. In SA's case this was due to preparing for and taking the CPA exam in the second half of the semester; it is believed that this greatly impacted his ZPD because his participation levels, especially for the chat tool that were so high at the beginning of the semester. If not for the CPA exam, it is believed that SA's occurrences of the ZPD would have remained steady or increased during the second half of the semester if it were not for this overwhelming outside distraction. With regard to SD's participation levels, her decline most likely occurred due to deadlines in all of her eight courses as the semester drew to a close. The belief as to why SA might have been able to increase his occurrences of the ZPD is partly based upon the observations of SB and SC during the course of the semester. Unlike SA and SD, SB and SC's participation increased as the semester drew to an end. Evidence of this was found in their interviews. SB stated, "I really charged my

batteries towards the end/and I was feeling sorry that I didn't do that earlier in the semester/cause I felt like/I was wasting my time not doing the things/that I should be doing/and I really could have done better/on things/if I just would have put extra effort in it." SB also mentioned, "it was a good stress/it was an accomplishment . . . I was sad by the time it was over/it was . . . part of my life for over half a year/and I'm sorry it's over." SC echoed this line of thinking when she discussed working with her classmates in the online environment, "I should [have] worked . . . read more carefully . . . my classmates writing/but I . . . didn't spend a lot of time . . . so I regret a little bit." Taking all of this into consideration, one could conclude that in order for the ZPD as Transformation to occur an individual needs to have their "primary needs met" such as those made famous in Maslow's pyramid.⁵ Because there were so many issues circling these students, at many times they were simply having difficulty fulfilling the needs of the class, which impacted their learning and occurrences of the ZPD as Transformation.

The Participant-Instructor Impact Circle

Because this study was grounded in activity theory it was also necessary to examine how the participants' use of tools directly impacted the instructor in a variety of ways, including course design issues, tool utilization, course content, and task design. For example, at the beginning of the course, with regard to course design issues, it became known to the instructor that many of the participants were late turning in assignments. The instructor was very interested to find the cause of this problem and suspected that this could be attributed to either one or multiple factors including: 1) an instructor based

⁵ In the 1960's A. H. Maslow created a pyramid representing a "Hierarchy of Needs" that refuted a behaviorist view of human behavior. Because the "Hierarchy of Needs" is linear in nature, an individual must have satisfactorily met all of the lower level needs before they can be "self-actualized." These levels, from the lowest to the highest are: 1) Body needs, 2) Security needs, 3) Social needs, 4) Ego needs, and 5) Self-actualization.

problem, as there might be online learning problems, which could be a) course design problems (navigation design problems), b) WebCT software problems (failure of the instructor to explain how to use the tools), and c) content/activity problems, or 2) a participant based problem, which could be caused by a variety of issues such as motivation. In order to solve this issue, the instructor began to use the course tools to mediate this discussion. For example, the instructor would ask the participants if they were having any difficulties by sending e-mails, sending blind replies to participant discussion board posts, and asking the participants during chat sessions. The most direct answer to this question occurred during a chat session with SA in which he questioned as to why he had received an incomplete for the week. During an extensive question and answer discussion it became clear to the instructor that the participants were not navigating the course as the instructor thought they were and that the multiple locations of the assignments were confusing to the participants. SA suggested that the solution to this problem was to create one page in the "Course Content and Assignments" area that would essentially be a "To Do" list for each week. The instructor readily agreed with SA and adapted this idea that afternoon; from that day on, missed deadlines and e-mails inquiring upon such course management issues dramatically decreased.

One example of how the participants' use of tools impacted the instructor's use of the tools occurred approximately mid-semester when it seemed to the instructor that the participants were not reading the course announcements that were posted on the "Course Announcements" discussion board. Based upon knowledge that the students didn't seem to be utilizing the discussion boards as anticipated during course conception, the instructor tried an experiment in which she sent a group "Hello Writers" e-mail to the

participants with the same information as on the discussion board post. The result of this experiment was successful as it was obvious that the participants read this message.

Therefore, for the rest of the semester, the instructor used the e-mail tool to send course announcements instead of posting them on the discussion board.

Participant feedback through tool use also shaped the course content and task design. First, as the discussion boards had such minimal amounts of participation, when an activity actually generated participant interest and excitement it was utilized again, such as in the case with questions relating to the students personal experience with writing and the role-playing task. Second, when two of the participants addressed personal issues of racism in writing that they posted to the discussion boards, this theme was incorporated in various tasks throughout the remainder of the semester. Third, based upon this suggestion by SB and another student, the instructor created a voluntary “Reader’s Corner” that had links to web sites containing various genres of books and articles. Fourth, when the participants were still having difficulty understanding concepts after either reading the textbook or talking to the instructor, the instructor would then link to additional reference material on the topic from the World Wide Web. And fifth, when SB informed the instructor during a chat session that she was having trouble writing an argumentative outline, a mock outline was created and sent to all of the participants in which to base their outlines; as it became evident that writing argumentative outlines was extremely difficult for other participants, it illustrated that this spontaneous task based upon a participants interaction had pedagogical implications for the whole class.

From an activity theory standpoint it became evident that not only did the participants impact the instructor, but also through this agency, the instructor in turn impacted the

participants through course design, tool use, course content, and task design. For example, both SB and SC were observed by the instructor as having transformations due to major turning points; SB seemed to be completely transformed when the instructor sent her the example outline for her argumentative essay and SC seemed to become more serious with the course after the plagiarism incident. While engaging with students in the online environment could seem hopeless at times and made the instructor feel powerless in truly being able to help the students such as with SD, the transformations in SB and SC directly resulted from instructor intervention. Thus, the instructor did have power in fostering student transformation during the course of the semester that in and of itself is the ZPD as Transformation and as noted also seemed to further foster the stable environment needed to enable more occurrences of the ZPD.

Conclusions

The implications of this study are extensive and impact the ZPD in relation to the students, tools, materials, and instructor in the online second language classroom. First, with regard to the students, it is evident that: 1) personal background issues, 2) personal views of the instructor, and 3) motivation, attitude, and personal awareness of tool utilization are very relevant in relation to how their use of the CMC tools impact the ZPD. With regard to personal background issues, one needs to consider how such issues as gender, student status, marital status, nationality, and ethnicity impact an individual's use of the CMC tools. Culture proved to be very salient in this study as all of the Asian participants stated that they participated more in this online second language classroom than they would have in the traditional face-to-face classroom which are similar results as

those found by Markley (1998). However, this study also revealed a possible limitation to the ZPD when utilizing CMC tools with students of non-Western backgrounds. It seems that the ZPD can be negatively impacted with students who view the instructor in authority terms in which they believe that learning occurs when the instructor bestows knowledge upon the student. This view not only causes mediation to break down between the instructor-student but also was observed on occasion between the students themselves. For example, in the first scenario in a chat session between an instructor and a reticent student, the discussion can become one sided, and in the second scenario with the discussion boards, little student-student threading could occur if the students don't view their fellow peers participation as meaningful. Motivational factors, attitude, and personal awareness of actual tool usage greatly play a role in the ZPD in relation to the student's use of the CMC tools. If a student's reason for utilizing a CMC tool is not to communicate with fellow humans, the results can be extremely problematic. This finding supports Nardi & O'Day's (1999) view of using technology with a heart and Warschauer and Meskill's (2000, p. 316) view of "humanware." One needs to stress that all of these issues are extremely critical; all of these factors impact how the student utilizes the CMC tools which in turn impacts the ZPD and whether or not the student, tools, materials, or instructor will be transformed over the course of the semester.

