# STUDENTS' INSTROSPECTIONS ON LEARNING ENGLISH WITHIN A CALL CONTEXT

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## Abstract

Taiwan is now searching for ways to reform its educational system as the country heads into the twenty-first century. Part of this process of change at the university level has been the promotion of new ways of teaching English, including computer assisted language learning (CALL). While most studies have carried out researches in CALL software, this study investigates the students' responses regarding using computers when learning English four skills (listening, speaking, reading, and writing) in their current environments and explores the factor influencing students' decision to join CALL activities. A survey questionnaire was distributed to 379 students at two universities in Taiwan.

The survey data indicated that students in both universities felt motivated or held highly positive attitudes toward applying diverse CALL activities to their English learning. Different activities served them drills to practice language skills while surrounding an environment with lacking native speakers in Taiwan. Learning English or culture was the most important motive to use e-mail. Students also experienced progresses naturally in communication, reading skills, and writing skills through an e-mail activity.

Furthermore, the study illustrated significant differences in students' attitudes toward CALL activities based on selected items: 1) grade level; 2) region of hometown; 3) reason for learning English; 4) rating of computer abilities; 5) hours per week spent using computers to learn English; and 6) experience with CALL instruction. In particular, university students in northern Taiwan had more aggressive attitudes or

higher expectations toward CALL activities than students in southern Taiwan. These important outcomes should appreciate for the important characteristics of CALL in which students can work at their own pace, interact to complete collaborative tasks, and get involved in deciding the learning activities.

Keyword: CALL, computer assisted language learning, communication, reading, writing

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# Introduction

## Background

Taiwan is now searching for ways to reform its educational system as the country heads into the twenty-first century. Part of this process of change at the college/university level has been the promotion of new ways of teaching English, which includes computer-assisted learning. Language teachers use various teaching methodologies (e.g., communicative approach, natural approach, and so on) with multimedia technology. Other responses have included hiring native speakers of English and promoting the use of computers. Often the two approaches have been combined to increase students' opportunities for accessing authentic materials and advancing their English proficiency.

One of the most pressing issues in the classroom today is the integration of computer technology into instruction. Many researchers have pointed out that integrating technology into the educational curriculum has changed the process of education, especially language learning (Chapelle, 2001; Yang, 2001; Warschauer & Kern, 2003; Egbert, 2005). Furthermore, numerous articles and books, including the scholarly literature and trade publications confirm how technology contributes to the promotion of ESL students' motivation to learn (Liou, 1997; Soo, 1999; Van Aacken, 1999; Chang & Lehman, 2002).

Computer assisted language learning (CALL) has been used extensively in Western countries in the past two decades. With the assistance of computer technologies, instructors have an opportunity to provide students with more opportunities to practice language skills in class. However, some teachers are reluctant to use computers for instruction because of their own lack of training and the absence of technical support. Also, they are afraid that they will be replaced by computers. This notion prevents many teachers from realizing that the computer is simply a tool or device for teaching language more efficiently and easily (Jaeglin, 1998; Jones, 2001; Wetzel & Chisholm, 1998).

Teaching English in Taiwan is focused on language skills development that can

be objectively examined, and that makes grammar and examination preparation over-stressed. Eventually, a computer is becoming a good media to connect students and teachers when they change teaching methodology from a traditional way to a communicative language learning (CLT) approach. Besides, we rarely see empirical research concentrating on the Asian ESL instructors and students (Chang, 2005; Chang & Lehman, 2002). Therefore, current study needs include students' feedback while instructors offer them CALL activities.

**Research Questions**

According to the information provided above, we still need to consider some issues that could arise from using technology for language learning. The study aims to address the following research questions:

1. Which pedagogical activities are popular with or acceptable to students in the current CALL environment?

2. What are students' responses toward the use of e-mail for English language learning?

3. What is the factor influencing students' preferences related to CALL activities?

**Significance of the Study**

Some empirical researches have demonstrated that university faculties in general hold positive attitudes toward technology. However, in practice few of them use it in their instruction (Beggs, 2000). EFL teachers may have some practical difficulties in implementing CALL and integrated instruction at Taiwanese universities. It is possible that students also reject it because they fear the unfamiliar instruction and technology. Thus, it is essential to explore the theme of students' attitudes toward the use of computers for foreign language instruction and learning.

Furthermore, the investigation can give instructors some clues about students' opinions regarding computer assisted instruction and enable them to design interesting and suitable activities or to apply proper software in integrating the four language skills (listening, speaking, reading and writing) in the language classroom. Finally, the study may offer some guidance for students to apply computers as effective learning tools, for educators involved in policy making, and for curriculum designers and English teachers

seeking instructional methods to promote university students' English proficiency through technology.

