



# Technology-enhanced language learning: A case study

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## Abstract

This study explores participant views regarding the integration of Internet tools in language learning activities. The descriptive study has illustrated the perceptions of a class of senior high school students regarding language learning in a technology environment. The subjects were 44 10th-grade male students and their teacher who together joined a technology-enhanced language learning (TELL) project in Taiwan known as “Advanced Joint English Teaching” (AJET). The students participated in six Internet-based teaching activities; group e-mailing, a Web-based course, an e-mail writing program, English homepage design, video-conferencing and chat room discussion. This study found that the AJET project provided the students with an opportunity to experience new technologies; learners experienced the pleasure of learning and thus increased their learning possibilities. The students liked and approved of learning English using the Internet, but had differing opinions about its benefits. The study demonstrated that learners bring different perspectives to TELL, and that learners who are passively oriented towards Internet English learning require careful guidance from pedagogical applications to this approach. Making students aware that learning English through multimedia technology demands new learning strategies and self-directed learning is a crucial first step. Some pedagogical suggestions are provided for effectively using computer networking in second- and foreign language classrooms.

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## 1. Introduction

Learning English is mainly an attempt to communicate with individuals. Because effective teaching is based on communication, the goal of English teaching is exactly the same, namely to develop the ability of students to communicate with people in a new language in real world situations (Brown, 1987; Ommagio, 1986; Oxford, 1990; Widdowson, 1978). However, the Taiwanese language environment, which primarily is dominated by Chinese languages, does not provide learners with a real and natural English environment. Consequently, learners can only learn English through regular class teaching, radio broadcasts, television, newspapers, magazines, and so on. Most learners study English through repeated recitation and rote memorization. Furthermore, in most Taiwanese high school English classes, the prevalent mode of instruction is based on large-groups, teacher-dominated grammar-translation methods, and exam-oriented textbook-based lectures. Students thus acquire knowledge in a decontextualized way. Therefore, it is difficult for learners to practice what they have learned flexibly in daily life. Moreover, class sizes are too large, there are limited opportunities for individual students to contribute or communicate one-on-one with teachers or classmates.

The arrival of the Internet could offer a turning point in English teaching methodology (Ganderton, 1998; Hellebrandt, 1999; Kelm, 1992; Lee, 1997; Sanaoui & Lapkin, 1992; Van Handle & Corl, 1998; Warschauer, 1996). Internet technology has a global reach and provides extensive international resources. The Internet enables English learners to access useful language resources and communicate directly with native English speakers. In the first case, learners can practice applying information, while in the second case, they can overcome the decontextualized predicament of English learning. Students can learn listening, speaking, reading and writing English integratively via real worlds situations. Students can also broaden their international perspectives, learn diverse knowledge forms, and appreciate and accept different cultures.

As part of its standards for foreign language learning, the American Council on the Teaching of Foreign Languages (ACTFL) advocated applying the “five Cs” in language learning: communication, cultures, connections, comparisons, and communities. Communication lies at the heart second language study. Language and culture are inextricable and interdependent, and understanding target language culture improves understanding of the language. Connections refer to bridges to other disciplines and information acquisition, expanding learner ideas of “content-area” reading and functional writing across disciplines. Comparisons relate to the development of insights regarding the nature of language and culture via student comparisons between the language being studied and their own language. Finally, communities describe learner participation in multilingual communities at home and around the world. The tools and resources available on the World Wide Web (conferencing, e-mail, whiteboard, streaming “plug-in” technologies, etc.) offer excellent opportunities for cultivating the five Cs through multimodal channels (listening, speaking, writing, reading, and communicating). The Web provides an effective forum for dialogue on issues that enhance or challenge the community. Comprising a vast global system of voluntarily interconnected networks with literally millions of documents, resources, databases and various communication mechanisms, Internet technology serves as an intrinsically motivating device and a natural platform for developing the five Cs.

Recently, by leveraging the power of Internet technology, the Taiwanese Ministry of Education has actively provided impetus to experimental long-distance teaching

programs. Advanced Joint English Teaching (AJET) is one of the Internet English teaching programs focusing on Taiwanese junior high and high school students. AJET goes to considerable efforts to create Internet technology as an intrinsically motivating device and a natural platform for achieving the above-mentioned five Cs, in addition to achieving information literacy in language learning instruction. The current investigation focuses on one of the pilot studies regarding the application of AJET.

The language, literacy and humanities literature contains a growing body of research and discussion on the use of Internet technology as a learning tool for educational purposes. However, most studies regarding the use of Internet technology as a tool for mediating language learning in context are more promotional than research-based. Furthermore, most previous studies used small groups of college students (or higher education) as research subjects. The application of technology-enhanced language learning (TELL) to Taiwanese high school students in big classes has rarely been studied. Additionally, most related studies have examined the use of just one technological element, and studies regarding student perceptions have been mainly focused on using computer-mediated communication via e-mail or networking. This study describes student perceptions regarding the use of various multimedia technologies in a particular course. Specifically, this study reports the perceptions of senior high students in a basic English class during the first year of implementation of AJET. The students participated in six Internet-based teaching activities; group e-mailing, a Web-based course, an e-mail writing program, English homepage design, video-conferencing and chat room discussion.