With regard to the CMC tools, it seems necessary to have institutional structures in place to train the students in their use, not only in order to avoid as much confusion as possible but because such institutional constraints as lack of training can greatly impact a student's use of a CMC tool which in turn can impact their occurrences of the ZPD as Transformation. Once the students are trained in CMC tool use the instructor needs to

spend time discussing with the students *why* CMC tools are important in relation to the class's communication needs and the individual's learning needs. Because students gravitate to one tool or another tool based upon a variety of personal factors, all possible CMC tools available should be utilized during the course of the semester. Furthermore, the decision of when to use a particular CMC tool should be determined by the individual student, not the instructor, as much as possible. While Warschauer's (1998a, 2000a) examination of the sociocultural context of successful technology integration, which was defined as enabling student autonomy and access to authentic content, language, and culture (Warschauer & Meskill, 2000, p. 316), illustrated that the instructor's teaching philosophy, authentic task utilization, and institutional context was vital to meeting these goals, I believe that the individual student's use of the actual CMC tool must also be taken into consideration when judging whether there has been successful technology integration in the second language classroom. Furthermore, because the student that is engaged with a CMC tool actually changes that tool, this study showed that tool change might not always foster the learning goals of the second language classroom. For example, in this study, while the students were engaged in the ZPD when using the discussion boards because they *read* each other's posts, the proper use of this tool is to engage in group *written* conversation which was anticipated by the instructor. However, because this was not the case, there was not a written record of how the discussion board posts impacted the student's ZPD and thus, this had extensive pedagogical implications as the instructor had to use other means to gauge student learning. Therefore, when the CMC tools are not utilized by the students in the predicted norm, the instructor needs to be very adept at either focusing more on the CMC tool that the students in the course

seem to prefer to use, or the instructor needs to ask the students what is “problematic” with the particular tool in question. In addition, instructors themselves need to utilize each of the CMC tools as much as possible; while an inquiry as to whether a student needs help may result in a hedged answer during a chat session, this inquiry may be received rather warmly when occurring through the e-mail tool. It is very important for the second language instructor to realize that even when integrated successfully, CMC tools are not a panacea for all pedagogical problems. Quite the contrary, if the instructor’s requests to have the students ask for help are ignored and the student is not willing to engage in CMC tool mediation with the instructor, learning in the online environment might be more at peril than in the traditional face-to-face classroom due to this lack of mediation and human contact.

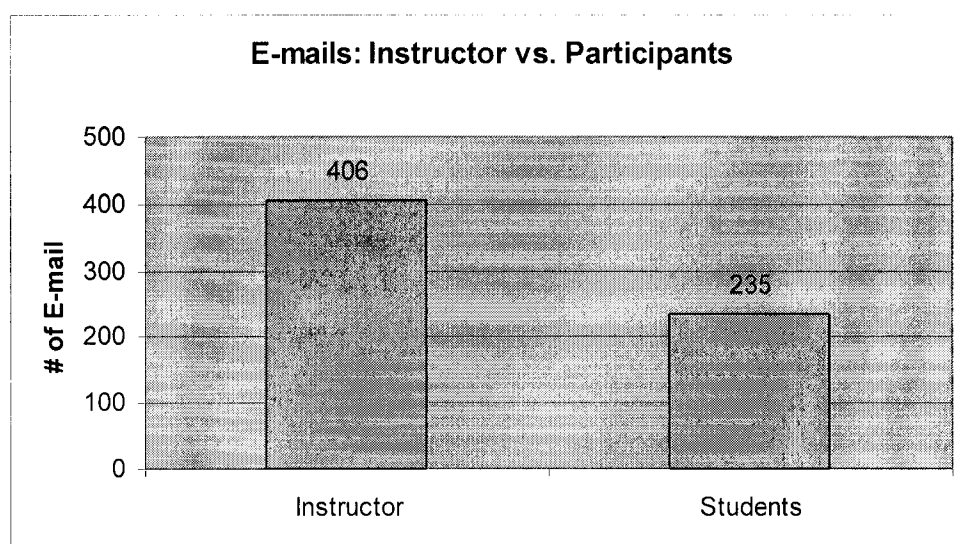
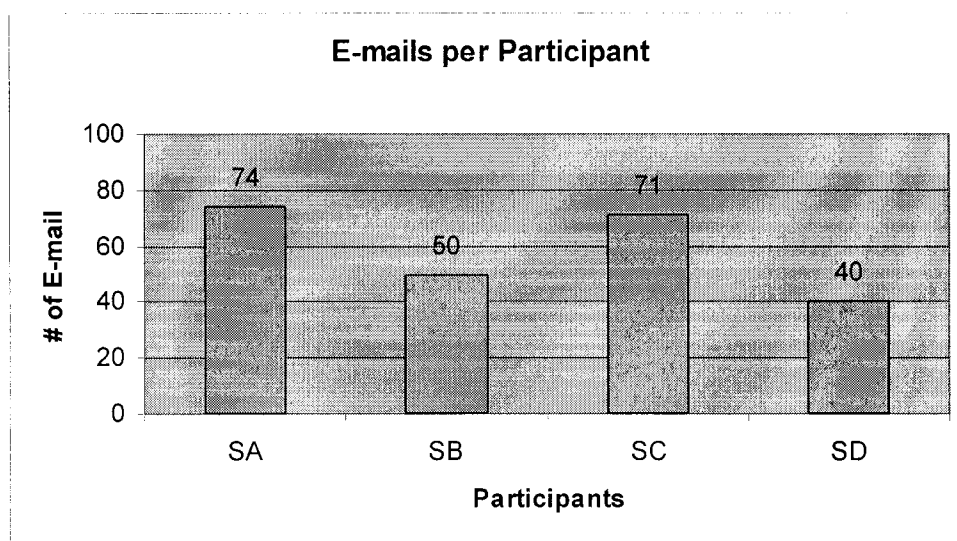
With regard to the materials, it is very important to not simply upload traditional second language tasks utilized in the face-to-face classroom to be used in the online environment because they will be inauthentic (Warschauer, 2000a) and thus negatively impact the ZPD. Discussion board questions need to be written very carefully so that they tap into the students past personal experiences and future ambitions and desires as much as possible in order to facilitate true transformation through the ZPD. Successful online activities such as authentic role-plays should be utilized as much as possible.

