International Journal of Knowledge and Language Processing
Volume 3, Number 1, **2012**

www.ijklp.org
KLP International ©2012 ISSN 2191-2734
pp. 35-**53**

Study on Cooperative Learning of College ESL Writing in Network Environment

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Received March 2012; revised April 2012

ABSTRACT. *With the sweeping influence and wide application of multimedia and network in college education, cooperative learning has been infused with a new vitality in enhancing student autonomy and control over the language learning process. Adopting qualitative and quantitative approaches, this paper is an empirical study introducing the implementation process of cooperative learning of English writing in network environment. The research results show that cooperative language learning in network environment can achieve better effects in improving the English writing skills of Chinese students. Moreover, the research also shed some lights on pedagogy, illustrating the roles of the machine, the student and the teacher in task-based cooperative learning and showing that cooperative learning in network environment does benefit college English teaching.*

Keywords: cooperative learning, English writing, network environment

1. **Introduction.** Technology and education are closely related. In recent years, computer technology has a sweeping impact on all academic areas. The Internet in particular has become a new medium of communication that is shaping both the processes and the products of communication. In terms of education, perhaps the most dramatic changes in the mode of second language teaching and learning have come about as a result of developments in computer-assisted teaching and learning. Faced with the facilitation as well as challenges brought by new technology, language learners and teachers need appropriate learning and teaching approaches to keep pace with the rapid and continuing introduction of new technology into education, to make best use of technology and to seek to recognize principles of learner-centeredness in teaching.

Thus bring us to the field of modern learning theory: cooperative learning. Cooperative learning has influenced traditional language class. It derives from constructivism and has firm theoretical background such as socio-cultural theory, socio-constructivist theory and shared-cognition theory. To date, however, few studies have focused on cooperative learning groups that enable learners to work in computer-based learner-controlled environments. The aim of the thesis is to be of some guidance for language learners and

teachers to realize cooperative and autonomous learning effectively in network environment.

2. **Theoretical background of cooperative learning in language learning.** Theories of learning have evolved from individualized behaviorist perspectives to social accounts of learning, where communication between learners is essential to cognitive development. Generated from constructivism, cooperative learning considers learning as a communicative, social process; combines interaction with learning, and contributes to learner centeredness and learned control.

2.1. **Constructivism.** Constructivism is the main part of modern educational landscape with the rapid development of information technology. Constructivism is a term that has been used in the context of adult learning by Candy[1] to link together approaches in fields such as ethno-methodology, symbolic anthropology and post-structuralist literary theory, in which knowledge is represented as the construction of meaning. Candy refers to two key elements in constructivist approaches to knowledge and learning: Discourse about the world is not a reflection of the world, but is a social artifact; knowledge can't be taught, but must be constructed by the learner. In the field of applied linguistics, this approach is probably most strongly associated with Halliday[2] and others who discuss language acquisition in terms of the construal of experience and construction of meaning.

Constructivism has recently become interesting to educational technologists, partly because of the ways information technology is impacting on life, learning, and work, and partly because it offers a new approach to instructional design as interest wanes in the instructional systems technology model. However, up to now a role for constructivism has been discussed more in principle than in practice and claims about the kind of knowledge it produces remain largely untested.

Constructivism recognizes that constructs have social origins: they are learning through interaction with others. An individual's cognitive system is a direct result of interaction in social groups and cannot be separated from social life[3]. Goal achievement is often a social phenomenon involving coordination of goal-oriented strategies or tasks by a number of people. Group (or cooperative) learning, where pairs and small groups of students learn together through social interaction, is predictably one of the key constructivist techniques. Under this theory, language learning is largely a social activity.

2.2. **Cooperative learning.**

2.2.1. **Definition.** Although the nature of content is a significant factor in the learning process, students also need appropriate study, reading, and memory skills to learn effectively. The increasing use of the multimedia networks in education and the dramatic growths of information available to the learner illustrate the need for such skills: students must sift through voluminous irrelevant information they need. As a result, to choose appropriate strategies becomes increasingly important in this new technology-supported learning environment. Cooperative learning theory derives from modern educational principle–constructivism. Since advanced learning theory will always be the support for advanced technology; advanced technology will thus facilitate learning. Then, what do we mean by cooperative learning?

The term, cooperative learning, is most closely associated with research in educational psychology, concerned with alternatives to traditional classroom organizational structure [4].

To put it in another way, cooperative learning is a diverse group of instructional methods

in which small groups of students work together and aid each other in completing academic goals [5]. It involves working together to accomplish shared goals, using skills that benefit each group member. In another word, cooperative learning involves a group of people who have a specific learning task to accomplish. Group work is a natural and beneficial form of learning experience. Both group results and individual accountability are necessary components of effective cooperative learning. In addition to the academic task, a social task is also involved in cooperative language learning, for a significant part of the cooperation includes social interaction. Face-to-face interaction and positive interdependence mark successful social characteristics of cooperative language learning.

Cooperative language learning tasks can be characterized as what Cohen [6] terms "multiple ability tasks"; that is, tasks that drive conceptual work rather than simple routines. She outlines the qualities of the multiple ability tasks as follows:

1. Has more than one answer or more than one way to solve the problem.
2. Is intrinsically interesting and rewarding.
3. Allows different students to make different contributions.
4. Uses multimedia.
5. Involves sight, sounds, and touch.
6. Requires a variety of skills and behaviors.
7. Also requires reading and writing.
8. Is challenging.