This research project explores participant views regarding the integration of Internet tools in language learning. The participants comprised 44 male 10th-grade students and a male teacher from one senior high school class. The study examined the gap between ideals and reality using an Internet-based English teaching project, and probes feasible methods of performing similar programs in future. Through a case study involving the Internet English Teaching program, the researchers would like to provide a basis for the qualitative analysis of high school students in Taiwan using Internet technology to learn English. The insights gained via this small study can help EFL teachers to design better learning environments in terms of classroom management, assessment and curriculum design. Some feasible methods and related recommendations for practicing Internet English teaching in Taiwan are developed.

## **2. Literature review**

The use of multimedia technology for foreign language instruction has expanded rapidly during the past two decades. Studies of the influence of technology-enhanced instruction on language learning have also appeared in growing numbers (Abrams, 2002; Al-Jarf, 2004; Blasszauer, 2001; Brandl, 2002; Chikamatsu, 2003; Jogan, Heredia, & Aguilera, 2001; Meskill & Anthony, 2005; Muehleisen, 1997; Osuna & Meskill, 1998; Salaberry, 2001; Schwienhorst, 2004; Warschauer, 1995, 2000; Weininger & Shield, 2003; Yang, 2001). Previous research indicates that computer-mediated language learning can facilitate communication, reduce anxiety, encourage oral discussion, develop the writing/thinking connection, nurture social or cooperative learning, promote egalitarian class structures, enhance student motivation, facilitate cross-cultural awareness, and improve writing skills. In light of these positive effects, an increasing number of ESL/EFL teachers have embraced multimedia technology. For example, various studies have examined the use of computer-mediated

communication via e-mail or networking, video-conferencing, Web-based projects and pen pal activity, while some studies have focused on specific elements of language skills (namely, reading, listening, speaking, and writing), or cultural awareness, and some have reported student or instructor perceptions of technology-enhanced language learning.

Researchers have reported that student writing skills can be improved via networked computers. Foreign language teachers integrate e-mail-based activities into their curriculum (Hertel, 2003; Knight, 1994; LeLoup, 1997; Warschauer, 1995). For example, international key pal projects that enable students to correspond with native speakers of the target language are easily implemented provided, the participants have the necessary access, equipment, and foreign contacts. While examining peer response through networked computers in writing classrooms, researchers have reported that Web-based response is easier than face-to-face response, being characterized by more participation, more discussion during interactions, more feedback, and gradually increased confidence (Beauvois, 1998; Braine & Yorozu, 1998; Cononelos & Oliva, 1993; Curtis & Roskams, 1999; Davis & Thiede, 2000; Hartman et al., 1991; Kivela, 1996; Ortega, 1997). Researchers who have compared small group interactions in oral and network-based modes have shown increased participation in electronic classroom discussions (Sullivan & Pratt, 1996; Warschauer, 1996). In reviewing early research on innovative use of networked computers in language learning, Beauvois (1998) found that students in networked writing projects demonstrated more fluid conversation. ESL learners might have more time to think, phrase responses, and participate in networked writing.

Regarding communication skills, Lee (2002) completed a pilot study using synchronous electronic chats combined with task-based instruction to boost learner communication skills. Lee demonstrated that computer-mediated communication using less structure-controlled but more open-ended exchange significantly impacted the language learning process. In studying electronic mail as a medium for foreign language study and instruction, Lunde (1990) reported that students of Japanese enrolled in computer mediated communication projects improved reading comprehension.

Furthermore, follow-up interviews in Beauvois (1994) revealed that many students expressed increased confidence in speaking. The conversational aspect of writing via the network may have helped students to routinize certain expressions, thus promoting the development of automatic structures that assists speaking. In a case study of an ESL senior secondary course integrating computer networking, Sanaoui and Lapkin (1992) also found that “considerable growth occurred in French-speaking skills, and possibly also in listening and reading comprehension, which implies that an explicit focus on one area can have an effect on the other skills” (p. 544).

Regarding the effect of video-conferencing on language learning, Glisan, Dudt, and Howe (1998) found that video-conferencing technology improved Spanish listening comprehension skills, but the time on task variable remained the key influence. Coverdale-Jones (2000) observed both advantages and disadvantages to using video-conferencing as form of communication for language learning. The advantages included (a) ability to communicate with people from other parts of the world, (b) cheaper than traveling overseas to seek language practice opportunities, (c) more interactive and personal than e-mail/chat, (d) easy to see who you are talking to and establish a rapport, (e) ability to see the other party making it more personal than fax, telephone, and e-mail. The disadvantages included (a) impersonal, (b) difficult to use with a group because of the one-way audio system, (c) lack of clarity in understanding, (d) frequent problems with unclear (fuzz) picture

and unstable communication, and (e) time lag-connection/link problems, including unstable volume and being cut-off. A study of student perceptions of a video-conferencing project involving students of German and native speakers in Germany (Coverdale-Jones, 2000) revealed that students viewed video-conferencing as a reduced form of communication compared to face-to-face interaction.