By examining the students, the CMC tools, and the materials, we have also identified what role the instructor needs to play with these factors when using technology to facilitate the ZPD as Transformation in the online second language classroom. This study agrees with CMC tool educational research (Chute, Sayers, & Gardner, 1997) which believed that the instructor using a computer network must use variety in visual design

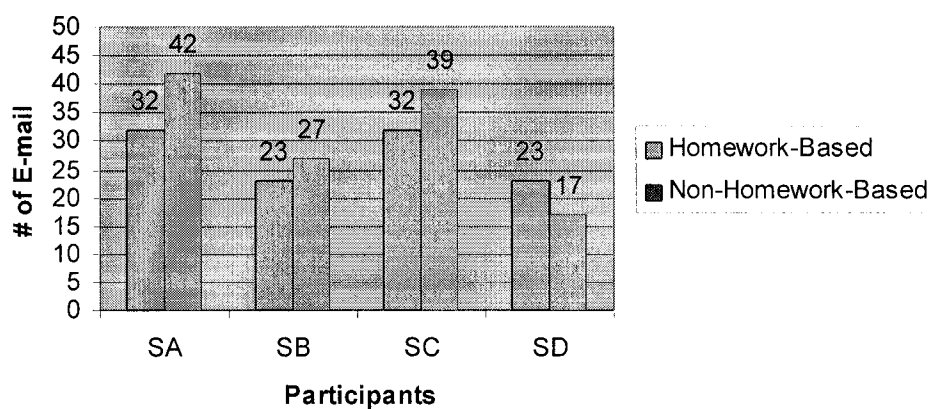
and interaction tasks in order to produce learner engagement (pp. 77-78) and that they need to analyze and decide how to fulfill the learners' needs (p. 82). However, I believe that the greatest challenge for the instructor is to not only facilitate student awareness of the ZPD as Transformation on the online classroom, but to actually directly *discuss* this issue with the students. As illustrated by this study, several of the students were motivated to take the course by physical location, time, or money factors; the notion that they could have more opportunities to write, talk with their instructor, or engage in more authentic tasks that would impact their lives did not occur to these students until very late in the semester or not at all. If a student is not cognizant that true learning is defined in terms of transformation of themselves, their fellow students, the course tools, materials, and their instructor, this hinders the occurrences of such transformations. Furthermore, such dialogue is necessary even when a second language student is cognizant of the ZPD (as found in this study) because they may be hesitant of instigating such transformation. Second language learners, who are learning to abide by new cultural norms, may be under the mistaken notion that such transformation would be viewed by their institution, instructor, peers as a "challenge to the system." It is vital for honest and open dialogue with the students about the ZPD so that there is understanding that the online second language classroom is a safe, authentic, democratic environment for true transformation.

APPENDIX

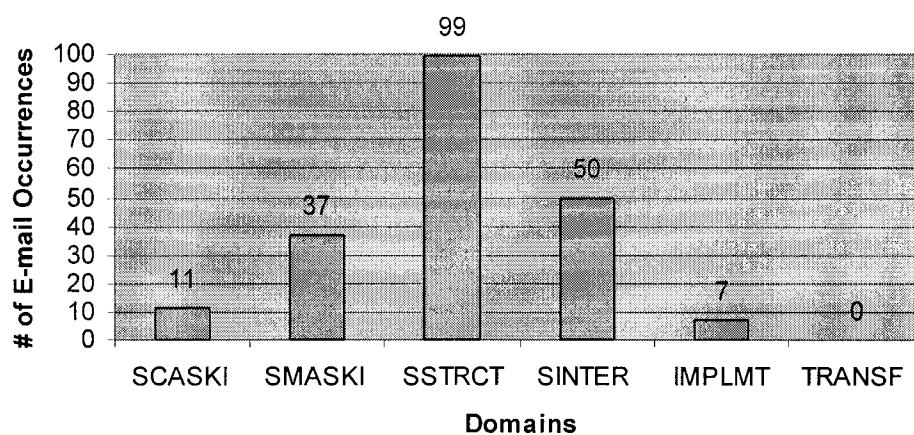
FREQUENCY TABLES OF DOMAIN ANALYSIS

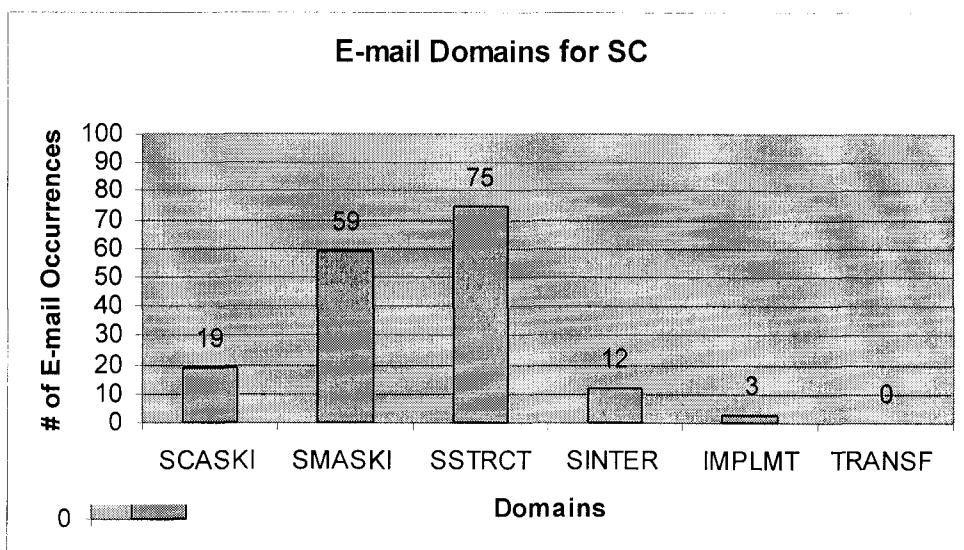
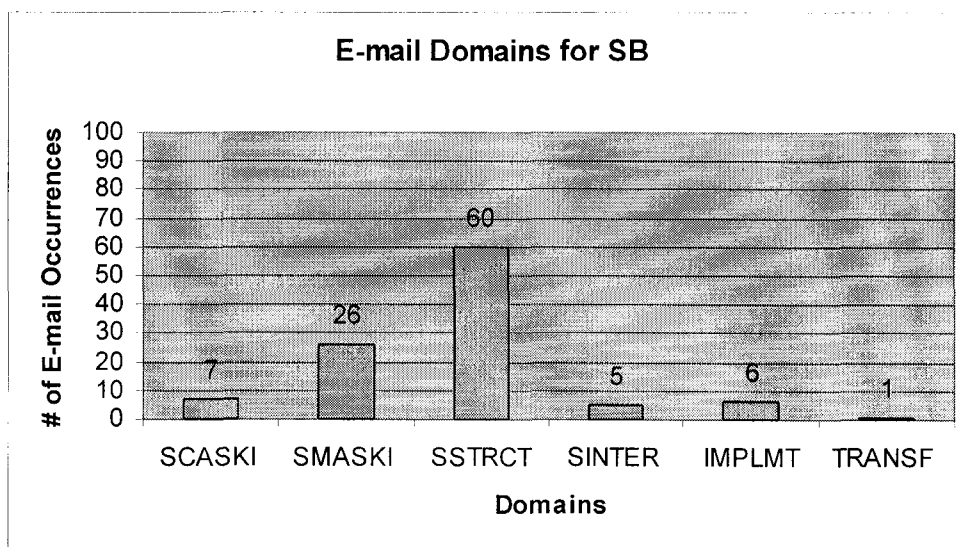


