ARTICLE

WEB-BASED PROJECT LEARNING AND EFL LEARNERS:
A CHINESE EXAMPLE [1]

by Peiya Gu

Abstract

This paper addresses the question of whether Web-based project learning can enhance EFL learners' motivation, improve their learning performance and initiate their active roles in electronic literacy development in a Chinese EFL context. Case study of a cross-cultural collaborative online writing project conducted in the fall semester of 1999 between 20 Chinese students at Suzhou University and 28 American students at Southern Polytechnic State University of Georgia forms the basis for discussion. Supported by descriptive data, the writer concludes that web-based learning projects do have potential in motivating EFL learners and bringing about positive learning effects, but the key still lies in how they are managed and supported by learners, teachers and administrators at all levels.

Introduction

According to the Semiannual Survey Report (CNNIC, Jan 2002), China's Internet users have soared to 33.7 million from 22.5 million a year ago. This fast growth has not only brought about sweeping changes to many facets of life but has also posed new challenges to China's university graduates as job hunters. More and more enterprises, especially foreign invested ones, require applicants to have both adequate English proficiency as is usually demonstrated by passing the national College English Tests (CET-4 and/or CET-6), and a new literacy termed "electronic literacy" (Shetzer, Warschauer, 2000). This mainly involves the ability to use computers and the Internet for on-line information search and electronic communication. The urgent need to prepare students for these future challenges has made it a priority to incorporate technology into university English teaching programs.

However, our short history of using computers in second and foreign language instruction has taught us that machines themselves do little to initiate learning. The power of the machine lies in how well it gets used and integrated into the daily classroom activities so as to bring about active thinking and action with language being both a tool and the target of the activity (Meskill, 1999). This kind of integrated teaching demands new ways of organizing the classroom. One effective

way seems to be project-oriented learning (e.g. Stoller, 1997), which satisfies a basic condition for language acquisition: social interaction. It is now widely agreed among educators and psychologists that students learn best when they carry out meaningful tasks and solve meaningful problems in an environment that reflects their own personal interests as well as the multiple purposes to which their knowledge will be put in the future (Collins, Brown, Newman, 1989).

Recent research suggests web-based project learning, with student involvement in authentic challenging tasks as its core, have potential in enhancing learner motivation, improving learning performance and prompting positive changes in their roles in learning (e.g., Means, Olson, 1995; Debski, 2000; Warschauer et al, 2000). One large-scale survey study on motivational aspects of using computers for writing and communication found three common factors of student motivation, labeled communication, empowerment, and learning effects (Warschauer, 1996). This finding was supported by other researchers (e.g., Barson, Frommer, Schwartz, 1993; Brown, 1986; Thorn, 1997). As for the effects on students' learning performance, those most widely reported include facilitating authentic and purposeful communication, improving students' awareness of readers and fostering learners' critical thinking and problem-solving abilities (e.g., Chun, 1994; Feldman, 1995; Soh, Soon, 1991). Also reported by studies are changes in student roles such as from diligent acquirers of knowledge to responsible and creative agents taking over responsibility for the outcome of the course (e.g., Barson, Debski, 1996; Levy, 1997). Meanwhile, the very complexity of the project encourages students to become more open-minded, cooperative partners playing multiple roles in electronic literacy development (Warschauer et al., 2000).

In China, realizing the urgent need to help students develop the new literacy skills, an increasing number of college English teachers have started to integrate technology in their language teaching programs (e.g., Liu et al., 1998; Wen, Song, 1999; Zhao, 1999). A pilot study of a group of English majors in Suzhou University involved in the "Cities' Project" for international student communication, identified the potential of networking activities in optimising Chinese EFL learning environment from various aspects (see Gu, Xu, 1998).

However, the campaign to promote the new literacy development is by no means easy because of various economic, socio-cultural and educational factors. The high cost of hardware, software, connection charges, plus technical glitches like machine breakdowns and slow transmission speed make it a formidable task to implement web-based project learning in a Chinese EFL

classroom. The campaign is also slowed down by unfavourable educational factors, such as rigid curricula, exam-oriented teaching approach, and teachers' lack of training in both computer literacy and project-oriented language teaching methodology. This situation is further complicated by people's attitudes of resistance and indifference, which can be attributed to traditional cultural values such as personal modesty, self-discipline and obedience to authority. A discouraging fact is little recognition or appreciation is given to electronic literacy advocates for their tremendous effort and contributions, although calls for ELT reform have been always appeared as headlines in the public media. Besides, as Chinese teachers and students have long been accustomed to the "spoon-fed" methods, many may feel uncomfortable with "student-centered" approaches such as project-oriented learning (Lynch, 2000). Thus, up till now the CALL research effort in China is mainly focused on the effects *of technology*, such as multimedia language learning software (e.g., Jia, 1999), while little understanding has been obtained toward the effects *with technology*, such as the effects of web-based learning projects. Therefore, whether the advocated merits of web-based project learning approach can shed light on Chinese EFL learners still remain questionable.

In an effort to get some insights into the complex realities, particularly Chinese EFL learners' perceptions of web-based language learning projects and the possible impacts on their learning process and product, a case study of a cross-cultural collaborative online writing project was conducted in the fall semester of 1999 at Suzhou University. The study aims to answer the following two questions:

  RQ1. How do the participants perceive their experience of web-based project learning?

  RQ2. What impacts do the cross-cultural collaborative online writing projects exert on learners' motivation, writing performance and roles in learning?

The Case Study

Participants

The participants of this study were 20 Chinese college students enrolled in a cross-cultural online writing project in collaboration with 28 American junior college students taking a selective course on Technical Communication. The Chinese participants were selected from a large group of interested sophomore and junior students from different schools of Suzhou University (SU), based on their English proficiency and computer literacy in addition to an entry interview. A

student demographic survey (Appendix A) shows these participants had an average of eight years of English learning experience. All of them had taken Band-4 of the national College English Test (CET-4)[2] and the majority passed it with high scores. Three students even passed CET-6. In addition, all the participants had passed the provincial computer proficiency test and thus had some basic computer skills and a fair typing ability. Five participants had computers at home, but none of them had previous experience in web-based project learning, collaborative writing or direct contact with English speaking people online. An entry interview revealed that many students were drawn to this project by virtue of their personal interest in both English communication and computer skills. Others recognized international cross-cultural interactions as crucial to their broader professional and academic goals.

The setting and procedures

The project was conducted in a multimedia language lab in the School of Foreign Languages in the fall semester of 1999. There were 25 Pentium 100MHz PCs linked together to form an intranet that enabled an in-class email exchange, and also connected to the Internet via the campus network. However, due to cost concern and slow transmission, students' free access to the Internet was limited to about 2 hours a week, but they could access the computers and visit those selected websites in the public folder on the intranet during regular office hours in the daytime and twice a week in the evenings.

The cross-cultural technical writing project was initiated by Professor C. Barnum at Southern Polytechnic State University (SPSU), Georgia, USA, based on her email communication with the writer and another teacher in Suzhou University. The purpose of this collaborative project was to provide the participants with an opportunity to practice authentic technical writing skills through project-oriented distance collaboration with their would-be business partners. Like their Chinese partners, 28 American participants were from different schools and majoring in different subjects other than language arts. The participants on both sides shared a similar requirement that they work in groups to conduct a series of investigations into the business opportunities or culture topics in China or in America. The final group product would be a research report to be presented orally in class in the form of webpages or PowerPoint slides to be shared with their partners on the other side. Two teachers from the College English Department of Suzhou University and two graduate students majoring in CALL research volunteered as facilitators (each acted as a tutor for

1-2 groups), with one teacher as the major contact person on China's side regarding project management. Chinese students and their facilitators met in the lab every Wednesday afternoon, two hours each. Mini-lectures on computer basics, technical writing and cross-cultural communication were given whenever necessary throughout the semester. The writer acted both as a researcher and a project consultant, helping with the project design, management and evaluation.