Cooperative language learning encourages students to discuss, debate, disagree, and ultimately to teach one another. Achievement improves when a student learns information with the specific intent of teaching it to others, compared to when a student learns the information simply to take a test. Explaining information to a partner appears to help students generate elaborations between new and existing information, presumably resulting in deeper processing of lesson content. Receiving information from a partner is beneficial because of the increased access to help, as well as the opportunity to observe learning strategies used by partners.

Hooper et al.[7] reported that the students working cooperatively with a learner-controlled lesson supported each other's feelings and generated more ideas; students working alone were frustrated, took more time, and could not master the lesson. The cooperative learning groups also developed more positive attitudes toward grouping, supporting the idea that partners encourage each other to get involved in activities for mastering language. When using a learner-controlled lesson, students in cooperative learning-groups tend to support each other's feelings and will have a greater diversity of ideas.

2.2.2. **Interaction and learning.** Students working in groups or in pairs at computers interact and share ideas in ways that support cognition and thinking processes[8]. Such task related to verbal interaction promotes social harmony and effective working relationships. Research on learning in collaborative settings indicates that students who verbalize their thinking are more likely to learn and demonstrate understanding. Students working together enjoy peer support and increased verbal exchange leading to higher levels of task involvement and problem solving behaviors.

These findings lead to the conclusion that social interaction and peer presence are important predictors of task related interaction and higher order learning. It has been proposed that a socio-cultural theory of learning is most appropriate for technology supported learning environments as it:

1. Endorses the fact that learning takes place in a social context;
2. Recognizes that language use is fundamental to learning;
3. Acknowledges that learners need support and assistance to learn.

All of these elements are integrated in socio-cultural theory, which provides the basis for maximizing learning in technology-supported environments.

2.2.3. **Communicative vs. didactic.** Within Vygotskyan theory, instruction is more than just didactic teaching, with a teacher explaining and demonstrating through language. Effective forms of teaching require learners to take an active role in the learning process. Scaffold instruction does not mean teacher initiated discourse and learner dependency. Higher order learning (problem solving, evaluation, synthesis) skills require the learner to be self-regulated and to demonstrate initiative and independent thought.

Drawing on Vygotskyan theory that reflective thought is social conversation internalized, Laurillard[9] suggests that subjects (teacher and learners) must engage in a meaningful exchange of ideas for cognitive change to occur. Four essential activities comprise the learning transaction, accomplished through language.

In the following Figure, the Discussion process means the learner and teacher must exchange understandings so that interpretations of the task are jointly reached. While Adaptation holds that the teacher can, where appropriate, adapt the students' perception and enable them to experience it from different perspectives. The Interaction refers to the process that learners should be actively engaged in interaction throughout the learning experience. And as for Reflection, the students should be given opportunities to reflect on their experiences and to internalize them. (See Figure 1)

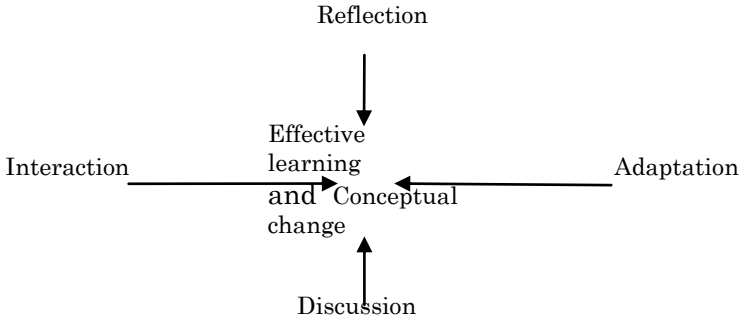

FIGURE 1: Dimension of the conversational framework. (Courtesy of Ron Oliver)[10]

These are all essential components of the learning process and should be present in an educational encounter if learning is to take place. Clearly, the conversational framework is not a didactic view of teaching whereby the teacher imposes meaning or dominates. The conversation requires reciprocity and mutual understanding and this is achieved through talk, discussion and negotiation. Computer assisted learning can support interaction, dialogue, reflection and conversation if learning tasks are structured appropriately.

2.2.4. **Learner centeredness and learner control.** In the field of second language acquisition, it is likewise widely accepted that knowledge is built through discourse and that rich discourse contexts that promote and support effortful negotiation of meaning are

contexts that are optimal loci for acquiring a second language[11].

Learner-centered approaches value the co-construction of knowledge in general and, in the case of language acquisition, the construction of communicative skills as central. The second language profession has long valued student-centered-ness with pair work and small group work being a mainstay of instruction. The oral or aural negotiation aspect of teacher-supported and task-supported student-student configurations is seen as a powerful venue for second language acquisition to occur. Such configurations, in combination with well-designed and well-orchestrated language learning tasks, represent opportunities for learners to manipulate interdependent chunks of the target language in complex ways that have immediate, contextual affect.

Learner control allows students to determine their progress through a lesson and to choose learning activities that suit their personal preferences and needs[12]. Thus, the students may produce more active learning: they often invest more mental effort when they control decision-making. In addition, learner control can enhance independence and develop better study habits. And accordingly, increasing learner control may improve instructional effectiveness.