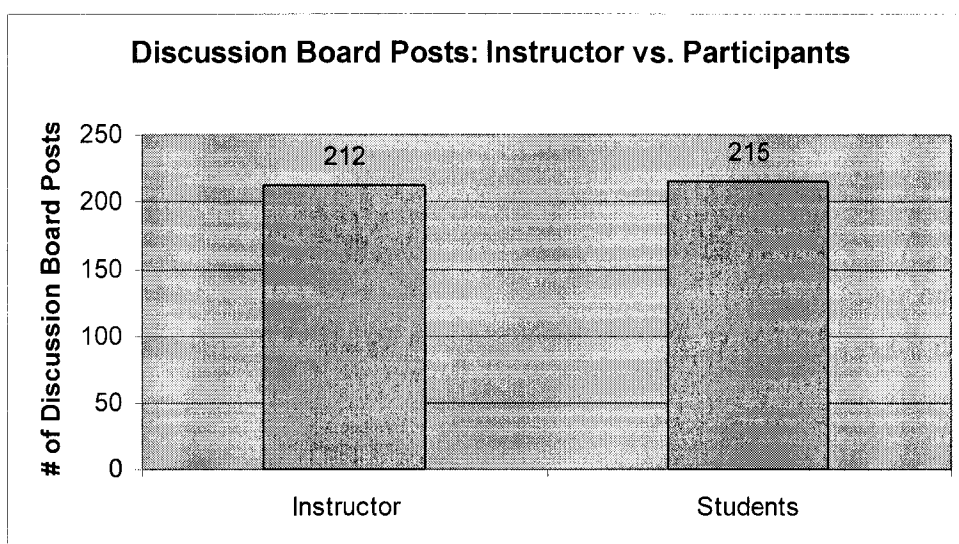
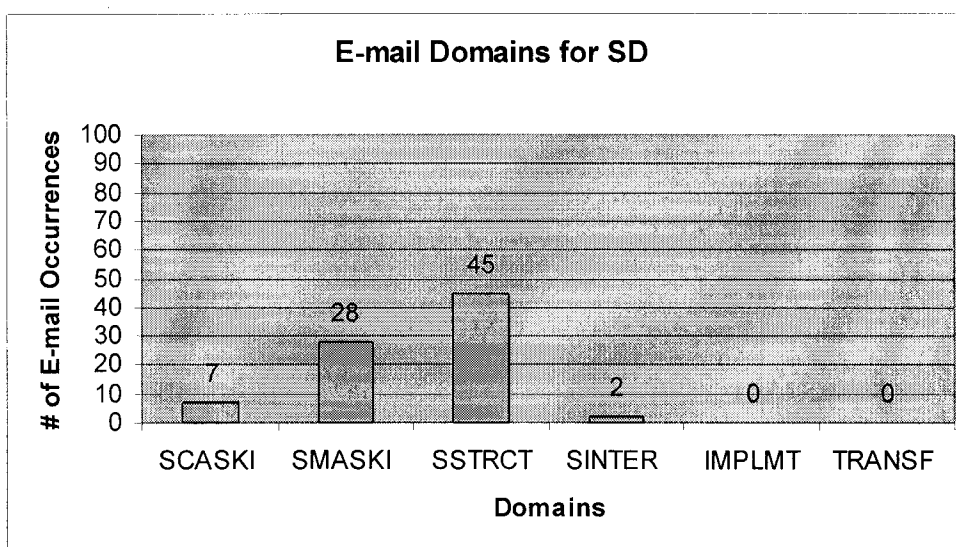
E-mails: Homework-Based vs. Non-Homework-Based

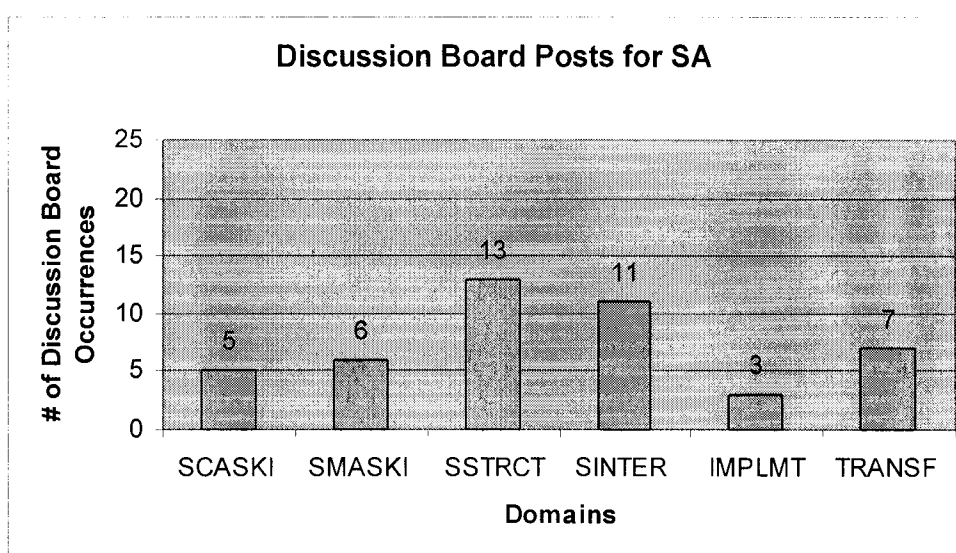
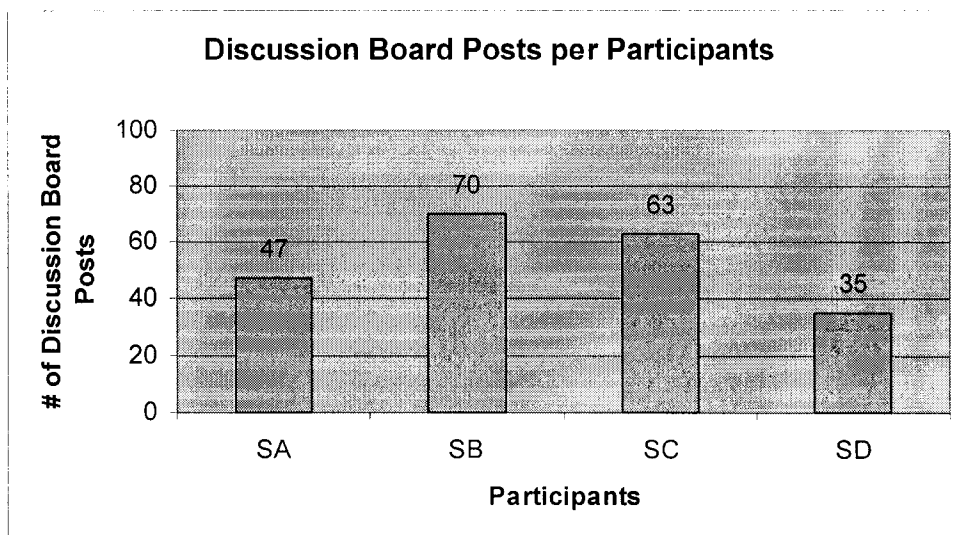