The collaborative writing project was divided into three stages: Preparation (two weeks), Collaboration (eight weeks), Presentation and evaluation (two weeks). In the Preparation stage, a short training was conducted regarding the project aims, email techniques and collaboration logistics. Chinese participants were divided into five groups of four based on their project interests. These groups were then paired with their American partners with similar or different research interests following their preferences. See Table 1 below:

Table 1: Collaborative Writing Project Topics

SU at Suzhou, China	**SPSU at Georgia, USA**
1. Chinese silk pajamas exhibition in Georgia	Marketing prospect of computer accessories in Suzhou
2. Marketing strategies of Suzhou freshwater pearls in Georgia	Import plan for Suzhou silk products
3. Chinese restaurant in Georgia for food culture exchange	A study of China's market needs for new-brand bicycles
4. A study of American cultural values	Feasibility study of introducing Chinese snacks to Georgia
5. A comparative study of Chinese and American campus life	Promotion strategies of new-model mobile phones in Suzhou

For convenience, Chinese students named their five groups as "Pajamas", "Pearl", "Restaurant", "Culture" and "Campus Life", while the Americans named theirs as "Silk", "Computer Accessories", "Bicycle", "Chinese Snacks" and "Mobile Phones". This paper reports research results about the participants on China's side only.

Collaboration started right after each group decided on their topics. The students were guided to communicate with their American partners via email, from self-introductions to gathering and providing information for their own projects and those of their American partners. They

researched their own topics in a step-by-step manner. They analyzed their tasks, distributed roles to each member, then carried out the investigation with the help of their American partners. They visited libraries, surfed the Net, evaluated the information collected and held intra-group and inter-group discussions on issues of common interest. They also helped each other in preparing research reports and in constructing webpages or PowerPoint slides for final presentations.

The presentation week is the climax of the whole project. The open-house multimedia presentation attracted a full room of over a hundred of teachers and students on campus. The best projects were selected and uploaded to the SudaCALL website.[3] Evaluation was held the following week. All Chinese participants did self-assessment with checklists designed earlier for identifying new literacy skills learned through project work. Group comments were given to each member on their project participation, collaboration and contribution. Then a class discussion was held on overall gains and lessons to be learned.

Data collection and analysis

As major effects of this project-oriented approach is to be seen in its long-term efficacy, both quantitative and qualitative data were collected with the knowledge and permission of all the participants through surveys, participant observation, open-ended interviews, analysis of participants' email messages and other electronic texts.

Surveys

Student information was collected twice through the student demographic survey (Appendix A) in the beginning of the project and part two of an end-of-project CALL survey (Appendix B: Background information). Both asked questions related to student self-reported English learning efforts and self-rated computer skills. The results were collected and compared to see the students' skill development and behavior changes (see Table 5 in the "Findings" section). As two students were unable to take the CALL survey, only results of both surveys about the 18 students are presented here to make the analysis consistent.

Part one of the CALL Survey was made up of 35 items to be answered on a five-point Likert scale, with 5 being the highest score. Among them, five questions were designed to elicit the students' general perceptions of the whole project (Q1, Q2, Q3, Q32, Q35). The remaining 30 questions were designed on the basis of the three documented effects of CALL projects on

learner motivation, learning performance and their roles in learning as was discussed above. However, "writing performance" was used instead of "learning performance" as this project focuses specifically on writing. For convenience of observation and analysis, the three major effect constructs were further developed into 8 sub-constructs: (1) communication; (2) empowerment; (3) learning effect; (4) general writing behaviours; (5) information processing; (6) cross-cultural communication; (7) collaboration; (8) learner autonomy. The first three are motivational factors, the fourth to the sixth for writing performance, and the last two for roles in learning.

The responses to the first part of the CALL survey were calculated to get an overall mean for all students and all 35 questions. The mean score on a five-point Likert scale on each question for 18 students was calculated and compared with a hypothesized mean of 3 (representing a neutral score) using two-tailed t-tests. The significant level was set at $p<.05$ (see the full results in Appendix B). Next, in order to further see the relationship between the students' perceptions of the CALL project and the three major effect constructs, a correlation analysis was also conducted.

Participant observation

Throughout the project, the writer visited the class frequently and maintained individual email contact with both facilitators and students. The nature of the writer's participation varied. I helped the students with their questions and discussed suggestions with facilitators. I also took extensive field notes about what I observed in and outside class. Facilitators kept observation notes too. All these were collected with explicit knowledge and permission of people involved.

Open-ended interviews

Open-ended interviews were conducted in various forms throughout the semester based on the major effect constructs we wanted to cover. Discussion was encouraged to learn about the issues considered important by the students. At the end of the project, five open-ended interview questions (Appendix C) were emailed to all students to gain further insights of their project experience. Each student responded by an email message.

Student writings

The students were required to save all their writings in the public folder on the intranet as well as on their floppy disks, including their journals, reports and email correspondences with group members, teachers and their American partners. These were collected at the end of the semester. The analysis of the qualitative data was an ongoing process and followed several steps. For my initial analysis, I grouped the data representing the different sources first and then reduced the data by coding them by the three above-mentioned major effect constructs based on my research reviews. I wrote extensive notes justifying my coding decisions and documenting any emerging data that could help describe and explain student perceptions of their project-oriented language learning with technology (RQ1). Every time a new theme was revealed, I would go back to the full data set and sort all my notes to enrich the interpretation of the identified impacts on student motivation, writing performance and their roles in learning (RQ2). In my analysis, I extensively drew on my own observations made as the project consultant. Sometimes I would seek additional feedback from facilitators and students by email or personal talks. While reflecting on the background of this project, some new themes emerged regarding some practical and organizational factors that either facilitated or constrained the implementation, which are discussed under the heading "Implications".

Findings

The survey data shows that the overall mean score for 18 students on all questions in part two of the CALL survey was 4.015. Among the individual questions, the most positive response, at a mean of 4.667, was given to Q3 and Q5. Next highest were Q25, Q27, Q22 (see Table 2).

Table 2: Questions with the highest mean scores

Survey Questions	Mean
Q3. The project is not worth the time spent because it can not help me pass CET-6.	4.667*
Q5. I enjoy using the computer to communicate in English with people around the world.	4.667
Q25. I help to decide on topics for discussion and writing.	4.500
Q27. My opinions and suggestions were often neglected.	4.444*
Q22. It is rather difficult for me to clear the misunderstandings caused by cultural differences.	4.444*

* The mean scores marked with * are reverse coded.

To understand the impacts of the web-based learning project on the students' motivation, performance and roles in study, the average means and standard deviations (SD) of the three sub-constructs were calculated and listed in Table 3. The highest two are given to "communication" and "cross-cultural communication", which interestingly echoes the students' initial interest voiced unanimously in the entry interview. The lowest one is for "information processing", although it is still above the neutral score of 3.