Previous studies have also reported that internet technology provides equal opportunity to all learners (Everett & Ahern, 1994; Lamy & Goodfellow, 1999; Ortega, 1997; Pratt & Sullivan, 1994; Warschauer, 2000). Online discussion encourages learners to voice opinions and provide feedback, leading to more interactive dialogue being built into the learning experience as learners need not concern themselves with pronunciation issues or worry about oral communication in the target language (Beauvois, 1992; Kivela, 1996). Similarly, Beauvois (1998) reported on her experiment involving electronic mail and computer-assisted classroom discussion among 41 college-level French students, and found that local area networks appear to encourage student discussion.

### 3. Methodology

#### 3.1. *Advanced Joint English Teaching*

The Advanced Joint English Teaching (AJET) program was designed by the Computer and Network Center of the Ministry of Education and approved for use by the Bureau of Education of Kaohsiung City Government and National Sun Yat-sen University. AJET was established in 1997 and is the forerunner of the present Experimental Website for Internet virtual school of learning English. AJET is designed for the various empirical levels of interdisciplinary teaching for promoting the incorporation of Internet technology into the language curriculum and providing opportunities for cultural exchange via telecommunications. The simple philosophy of AJET is to raise the teaching of English in K-12 schools to a higher dimension. AJET attempts to “bring to life” English education by focusing on the practical use of English as a communication medium.

The AJET program is based on whole language and constructive theory, and leverages an abundance of tools and resources on the Web that provide learners with opportunities to use and create, and furthermore, to own the language. The idea of the AJET program is to provide students with an English learning environment, with the objective of applying the language students have learned in an authentic context, to communicate, and to nurture student language competence. The objective of the program is to improve the English speaking, reading, and writing ability of students through videoconferences, writing e-mail, having online discussions, and so on. With the continuous expansion of the AJET program, dozens of high schools have participated in the experiment. Moreover, activities on designated topics have been conducted in cooperation with Australia, Japan, England, Rumania, Macedonia, Uganda, etc. (see Fig. 1).

#### 3.2. *Participants*

This study examined a senior high school class and their teacher where the class was one of the first to join the AJET program in Taiwan. Following practicing language teaching for 10 years, the instructor joined the AJET program and worked on a scheme for innovative Internet-based English teaching. The instructor integrated Internet technology into

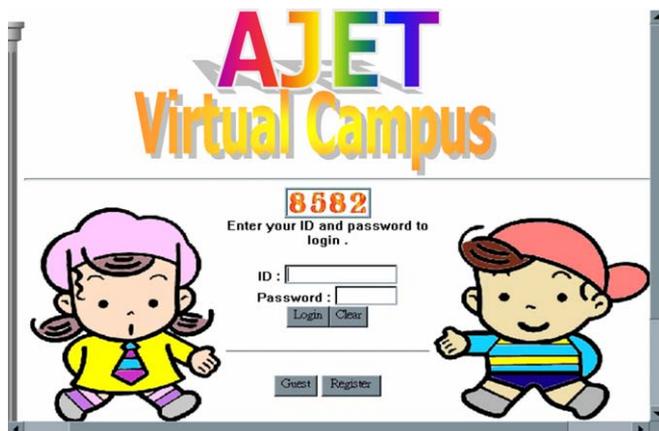


Fig. 1. AJET homepage.

the curriculum, and required the students to apply this technology extensively in their projects. The instructor selected the technology and the course assignment, and acted as a guide during the activities. The 44 study participants were 10th-grade students from a single boy's senior high school. Twelve percent of the sample had previously never used the Internet. Meanwhile, the remaining 88% had experience of using one or more Internet platforms (BBS, WWW, and e-mail).

### 3.3. Instructional design

The instructor included two activity types in the AJET program, asynchronous and synchronous activities. Asynchronous activities included film discussion and composition, designing personal web pages, and a Web-based course. Meanwhile, synchronous activities included chat rooms and video-conferencing.

#### 3.3.1. Asynchronous activities

**3.3.1.1. Web-based courses and projects.** In this project, groups of students were asked to conduct Web-based research projects. The project aimed to familiarize students with general computer use and to help them understand the Web, with the ultimate goal of using search engines to gather required information. Students were involved in tasks and projects that required them to learn how to use the Web for general research purposes, for example searching for information and creating text and materials for their projects. Students selected one of four textbook themes, such as eating out, reading signs, festivals, and Halloween. Each group gathered topic-related information from the Internet or other sources and wrote reports. Students could create their projects in whatever format they preferred. Restated, they can assemble and compose information they found from the Web or book references in whatever artful or creative format they like. Meanwhile, they could publish their reports on the Web for sharing with other groups.

**3.3.1.2. Group e-mailing.** The students were divided into so-called pen pal groups, each containing eight students. Each group contained four students from the sample class

and four other students from another class in a girl's high school. At the beginning of the semester, the students greeted one another and introduced themselves via electronic cards. The students then met their pen pals via videoconference. Next, they freely exchanged their opinions or conducted discussions regarding topics of interest. The students thus practiced using English to communicate with others.