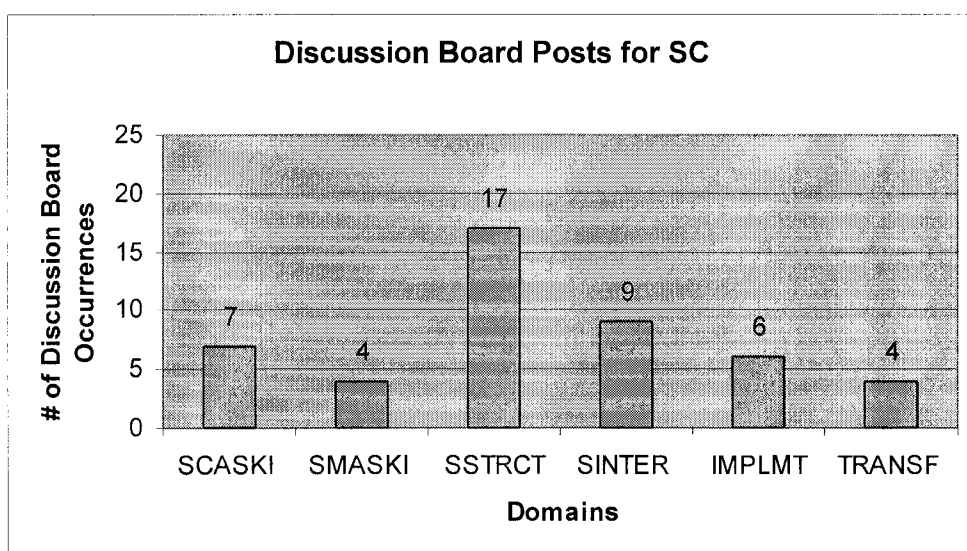
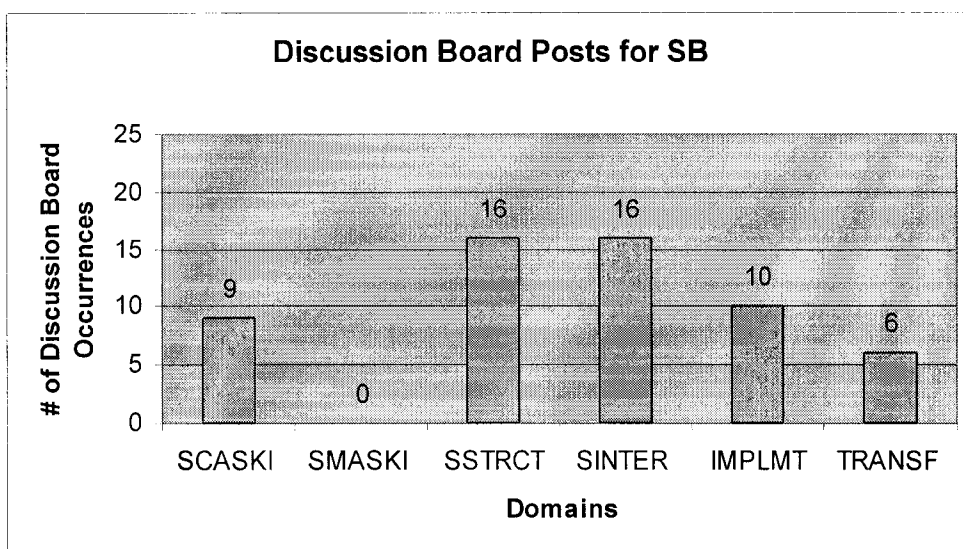
E-mail Domains for SA

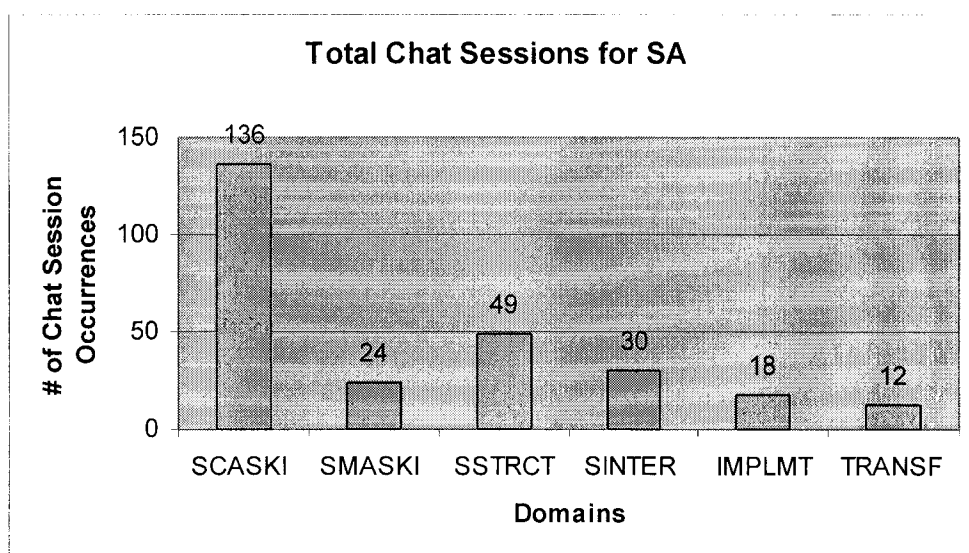
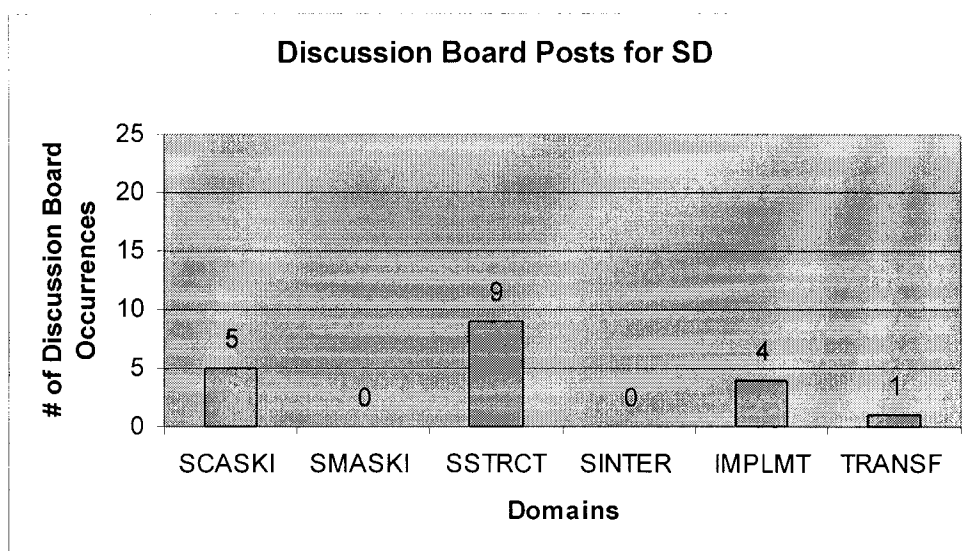