Table 3: Overall means and standard divisions of main constructs and their components

Constructs	Sub-constructs	Survey Qs	Mean	SD
Motivational aspects	Communication	4, 5, 7, 8	4.245	.827
	Empowerment	6, 13, 34	4.111	.633
	Learning effect	9, 14, 33	4.093	.768
Writing performance	General writing behaviours	15, 16, 17, 18, 19, 31	4.040	.666
	Information processing	10, 11, 12, 13	3.750	.752
	Cross-cultural communication	20,21, 22, 23	4.153	.552
Roles in learning	Collaboration	27, 28, 29, 30	4.028	.709
	Autonomy	24, 25, 26	4.024	.560

In examining the relationship between students' general perceptions and three major constructs, significant correlations (see Table 4 below) were found, which agree with our belief that the students' positive perceptions of the project directly lead to their active participation in their language learning activities. This also indicates that it is of great importance for students to psychologically accept a new pedagogical approach before it can be implemented successfully.

Table 4: General perceptions correlated with three major effect constructs

Three major effect constructs	Correlation with general perceptions
Motivation	.862*
Writing performance	.614*
Roles in learning	.753*

* Correlation is significant at the 0.01 level (2-tailed)

The results for the student demographic survey and part two of the CALL survey were compared to see the students' behavior changes (see the results in Table 5 below). The comparison indicates an obvious improvement in the students' familiarity with technology and frequency of writing in

English after the project. Not only do more students write journals and letters in English more frequently, but also their typing skills are obviously improved, and they tend to apply word processors, email, the Net more often than before. It is argued that the more the target skills get practiced, the greater the chance of improvement.

Table 5: Self-reported computer skills and writing practice

Typing	Poor 11/0	Fair 6/8	Good 1/8	Very good 0/2
	Never	**A little**	**A lot**	
Word	3/0	15/8	0/10	
Email	9/0	7/0	2/18	
The Web	11/0	5/14	2/4	
	Never	**A few times per month**	**Often**	**Very often**
Journal	14/0	3/10	1/5	0/3
Letter	9/3	9/11	0/3	0/1

Note. The number on both sides of "/" refer to the number of students made the choice before and after the project respectively.

By the end of the project, all the student writings, including their email exchanges, research drafts, reports, and presentation files were collected and calculated for the quantity of their language input and output. In the Collaboration period alone, every participant sent and received 2-3 messages weekly. On average, each group sent and received 24 emails with about 5, 152 words to and from their American partners, in addition to 15 emails with 4,218 words on average for intra-group discussions. Their weekly progress reports and final research reports showed their group efforts in technical writing with 5,291 words on average. Compared with the average assignment of about three 150-word essays in one semester for their peers outside this project, the production level of these non-English majors is considered high. The improved sense of audience, richness in content and genres is more encouraging, which will be discussed in the following section.

Discussion

General perceptions

The results of the CALL survey support the view that students in general have positive perceptions of their web-based project work experience. One could argue that the higher-than-

neutral means are meaningless, since students might tend to answer positively on any survey. Yet this argument is undermined by the fact that even in those questions that were reverse coded students indicated a positive attitude toward their project learning experience. Typical is the case for Q3 ("The project is not worth the time spent on because it cannot help me achieve high score in CET-6"), which yields the highest mean of 4.667 among all 35 items. Together with other above-neutral high means for the related questions, the result indicates the students' strong belief in the long-term benefits of the web-based learning project and their changing attitude toward the traditional way of learning with a textbook, as was shown by the mean of 3.389 for Q2. The "Culture" group, for example, regarded this way of learning as being "more enjoyable and more rewarding than traditional teaching methods", which is also confirmed by the high mean of 4.278 for Q32, Q35 (4.278) and Q1 (4.056). This is supported by our daily observations that most participants treasured the opportunity to step away from their rigid classroom routine and move into this more flexible learning environment. It is also exemplified by responses to the first interview question, such as the following one:

> In our normal English classes, teachers just give the lessons and we students only sit there to take some notes and do exercises. Then a class will be over. It is rather dull. Now it's different. There's a real task for us to drain our brains. It offers us a good chance to learn what we want to learn. So we feel responsible and interested in the project. (Ann, "Pearl" group)

Motivational effects

The participants' favorable perceptions of the web-based project work had exerted positive effects on their learning. The most obvious effect was an increase in motivation. However, it did not come from the novelty of computers alone, but from authentic and purposeful communication, sense of power and achievement gained through working with computers.

Among the eight effect constructs, Communication generated the highest mean of 4.245, which is echoed by one of the two highest means for Q5 ("I enjoy using the computer to communicate in English with people around the world") and other high means for the related questions. Students showed great enthusiasm toward authentic and purposeful long-distance cross-cultural communication. As Zhi from the "Campus Life" group wrote in her interim report, "I always long for opportunities to communicate with foreigners, however, the chances are rare in my daily life. In this project, my dream came true". The challenging group tasks played a key role in attaching a real purpose for students" communication. They motivated students to demonstrate

their "group wisdom" through in-depth studies. Wu from the "Pajama" group commented, "the tasks offered much room for us to exert our potential ability and creativity". Besides, computer networks made it less threatening for people to contact and give opinions. With the aid of computers, the students had more time to think, more ways to revise their writing and more chances to interact with a variety of audience. Obviously, this pressure-plus-pleasure atmosphere enhanced student enjoyment of, interest in, and attention to the communication activities.

High motivation became the major driving force to make the participants ready to spare much time and energy on the collaborative project. For example, to help their American partners with their research on promoting new-model mobile phones in Suzhou, the "Campus Life" group conducted a comprehensive market survey and reported back detailed information such as the price range for various foreign products, customer needs and even Chinese culture preferences to the lucky number of "8" and "6" (see Appendix D: Sample One). Similarly, the "Restaurant" group provided their American partners with 15 pieces of detailed advice to help with their study of China's market needs for new-brand bicycles. As Doris, their group leader reported, "Frances and James searched as much information as they could find, considered all related factors, discussed with each other and eventually came up with the appropriate answers. We are glad that our American friends are satisfied with our replies."

The empowering nature of the project really pushed our students to work with more engagement and responsibility. For example, to simulate a Chinese silk pajamas exhibition in Georgia, the "Pajamas" group set up their virtual company and named it *Silklis Co. Ltd.* Each member assumed a position as President, Vice President (VP) Marketing, VP Advertisement, VP Management. They collected information from their American partners about preferences of their target consumers to color, style and price. Then they designed their own products in three series, Clouds, Dragon and Paradise, with rich patterns showing the beauty of Chinese arts and also their understanding of the tastes of American people in different age, gender and economic conditions. They even worked out all the details for their three-day exhibition in Georgia, such as their TV show and the rent for their 1,600-square-meter exhibition hall! Liu, majoring in International Laws, wrote "It was challenging to be a market manager. I learned to communicate with my boss, to conduct marketing research. I feel like being a real businesswoman!".