*3.3.1.3. Film discussion and composition (e-mail writing program).* In this activity, the students were instructed on how to write an English article and were provided with scaffolding. During the first week, the students watched the movie *Romeo and Juliet*. Students then exchanged their perspectives and opinions regarding the movie with pen pals by e-mail. Students then engaged in a more profound discussion of certain subjects in the movie, including love, kinship, friendship, hatred, dilemmas and so on. Students could also search and gather data via the Internet to assist them in producing compositions on the life of Shakespeare or the era and background of the story. Simultaneously, teachers followed the weekly course schedule to guide students in the appropriate sequence of the theme sentence and summary, and helped students to develop skills in expanding paragraphs and connecting the text. The activity also allowed students to correct each other's compositions along with their pen pals'. Eventually, the corrected compositions were handed over to the teachers and published on the personal web pages of their authors.

### *3.3.2. Synchronous activities*

*3.3.2.1. Videoconference.* To offer learners further real-life linguistic experiences, AJET has incorporated two types of synchronous activities into the Web-based courses, i.e., ELT chat rooms and video-conferencing. The video-conferencing procedure uses ISDN to connect directly with the participating school. Teachers guide students in discussing topics with students in other schools, providing them with the opportunity for oral English practice. The discussion topics included self-introduction, earthquakes, animal protection, Christmas Eve, and wishes for the millennium.

*3.3.2.2. Chat room discussion.* Chat room discussion primarily used the chat room in the Internet Virtual School of AJET to encourage students to communicate in English. The lesson was preceded by introducing topics on film and composition, Web-based courses and information display. During the investigation, students discussed two themes, their resolutions for the new year and the final exam. The chat room discussion was performed in two sessions, each lasting for 30 min. The discussion participants included students of two other high schools besides the sample school.

## *3.4. Data collection*

This study adopted both qualitative and quantitative analysis. Data collection included questionnaires, interviews, e-mails, and document analysis (Web projects, online discussion, student's works, etc.). Questionnaires and interviews were administered following the study. After project completion, a questionnaire was administered to elicit relevant information on participant perceptions of, and attitudes towards Internet English projects. Follow-up interviews with students and the teacher were also gathered at the end of the research to understand their reflections regarding the project. The first part of the survey dealt with background information on using the Internet. Meanwhile, the second part

comprised statements about self-evaluations regarding curriculum, implementation, self-performance, and so on, indicating levels of agreement or disagreement on a five-point Likert-type scale, with five indicating strong agreement and one indicating weak agreement. Moreover, the third part included open questions asking students to give their thoughts about the project. Students were asked to describe the difficulties they encountered in working on the project. Students were also asked about the most positive features of the course, and about the benefits of using the Web to learn English. The students completed the questionnaire in either Chinese or English, according to personal preferences.

## 4. Results and discussion

### 4.1. Learner performance of AJET activities

#### 4.1.1. Exhibition of student works

Following one semester of Internet learning activities, students displayed notable learning achievements on their personal web pages. The designs of student web pages were diverse and imaginative (see Figs. 2 and 3). As the learners obtained information from the Web, they demonstrated their problem-solving skills and their skills in analyzing and synthesizing information. These experiences enabled learners to participate in the culture of the target language, in turn enabling them to learn how cultural background influences world view. Some students used colorful, animated cartoons and comic book characters as backgrounds; some used dark colors as a background, matching the theme and content of the articles, and thus create an unusual atmosphere; some put photographs on the web page; finally, others designed intricate structures with rich content, specialized articles and abundant links. Regarding web page content, the student web pages generally contained a self-introduction, articles on film and composition, group projects from the Web-based course, English idioms assigned by teachers and introductions and links to other teaching Web sites. Furthermore, based on their personal interests, numerous students added specialized articles with different themes to their web pages, including



Fig. 2. Design of student web page on environment conservation.



Fig. 3. Design of student web page on the millennium.

environmental protection, endangered animals, favorite movies, idols, sports and leisure activities, reports on the millennium, New Year's resolutions, and so on.

#### 4.1.2. Synchronous activities

This investigation incorporated two types of synchronous activities in the Web-based courses; video-conferencing and chat rooms, to offer learners more reality based linguistic experiences. The two activities placed less emphasis on learning tasks compared with other activities. The incorporation of interactive video-conferencing and online chatting made language instruction more varied and helped maintain high interest and motivation. The two activities were designed to give learners a feel of how technology can facilitate language learning, and provided learners the chance to demonstrate their communicative competence and gain real and personal linguistic experiences.

Regarding student evaluations of their participation, some reported that they were involved more in the videoconferences than the other AJET activities. One-fifth of students had different perceptions. Although they were very interested in this activity, they did not see it as helpful in terms of improving their language competency. These students believed that those who were actively involved in the discussion already had good English. Factors prohibiting their participation included lack of courage to speak out, lack of time preventing everybody from participating, and difficulties in English listening or speaking. For example, one learner commented that

what happened in the videoconference was that only a few got to talk, and they were the ones with good English. Those with poor English, like myself lacked the courage to speak out and did not have the chance to practice since there were only 50 min and 40 students. (S5)

These findings corroborate the discussion of Coverdale–Jones regarding the advantages versus disadvantages of using video-conferencing technology, and particularly her remark that although video-conferencing technology contributes strongly to communication

authenticity, “we cannot simply transfer typical classroom activities, in which it is relatively easy for the tutor to intervene and to direct the flow of the interaction, to the videoconference, where communication factors are subject to external influences of the “technology/medium” (p. 36, 2000).