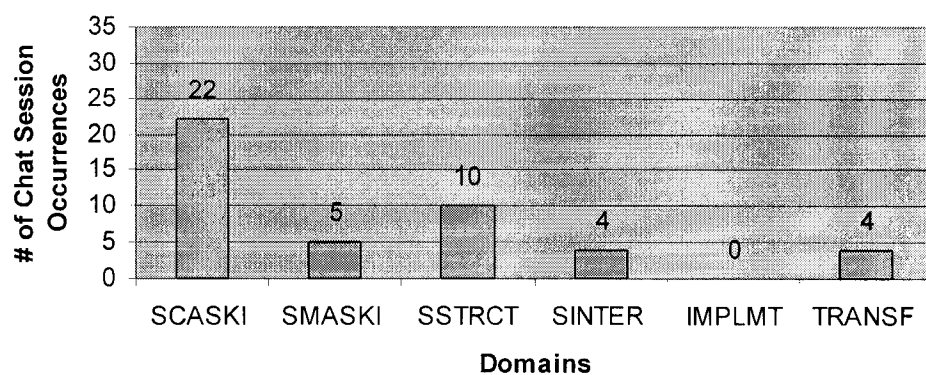




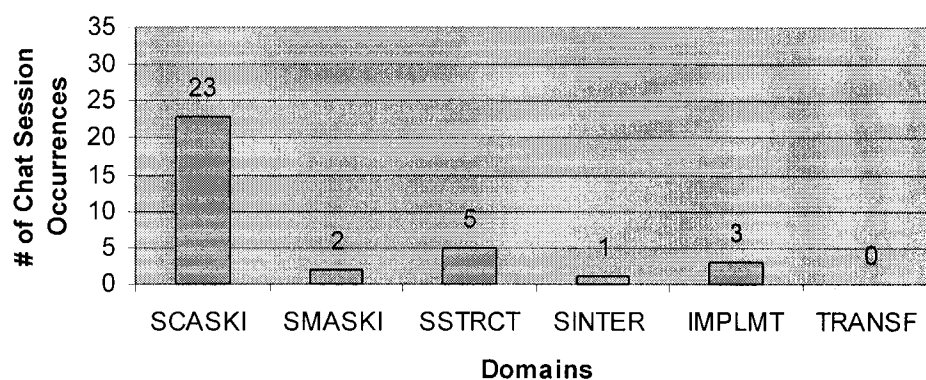




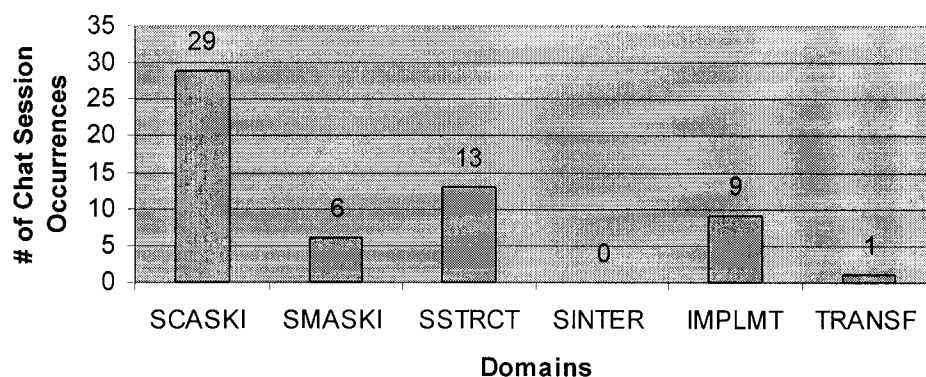
**Chat Session Office Hours for January 24th:
SA and Instructor**



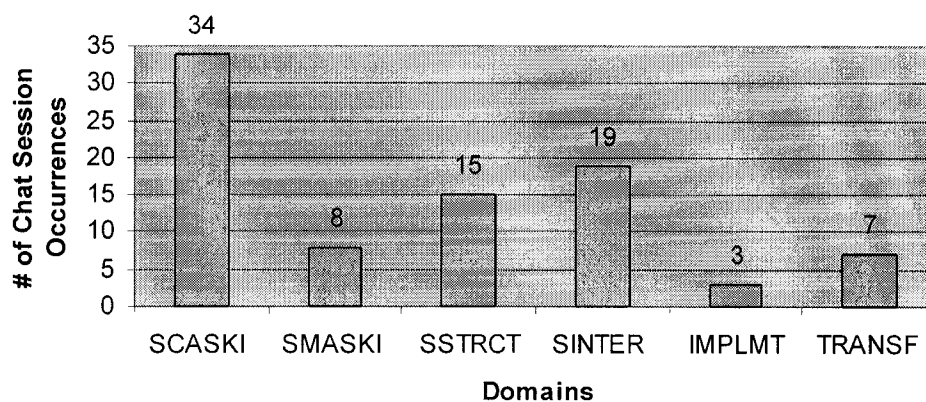
**Chat Session Office Hours for February 7th:
SA and Instructor**

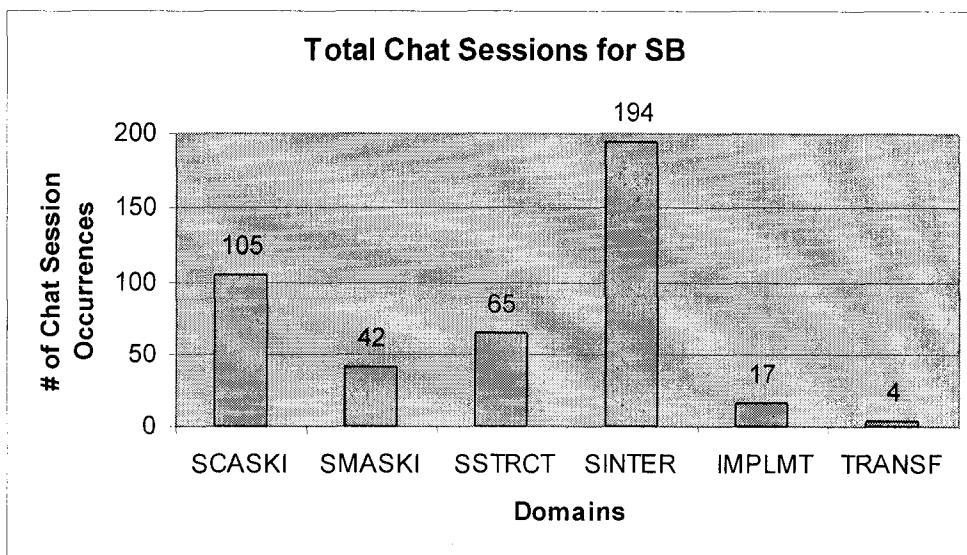
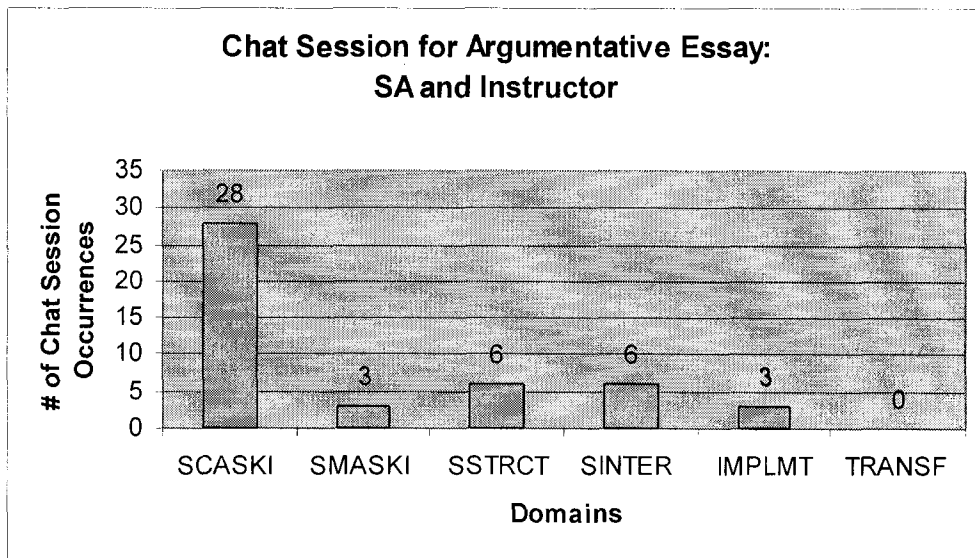