Positive learning effects gained in the project further strengthened the students' self-esteem and autonomy. They were "learning by doing" and felt very proud of their achievement in computer skills, English writing and business knowledge. The following reflections are just among many:

> Experience is the best teacher. Actually it is. Since I am majoring in Chinese Literature, doing business is fresh to me. During the three months' course, I have been working while studying. Before this project, I have never written an email to anyone, now I can write to my American partners whenever I wish. Before I knew nothing of how to run a company, now at least I know how to made advertisements of products. Before I think doing business is merely doing business, now I know that it is related to a lot of fields such as culture, psychology, aesthetics, etc. I feel what I gained is more than what I expected. (Darrance, "Pajamas" group)

> I'm lucky to be a member of our project…, I think I've been making rapid progress in many aspects. It goes without saying that excellent skills of operating computers and a good grasp of English language are among the most essential abilities for we modern youngsters in the changing world. This project provides us with a precious opportunity to learn more in the two fields. (Doris, "Restaurant" group)

The high means for Q13 (4.111), Q14 (4.222), Q 34 (4.167) and Q 33 (4.111) also clearly indicate their sense of accomplishment and confidence in applying new literacy skills to real problem-solving outside of campus. As Zhu from the "Pearl" group wrote, "We learned much about marketing, advertisements, tariff and international law. I think if we will do business in the future, our practice in the project will benefit us a lot".

Improved writing performance

> In this project, what I gained most is I improved my business writing ability. At first I don't know what I should say, and I can't find many word to write and I had difficulty in communicating with my American friends. Now I am fell [feeling] freer when I write to them. (Jim, "Pajamas" group)

Most of our participants had had little training in English writing, let alone technical writing. If they had some training at all, that was usually putting on paper grammatically correct sentences in the form of translation. Although some participants learned about essay writing in order to pass the CET-4, their attention was paid only to the basic structure and accuracy rather than using the language for genuine communicative purposes. It was found that this CALL project has brought changes to the nature of the students' writing with respect to purpose, audience, genres and medium; and thus corresponding changes were observed in their writing behaviors, especially in their sense of audience, increased language exposure and output, new skills in information-processing and cross-cultural communication.

Sense of audience

With a real goal and a genuine task to write for an actual audience, the students were found actively putting their minds together in their project design and product construction. They showed more creativity, better presentation skills and improved thoughtfulness about the needs and interests of their target audience. The above-mentioned "Campus Life" group's long survey report to their American partners about the mobile phone market in Suzhou is a good example. Students' improved sense of readers is also echoed by the high mean of 3.944 for Q19.

Another example. At first the "Pajamas" group took it for granted that the American partners knew some popular Chinese terms, such as the PC trademark *Legend.* After getting the responses, they learned that writing such terms without an explanation might hinder their communication. Since then they always analyzed the audience and the purpose for each of their email correspondence or report. As Xu wrote in her interim report: "Now I begin to be conscious of who I'm writing to and how what I'm writing will be reacted to". Such awareness of readers is regarded as an important skill and it is believed that students' increased consideration of readers can enhance the power of their writing (Means, Olson, 1995).

In a traditional writing class, students always feel afraid and inferior for they tend to assume that their audience is the teacher, who usually knows far more and who usually pays more attention to students' grammatical errors (Shi, 1999). Therefore they write with fear. Now with a real and varied audience in this project, many participants reported: "I'm not afraid of writing anymore, sometimes even eager to write down what I'm thinking about" (Francis), "I'm actually writing or typing my thoughts out faster and smoother" (Darrance). They even believed this project had "enhanced the clarity and creativity" in their writing, as was seen by the high mean of 4.385 for Q31.

Language exposure and output

While completing all kinds of tasks, students expanded their language exposure through a variety of sources, such as the Web, the teacher, group and classroom discussion. Email correspondence, in particular, facilitated their language acquisition. It is observed that the students enjoyed picking up language and other skills while communicating with their more proficient American partners. As Wu from the "Pajamas" group put it:

> It is really fascinating working with my partners. I have learned a lot that can never be learned through books. What's more, I'm in a lower grade, which means I have less experience than my partners. So surely, I can absorb fresh ideas, knowledge and experience from them. This project is absolutely good for me, I think.

One interesting example is at one point some idiomatic expressions were found appearing simultaneously in several students' email messages, such as "land a job" and "have a good day and keep smiling". When traced back to the sources, they were all found from their American partners. The language learned in this meaningful context tends to be candid and heartfelt, as is illustrated below:

> The e-mails from American friends are especially helpful for me to grasp new words, because they are rich in vivid words and phrases. By reading them and meeting them so often, I got to understand them without checking the dictionary and even got to use them properly. (Zhi, "Campus Life" group)
>
> When I first encountered the word *terrific* while reading a mail from my American friend, I thought the word was of the same meaning as *terrible*. However, the mail showed that he was excited. Then I looked it up in my electronic dictionary and found the exact meaning of the word. It is really *terrific* to grasp vocabulary in this way! (Zhu, "Pearl" group)

Parallel to this language exposure and acquisition is the increased language output. Several students declared that their writing quantity in the project was much more than what they had done in the past two or three years of college study. Our statistics show every participant wrote over 5,000 words on average throughout the semester, which is almost ten times more than their campus peers not in this project. And every group produced a research report of over 3,000 words, which "…is something I never dreamed we could do it and what we feel most proud of!", as Miss Wu put it.

One would argue that increased language output does not necessarily mean the actual improvement of writing quality or writing skills. Yet this argument is weakened by the fact that the student use of new genres and rich content in their accumulated electronic texts does demonstrate expanded writing abilities that go far beyond the measurability of any standardized writing test. In addition to email messages for various formal and informal communication purposes, they learned to construct multimedia presentations, of which they had no experience before. They also practiced all kinds of technical writing skills, such as survey, marketing plan, advertisement, work report and memorandum. They even designed trademarks, catalogues and advertisement for their virtual companies. Their writings went far beyond simple chatting, and either illustrated their final solutions to the problems under study or elaborated on their insights

into the socio-cultural differences between the two peoples. Despite some inter-language characteristics, those writings obviously showed joint painstaking efforts in the revision regarding grammar, diction and tone. This again confirms the view that writing competence develops not through accretion of small chunks of knowledge, but through immersion in the experience of inquiring, reflecting and writing about issues and ideas (Palmquist et al., 1998).

Information processing

It is now widely accepted that the active processing of information is of vital importance for the development of advanced skills of comprehension, composition, reasoning and experimentation (Collins, Brown, Newman, 1989). The ability to elicit, evaluate, interpret, analyze and present information has become critical to success in today's information-rich society. Backed by this constructivist view, the web-based learning project provided opportunities for the participants to practice various information processing skills in the meaningful contexts. However, this brand new active learning skill proved very demanding on the Chinese participants who tended to believe whatever is stated in books or online. This accounts for the lowest mean (3.750) for this sub-construct of Information Processing. Traditional cultural values, such as "obedience to authority", was reflected by their "take-for-granted" attitude in the data analysis period. As one student reported, "We usually take for granted the information from American partners, for they're native speakers."

Nevertheless, some improvement was observed, especially in the ability of asking for information, as shown by the high mean of 4.111 for Q13. Right after selecting topics deemed "pursuit-worthy", all groups set out collecting relevant information. They visited libraries, searched the Net, but most data came from their American partners. In the process they found their partners' responses largely depended on the clarity of their messages asking for information. So they spent a lot of time discussing how to ask good questions. Zhu from the "Pearl" group described:

> We made our investigation mainly by asking questions to the American partners. After we got their feedback I found that our original plan was too simple and abstract. There are too many questions but I know they can't answer all of them. So we pick up the questions concerning the most important market information and try to ask them in a clearer way. This way we got valuable results.