**Limitations**

The following statements identify the limitations of the study:

1. All the participants live in Northern and Southern Taiwan; the research does not include other areas, such as Central Taiwan.
2. The participants are university students from two colleges in Taiwan.
3. The scope of this study is limited to responses on the survey distributed to 379 students at these two universities.
4. The information gathered is based on questions developed by the researcher and based on the literature.

## Literature Review

### The Applications of CALL in Instruction

Language teachers have not only played a role in developing CALL materials, but also in using them effectively with students. Many CALL commentators have stressed the importance of carefully integrating CALL work into the broader curriculum (Garrett, 1991). In achieving successful integration, the teacher's role is central, not only in choosing materials to incorporate into the programs, but also in integrating the computer activity into the lesson as a whole (Jones, 1986). Jones stressed the intelligent combination of class work away from the computer with work on the computer, achieved by coordination and advanced planning by the teacher. Thus, CALL materials are not stand-alone, but are integrated into broader schemes of work. The following sections will look at the teaching practices and research on the use of CALL software and instruction for second/foreign language learners.

#### Developing writing skills

The area of word processing has received attention for many years. The advantages of word-processing in a process approach to teaching writing have been frequently described, in particular the case with which major editing changes can be

made. Some previous researches (Graham & MacArthur, 1988; MacArthur, Graham, & Schwartz, 1993; Pennington, 1996;) have concluded that word processing generates positive effects in many areas, such as quality and quantity of writing, the editing and revising features etc. In addition, it promotes peer collaborative task of composition and results in an affective/social outcome; therefore, that would reduce writing anxiety and promote more collaboration among student writers (Graham & MacArthur, 1988; MacArthur, Graham, & Schwartz, 1993; Pennington, 1996; Glendinning and Howard, 2003). For instance, Gupta (1998) observed that students used the function of *Microsoft Word 2* to locate and correct errors and generate a list of verbs by word-generation strategy (root form). Thus, spelling checker provided students with a wider range of vocabulary.

More recent studies have indicated that word processing combined with effective writing instruction can enhance the writing outcomes of students with learning disabilities (MacArthur, Graham, & Schwartz, 1993; MacArthur, 1996; Hetzroni & Shrieber, 2004). Cochran-Smith (1991) concluded that students have positive attitudes toward word processing but that the impact of computers on the quality of students' writing and writing processes depends on teachers' strategies for using word processing, and on the social organization of the classroom. Hetzroni and Shrieber (2004) demonstrated that students with learning disabilities using word processing to write a summary after 10-minute lecture by the teacher and 10-minute discussion led to fewer spelling mistakes, use of more organization and structure, and fewer reading errors when reading their own written outcomes. in other words, the applications of word processor were influenced by others factors such as an academic context, student characteristics, and choice of cohesive features; therefore, teachers needed to provide them with more topic background due to their unfamiliarity with the topic in a writing tasks (Biesenbach-Lucas and Weasenforth, 2001)

Computer-mediated communication (CMC), either asynchronous or synchronous (real time), has been increasingly applied to allow foreign language learners to interact with each other and vastly develop written communication skills in the target language (Beauvois, 1994; Kern, 1995; Beauvois,1998; Blake, 2000; Gonzalez-Bueno & Perez,

2000; Li, 2000; Warschauer & Kern, 2003). Many researchers have found several benefits of using synchronous discourse program: 1) it created classroom interaction between students and teachers/students, which crucially "enhances students' SLA by having L2 learners negotiate meaning with other speakers, native or otherwise" (Blake, 2000, p. 121); 2) chat records served as a window to generate students' interlanguage, which in turn can be used to modify and improve their vocabulary (Blake 2000); 3) there was a dramatically "higher level language output of sophistication in terms of its morphosyntactic features and in terms of the variety of the range of its discourse functions expressed"(Kern, 1995, p. 470); and 4) it encouraged silent or low-confidence participants to respond more than in traditional face-to-face discussion (Schultz, 2003).

Asynchronous communication using e-mail also has produced positive results. Gonzalez-Bueno (1998) asserted that foreign language produced via e-mail has some characters, such as a higher level of language accuracy. Moreover, the number of words produced was more due to the lack of time constraints (Gonzalez-Bueno & Perez, 2000). Consequently, students had more time to implement the process of writing such as brainstorming, editing, and so on. Another study (Li, 2000) illustrated that students produced texts with more linguistic complexity, more complex sentences, and richer and more diverse vocabulary within an integrating task-based e-mail activities context.