Learner control in computer-based instruction can take many forms. Learner-control in computer- based instruction may allow learners to choose the difficulty level of the material, to view the lean or elaborated versions of content, or to review them. Several benefits may result from allowing learners to control these aspects of their instruction, including enhanced meta-cognition and improved decision-making.

In addition to allow a great deal of learner control, there are qualities of the computer medium that mitigate learner autonomy and cooperation.

2.2.5. **Technology enhanced cooperative language learning.** The connection between cooperative learning and technology is longstanding. Light and Mevarech[13] point out that since the early 1980s, there has been a growing interest in the potentialities of both cooperative learning and computers as facilitators of student learning. They are both based on the theories in the area of social cognition, also they both emphasize the role of student interactions in enhancing a wide range of class outcomes, including academic achievement, cognitive processes, meta-cognitive skills, motivation toward learning, self-esteem, and social development. That is why the modern multimedia systems are designed to provide pair work or group work function to facilitate cooperative learning.

Technology in current classrooms is used in a variety of ways. It offers far more creative teaching options than the simple “chalk and talk” approaches of times past. The most obvious, but least interesting, is the use of presentation software, such as Power Point slides, to enhance lectures’ demonstration in class. Even in classes where students routinely meet face-to-face, technology can play a vital educational role by extending the classroom walls. As the Figure suggests, it enables faculty to double the opportunities for student interactions and student-teacher interactions.

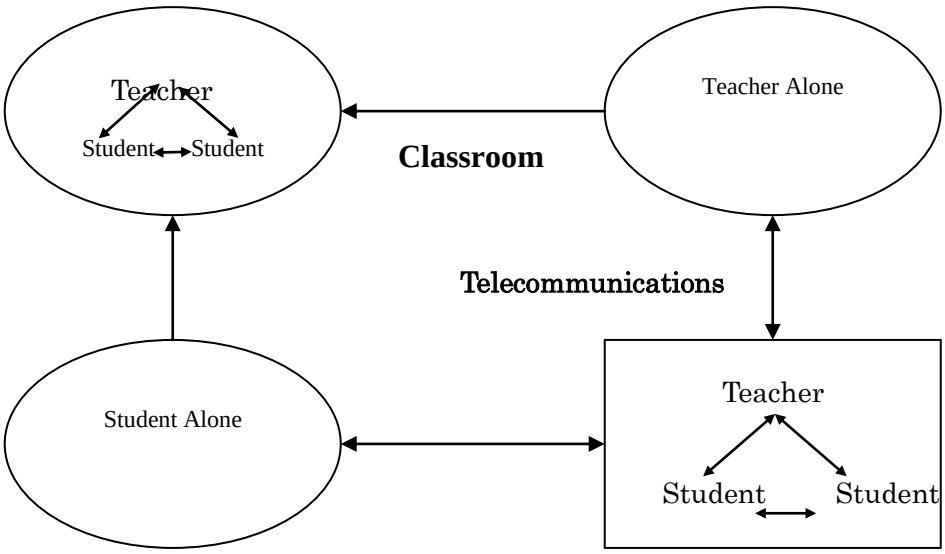

FIGURE 1: learning interactions (Courtesy of Barbara J. Millis et al.)[14]

Cooperatively, students and teachers are experimenting with language learning through networked multimedia labs, through computer-assisted language learning. Many instructors follow the current trends, which throw the spotlight on the embedding of computer-assisted language learning in cooperative learning environments.

The guidelines for foreign language teaching by utilizing cooperative learning techniques in the multimedia language learning center recommend scheduled interactions between students, with stipulation that interactions should be between group members as well as between group members and the technology. The amount of time spent on each segment should be limed with recommended splits of 20 to 30 minutes of video watching followed by 20 minutes of student-student interaction. During the human-interaction time, the students are directed to perform various tasks for which they are held accountable. They can:

1. Orally summarize the events of the video;
2. Describe some of the characters or scenes;
3. Construct a dialog or conversation using the vocabulary they learned (this can be oral or written);
4. Complete a worksheet together (or question / answer exercises).

Considering the special advantages of cooperative learning, many studies have been developed both on theoretical exploration, and practical researches[15-19], for example, Chiu, M. M.[20] illustrates teacher intervention, and Lynch, D.[21] discusses the application of on-line cooperative learning. However, relevant researches have not been developed intensively and comprehensively enough, especially empirical studies on cooperative learning in ESL core courses are still in need of thorough exploration.

3. **Case Study.**

3.1. **Purpose and background of the study.**

Purpose of the study. This study set out to examine cooperative language learning strategies used by second language learners (non-English major college students) in a

multimedia network environment. The specific research questions addressed in this study were:

1. What qualitative and quantitative differences exist between language acquisition in a network environment and in a general classroom?

2. What the best role the technology can fill in the language instruction?

3. What are the changing roles of the learner, the teacher and the machine?

Background of the study. University of Science and Technology is a comprehensive university, which operates ten departments with thirty-seven majors in Haidian district, Beijing. Based on the modern theory of instruction (constructivism and cooperative learning, the university has cast a large sum of money on setting up a computer-assisted learning center and buying some other experimental equipment since the year 1997. And today, the center has successfully completed many software developing projects such as on-line test system in files like accounting on computers, government functionary on computer science and some local area network system on hotel management, business capital management, library resource management, result processing of examination, evaluation of program control exchange etc. Thus the center can provide an educational aid for many subjects like Mathematics, Computer Science, Physics, Management and so on besides English.