Regarding chat rooms, students visited chat rooms to see how they were designed and discussed the topics of new year’s resolutions and the final exam as scheduled. Although some viewed the feature as an appealing option for group or course communication, some were enthusiastic about sharing ideas or considered it as a good social activity. However, chat rooms maybe the first attempt for most learners; learners felt that the activities performed in such an environment were interesting and helpful for learning English. However, some learners indicated that they had problems keeping up because of slow typing, difficulty in sorting out individual threads, and inability to maintain a conversation owing to poor writing proficiency.

#### 4.1.3. Film discussion and composition

As part of this project, AJET arranged an event for students to e-mail pen pals and conducted a film discussion writing activity. After watching the movie *Romeo and Juliet* and participating in 4 weeks of task-based pen pal discussions, students wrote their reports (see Fig. 4). Some students expressed their opinions regarding romance in the movie. Moreover, some students praised and criticized the performances of the actors. Some students also talked about their favorite characters. Finally, others mentioned the special dialogue in the script.

The survey revealed that students sent their AJET assigned pen pals an average of 2.1 e-mails per week. The most active students send 20 e-mails per week compared with just one e-mail per week for the least active students. Individual students differed markedly in their e-mail communications. For example, the group of students who sent just one e-mail



Fig. 4. Design of student web page on *Romeo and Juliet* composition.

per week, sent just four e-mails during the whole semester. The goal of helping these students to practice English thus was not fulfilled. Further interviews with these learners found the following reasons for their sporadic e-mailing: slow typing, slow English writing, poor English, no responses from partners, no writing habits, etc. Students in this group said:

- ...I type slowly, in fact I am afraid of typing; also I have difficulty writing about general topics in English. (S5)
- Sometimes I am afraid my writing is not good enough in terms of both content and wording (such as grammar, word choice and organization). To leave a good impression on my partners, I spent time checking my writing using a dictionary. But this is time consuming and I have other tasks to do. (S14)
- It is frustrating when your pen pal does not respond to you, it makes me unwilling to write. ... (S23)
- I think it is troublesome to write and send e-mail. I wrote three mails to each pen pal discussing *Romeo and Juliet*, but only two replied, each with just one e-mail. This bothered me. How come there is no response! (S12)
- Maybe I simply do not like to write to someone I am not familiar with? This is a personal quirk, I simply am not accustomed to doing this. (S35)

Moreover, some students compared chain letters to junk mail, and said that they lacked patience to read them. Some learners were worried especially about their partners laughing at their writing due to it containing grammatical errors or poor ideas. However, some learners perceived value in pen pal discussions. These learners felt that they could think of more ideas through working together with partners. These learners believed that their writing skills improved when assessing the general effect of technology-enhanced activities on writing skills, since they shared their fresh insights, thoughts and feelings about the plot and characters of the movie. Such a learner-centered, process-focused approach differs from the formal and serious nature of academic composition, placing a greater emphasis on error avoidance, and grammatical accuracy gives them a more carefree, functional, entertaining and informative writing experience. Group-emailing activities also expanded the reading process by providing new perspectives from other readers. Given the varied learner perceptions of the e-mail project, future activities should provide additional scaffolding to low-achieving and low-confidence students.

#### 4.2. Learner self-evaluations of AJET activities

Student evaluations of their performance were measured to clarify how learners perceive their experiences of the usefulness of technology in learning a foreign language (See Table 1). Regarding learner satisfaction with their own performance in the learning activity: satisfaction with the videoconference activity was lowest, indicating that video-conferencing leaves much to be desired, followed by satisfaction with group e-mailing. Meanwhile, web page design had the highest satisfaction. Notably most learners enjoyed incorporating text, graphics, animation, sound, voice, music, still pictures, and motion video into their designs, and were particularly enthralled with the video, audio, and animation components of multimedia. The diverse group projects on the Web demonstrate that each group strove to use multimedia in their projects. The students developed presentations that integrated relevant text, animation, and sound. They viewed

Table 1  
Students self-evaluation of AJET activities

Activity	I felt satisfied about myself in . . .			I am interested in the following activity			I think the activity contribute to my language learning		
	Mean	SD	Rank	Mean	SD	Rank	Mean	SD	Rank
Group e-mailing	3.2	0.96	4	3.7	0.94	3	3.9	0.82	2
Film discussion and composition	3.5	0.84	2	3.3	0.82	5	4.2	0.78	1
English homepage design	3.6	0.95	1	4.2	0.90	1	3.8	0.74	3
Web-based course	3.3	0.82	3	3.5	0.81	4	3.8	0.97	3
Videoconference/chatting	2.9	1.06	5	3.9	1.15	2	3.5	0.82	5

homepage design as a learning playground where they could explore information in a playful way.