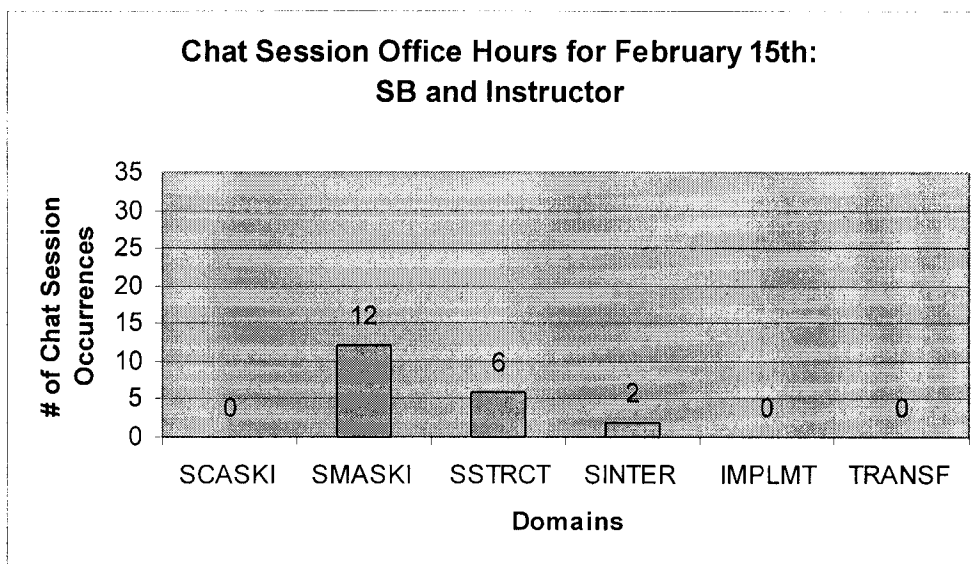
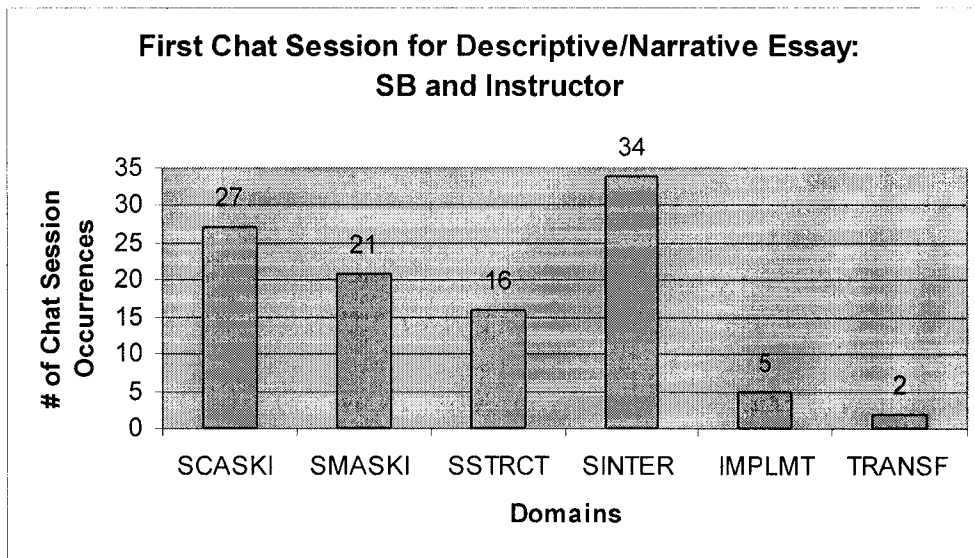
**Chat Session for Descriptive/Narrative Essay:
SA and Instructor**



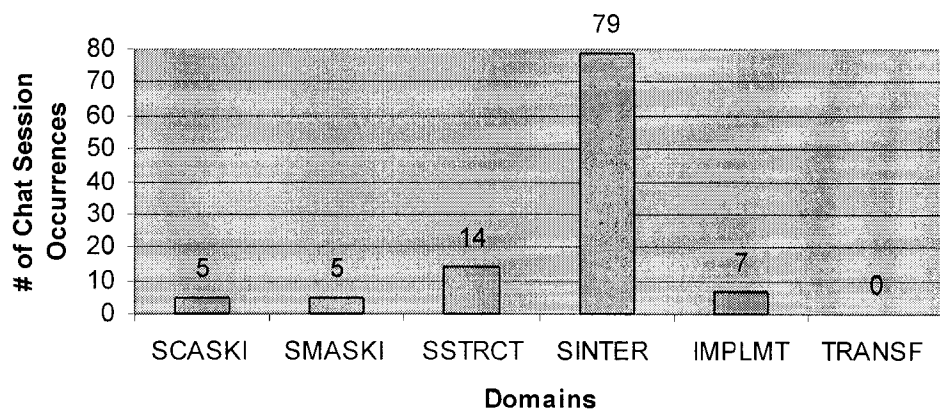
**Chat Session Office Hours for February 28th:
SA and Instructor**