3.2. **Research methodology.**

3.2.1. **Subjects.** One hundred and forty-one undergraduates at the university participated in the study during the period from the end of August to October of 2011. Participants of Group one (class 2011-03) contained forty-six students at the time, and they major in Computer Software. Participants of Group two (class 2011-09) had a total of forty-eight students with the major of Mathematics, and Group three (class 2011-06) had forty-seven students of Management. All the three groups are sophomores, and they had already a year's instruction on computer. Therefore, even if they are not computer experts, computer theories were already a little bit accustomed to them.

Since the English class was randomly selected and most non-English majors are at about the same level respectively, it is reasonable to consider that these three groups of participants were selected at random and they were typical College English learners at their level. All the participants were from three classes labeled as three experimental groups in the following discussion.

3.2.2. **Instruments and setting.** The language classroom (lab) has been designed with annular structures so that it is very convenient for teachers to design and organize cooperative learning groups and do group or individual coaching. The lab is allocated with local area network, which is linked to the Campus local area network and the Internet.

1. Teacher workstation:

(1). Control machine: Windows NT advanced server and “King Top” multimedia;

(2). Teacher machine: PIII 866/256M;

(3). Liquid crystal projector and film projector;

(4). Video (DVD), colorful scanner and other experimental facilities (like headset, tape recorder and microphone).

2. Student workstation:

(1). Student machine: 586/32M with CD-ROM driver;

(2). Tape recorder;

(3). A pair of headset.

3. Output functions:

(1). Audio output is carried out with a microphone and a headset positioned on the teacher workstation and pairs of headset positioned on the student workstations.

(2). Visual output is performed with video recorder, CD-ROM driver. Texts, pictures, and images are output with scanner while music with tape recorder and CD-ROM driver.

All the peripherals are connected with the teacher workstation. NT server is mainly in charge of posting or receiving messages and information with King Top support, and they play the main role in class teaching procedures.

The basic function and characteristics of the Server and King Top multimedia have been demonstrated in the previous chapter. And the King Top is designed to have the maximum capacity of 128 student workstations.

3.2.3. **Instructional contexts and design.**

Instructional contexts. The language laboratory has been open to all students full time except English lessons' occupation each week since it was established. The participants of the research in Group one will have Family Album USA (focus speaking and listening) twice each week, while Group two and three will have college English writing on alternate weeks. It's the first time for the writing classes to use the networked classroom (they usually have it in general classrooms).

Moreover, students can go to the lab after class and do their own individual study. They can enjoy English movies in the lab (by borrowing or renting English film CDs or VCDs from the lab). If they want to do listening or other exercises individually, the computer system can provide simulations of College English Test and the lab can provide special training (vocabulary, grammar, reading and writing etc.) softwares as well as various cassettes of English learning.

During the experiment period, any student of the three groups was allowed to enter the lab after class depending on their student IDs instead of tickets of the lab at any working time of the lab.

Instructional design (basic structures of class)

1. Class begins;
2. Guided questions;
3. Content of lesson demonstration (Key points of Language: collocations, useful expressions, key structures etc.);
4. Media play;
5. Group discussion;
6. Pair work and group work;
7. Teacher coaching;
8. Group roving report;
9. Students' evaluation;
10. Summary from the teacher;
11. Forming up exercises,
12. Teacher evaluation;
13. End of class

3.2.4. **Information collection.** Three types of information were collected: Learning activities in class; Students' production of writing using the computer, and Learning activities out of class.

Three methods were adopted for the study. One was classroom observation by means of making detailed notes. And the result from the answers of students was presented and analyzed by the computer. Another was to make comparison on language characteristics between students' production in general classrooms and in network environment. The data, which was conducted by the computer, was from the monthly achievement performance and the evaluations made by Professor Zhang, who was a very experienced language teacher and taught Reading and Writing to Group two and Group three. The third one was to have interview with students and teachers involved in the study after class.

The research took place over six weeks. Classroom observation began from the last week in August. The data collection was conducted from mid-September. The session was chosen because it was just after the short term of basic computer skills training and practices, and was in the middle of the experiment duration. Accordingly, the students were by then fully familiar with the use of the student machines in the lab as well as the software aids.

3.2.5. **Procedures.**

Group one

The study of the first type of information is by means of classroom observation focusing on Group one. The course was Family Album USA, which was a newly opened course for Science students as audio-visual focus lesson. The author observed the activities of cooperative learning groups divided by the teacher in class. And the respective group products (answers to the follow up questions are restored and analyzed by the computer). And the teaching plan was as follows:

Time frame: four hours per week

Small group size: 2~3 students

Step 1: Select an episode and give introductory questions through electric blackboard to the students, then display the episode.

Step 2: Provide key points of the text and language focus for practice through electric blackboard to the students.

Step 3: Group practice, discussion and presentation.

Step 4: Forming up exercises within limited time.

Step 5: Teacher evaluation, role-play assignment (which will be checked next time), and display the episode again.

Group two and Group three

Usually, the two groups will have their writing classes on alternate weeks in general classrooms. And the common procedures of general writing class were as follows:

Step 1: Make comments to the productions completed in the previous class.

Step 2: Present a new topic on the blackboard and offering prompts, clues, and explanations or analysis on the topic.