**Developing reading skills**

Hypermedia offers a learning environment where readers can access information to facilitate reading comprehension through the use of glosses or annotations. In facilitating L2 reading comprehension, the use of sound, pictures, and animated pictures or video in addition to text have played an important role in vocabulary acquisition and in language learning (Chun & Plass, 1996). The following studies characterize the hypermedia or multimedia used in CALL helping reading comprehension. First, Cardio (1996) discovered that an interactive multimedia application increased students' vocabulary comprehension by more than 47% above their counterparts without it. A multimedia program permits simultaneous viewing of picture, text, and reference tools in conjunction with the audio, thus unifying these learning aids in a powerful way. Similarly, Hong (1997) claimed that computer-assisted reading was much more

effective in improving students' reading efficiency and in enhancing students' comprehension than the conventional reading method. Some studies examined the usages of computerized annotations and glosses; surprisingly, they found different computerized formats all bring improvements to students' reading comprehension (Chun & Plass, 1996; Davis & Lyman-Hager, 1997; Lomicka, 1998; Arew & Ercetin, 2004).

Arew and Ercetin (2004) declared that textual annotations (i.e., word definitions and pronunciations) were highly useful because they could increase the speed of reading. On the contrary, contextual annotations (i.e., video annotations providing extra information about the topic) distracted the users and interfered with comprehension for lower proficiency learners, while a negative relationship was found between the amount of time spent on video annotations and reading comprehension for the intermediate group. Moreover, prior knowledge is found to be an important variable related to reading comprehension.

Considering the process of reading comprehension, one important component is to decode words in a text. As a result, a vocabulary may become an obstacle for reading comprehension. AI-Seghayer (2001) yielded the conclusion that a vocabulary in the form of a video clip was more effective in teaching unknown vocabulary words than a still picture, because videos more effectively created a mental image, better created curiosity leading to increased concentration, and embodied an advantageous combination of modalities (vivid or dynamic image, sound, and printed text) (Chun & Plass, 1996). Computer assisted learning programs, such as *Tutorial CALL*, significantly help ESL students gain more in vocabulary and decrease reaction time for frequent word recognition (Coady & Tozcu, 2004). Therefore, easy access to annotations through multiple forms of media makes the reading of authentic texts more manageable and motivating for second/foreign language readers.

**Developing communicative skills**

Recently, foreign/second language learners and instructors have emphasized communicative competence that enhances second language acquisition and supports the theoretical framework for communicative language teaching (CLT) (Canale & Swain,

1980). According to Brown (1994), technology applications are suited to support communicative competence. Electronic learning environments help students to learn the communicative functions of the linguistic forms they use, communicate meaning in definite situations, and use feedback to evaluate their success in conveying messages. Moreover, Egbert, Chao, and Hanson-Smith (1999) drew in detail the use of technology to support interaction via collaborative tasks, authentic materials from the Internet, authentic tasks, and important characters of CLT environments.

Some studies have investigated how technology can be used to promote speaking skills (Coniam, 1998; Derwing, Munro, & Carbonaro, 2000; Liaw, 1997). One of the latest enhancements in commercial software for language teaching is speech recognition, the ability of a machine to process spoken input and give user feedbacks. For example, *Dynamic English* (1997) can judge a student's oral response to a multiple-choice question. Liaw's (1997) study used interactive computerized story books that appeared on the computer screen with the original text and illustrations and displayed in different forms, such as music, real voices, and sound effects. The study revealed that group-oriented computer book reading provides LEP (limited English proficiency) students with opportunities to socially discuss the contents in a purposeful communicative setting.

Coniam (1998) explored the effect of applying the speech recognition (SR) software, *Dragon Naturally Speaking* (DNS), to test the oral proficiency of learners of English as a second language. The program not only determined whether a word was correctly inflected and in its correct position in the sentence but also differentiated between lexical and grammatical words. As a result, SR technology can be a potential tool of oral assessment when teachers cannot conduct face-to-face interviews with their students. Nevertheless, Derwing, Munro, and Carbonaro (2000) suggested computer automatic speech recognition (ASR) software cannot be considered as a suitable drill for ESL speakers "until it attains the reasonable accuracy levels to avoid frustration and humanlike recognition patterns" (p. 602).

Listening comprehension in L2 is a process of receiving, attending to, and assigning meaning to aural stimuli. It involves a listener, who brings prior knowledge of




the topic, linguistic knowledge, and cognitive processes to the listening task, the aural text, and the interaction between the two (Coakley & Wolvin, 1986). Some authentic computer-aided tasks for listening come from the Internet. Listening can also have a visual element with digitized video. BBC World Service (http://www.bbc.co.uk/worldservice/learningenglish/index.shtml) offers *RealPlayer* files containing information in spoken form. Computer software applications that further aid language learning are becoming common, especially multimedia. Brett (1997) revealed the usefulness of multimedia in teaching listening comprehension in English as a foreign language (EFL) raised higher comprehension rate of listening texts and recall proficiency than other two sources of listening input: audio and video.