Another example is the "Restaurant" group's well-designed "Poll" distributed to their potential American customers. Their good "to-the-point" questions elicited quite some useful responses,

such as one below:

> Here're some answers to your questions:
> 1. Americans eat in a hurry. Everything must be quick and convenient.
> 2. There are many Chinese restaurants in Atlanta. To give your Chinese restaurant in Atlanta an advantage would be to serve your food hot and spicy.
> 3. You can set up your restaurant near a mall. The shopping malls provide a lot of foot traffic. There will be a lot of potential customers in and around malls.
>
> (Evans & Lynn, personal communication, November 4, 1999)

With all the rich data collected, this group finally completed an effective research report as was viewed by their American partners. Their web pages with vivid illustrations for each type of Chinese food and interesting background introductions to Chinese food culture attracted comments as "I like your Oriental Food Garden…made me mouth-watering", "If there's really such a Chinese restaurant in Georgia, I'm sure the first to go." However, when reflecting on the page-making process, the students realized the distracting effect of the fancy multimedia tools online and the importance of more attention to content.

During the process the students believed that they practiced their critical thinking and problem-solving skills too, which was shown by the high mean (4.333) for Q12 (This project encourages me to think and investigate more before writing." Again Zhu's report is typical:

> I could not understand why the pearl market is not very competitive while there is a large group of consumers. I had discussed it with many people who gave me various answers. For example, Dream considered it possible because of the antidumping policy of the American customs. While Alfred gave me another suspicion that maybe the Americans are not very interested in pearls which seems a little bit too 'cheap' to the ladies. I have sent more questions to our partners to find more satisfying answers.

This shows the thinking and intra-group discussion process the student went over before making inter-group inquiries to the American partners. In fact, the authentic, complex tasks stimulated active learning. The students explored ideas and bodies of knowledge, not in order to pass some test but to understand the phenomena more deeply and search for information they need for the project.

Cross-cultural communication

Just as they expected, the students' frequent interactions with American partners have promoted their critical awareness of cultural differences and improved their understanding of writing as a social and collaborative act. This is confirmed by the second highest mean (4.153) for this sub-

construct. The students learned from their American partners much cultural knowledge such as American holidays, education system and so on. An email from Jared to the "Culture" group is a good example. In his message, Jared not only introduced Americans' values and beliefs in liberty and individualism, but also drew Chinese students' attention to the pluralism of American culture and offered good advice (see Appendix D: Sample Two).

As the students learned more about the cultural differences, they tried to handle them properly in their daily communication with their partners. For example, when Mei from the "Culture" group was drafting a message on family structure, she wrote, "I think the old people *should* [italics added] live with one of their sons or daughters, or they will feel lonely." As it was first shared with her facilitator and group members, this view was immediately caught attention and an in-class discussion was held. They realized that this kind of assertion might cause cultural conflicts and that they should respect others' way of life and social practices. From then on, all the students in the class paid closer attention to the cultural differences, and became more culture sensitive in their daily communications. For example, as the "Restaurant" group learned that in the United States there was usually some reward for answering a survey, they included such a statement: "In return, you will have twenty percent off if we have the great honor to serve you in the first month of our *Oriental Food Garden*." In today's society where global communication increases at an accelerated rate, such cultural awareness and command of some strategies to tackle cultural differences are invaluable (Sayer, 1993).

As a result, the students' increased awareness of potential readers, cultural differences and the importance of information processing lent them more chances to write effectively in English. Considering their increased writing speed, enlarged vocabulary, expanded genres and presentation skills, it can be generally believed that the students' writing performance has improved, though further studies need to be conducted for more evidences and new evaluation procedures have to be devised for capturing the complex writing competencies developed in project-oriented CALL activities.

Changed roles in learning

It was observed that in this networked learning environment where students were busy working on their own project, the teacher's role underwent a significant shift from a knowledge giver to a facilitator. The students took over the responsibility for their own learning and for producing

finished products that meet high standards. Thus, they became more active and autonomous learners. This was seen in their daily performances as well as by the third highest mean (4.500) for Q25 ("I help to decide on topics for discussion and writing") and the other high means for the related questions. Just as Lu put it, "We have a sense of authority in the project because it is we who decided the topics and subtopics and planned how to carry out the whole project."

What is more, the very complexity of the tasks seemed to have led the participants to collaborative work, resulting in greater emphasis on teamwork and collaboration skills. It was frequently observed in the student email exchanges that after one student contributed an idea, others commented on it and offered some new opinions. In so doing, the students actually collaborated to bring thought-structures into being through online writing. Typical is the working style described below:

> Whenever I have any suggestion about the project, I e-mail it to Jim, our group leader first. After he has read it, he will decide whether it is useful or not. If it is, he will e-mail the idea to everyone and we will have a discussion about it. Then he will give each of us some task around the idea considering our individual abilities. This kind of group work is effective and helps us a lot. (Liu, "Pajamas" group)

In fact the supportive network helped the emergence of a learning community in which the teacher was not the only source of knowledge. Students learned from each other, shared what they knew and worked together toward their common goals. Collaboration, not competition, and communication, not isolation, was set as the tone from the start of the project. The report from "Restaurant" group is an example:

> We four, Sonja, Frances, James and I didn't know each other before, but these days we have been getting along well with each other. We divided the tasks but we are a union. If one is in trouble, others will doubtlessly give their hands…. For a university student, one of the most essential qualities is the ability to know how to be a part of a union. That means to work with others both at home and abroad. I think this " Business Writing " project has helped us a lot in this aspect.

Also in the process the students learned to bring out everyone's potential to the fullest and making everyone an indispensable contributor. A good example is all the students in their groups either took specific positions in their virtual companies, such as president, marketing manager, advertising manager and so on, or each researched a subtopic to be merged into their final group product. One of the highest voices from the interview data is their satisfaction with cooperation and collaboration. Some claimed, "team spirit was one of the main rewards of participating in this project" (Harry). American students' help was highly appreciated by the students too, because "they not only provided a large amount of important information, but also set us good

working and language models. For example, they first emailed us their questionnaire. We just followed their example." (Anne)

However, our further analysis generated different opinions on collaboration from students on both sides. For example, several American students expressed dissatisfaction with the lack of immediate response from their Chinese partners, while the latter complained about the lack of interest of their American partners in sharing their project work. The data reveals several causes of the problem. The most obvious one is Chinese students' limited access to the Internet. It also has to do with different class schedules and opposite time zones which made "immediate response" very difficult. Another finding is although most Chinese students were eager to communicate with American partners, their lower level of language proficiency and inadequate cultural knowledge often became obstacles to their effective communication. This affected the enthusiasm of American participants to engage in more detailed discussion with their Chinese partners (Barnum, personal communication, January 16, 2000). It also explains low interest on both sides in continued personal communication after the project. As Vicky, one of the facilitators reported:

> A large number of them believe the personal "bond" in the project has not been fully developed…. They gave the American students high comments…unanimous in believing that they wouldn't have done their projects so well without the help of the American students, but they feel that they don't have much to share with the American students when the project is over."

Although opinions varied, it is possible to extract several factors that seem to have positively affected the student attitudes, learning performances and roles. Firstly, the students viewed their group projects as personally meaningful. Secondly, they appreciated new computer-assisted learning environment which are not available in their normal classrooms. Thirdly, they perceived English and information technology as a new and inseparable means to achieve success in their future career and personal development. "Dual benefits" were reported as the greatest motivator.