Student self-reports of their interests in AJET activities revealed that most students were most interested in creating personal web pages. Other AJET activities such as film discussion, composition and pen pals received lower priority interest scores even though students thought that these activities were very conducive to English learning. The variation between the perceived importance of activities and student willingness to put effort into these activities also suggests something of a paradox when faced with this innovative English learning method. This discrepancy may result from the high time commitment required for the film discussion, composition and pen pal activities, or alternatively may represent a need among certain groups of students for more personalized interaction with an instructor.

The phenomenon appears opposite to video-conferencing. Although they found it interesting, a handful of students thought that this activity had the least helpful design in terms of improving their English ability. Problems included slow Internet connections, time lags, slow transmission speed leading to the screen freezing, and interrupted connections. Moreover, 50 min of video-conferencing did not offer learners sufficient opportunity to introduce themselves. Time was taken during class to set up the equipment. Hence, the effect of video-conferencing was watered down. For students, the difficulties appeared to outweigh the potential benefits. Furthermore, some learners were afraid of expressing themselves in public, while for other learners their limited language skills limited their contributions. Despite this, learners were excited and gained a feeling for the wonderful technology when talking directly to their peers, and could see, and were seen by, the individuals they were addressing. The electronic network system provides opportunities for “real world” communication, enabling immediate cross-cultural information and language exchanges with native speakers around the world.

Regarding improving English abilities, most students thought that they had achieved strong improvements in vocabulary ( $M = 4.0$ ), reading ( $M = 3.9$ ), writing ( $M = 3.7$ ) and listening ( $M = 3.6$ ), with smaller improvements in oral expression ( $M = 3.3$ ). The perception of improved reading skills with technology lends support to the findings reported by Beauvois (1994) and Lunde (1990). This finding also verified, since most students believed that they had learned how to independently find the meaning of difficult words or phrases. Meanwhile, it is understandable that learners assign a low priority value to speaking skills, since oral communication was not emphasized during the current semester in comparison to other language skills. Regarding writing improvement, no explicit writing instruction

was provided to the students in this study, nor was there any formal error correction, as in [Beauvois \(1998\)](#). The writing activity in this course is more experiential and process nature. In the e-mail project, online chatting and film discussion activities, communication of meaning and content prevailed over error avoidance, grammatical accuracy, and other components of writing practice. Notably, while students in this study reported the improvement in the writing skills, the procedural aspects of writing needed to be emphasized via an explicit process-centered approach, and this should be the focus of the next project.

With respect to other gains from activities, 85% of students agreed that they had learned computer skills, and that this learning had broadened their horizons. Moreover, 80% of students believed that they had learned fields of knowledge they would not have otherwise been able to learn, including knowledge of the people, food, customs, culture, history, and resorts of a country. Students learned to locate and read English resources on the Internet. Roughly 50% of students agreed that they found English interesting, and that they had made many friends through the group-emailing activities.

#### *4.3. Learner evaluations and suggestions for designing and implementing learning activities*

An investigation into the reasons for learners liking or disliking an activity from the survey (see [Table 2](#)) shows that the reasons for student fondness for web page design included: wide visibility, novelty, obvious enhancement of computer skills, and so on. Meanwhile, reasons that students disliked web page design were too time consuming, incompatibility between the system and software, and other technical difficulties. Moreover, reasons that students liked the pen pal activity were a feeling of warmth and excitement, enhanced writing skills, making friends, and so on. Meanwhile, reasons that students disliked the activity included too much junk mail, disappointment a lack of response or feedback from pen pals, boring content, having inadequate due to skills in English for replying to partners, taking too much time to write English, and not knowing how to start or maintain a conversation.

While participating in the AJET project, students experienced problems related to learning support, learning interaction, equipment, the arrangement of activity schedules, the activity themes, etc. For example, 46% of students mentioned their poor English, with some specifically indicating insufficient vocabulary, which hindered them from understanding the articles or dialogue. The following are student responses regarding their poor English:

- I am not very good at English. Paul is very good at English, and he actively participated in chats. When discussing via the Web, other students used difficult words that I did not understand. (S1)
- As a person who has poor English, I do not know how to express my opinions and thus I cannot exert myself. My study load is also heavy, and I cannot participate in too many extra activities. (S25)

Thirty-four percent of the students mentioned computer skills and indicated that they had difficulties with Web design and information searching. These students tended to solve problems they encountered by themselves or seek help from friends, and some

Table 2  
Reasons for learners favoring and disliking AJET activities

Activity	Reasons for liking activity	Reasons for disliking activity
Web page design	Showing myself to others Fresh and interesting Improving personal computer skills Improving personal knowledge of English Gaining a sense of accomplishment Being able to review and learn from the work of others	Requiring excessive time and energy Incompatible with system and format
Group e-mailing	Feelings of warmth and excitement Being able to improve personal English ability Ability to privately express ideas without fear of others R reactions Ability to exchange information  Improved English writing skills from using the computer to post-e-mail and bulletin messages	Excessive junk mail No response from pen pals  Boring and non-useful responses from pen pals Inadequate English for express personal opinions Writing in English is too time consuming
Film discussion/ composition	The movie was great  Broadening ones' horizons from exchanging thoughts and information	Insufficient English for personal thoughts clearly Preference for science fiction of action movies over romantic movies
Videoconference	The new technology was fresh and attractive Interesting and stimulating  Very interactive	Too many participants and inadequate time for the activity Difficulty in listening to or speaking English Poor English prevents expression of personal thoughts No ideas about what to say in the activity Lack of courage to speak out
Web-based course project	The varied information and numerous resources illustrated by the quality and vivid images makes reading and learning English more fun and interactive Learning many new technical terms Learned how to search for information on the Net, and how to organize and write a report	Report writing required too much time
On-line discussing	New and exciting  Fun  Active, interesting, diverse  Increased typing speed	The line on the computer screen is cluttered, making it unreadable during online chatting Too many people were talking simultaneously, causing the frame to change fast and causing disconnection problems Some students were ignored because of the diverse range of subjects and numerous participants