Hoven (1999) pointed out that listening with the help of aids such as texts, pictures, and movies is easier for learners to understand than listening with audio only. Hoven maintained that computerized listening activities can provide a learner-centered environment with various levels of learning support, in which learners have choices that correspond to their learning styles. In a similar manner, Jones and Plass (2002) examined the potential of multimedia annotations for enhancing the listening comprehension skills with four treatments. Finally, the study displayed that the availability and choice of pictorial and written annotations in listening comprehension activities enhances students' abilities to comprehend the material presented.

The majority of reviewed studies support the effectiveness of instructors' and students' use of computer technology in their teaching and learning. In the above literature review, we rarely see empirical research that concentrates on the Asian ESL instructors and students. Given the differences of culture and contexts, we wonder whether a CALL program could be implemented effectively in higher education in Taiwan. In addition, these researchers do not use a methodology that integrates the teaching of the four skills of English (listening, speaking, reading, and writing) in their courses. Some skills are taught together or by itself; for instance, reading skills and writing skills are combined as a course.

## Methods and Procedures

### Participants

The participants were the students enrolled in a required course of English as a foreign language at two Taiwan universities. One was in Southern Taiwan, and the other one was in Northern Taiwan. Due to time constraints and cost concerns, a southern university selected 318 students and a northern university chose 61 participants from different grade levels from the applied linguistics department.

### Instruments

The questionnaire Students' Introspections Toward CALL Activities (SITCA) (see Appendix A) was divided into two parts. The first part solicited personal information including gender, grade level, age, major, geographic region of hometown, the reason that student wants to learn English, family income, parents' level of education, and student's English course grade. The second part of the SITCA questionnaire was composed of statements derived from different studies in the areas of learning anxiety, learner autonomy, and activities toward computer technology in language learning. There were three types of responses: Likert scale, yes/no, and multiple choice. The SITCA originally came from different studies as follows:

1. Students' survey for motivational aspects of using computers for writing and communication (Warschauer, 1996).
2. Computers and L2 reading: Student performance, student attitudes (Davis & Lyman-Hager, 1997).
3. Understanding multimedia dialogues in a foreign language (Merlet, 2000)

To assure the content validity of the measurement, all items in the survey questionnaire were evaluated by the committee members, a panel of experts who have knowledge of the study as well as instrument design. Furthermore, before giving the questionnaire to students, the researcher chose 10 students to do a pilot test in order to establish the content validity of the instrument and to improve questions, format, and the scales based on feedback provided by them. For reliability, the relationships of the fourteen sub-scales of perceptions were examined for internal consistency through

Cronbach alpha. After examining results of the pilot study, a high internal consistency (Cronbach alpha) was found within each subscale (see Table 1).

Table 1

*Reliability of Each Subscale of Students' Questionnaire*

| Subscale | Part | Item | Reliability (Alpha) |
|---|---|---|---|
| Attitude Toward Listening Activities | II | 18-22 | 0.88 |
| Attitude Toward Speaking Activities | III | 23-28 | 0.81 |
| Attitude Toward Reading Activities | IV | 29-38 | 0.86 |
| Attitude Toward Writing Activities | V | 39-53 | 0.91 |

## Results and Discussions

For Question 1, "Which pedagogical activities are popular with or acceptable to students in the current CALL environment?"

Table 2 shows a very high percentage of the students agrees or strongly agrees with each item related to a listening activity in the current CALL environment, ranging from 83.6% to 93.6%. Three hundred and fifty-five respondents (93.6%) agree or strongly agree that pictures, annotations, and videos related to the text of listening help their listening comprehension. It indicates that the limited English proficiency (LEP) students may need other sources or tools to help them increase listening comprehension. In addition, three other sources or tools to help them increase listening comprehension.