Implications and conclusion

Project-oriented learning with authentic and challenging tasks as its core is not a totally new idea. It certainly also applies to language and writing classes which is taught without wired computers. However, there are several additional themes on this point that emerge from our observations and data analysis. First of all, CALL researches (e.g., Debski, 2000) indicate that technology can be a double-edged sword in project-oriented classes. A wired computer helps bring the outside world

into the classroom by providing an easier access to a vast amount of authentic material and by allowing opportunities for authentic communication and publishing. But without proper guidance, it can also be an amazing distraction. For example, some students under study were so thrilled by the fancy tools for designing web pages that they tended to spend too much time on the appearance of the pages. On such occasions, the teacher needs to emphasize what matters more is their content. Furthermore, students should be guided to use a full range of medium-appropriate rhetorical styles incorporating texts and graphics to present the information effectively. Similarly, email has its own particular rhetorical features, and students should be guided to learn and practice those features as well (Warschauer, 1999).

Secondly, project-oriented work prompts changes in teacher and student roles, whether it is supported by computers or not. However, computers are highly compatible with this change (Means, Olson, 1995). On the one hand, they facilitate students' autonomous learning by allowing many more students to actively process information than teacher-led lessons; on the other hand, they support teachers' coaching role by providing a readily viewable display of students' work and the capability for the students and teacher to jointly generate, try out and evaluate alternative approaches. But this optimal use of computers will not come by itself. It depends on conditions such as computer literacy level of the users and their beliefs about their roles in learning and teaching. This means this project might not work at all with a different group. Besides, as project work usually spills over boundaries of time and space, it highlighted the importance of availability of wired computers and adequate technical support. This might explain, for example, the strong complaints from both Chinese and American participants about the limit of Internet access and the lack of immediate responses. Consequently, this project brought about several new computer classrooms in some schools and the expansion of the multimedia language lab in the School of Foreign Languages in Suzhou University.

Thirdly, due to substantial workload attached to this project-oriented collaborative writing project, the ways in which the student efforts are recognized would affect their attitudes to the project. Similarly, project work demands more time and commitment of the teacher, so how administrators and colleagues judge the project value would affect teachers' enthusiasm about their future implementations. All this might account for the end-of-semester frustration (coupled with the overall satisfaction with the group products), as much of the efforts was not recognized by academic credits for the participants, nor by any form for the facilitators.

Obviously, the support structure should be built top down from the state policy makers to educational administrators at various levels covering project fund, teacher training and curriculum assessment. Effective guidelines should be formulated for properly evaluating and rewarding those whose contributions advance our understanding of the field (CALICO, 2001).

To conclude, this case study supports the proposition that web-based project learning has the potential in motivating Chinese EFL learners, improving their writing performance and initiating their active roles in the "new literacy" development. However, as the report draws heavily from interpretive data, it does not claim much generalizability. The goal here is to attempt to describe the project process, product and student experiences in this particular Chinese EFL learning context. The results presented in this paper attempt to stimulate thinking by more experienced CALL researchers into how a more appropriate application of project-oriented CALL might be gradually incorporated into university English teaching programs in developing countries such as China, and how such efforts could be better assessed and appreciated. In particular, I should point out several constraints about this study. First, only a small number of Chinese EFL colleges students were involved in this project. And the fact that they were selected for their enthusiasm, higher level of computer literacy and English proficiency suggests difficulties for a normal college English class to achieve the similar effect. Secondly, this project puts an important focus on technical writing. Those with an emphasis on academic writing or oral communication skills might face different challenges for learning with technology. Thirdly, the writer's first experience of playing a double role of a researcher and project consultant leaves the results open for question and further study.

Despite these limitations, it is the writer's hope that issues raised in this study (in particular the urgent need for electronic literacy and project-oriented approaches that help shape its development) will likely be applicable to other students facing the same challenges of global English and information technology. An optimal EFL learning environment enhanced by web-based project learning is something not imaginable in a traditional setting. However, this is not to say that all Chinese EFL learning needs to be, or should be web-based or project-oriented. Rather, I emphasize project work because I see it as an essential part of the thinking behind our language teaching reform in today's China. Just as we should not throw out the baby together with the bath water, we need not stop conducting language skills practice while trying to make the classroom more stimulating, student-centered places for language learning and the new

literacy development.

Notes

1. Acknowledgement: This research was supported in part by a grant from the Ministry of Education in China. I would like to thank Professor Carol M. Barnum for her guidance of the project, Li Xiangyi, Zhu Minhua, Jin Lin and Chen Gao for assistance, and Mark Warschauer and Nick Noakes for helpful comments on the draft of the paper.

2. College English Test (CET) has been administrated as a national English test given by the Ministry of Education since 1987. Every year, more than 2 million Chinese college students take CET. It consists of two proficiency tests namely CET-4 and CET-6, with the latter compared to the highest level of a Japanese national English test named STEP-1 (Society for Testing English Proficiency) (See Yang, Weir, 1998: 151-162).

3. SudaCALL website (http://call.suda.edu.cn/stuprojects/index.htm) with 8 sections of learning and teaching resources based on Suzhou University campus network, is created and maintained by a core of teachers and students interested in CALL.

References

Barson, J., Frommer, J., Schwartz, M. (1993) "Foreign language learning using E-mail in a task-oriented perspective: Interuniversity experiments in communication and collaboration." *Journal of Science Education and Technology*, *2*(4), 565-584.

Barson, J., Debski, R. (1996) "Calling back CALL: Technology in the service of foreign language learning based on creativity, contingency and goal-oriented activity." In M. Warschauer (Ed.), *Telecollaboration in foreign language learning*. Honolulu, HI: University of Hawai'i Second Language Teaching and Curriculum Center, 49-68.

Brown, J. (1986) "Some motivational issues in computer-based instruction." *Educational Technology,* 26 (4), 27-29.

Chun, D. (1994) "Using computer networking to facilitate the acquisition of interactive competence." *System*, 22 (1), 17-31.

CNNIC. (Jan 2001). "Semi-annual Survey Report on the Development of China's Internet." http://www.cnnic.net.cn/develst/rep200201-e.shtml

Collins, A., Brown, J. S., Newman, S. E. (1989) "Cognitive apprenticeship: Teaching the craft of reading, writing, and mathematics." In L. B. Resnick (Ed.), *Knowing, learning, and instruction: Essays in honour of Robert Glaser*. Hillsdale, NJ: Erlbaum, 453-494.

Computer Assisted Language Instruction Consortium. (March 16, 2001). "Scholarly activities in computer-assisted language learning: Development, pedagogical innovations, and research" [CALICO's CALL Document]. Retrieved November 11, 2001, http://www.calico.org/CALL_document.html

Debski, R. (2000) "Exploring the re-creation of a CALL innovation." *Computer Assisted Language Learning,* 13 (4-5), 307-332.

Feldman, M. (1995) "Import/export e-mail business simulation." In M. Warschauer (Ed.), *Virtual connections: Online activities and projects for networking language learners*. Honolulu, Hawai'i: University of Hawai'i Second Language Teaching and Curriculum Center, 216-217.

Gu, P. Y., Xu, Z. (1999) "Improving EFL learning environment through networking." In R. Debski & M. Levy (Eds.), *WorldCALL: Global perspectives on computer-assisted language learning.* The Netherlands: Swets & Zeitlinger Publishers, 169-184.

Jia, G. D. (1999) "Multimedia teaching: A new way to promote College English instruction." *The World of Foreign Languages,* 75 (2), 11-14.