Step 3: Ask students to complete a piece of writing under the topic; all pieces have to be handed in before class is over.

During the research, the students in both groups were asked to write the same topics (altogether two topics) again under the same situation on the alternate week of experiment. The teaching plan is as follows:

Step 1: Present a new topic on the electric blackboard and offer clues, prompts, and explanations.

Step 2: Warming up exercises (sentence or paragraph completions, story guessing, etc.).

Step 3: Topic discussion on relevant issues among pairs and groups.

Step 4: Individual work on the completion of a piece of writing under the topic.

Step 5: Instant comments and evaluation by both the teacher and the students.

3.3. **Results and discussion.**

3.3.1. **Cooperative learning activities in class.** It was assumed in this study that network environment would facilitate implementation of class activities especially for cooperative task-based class.

TABLE 1

Item		Group A	Group B	Group C
Total questions input		16	16	16
Incomplete answers (pieces)		0	0	0
Blank answers (pieces)		0	0	0
Total valid answers (pieces)		24 (8s)	20 (3s)	18 (11s)
Necessary answers (pieces)		16	20	18
Selected answers (pieces)		9	4	11
Answers (points) *(s) means selected answer*	10	6	11	5
	8	5	4	4
	6	3+1(s)	1(s)	3+2(s)
	4	2+3(s)	1+2(s)	4+5(s)
	2	4(s)	0	3(s)
	0	0	0	1(s)
Total scores of answers (points)		152	160	154

The students in Group one was working in pairs. Altogether twenty-three pairs are divided into three groups (one group has seven pairs) and each group must answer sixteen questions (48 different questions in all) within the limited time (ten minutes). As shown in the Table1, of all 48 pieces of questions, 26 (54.2%) pieces had answers with the full score. Thus, more than half the questions were answered in perfect quality. Of all 70 pieces of valid answers, 8 (11.4%) pieces were in lower quality (three points below); moreover, they all belonged to selected questions. In addition, no spelling mistakes appeared and no obvious grammar mistakes were made. This showed that students had done their best before class for the preparation.

It was evident that the goal of this activity had been attained in a satisfactory way. Of the whole session during 90 minutes, totally 8 (8.9%) minutes were employed by the teacher to give orders. Students' operations lasted 70 (77.8%) minutes while the rest 12 (13.3%) minutes were spent on the exciting discussion together. Hence, it is reasonable to conclude that this session was a typical task-based cooperative learning process.

Another significant feature of this session was its high efficiency. During 70 minutes as a whole, 78 pieces of answers announced on the box (an average of 1.1 pieces per minute).

Therefore, from the performance of the sample above, peculiar features emerged first from immediate output and feedback with accuracy in message interaction. This resulted in

the implementation of cooperative task-based activities in a limited duration of ninety minutes. The practical effect was that students had enough time to train productive skills in class.

From the point of view of psycholinguistics, network environment provides with abundant conditions. As shown above, although the teacher did control the running of the whole class, students were involved with few passive factors. High spirits, close cooperation, and serious work attitude were the most powerful evidence. 30 participants (65.2%) were interviewed after class. They all claimed that in class, students' active intake accompanying with teacher's necessary output took a bit more effects than teacher's output with students' passive intake. In other words, students were favor to the class that they acted like the host while teacher was an aid. However, in real learning process, college students are not experienced enough to control one's own actions. While the network classroom solved the contrast since teacher hid behind the workstation controlling the whole class and the students occupied most of time alone as the host.

Finally, the last feature mentioned here refers to the versatility of teaching output. As discussed at the beginning of this chapter, to increase learner's intake needs to enlarge the exposure of teaching output. Such peripherals as video recorder, CD-ROM etc. offer convenience for teacher to import teaching materials in forms of image, picture, text as well as animation. During the experimental period, it was evident that such peripherals were useful and helpful to improve class activities and did take effect on language acquisition.

3.3.2. **Students production in writing class.** The study was under close cooperation of Professor Zhang, head of Foreign Languages Department. And the null hypothesis was that there were no distinguished differences on language acquisition between network environment learning and general classroom learning.

Let's first compare the two teaching plans. The main difference first lies in the cyclical period. Originally, in general classrooms, students had to wait for two weeks to get evaluation to their exploitations. On contrast, in network environment, students' performance would be followed by comments in the same session. Their actual operating time was nearly identical (ranging from 70 to 80 minutes) other than the former period (a pause interval of two weeks). In other words, the learning cycle was conducted continuously during the multimedia period.

Second, far beyond the teaching plans themselves, the difference emerged from the way students worked in class. In general classrooms, students fulfilled the task individually; while they had to work in pairs in network environment. Thus the quality of students' production on the spot necessarily increased in some degree.

The table below presents statistical results of the experiment:

To each group, there were four types of students' productions respectively. To make it clearer, the letter "P" means producing, which stands for students' producing activities; and "R" means repeating to describe the activities that happened in the end. For students' performance at the end of experiments was, to great extent, a repetition of what were produced two weeks before.

As the above shows, p value of P-pairs of two groups was lower than 0.01; in addition, which of two R-pairs was identical to 0.01. The p value stands for the probability when the obtained T value is no greater than t critical value. That is to say, it is safely to conclude that the obtained T for each pair is significantly impossible to be less than t critical value. Consequently, the previous hypothesis was rejected by the result from all the four pairs.