Table 2

*Frequencies and Percentages of Students' Responses to Listening Items (N = 379)*

| Item | SD n (%) | D n (%) | A n (%) | SA n (%) | M | Mo |
|---|---|---|---|---|---|---|
| 18. I enjoy using the computer to practice listening skills. | 6(1.6) | 44(11.6) | 259(68.3) | 70(18.5) | 3.04 | 3 |
| 19. I agree to make use of downloadable audio files provided by ESL/EFL Websites. | 5(1.3) | 49(12.9) | 258(68.1) | 67(17.7) | 3.01 | 3 |
| 20. I agree that using the audio data/CD provided by the publishers of textbooks can improve listening comprehension easily. | 5(1.3) | 57(15.0) | 248(65.4) | 69(18.2) | 3.01 | 3 |

Table 2 *(continued)*

| Item | SD n (%) | D n (%) | A n (%) | SA n (%) | M | Mo |
|---|---|---|---|---|---|---|
| 21. I think that pictures, annotations, and videos related to the text of listening helps my listening comprehension. | 2(0.5) | 22( 5.8) | 270(71.2) | 85(22.4) | 3.16 | 3 |
| 22. Practices and drills from the computer software designed for listening comprehension are beneficial. | 3(0.8) | 24( 6.3) | 271(71.5) | 81(21.4) | 3.13 | 3 |

*Note.* SD = Strongly Disagree; D = Disagree; A = Agree; SA = Strongly Agree. M = Mean; Mo = Mode.

Three hundred and fifty-two students (92.9%), furthermore, agree or strongly agree that practice and drills from the computer software designed for listening comprehension are beneficial. It means that Taiwanese students lack opportunities to practice listening activities; thus, software is a good source providing authentic voices recorded by native speakers.

In addition, table 3 predicts a very high mean (Total Mean of 379 students = 3.07) of total students' responses to listening activity items on a 4-point Likert scale (Strongly Disagree, Disagree, Agree, and Strongly Agree – respectively scored 1, 2, 3, and 4) displays that most students in both schools have highly positive attitudes toward applying CALL to listening activities, ranging from 3.06 (a mean of 318 students at southern university) to 3.12 (a mean of 61 students at northern university). These students voice a very strong willingness to apply computer software or other computer resources (i.e., CD, downloaded audio files, and so on) to help them drill and practice. Their limited listening skills may be the reason for this.

Table 3

*Means and Standard Deviations for Students' Responses to Listening Items*

| | Mean | S.D. | N |
|---|---|---|---|
| Total | 3.07 | 2.36 | 379 |
| Southern University | 3.06 | 2.16 | 318 |
| Northern University | 3.12 | 3.20 | 61 |

Table 4 displays that a high percentage of the students agrees or strongly agrees with each item related to speaking activity, ranging from 73.4% to 86.3%. Three

hundred and forty-seven students (86.3%) agree or strongly agree that they like to speak with peers on the local area networks (LAN) or the Internet because the interactive communication in the networked environment is popular. It may be the result of the popularity of e-mail and chat software.

Table 4

*Frequencies and Percentages of Students' Responses to Speaking Items (N = 379)*

| Item | SD n (%) | D n (%) | A n (%) | SA N (%) | M | Mo |
|---|---|---|---|---|---|---|
| 23. I am more confident when using computers to practice speaking than speaking face-to-face. | 17(4.5) | 82(21.6) | 214(56.5) | 66(17.4) | 2.87 | 3 |
| 24. I am willing to use synchronous computer mediated communication (CMC) to communicate with native speakers. | 8(2.1) | 68(17.9) | 253(66.8) | 50(13.2) | 2.91 | 3 |
| 25. I like to speak with peers on the local area networks (LAN) or the Internet because the interactive communication in the networked environment. | 7(1.8) | 45(11.9) | 268(70.7) | 59(15.6) | 3.00 | 3 |
| 26. It is helpful to record parts of a dialogue on a storage device after the cue sentences and then listen to the whole dialogue to check. | 8(2.1) | 46(12.1) | 270(71.2) | 55(14.5) | 2.98 | 3 |
| 27. I enjoy engaging in role-play when using conferencing software to practice speaking tasks in pairs. | 10(2.6) | 81(21.4) | 244(64.4) | 44(11.6) | 2.85 | 3 |
| 28. I like to practice pronunciation by using automatic speech recognition (ASR) software. | 16(4.2) | 85(22.4) | 230(60.7) | 48(12.7) | 2.82 | 3 |

*Note.* SD = Strongly Disagree; D = Disagree; A = Agree; SA = Strongly Agree. M = Mean; Mo = Mode.

A high mean (Total Mean = 2.91) of total students' responses to speaking activity items shows that most students in both schools have strongly positive attitudes toward applying CALL to speaking activities, ranging from 2.90 (southern university) to 2.96

(northern university). Most respondents are willing to use different kinds of speaking activities, including applying synchronous computer mediated communication (CMC) to communicate, using automatic speech recognition (ASR) software to practice pronunciation, and engaging in role-play when using conferencing software to practice speaking tasks. From above responses to listening and speaking activities, Taiwanese students have demonstrated that they are very willing to use computers to increase their oral proficiency because there are not enough native speakers who can talk in English with them in Taiwan. Instead, computer software can provide students good sources of authentic oral drills and practice.