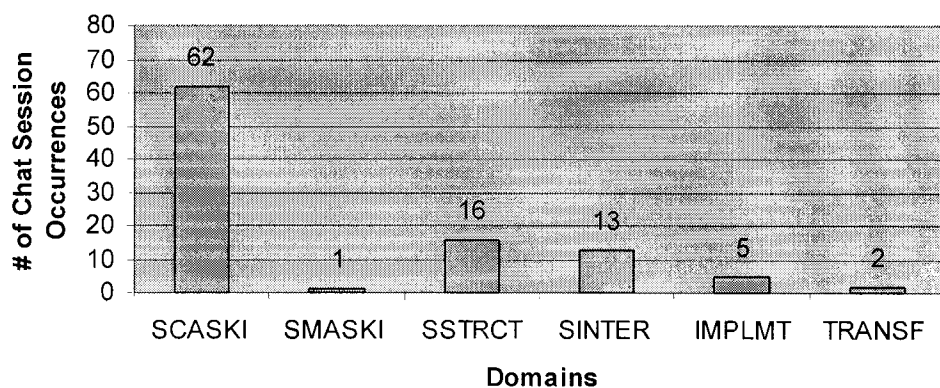


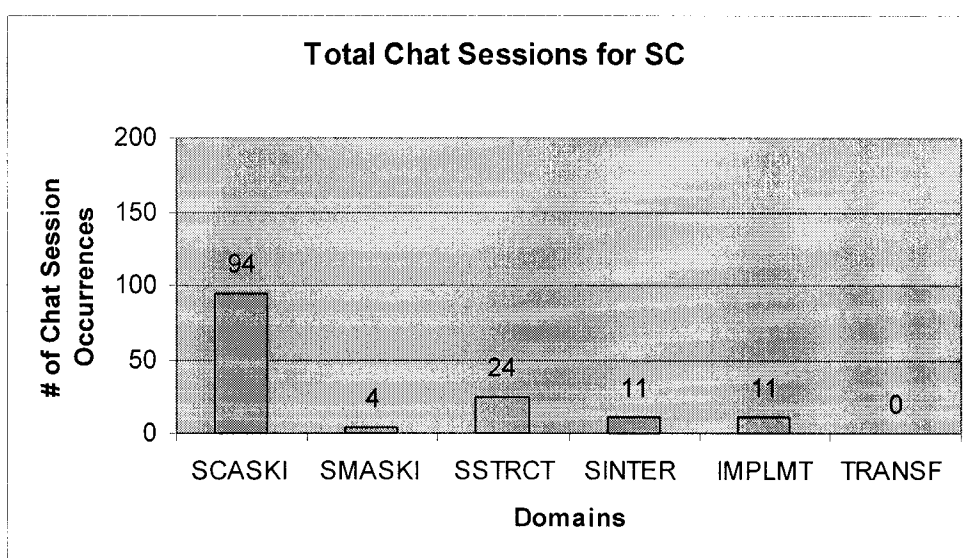
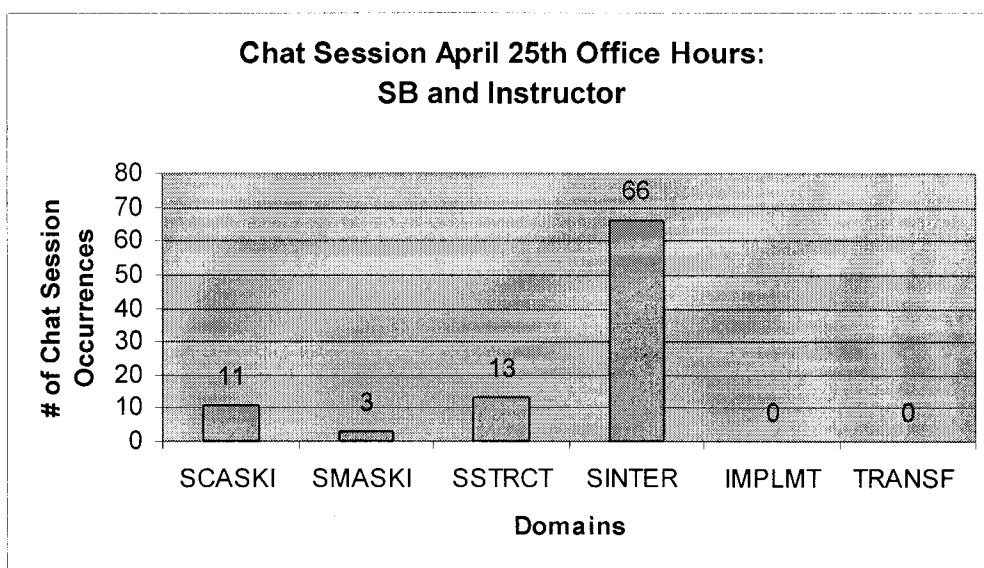


**Second Chat Session for Descriptive/Narrative Essay:
SB and Instructor**

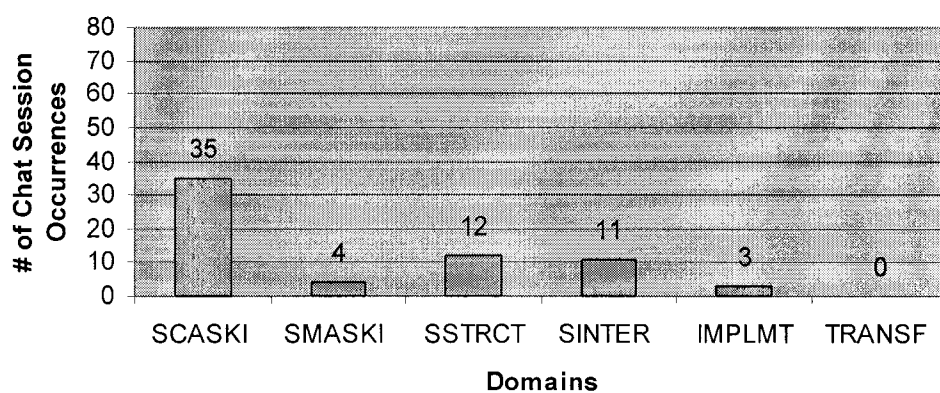


**Chat Session for Argumentative Essay:
SB and Instructor**

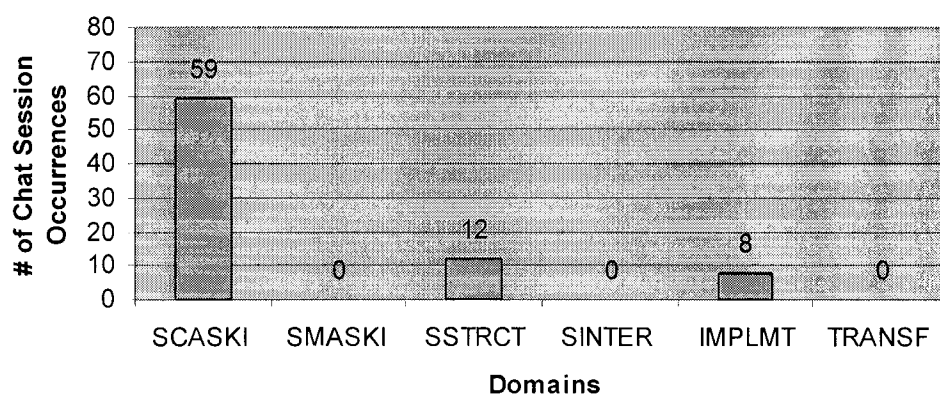


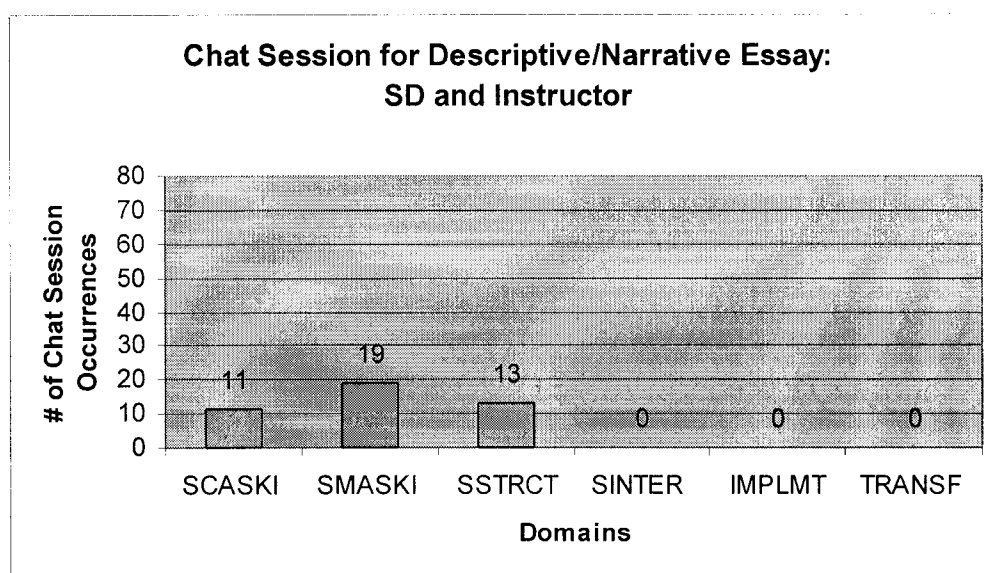


**Chat Session for Descriptive/Narrative Essay:
SC and Instructor**



**Chat Session for Argumentative Essay:
SC and Instructor**





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