TABLE 2

	Group2				Group3			
	P pair		R pair		P pair		R pair	
	MNC	GEN	MNC	GEN	MNC	GEN	MNC	GEN
Mean	8.167	5.958	7.625	6.167	7.417	5.362	7.191	5.574
Variance	6.928	7.402	8.793	9.163	5.732	9.062	9.158	11.64
Total Number of Observations	24	48	48	48	24	47	47	47
P (T<=t)	0.001		0.010		0.002		0.009	
T (one-tailed critical value)	1.667		1.661		1.995		1.662	

First, there was marked difference on effects between network environment learning and general classroom learning either to learners at a higher level or at a lower one. Second, p value had proved that the difference also notably existed even if pair-work increased students' scores of production in network environment. That is to say, classroom did have more notable influence on language acquisition than general classrooms.

What discussed above concentrated on the overall effects. To makes it more specific, a table of frequency distribution was given concerning individual results (no odd number in students' records according to professor Zhang, ranging from 0 to 14). The records are as follows:

TABLE 3

Frequency Distribution								
Score	Group2				Group3			
	NETWORK		GEN		NETWORK		GEN	
	P	R	P	R	P	R	P	R
0	0	0	0	0	0	0	3	7
2	0	4	6	4	1	2	8	2
4	3	4	14	19	3	12	12	9
6	6	13	13	8	5	10	9	16
8	5	10	7	8	9	8	9	6
10	6	11	6	6	5	11	5	4
12	4	5	2	1	1	2	1	2
14	0	1	0	2	0	2	0	1
Total	2 4	48	48	48	24	47	47	47

Thus, if all learners could be put into three categories, elementary ones scored from 0~4, intermediate ones from 6 to 8, and advanced ones with a score above 10. As for one group,

data of R-pairs were chosen to make comparison because of their identical sizes. Below are two bar graphs to present the distribution of learners at three levels:

Group 2:

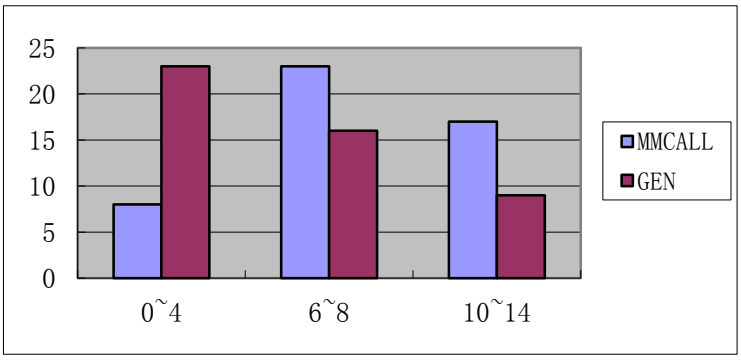

FIGURE 1.

Group 3:

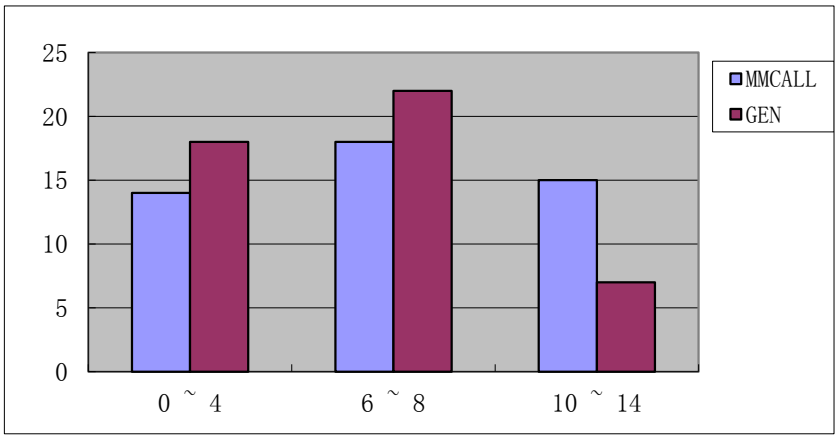

FIGURE 2.

As shown in the Figs, it was apparent that network environment had benefits to learners at all levels. We can see that participants in Group two are more adaptive to such advanced learning environment. And their language proficiency can be improved more in network environment than in general classroom. However, this feature was not notably embodied in figure of Group three though there was also a marked increase of quantity of advanced learners. It could be concluded that network environment had more influence on the intermediate learners than elementary ones. According to Professor Zhang, a number of lazy learners might avoid learning language under the shelter of pair work in the advanced environment. It was also possible that some learners at very elementary level were hard to make a marked progress during such a short period (only a month or so).

To summarize, such conclusion was drawn that network environment offered substantial conditions to take positive effect on language acquisition.

3.3.3. **Learning activities out of class.** According to previous introduction in instructional context, such activities as English films, test simulations, etc. were offered to help students learn English out of class.

The goal of English films' displaying activity was to develop students' interest in English

learning as well as to train students' competence to understand English language under a certain cultural background. From the study through interview, all participants admitted that the part of film watching activity was their most favorite in the multimedia environment.