Levy, M. (1997) "Project-based learning for language teachers: Reflecting on the process." In R. Debski, J. Gassin & M. Smith (Eds.), *Language learning through social computing* (pp.181-191). Applied Linguistic Association of Australia and Horwood Language Center, Melbourne, 179-200.

Liu, H. P., Dong, Y. Wang, J. L. (1998) "Computer networks and English teaching: A distance collaboration report." *The World of Foreign Languages,* 70 (2), 13-16.Lynch, B. K. (2000). "Evaluating a project-oriented CALL Innovation." *Computer Assisted Language Learning, 13*(4-5), 417-440.

Means, B. Olson, K. (1995) *Technology's role in education reform: Findings from a national study of innovating schools,* [Online research report prepared by SRI International]. Retrieved October 2, 2000, from http://www.ed.gov/pubs/SER/Technology

Meskill, C. (1999) "Computers as tools for sociocollaborative language learning." In K. Cameron (Ed.), *CALL: Media, design and applications*. Oxford: Elsevier.

Palmquist, M., Kiefer, K., Hartvigsen, J., Goodlew., B. (1998) *Transitions: Teaching writing in computer-supported and traditional classrooms.* London: Ablex Publishing Corporation.

Sayers, D. (1993) "Distance team teaching and computer learning networks." *TESOL Journal*, 3 (1), 19-23.

Shetzer, H., Warschauer, M. (2000) "An electronic literacy approach to network-based language teaching." In M. Warschauer & R. Kern (Eds.), *Network-based language teaching: Concepts and practice*. New York: Cambridge University Press, 171-185.

Soh, B.-L., Soon, Y. P. (1991) "English by e-mail: creating a global classroom via the medium of computer technology." *ELT Journal*, 45 (4), 287-292.

Stoller, F. L. (1997) "Project work: A means to promote language content." *English Teaching Forum*, 35 (4), 2-9, 37.

Thorn, D. (1997) "Covent garden captured: An experiment in project work." *TESOL Journal,* 6 (4), 11-15.

Warschauer, M. (1996) "Motivational aspects of using computers for writing and communication." In M Warschauer (Ed.), *Telecollaboration in foreign language learning: Proceedings of the Hawaii symposium* (SLTCC) Technical Report #12. Honolulu, HI: University of Hawaii Second Language Teaching & Curriculum Center, 22-46.

Warschauer, M. (1999) *Electronic literacies: Language, culture and power in online education.* Manwah, N.S.: Lawrence Erlbaum Associates.

Warschauer, M. (2000) "The changing global economy and the future of English teaching." *TESOL Quarterly,* 34, 511-535.

Warschauer, M., Shetzer, H., Meloni, C. (2000) *Internet for English teaching*. Alexandria, VA: TESOL Publications.

Wen, Q. F., Song, W. W. (1999) "A practical English course on comprehensive quality development: From theory to practice." *The World of Foreign Languages,* 75 (3), 11-15.

Yang, H. Z., Weir, C. (1998) *Validation study of the national College English Test*. Shanghai: Shanghai Foreign Language Education Press.

Zhao, W. S. (1999) "Computer-assisted English writing instruction: Media, method and effect." *Foreign Language Teaching Abroad,* 4, 32-35.

Appendix A: Student Demographic Survey

Your name: _____ Age: _____

Your sex: _____ Years of learning English in school: ____

Do you have a computer at home?_____

If yes, when did you buy it and what was your initial purpose of buying it?

Please rate your typing ability: Poor____ Fair ____Good ____ Very good ____

I have taken some courses about computers. (Y/N)_____

I have got the Computer Proficiency Test Certificate for C-1 _____C-2_____

How you ever used a computer to do the following things?

      Word processing: a lot____ a little ____ never ____

      Sending Email: a lot____ a little ____ never____

      Surfing World Wide Web: a lot ____ a little ___ never ____

How often do you write the following things in English?

      Journal/Diary:

        Very often___ Often___ A few times/month_____ Never____

          Letters to your friends and/or family:

          Very often___ Often___ A few times/month_____ Never____

English grade: In CET-4_____   In CET-6 _____
What draws you to this project and what do you expect to learn from it?
_____

Appendix B: Student CALL Survey*

Part I: Please choose a number (1-5) on the right margin to indicate your true feeling and opinions about the statement on the left. Thanks for your cooperation.
     1=strongly disagree 2=disagree 3=neutral 4=agree 5=strongly agree

1.   This project has helped develop my comprehensive competence. (4.056**)
2.   In the project, I often get confused about what to do next and prefer to have some clearly stated learning materials like a text book. (3.389**)
3.   The project is not worth the time spent on because it can not help me achieve high score in CET-6. (4.667 when reverse coded)
4.   The task that our group works on has increased my interest in communicating in English. (4.200**)
5.   I enjoy using the computer to communicate in English with people around the world. (4.667**)
6.   I am afraid that I can not express myself clearly in my email writing. (4.056 when reverse coded)
7.   I feel more confident and comfortable to join discussion via computer. (4.111**)
8.   Discussing my ideas and writings with others on line is an enjoyable experience. (4.000**)
9.   I am proud of what our group has achieved. (3.944**)
10. I have improved my skills in inquiring information in the project. (3.667**)
11. After some information being collected, I often think whether it is reliable and acceptable. (2.889)
12. This project encourages me to think and investigate more before writing. (4.333**)
13. I now know better about how to effectively ask for information. (4.111**)
14. Email communication in the project has enabled me to write faster. (4.222**)
15. While writing, I try to organize my thoughts in an orderly way and write them down as clearly as possible. (4.167**)
16. I tend to do more editing of my writings in the project. (3.944**)
17. Comments from my classmates are very helpful for improving my writings. (3.500**)
18. I pay more attention to grammar than to content while writing in the project. (4.389 when reverse coded)
19. Through this project, I become more aware of my potential readers. (3.944**)
20. While writing, I always keep the cultural differences in mind. (3.778**)
21. The email communication has promoted my confidence in communicating with people from different cultures. (4.111**)
22. It is rather difficult for me to clear the misunderstandings caused by cultural differences. (4.444 when reverse coded)
23. The email communication with foreign partners has improved my understanding of other cultures.(4.278**)
24. I have given more responsibility for my own learning. (4.222**)
25. I help to decide on topics for discussion and writing. (4.500**)
26. I can do what suits my own way of learning. (3.500**)
27. My opinions and suggestions were often neglected. (4.444 when reverse coded)
28. I feel I am part of what is going on in the group. (3.778**)
29. I trust American partners to act responsibly. (3.500**)
30. I trust group members to act responsibly. (4.389**)
31. The computer-assisted writing project has enhanced the clarity and creativity in my English writings. (4.385**)
32. The project provides an effective way to learn English. (4.278**)
33. I feel more confident to use language to solve similar problems in daily life. (4.111**)
34. Learning to write with a computer gives me a feeling of accomplishment. (4.167**)
35. I enjoy this writing project. (4.278**)

* Means of responses are listed in parentheses.
* * Significantly better than a hypothetically neutral score of 3 at p<.05

Part II: Background information

Do you have a computer at home now? _____
If yes, when did you buy it and what was the initial purpose for you to buy it?
Please rate your present typing ability:
Poor_____ Fair ____Good _____Very good _____
How often did you use a computer to do the following things in the project?
　　　Word Processing: a lot_____ a little _____ never _____
　　　Sending Email: a lot_____ a little _____ never_____
　　　Surfing World Wide Web: a lot _____ a little ___ never _____
How often do you write the following things in English?
　　　Journal/Diary
　　　　Very often___ Often___ A few times/month_____ Never_____
　　　Letters to your friends and/or family:
　　　　Very often___ Often___ A few times/month_____ Never_____
Do you want to keep such writing habits? Y/N_____

Appendix C: End-of-Project Interview Questions

1. What have you learned most from the project? How is this experience different from that in a traditional classroom?
2. What are some difficulties or problems did you have in doing your project? Who and what helped you solve the problems?
3. How did you organize the work in your group? Are you satisfied with the cooperation within your own group and collaboration with your American partners? Explain.
4. In what way do you think technology helps or hinders your project-oriented writing and communication activities?
5. If you have a chance to participate in a similar project, what would you suggest for improvement?