Table 5 shows that a very high percentage of the students agrees or strongly agrees with each item related to reading activity, ranging from 75.6% to 93.9%. In particular,

Table 5

*Frequencies and Percentages of Students' Responses to Reading Items (N = 379)*

| Item | SD n (%) | D n (%) | A n (%) | SA n (%) | M | Mo |
|---|---|---|---|---|---|---|
| 29. Browsing the Internet in English is a good way to practice reading. | 6(1.6) | 38(10.0) | 267(70.4) | 68(17.9) | 3.05 | 3 |
| 30. The Internet provides useful resources for learning about Western culture and society. | 3(0.8) | 24( 6.3) | 281(74.1) | 71(18.7) | 3.11 | 3 |
| 31.I feel intimidated by lacking substantial vocabularies displayed on a Web page. | 7(1.8) | 75(19.8) | 223(58.8) | 74(19.5) | 2.96 | 3 |
| 32. I feel that an on-line electronic dictionary can help me to read. | 2(0.5) | 31( 8.2) | 264(69.7) | 82(21.6) | 3.12 | 3 |
| 33. I feel that a reading software including different types of multimedia annotations (e.g., graphics, video, and sounds) help me in reading comprehension. | 2(0.5) | 24( 6.3) | 277(73.1) | 76(20.1) | 3.13 | 3 |

Table 5 *(continued)*

| Item | SD n (%) | D n (%) | A n (%) | SA n (%) | M | Mo |
|---|---|---|---|---|---|---|
| 34. Using the Internet to search sources is helpful and effective when doing research. | 6(1.6) | 17( 4.5) | 248(65.4) | 108(28.5) | 3.21 | 3 |
| 35. Reading e-mail messages has helped me increase my English vocabulary. | 8(2.1) | 72(19.0) | 249(65.7) | 50(13.2) | 2.90 | 3 |
| 36. I have learned to read faster because of reading e-mail messages. | 8(2.1) | 72(19.0) | 250(66.0) | 49(12.9) | 2.90 | 3 |
| 37. E-mail writing has motivated me to read English. | 9(2.4) | 84(22.2) | 233(61.5) | 53(14.0) | 2.87 | 3 |
| 38. I can read better in English if I keep reading English e-mail messages. | 7(1.8) | 50(13.2) | 257(67.8) | 65(17.2) | 3.00 | 3 |

*Note.* SD = Strongly Disagree; D = Disagree; A = Agree; SA = Strongly Agree. M = Mean; Mo = Mode

three hundred and fifty-six respondents (93.9%) agree that using the Internet to search sources is helpful and effective when doing research. Also, three hundred and fifty-three students (93.2%) felt that reading software including different types of multimedia annotations (e.g., graphics and video, and sounds) helps them in reading comprehension.

A very high mean (Total Mean = 3.02) shows that most students in both schools have strongly positive attitudes toward applying CALL in reading activity items, ranging from 3.02 (southern university) to 3.04 (northern university). Students also readily recognize that the Internet provides more opportunities to learn Western culture and society, an on-line electronic dictionary to help reading, and opportunities to practice reading skills in English. These results come from the availability and convenience of the Internet in Taiwan.

Table 6 displays a high percentage of the students agrees or strongly agrees with each item related to writing activities, ranging from 65.7% to 89.9%. An especially high percentage (89.9%) of students agrees that an advantage of e-mail is you can contact people any time you want. In addition, a very high percentage (88.1%) of students agrees that students like to cooperate with others to finish different tasks by using word

processing. The result may be explained by the fact that peers can work together, sharing responsibility for generating ideas, typing, and revising. Only two hundred and forty-nine students (65.7%) respond that they like to type homework by word processing rather than handwriting. However, a lower percentage of respondents (54.1%) agrees that writing papers by hand saves time, compared to using the computer. The results of the two items show that respondents may want to use word processing, but they are not familiar with word processing, since two hundred and ninety students (76.5%) agree that writing in English using word processing is more creative and enjoyable than handwriting. These outcomes approve some characters of previous studies that word processing would result in affective/social outcomes, such as reduced writing anxiety and more collaboration among student writers (Graham & MacArthur, 1988; MacArthur, Graham, & Schwartz, 1993; Pennington, 1996).