Another activity was conducted via the software named English World. Students could read interesting short stories, review film dialogues and learn to sing classic English songs. English World pursued the principles of learning English in a happy and relaxed surrounding. Students were allowed to input relevant materials that were appraised by the teacher. The purpose of this arrangement was to motivate students to broaden their outlook as well as to develop learning interests while finding out English reading materials on their own. The fact is that it did take effects. More than 40 short stories were filled into Reading Room, and over 30 English songs were input in Music Hall. And the students are so enthusiastic about the construction of English World that a few suggestions were put forward.

The multimedia system also provides simulation environment such as message exchange center, where students could do role-play as they want. This type of computer-mediate communication was easier to go on and on than face-to-face conversation, and most participants liked to accept the challenge from the Question Box. And many topics were raised, covering many fields like computer science, plots in a film, English usage, daily life, and so on.

Test-simulation offered a large amount of reference materials on College English Test and key points to let the students find out their weakness. This is very helpful to these participants since they were about to attend CET Band IV in December.

In a word, all these activities were out of teacher's control, and there are no special rules to tell the learners that they must study English. What they need to do was learning English autonomously. Only those who believed they were capable to do well in English and to compete with others were willing to be involved in such environment.

3.4. **Feedback from the participants.** After the interview with the participants and the teacher involved, the following are the reasons the teacher liked using the technology:

1. The value of authentic video;
2. Active student learning;
3. Student self-pacing and sequencing;
4. The teacher's ability to deal with various learning styles and modalities;
5. The development of complex skills;
6. The cooperative learning environment.

The students also responded favorably to the instruction and cited why they liked the technology. They

1. liked working at their own pace and controlling the instructional process;
2. found the lessons to be interesting;
3. liked hearing native speakers in authentic situations;
4. remarked, often with surprise, that they could actually understand the conversations in the video.

For one thing, multimedia can provide a wealth and a variety of authentic visual and auditory input that no teacher could offer unaided. Moreover, networks and electronic communications allow learners to communicate with each other and access data near and far. Even aside from multimedia networks, access to a richly supportive technological

environment with multiple resources built in can provide the opportunity to facilitate cooperative and individual learning according to the many variables.

On the other hand, teachers, no matter how experienced and flexible, inevitably have their own personal styles and strategies and cannot adapt themselves with infinite flexibility to every different learner. But in network environment, if it is compared to a stage, students act as actors while teacher is the director of the play. How actors threw themselves into playing on the stage is just the way students handled cooperative learning.

Finally, the computer's ability to record, tabulate and organize data on the learning history of individual learners goes well beyond a human being's, and it can therefore diagnose individual learning problems far more accurately than most attentive teacher.

In a word, computers and machines serve many purposes and can play many different and potentially powerful roles in language learning contexts. Both their context of use and the nature of the software they run interact to represent spaces in which learners can learn and cooperate. Thoughtful planning in integrating computers into the language learning community can well serve the purpose and processes of acquisition-oriented language activity. The successful design and orchestration of tasks that fully exploit these tools for the purpose of language acquisition is contingent on understanding the power and potential of computer-supported contexts and what individual learners bring to tasks and what they potentially can take away and make use of in order to contribute to the larger learning groups or community. It is the task and its implementation that ultimately shapes learner engagement in language acquisition-oriented, cooperative learning activity.

Cooperative technology-enhanced tasks and contexts make sense in light of current theory in second language acquisition, cooperative learning, and instructional technology as a whole. And three points are summarized as important lessons pertaining to technology-based language learning:

1. Technology can help students learn a foreign language.
2. Students like using technology for language learning.
3. It is possible to resolve technical and practical issues related to implementing technology.

3.5. **Pedagogical Implications.** The motivating, task-based activities in the research contrast sharply with traditional instructional methods where learners are "fed" with discrete chunks of language. Unlike instructional approaches where forms are presented and exercised in a teacher-mastered manner, task-based negotiations place significant linguistic demands on the second language learner: the demands more in keeping with (1) active acquisition; and (2) how language is actually used and acquired outside of a controlled classroom setting. Task-based instruction typically incorporates, contributes a great deal not only to second language learners overall proficiency, but to the acquisition of skills and strategies they can put to work cooperatively as well as on their own so as to exploit the target language environment for their own cooperative language learning with advanced multimedia technology.

3.5.1. **The role of the machine.** Like all contextual artifacts, especially tools used by members of a particular community, the presence of the machine inherently brings about major change in the structure and dynamics of activity. For language teaching and learning, computers represent unique climates and contexts to promote student-centered activity when the machine is cast in its proper role as tool in learner-centered pedagogy.

The socio-physical space in which the computer resides in an instructional setting speaks

a great deal of about how the machine and its role get perceived and ultimately used. The computer can consequently get cast as integral or marginal to the classroom society. If the computer is centralized both physically and socially, then activity related to it will be perceived as shared and central to the social or academic workings of the class as a whole.

Machines can be perceived and used as a way to occupy students so the teacher can attend to other matters. With students productively engaged with the machines as the thinking goes, the teacher can devote time and attention to individual learners and groups. This is certainly a potential plus for language learning contexts where one-to-one communication with a native speaker is highly desirable. However, the teacher can be just as freed to be a co-participant if she has carefully constructed authentic tasks that require active participation and cooperation, rather than individualization, with machines.

The learning communities require extensive off-line work in order to get, use, and synthesize information available on the computer in learning environment that has only a single machine. While, in multimedia computer-assisted language learning classrooms, care regarding the need and desire for learners to cooperate when designing and orchestrating tasks is essential. Multimedia language labs are a good locus for cooperative work in that many screens mean many varied representations of learners' thinking which, by virtue of its being public on the screen is subject to more thought and talk.