Appendix D: Student Email Samples

Sample One: Outgoing message (From the "Campus Life" group in Suzhou to their American partner "Mobile Phone" group in Georgia, USA)

To: Stephanie

From: Lu Lihong
Cc: s7104016@suda.edu.cn, s8090053@suda.edu.cn, 97c3046@suda.edu.cn
Sent: Thursday, December 16, 1999 08:03:02 PM
Subject: A survey report

Hi, Stephanie. I am so surprised and glad to hear from you so soon. We are allowed not only on Wed. afternoon but also in the evening to use computer lab. I will check my e-mail box more often than before. Yesterday, Zhi Xinglei and I went to the downtown to do a survey on its mobile phone market. We visited China Telecommunications and many other companies. We got a lot of information about it. Here is our report:
A LARGE MARKET
China has a population of 1.2 billion, but only 20 million have mobile phones. With the improvement of living conditions, I believe there will be more and more people who can afford it. Suzhou's China Telecommunications Company has 200 new users per month.
PRODUCT AND PRICE
There are many foreign producers in the Chinese mobile phone market. Motorola, Nokie and Ericsson are famous trademarks. Here is a list in the order of Make, Country, Model, Price (RMB). Due to limit of space, the writer cut short the long list of foreign products in the original message.:
Motorola, America, variety, 1000 ~ 6000
Nokia, Finland, variety, 1000 ~ 6000
[…]
CUSTOMERS AND THEIR REQUIREMENT
In china, most of those who have mobile phones are adults from 20 to 30 years old. Many young people want very much to have one but they haven't enough money. There are few students who have them on campus. When customers select a mobile phone, they will first consider its appearance. They want it to be smaller and

---

more beautiful. Most of them select the color of black. This is maybe because of their ages. And black is a staid color. Then they will consider its quality of communication and the time of electricity using. (Mobile phones need charging, don't they?)

SECOND-HAND MOBILE PHONES

Some people buy secondhand mobile phones if they have not enough money, because their price is always within RMB1000. Some secondhand goods are old models but are not used before, such as model 87c. Its original price is about RMB1500, but now is sold at only RMB800.

OTHER THINGS YOU SHOULD KNOW

In China, if you want to use a mobile phone, you have to apply a number from a certain mobile phone service net and need to pay much money including money paid for a number. The average expense is RMB790. But if the number is bad (for example, the number includes "4" , which is regarded to be able to bring bad luck to the owner), you only need to pay RMB340. If the number is better, such as those including "8","6", you need to pay more than RMB790. The highest expense is more than RMB4000.

Chinese mobile phone is charged at both ends. You will pay 5 mao (*one yuan has ten mao*) per minute if you have short distance call, and pay 1.2 yuan if you have a long distance call.

This is the result of our investigation. Do you have any other questions or something puzzled? Please let me know. And I also want to know something about American mobile phone. Would you please tell me?

Best wishes,
Lu Lihong (from the "Campus Life" group)

Sample Two: Incoming message (From the "Snacks" group in Georgia to their Chinese partner "Culture" group in Suzhou, China)

From: Jared <sawb@iname.com>
To: Jessie <97c5025@suda.edu.cn>
Cc: <sloyd1125@aol.com>; <judidark@aol.com>; <kelisbutterfly@yahoo.com>
Sent: Tuesday, October 12, 1999 2:37 AM
Subject: American Culture

Dear Jessie:
First please accept my apologies for the delay in sending this letter. This is but one of the many projects I am working on right now. I am very busy, but I am managing to hold things together okay. I hope everything is going well with you.

As luck would have it, today is one of our American holidays. This one doesn't have a large celebration with it, but it is important nonetheless. Today is Columbus Day, marking this discovery of North America in the year 1492 CE by Christopher Columbus. Incidentally, the discovery was an accident. He was searching for a faster way to East Asia. As you are aware, it is a long way from here to your home in East Asia.

I believe you will find your study of American Culture and values very interesting. *The United States has a rich heritage, and borrows much from different cultures. One of the things you may not be aware of is that while Americans share many social and cultural traditions and values, much of our traditions and values vary from person to person. Our beliefs and values are shaped by our families, popular culture, ethnic heritage, and individual personality* [italics added].

Because there are so many values and beliefs in America, I have asked each of my group members to take a few moments to respond to some of your questions. This will allow you broader insight into our culture and lives. Keep in mind, however, that these are still but a few of the many ideologies, beliefs, values, and traditions that make up American society.

I would like to share some of my values and beliefs with you. *Our country and government was founded on the idea of liberty* [italics added]. Liberty is the idea that people should be free to live their lives completely as they choose so long as they do not harm the rights of another person.

 As I said before, there are many beliefs. In America, we usually place these beliefs on a scale from left to right. On the left, there is complete security. The government makes all decisions on the assumption that the government will do what is fair and right for all. On the right is complete freedom. There is no government influence at all.

The idea of liberty is closer to the right. Those who believe in liberty believe that there should be

government, but they believe the major purpose of government is secure the rights of all people. This prevents a majority from taking rights away from a minority. Our system of government does reflect many of the views of the majority, but it protects minorities.

I believe strongly in the idea of liberty. I believe our country has been successful because of its people, not its government. I believe that when you give ordinary people the power to make their own decisions, they can do great things. I think capitalism has allowed our people to prosper. I think our freedom of speech and expression has allowed us to engage in meaningful debate that solves many of our problems. I believe that citizens who are allowed to and use firearms has prevented aggression from those who seek to take our freedom away.

Again, these are just some of my political values. There are a great many who share my beliefs, and many who do not. However, in our society we are allowed to engage in debate on all of these ideas, therefore we can solve our problems using the collective wisdom of our people. I have many views on many issues, and I will share with you on anything that you wish. Ask me questions and I will answer. While politics are important to Americans, we also have other values and beliefs. Many of these are spiritual. Many of our holidays and traditional celebrations reflect different spiritual beliefs. While these celebrations are common to many, each family and person has their own uniqueness to add to the festivity.

We also have celebrations unique to our country. There is our Independence Day which marks the anniversary of our declaring independence from Great Britain. There are days like Memorial Day where we honor our fallen soldiers who died preserving our liberty. In fact, we have more holidays than I can count right here, so again, feel free to ask more questions.

Just remember our culture is based on the individual [italics added]. We do many things the same as a people, but we believe in the value of a person. Every person is not the same, but just as important. We do not always agree (even with our politicians. . . our President, for instance, I think is a complete idiot who has greatly damaged our society), but we still manage to prosper.

I hope I have helped a little with what you wanted. If you have any questions about what I said or additional questions please feel free to ask. This assignment is so exciting to me I will be glad to help you in any way possible.

Sincerely,
Jared (from the "Snacks" group)