students sought the advice of teachers. Furthermore, a further 20% of students highlighted the problem of time shortages: five of these students solved the problem by working through the night. These findings show a conflict between the e-learning project and the daily school life of the participating students. Regarding equipment, slow Internet connection, poor quality video equipment, circuit instability, and so on, were frequently mentioned problems. Learners noted that the rate of transmission of the videoconference was slow and the screen frequently froze or lagged. The first two themes of the videoconference, Earthquakes and Animal Protection, failed owing to equipment problems. Moreover, students hoped that activity design and arrangement would avoid conflicts with the dates of their school examinations. Students also hoped that the project N could reduce some activities and provide increased opportunities to work with overseas projects. Regarding the themed selection, students were less interested in topics such as New Year's resolutions, and the final exam. Some students thought that these topics were clichéd and suggested using topics that were more diverse, more closely related to their lifestyle, and more suitable for their age group. Although the topic of animal protection was thought-provoking and educational, students found that it involved vocabulary that was too difficult. Students wished to discuss fashionable and practical topics.

#### *4.4. Overall learner attitudes regarding technology-enhanced language learning of AJET*

During the activity, students indicated the difficulties and challenges they faced in working on the AJET activities. Students also expressed their feelings and difficulties during interviews. From the questionnaire results, student feelings toward AJET were mostly positive. Half of the students regarded writing or chatting with pen pals as productive and enjoyable, though they also saw it as demanding. Few of the respondents felt pressured, frustrated and nervous. When utilizing the Internet for other AJET activities, 46.3% of students felt satisfied, while 34% of students experienced enjoyment and expectation. The percentages of learners who felt pressured, uncertain, or nervous were almost identical.

Compared with writing or chatting with pen pals, individuals seem to experience stronger negative feeling when participating in other AJET activities (such as, online discussions and videoconferences). This may be attributed to deadline pressures and other learning difficulties that students mentioned previously. As one student remarked in responding to an open-ended question, "I feel pressured and nervous about speaking over videoconferencing because of my poor English." Meanwhile, other learners remarked on their learning difficulties, including lack of computer skills, time shortages, lack of passion, and so on (see Table 3).

When asked if they enjoyed the technology-enhanced language learning approach of the AJET program, 84% of students agreed that AJET made the course more interesting and rewarding. Regarding student opinions before and after the project, 80% of students displayed "great expectations toward AJET" and believed that it would be "helpful for learning English." However, this percentage reduced to below 66% following the project, subsequently rising to 78% when students were asked if they would take another technology-enhanced class in English. Most students initially displayed strong expectations and interest; however, students later encountered difficulties or challenges. Some students may not have adjusted to the self-directed learning style. Some learners, despite the

Table 3  
Learners feelings toward AJET activities

	Writing or chatting with pen pals			Joining other AJET activities		
	Number of student	%	Rank	Number of student	%	Rank
Enjoyable	20	48.8	3	14	34.1	2
Productive	22	53.7	1	19	46.3	1
Certain	14	34.1	5	11	26.8	4
Enthralled	12	29.3	6	8	19.5	
Expecting	17	41.5	4	13	31.7	3
Demanding	21	51.2	2	11	26.8	4
Relaxed	9	22.0		3	7.3	
Frustrated	2	4.9		4	9.8	
Pressured	8	19.5		10	24.4	5
Nervous	5	12.2		9	22.0	6

learning experience not always being pleasant and enjoyable, still maintained a positive attitude toward AJET, and believed that the value of the project could not be denied based on “small faults”.

Compared with traditional language learning styles of lecturing, 85% of students favored technology-enhanced language learning. The reasons for favoring the TELL innovative learning approach include the active learning style, interactivity, self-control, motivation and immediate feedback, and ability to learn more diverse and practical knowledge. Reasons for favoring a traditional teaching style include preference for direct learning from teacher lectures, traditional learning habits, and regarding traditional lecturing as much more effective than TELL, time pressures, etc. Sixty-three percent of students believed that the TELL approach was much more effective than traditional lecturing approach, 15% preferred a traditional learning style, and the remainder considered both methods to be effective. Slightly less than half of the learners commented that, given a choice between a regular class and a TELL approach class such as AJET, they would favor the latter. Therefore, despite approximately two-thirds of students expressing strong interest in the AJET program, some learners still preferred traditional lecture-style instruction. This discrepancy may result from the high time commitment associated with the AJET program, or may represent the need of certain students for additional guidance within their zones of proximal literacy development, more personalized interaction with an instructor, or more scaffolding to help passive learners become self-directed.