Table 6

*Frequencies and Percentages of Students' Responses to Writing Items (N = 379)*

| Item | SD n (%) | D n (%) | A n (%) | SA n (%) | M | Mo |
|---|---|---|---|---|---|---|
| 39. I can write better and feel creative when writing compositions on computers. | 17(5.5) | 147(38.8) | 192(50.7) | 23( 6.1) | 2.58 | 3 |
| 40. Revising my papers is a lot easier when I write them on computers. | 6(1.6) | 61(16.1) | 260(68.6) | 52(13.7) | 2.95 | 3 |
| 41. I like to type my homework by word processing rather than handwriting. | 15(4.0) | 115(30.3) | 189(49.9) | 60(15.8) | 2.78 | 3 |
| 42. I enjoy seeing the things I write printed out. | 11(2.9) | 70(18.5) | 230(60.7) | 68(17.9) | 2.94 | 3 |
| 43. Writing papers by hand save time compared to by computer. | 27(7.1) | 147(38.8) | 175(46.2) | 30( 7.9) | 2.55 | 3 |
| 44. Writing in English using word processing is more creative and enjoyable than handwriting. | 11(2.9) | 78(20 .6) | 240(63.3) | 50(13.2) | 2.87 | 3 |

Table 6 *(continued)*

| Item | SD n (%) | D n (%) | A n (%) | SA n (%) | M | Mo |
|---|---|---|---|---|---|---|
| 45. I like to cooperate with others to finish different tasks by using word processing. | 8(2.1) | 37( 9.8) | 270(71.2) | 64(16.9) | 3.03 | 3 |
| 46. Because of e-mail writing, I know how to revise my writing better. | 10(2.6) | 73(19.3) | 256(67.5) | 40(10.6) | 2.86 | 3 |
| 47. I think I can express myself better in English due to the practice of e-mail writing. | 26(6.9) | 159(42.0) | 173(45.6) | 21(5.5) | 2.50 | 3 |
| 48. I enjoy e-mail exchanges because I can make friends with others and learn about different people and cultures. | 9(2.4) | 58(15.3) | 262(69.1) | 50(13.2) | 2.93 | 3 |
| 49. An advantage of e-mail is you can contact people any time you want. | 7(1.8) | 31( 8.2) | 281(74.1) | 60(15.8) | 3.04 | 3 |
| 50. Communicating by e-mail is a good way for me to improve my English. | 10(2.6) | 59(15.6) | 265(69.9) | 45(11.9) | 2.91 | 3 |
| 51. I recommend e-mail writing to be an integral part of an English class. | 21(5.5) | 83(21.9) | 231(60.9) | 44(11.6) | 2.79 | 3 |
| 52. In general, I think e-mail writing has increased my interest in learning English. | 17(4.5) | 98(25.9) | 230(60.7) | 34( 9.0) | 2.74 | 3 |
| 53. I enjoy using e-mail exchange, pen-pal writing, shared research projects, and join in student publications to communicate with others in English. | 16(4.2) | 60(15.8) | 257(67.8) | 46(12.1) | 2.88 | 3 |

*Note.* SD = Strongly Disagree; D = Disagree; A = Agree; SA = Strongly Agree. M = Mean; Mo = Mode.

In addition, a high mean of item 40 (M = 2.95) indicates that revising papers is much easier when done on computers. This result may be caused by the components of word processing; for example, students can use spell checkers to generate a list of verbs that resembled the root form and then select the correct form from the list, and use an active word-generation strategy, which can have an impact on syntax. However, a low mean of item 47 (M = 2.50) suggests that students can express themselves better in

English due to the practice of e-mail writing. The reason may come from the fact that students often use e-mail only to send messages, not as a learning tool. E-mails consist of informal letters or spoken words. Thus, students do not agree that they can use e-mail to learn the advanced skills of English to improve their English proficiency.

The high mean (Total Mean = 2.82) of total students' responses to writing activity items depicts that most students in both schools have strongly positive attitudes toward applying CALL in writing activities (southern university M = 2.80 and northern university mean = 2.93). The means from two different universities also show that students in northern university have a higher mean and standard deviation.

For Question 2, "What are students' responses toward the use of e-mail for English language learning?", the statements in the questionnaire focus on three possible benefits of e-mail writing: communication (Items 48-50), improvements of reading skills (Items 35-38), and improvements of writing skills (Items46-47). In addition, two statements (Items 51-52) probe the students' rating of the benefits of e-mail writing for EFL instruction. Furthermore, we set the hypothesis 1, students' reasons for learning English (item 6) will significantly influence their use of an e-mail activity.