It may be pointed out that in such an environment that learners automatically share their work and thinking by virtue of its presence on a large, public screen. To some extent this will happen on its own. However, careful task design whereby learners are required and motivated to exchange, share, and co-build information represents increased opportunity for acquisition-oriented practice: cooperative knowledge-building and the realistic communication.

3.5.2. **The role of the learner.** The optimal role for language learners is active. It is through active participation in thinking and using the target language that the opportunity for language acquisition is maximized. The research reveals that computers can be used to enable and support student-centered tasks and those features of task and medium on consort contribute to optimal, active students' cooperative learning engagement.

Learner control of talk, or topic control, is widely held as an essential component of second language acquisition (Johnson, 1995). When the creation and manipulation of screen-displayed information is in the hands of the learner, the topic of verbal exchanges around that information is more typically the immediate user's domain rather than that of the teacher or other. Learners can, in other words, exercise their emerging language and discourse skills to represent their ideas and understandings. This is in sharp contrast to other environments where the teacher and more vocal students tend to take the lead and maintain topic control during instructional activities.

The role of the learner can be best designed to require co-reliance and at the same time individual accountability for their completion. Often the element of competitiveness works well to motivate both individual and group engagement. The competitive element can be orchestrated as "learner versus machine", or "group versus group" with the machines in the middle. In either case, the impetus (to complete the task successfully and to achieve a determined level of quality) works to insure task focus (language points), task persistence and a strong sense of joint responsibility among group members.

In such cooperative learning environment, learners are more likely to negotiate meaning, take risks with language, and even tolerate a certain amount of ambiguity as they attempt to

resolve both communication problems and problems posed by the tasks they undertake.

Technology alone does not create independent thinkers or skilled language learners. Learners need to develop a change of attitude, not just about the new medium, but about how to learn to be better able to exploit technology. Learner control should be limited by structuring the material or guidance provided in the form of learning strategies instruction. Only when learners gain a comprehensive perspective on their own learning; only when learners can see the relationship between the strategies (and skills) they use and their cooperative learning effectiveness; and only when learners can plan for and reflect on their learning, can they gain greater autonomy as learners in cooperative learning.

Instructional tasks, by nature, imply roles to be played on the part of learners as well as the teacher.

3.5.3. **The role of the teacher.** Learners need to be taught how to work cooperatively. They need to be taught the language they will need to fulfill or engage in the task. That is the role of teacher to demonstrate and monitor the process. In the research, the teacher weaves a motivated awareness of the forms and functions of language use into the goals and processes of such multimedia computer-supported tasks. They promote awareness of integral forms and function through modeling, pre-teaching (presentation on the screen), monitoring and encouraging of input and output. In such environment, the onscreen visual representations of thought and action can be regarded as anchored referents used to guide and support simultaneous attention to the form and the meanings that form conveys.

It is the teacher who designs and implements processes. It is the teacher who must to some degree relinquish authority in favor of learner independence in thinking and actions. The presence of the multimedia environment tends to aid this.

Establishing the role of a "linguistic court of appeals"[22] is also critical to the nurturing of the instructional dynamic. Where emphasis is on the motivated, effortful act of understanding and with an awareness of the linguistic tools used in that process external mediation of the dynamic can come from an instructor who establishes herself as a facilitator and resource for language and cultural assistance.

The importance of the role of the instructor during language learning task implementation cannot be overstated, especially in terms of supporting awareness of forms and a focus on self-correction, and appropriate use of forms, functions and lexis. The instructor draws attention to the learners to make them aware of these forms and how they operate in use, and assists learners in monitoring their own use of them while they are engaged in task-based work with their partner or group mates. This coaching (appropriate use of targeted language) can serve as a powerful model for learners who can in turn undertake the same kinds of coaching with one another. Therefore, the teachers build in roles for themselves as orchestrators, facilitators, and participants in these tasks. Contexts where computers serve as tools see teachers using the language of advice, suggestion, and encouragement in lieu of the traditional pattern of teacher-led talk[23].

To sum up, the role of the teacher is as follows:

1. The personal qualities of a facilitator;
2. A capacity for motivating learners;
3. An ability to raise learners' awareness;
4. To help learners to plan and carry out cooperative learning;
5. To monitor the learning process;
6. To encourage and evaluate the learners.

And teachers should receive technique training so as to successfully employ their experience and technology in managing the language classroom. They can develop technological supports for monitoring student work, keeping records, grading tests, developing new materials or coursewares so that high-tech can improve efficiency for them rather than create additional demands.

4. Conclusion. This paper mainly discusses the cooperative learning of language and its practical application on English writing course in network environment. Compared with general teaching method, cooperative learning in network environment first of all offer more opportunities for students to experience authentic learning materials, leading to better effects on language acquisition; secondly, students' language input is increased to an overall greater level of sophistication; finally, indirect student-student interaction (via the media) stimulates students' interest in communication with each other in English, which is not only contributed to cooperative learning and decreases students reliance on the teacher, but also helps to improve students' confidence in speaking English in public. Language teachers should take a positive posture to master new teaching technology, take advantage of it and decide how it can serve in its particular settings to further accomplish particular instructional goals.

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