Generally, most students welcomed the active TELL approach, but they still realized the value of traditional learning. Student opinions regarding the two different styles of language learning are presented below:

- *E-learning is motivating and vivid, and traditional teaching styles can help to establish foundations.*

I truly enjoy e-learning. However, e-learning cannot be used alone without traditional learning styles. Like those learners who cannot use the Internet, e-learning alone feels like building a house without first building the foundation. Traditional learning styles are still necessary. (S1)

- *E-learning is attractive, but I remain attached to traditional learning.*

I like e-learning more than traditional learning, and find it much more attractive. However, traditional learning is more helpful and effective, owing to being a deep-rooted concept. Learning in the classroom is habitual. (S21)

- *Favor e-learning, but traditional style is still much effective.*

I like e-learning more than traditional learning, and find e-learning more fun and motivating. I believe that e-learning will be adopted in the future. I am a relatively passive learner, and I must be lectured to. (S3)

I am not saying AJET is ineffective. Maybe it is owing to the pressure we now face as we have other learning tasks to work with. I cannot become deeply involved in its event. If I become too involved, I will be unable to focus on other subjects such as mathematics and physics. (S35)

## 5. Summary and conclusions

The study investigates student opinions and attitudes toward Internet English learning. The authors took a critical perspective as observers and researchers and probed the advantages and deficiencies of the technology-enhanced language learning (TELL) project, hoping to learn more about the difficulties of practicing and feasible ways of implementing Internet English teaching in high schools.

The analytical results indicate that most students liked and approved of English learning via the Internet, but differed in their opinions regarding its benefits to English learning. The TELL project enabled the students to experience new technologies, feel the pleasure of learning and increase their learning opportunities. The TELL project improved student knowledge of computers and other fields, developed their English abilities, expanded their interests, and broadened learning range and possibilities. Most learners were positive about the potential of the Internet and believe that it can promote and enhance language learning by blending synchronous and asynchronous communications tools, given appropriate design and proper functioning. Owing to time limitations, technological malfunctions, a lack of collateral support from administration, channels of communication and the variety of resources offered by the Internet, the technology was not fully exploited.

The study was significant in that TELL project provides an innovative and creative way to nurture student language learning, yet not all student participation was highly interactive and assiduous, and the design was not implemented optimally. Although the investigation reveals some areas of weakness in the initial course design, these weaknesses should not be construed as negative, but rather should be construed as a guide to future curriculum development and as a guide for teachers to help with designing improved activities to foster collaboration, reflection and dialogue. For example, this study showed that some students with low language proficiency remained in the stage of absorbing English input and had difficulties in expressing themselves in English within the short response time of on-line chat, video-conferencing and other activities. These students needed longer time to adapt themselves to the environment. While some students enjoyed innovative, high-tech learning, others preferred a traditional, spoon-fed, lecturing style of learning and did not make the required effort to benefit from Internet learning.

Given that students bring differing perspectives to language learning, learners with a passive or maladjusted orientation toward Internet English learning require careful guidance and intervention from pedagogical applications to this approach. Helping students understand how technology-based learning differs from the more traditional lecture approach should be a critical consideration. Moreover, making students aware that learning English through multimedia technology demands new learning strategies and self-directed learning may also be a useful first step. Instructors should make students aware that beneficial intellectual experiences occur owing to their own engagement, negotiation, efforts, and interest in the learning process. Teachers might promote amicable group dynamics and support learner initiatives to amplify learner confidence and motivation to participate.

For the web page design activity, students built artifacts reflecting their learning from the Internet English project. Students were also encouraged to publish their electronic project on the Web by incorporating text, graphics, animation, audio, or motion video into their designs. This activity had the dual advantage of having students learning with technology as a cognitive tool and allowing them to share what they learned with the rest of the learning community. However, most students appeared to place more emphasis on the technology than on language learning. Possibly operating high-tech equipment such as digital cam recorders and building Web sites was new and intriguing to them, and so they diverted more of their energy towards technology learning, or maybe they just found this easier or 'lower risk' than focusing on language learning. Alternatively, students with lower competency in language and information literacy may have needed further scaffolding to develop their language learning skills. Therefore, future designs of computer-mediated language projects should assign language inquiry precedence over simple technological learning. The TELL project should enhance student mindfulness and motivation to learn language by designing appropriate handouts, assignments and assessments to maximize the connection between language and learning in computer learning environments. Furthermore, the teacher must be sensitive to the role of background knowledge and be careful in providing coaching and scaffolding for student language instruction.

Finally, the process of successfully integrating technology into the curriculum begins with an instructor becoming familiar with the computing infrastructure and collateral support in the integration process. This study demonstrated that the instructors devoted considerable time and effort to designing Internet applications suited to their course objectives and requirements. The teacher was committed to the TELL approach, but not yet proficient with workstations and Internet technology, reducing the effectiveness of the language activities to varying degrees. Given this, collateral support from administration or other teachers, as well as access to a network of users for supporting and sustaining effective computer learning, and to help in setting up equipment can help ensure effective use of computer technology in language instruction.

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