From table 6, it states that a high percentage of the students agrees or strongly agrees with each item related to e-mail activities. In particular, a very high percentage (89.9%) of students agrees that an advantage of e-mail is that you can contact people anytime you want. A similarly high percentage (85.0%) of students agrees that students can read better in English if they keep reading English e-mail messages. Comparing the impact on improving reading skills, writing skills, and communication based on their percentages and means, it is clear that e-mail activities are felt to have greater effect on improving reading skills and communication than writing skills. For example, reading e-mail messages can help to increase reading speed and English vocabulary, motivate students to read English, make friends with others, and contact people any time. Moreover, there are high percentages (72.5% and 69.7%) of students who agree or strongly agree with the two items (51 and 52) related to suggestions of integrating e-mail writing into English instruction. Moreover, a high mean (Total Mean = 2.86) of total students' responses to e-mail activities illustrates that most students in both schools




have highly positive attitudes toward applying e-mail activities to learning English, ranging from M = 2.84 (southern university) to 2.97 (northern university).

For Hypothesis 1, the students' reasons for learning English will significantly influence their attitudes to use an e-mail activity. The results of analyses of variance (ANOVA) indicates that the reason to learn English has a strongly significant influence on use of an e-mail activity (F (374) = 6.262, P = 0.000); thus, Hypothesis 1 is accepted and it supports the finding that the item 6, students interested in the language/culture, has the highest frequencies (201). In addition, it is interesting to note item 48 that three hundred and twelve (82.3%) respondents enjoy e-mail exchanges because they can make friends with others and learn about different peoples and cultures. Therefore, the social/ interactional aspects yield a positive outcome.

For Question 3, "What is the factor influencing students' preferences related to CALL activities?", the total language activity involving computers consists of the sum of the four subscales of language activities, including listening activities, speaking activities, reading activities, and writing activities. Next, checking whether the demographic data have a significant influence on students' attitudes toward CALL activities? In the same way, two hypotheses are posed: Hypothesis 2 states, if the student has a higher level of computer abilities in general (item10), he/she will be more willing to try different language activities through CALL. Hypothesis 3 proposes that if the student has experienced CALL instruction (item 17), he/she will be enthusiastic about trying different language activities through computers. Thus, ANOVAs are calculated for selected demographic data; furthermore, the analyses of variance (ANOVA) between the mean scores of total language activity and demographic data show whether there are any significant relationships.

Table 7 predicts the items and their respective F-value and P-value. The outcomes indicate that a higher grade level and ages of students have statistically significant agreement with trying different language activities through computers. It seems that the older the students are, the greater the willingness to try different language activities through computers. Furthermore, students majoring in Liberal Arts, Foreign Language, or Journalism and Mass Communication are willing to implement different activities in

English learning through CALL. The participants may have more opportunities or courses to learn English because of their major; thus, they have more experience in practicing different activities.

Table 7 also reveals that students from central or northern Taiwan will have greater willingness to try different language activities through computers as well. The data also strongly suggest that students with interest in English language/culture have greater willingness to try different language activities through CALL, since F (374) = 6.698, P = 0.000. In addition, it indicates that there is a significant influence from their course grade. The student having a higher grade in English class this school year holds

Table 7

*ANOVAs Between Selected Items and Responses to Total Language Activity*

| Selected Item | F value | P value |
|---|---|---|
| Gender | 0.614 | 0.434 |
| Grade Level | 2.720 | 0.044* |
| Age | 3.127 | 0.026* |
| Major | 2.844 | 0.038* |
| Region of hometown | 2.703 | 0.030* |
| Reason to learn English | 6.698 | 0.000* |
| Family income | 2.352 | 0.072 |
| Parents' level of education | 0.155 | 0.926 |
| Grade in English class | 4.302 | 0.002* |
| Rating of computer abilities | 4.877 | 0.001* |
| Hours a week spent using computers to learn English | 6.984 | 0.000* |
| Hours a week spent using English on the Internet | 2.716 | 0.045* |
| Have experienced CALL instruction | 9.315 | 0.002* |

P*<0.05

greater willingness to try different language activities through computers. Finally, the results strongly suggest that students who spend more hours per week using computers for learning English are more willing to try different language activities through computers ( F(374) = 6.984, P = 0.000). It may be caused by their familiarity with the computers or software they used every week.

For Hypothesis 2, Table 7 shows that there is a significant relationship between student rating of computer abilities and his/her willingness to practice different language activities through CALL ( F(374) = 4.877, P = 0.001). Thus, Hypothesis 2 is

accepted. The student who rates his/her computer abilities as higher is more eager to try different language activities through computers. For Hypothesis 3, the data shows that there is a significant relationship between having enrolled in CALL instruction courses (item17) and willingness to exercise different language activities through CALL ($F(377) = 9.315$, $P = 0.002$). Thus, Hypothesis 3 is accepted. A student who has experienced CALL instruction will be more willing to try different language activities through computers.

## Recommendations

The data gathered from the questionnaire to which Taiwanese students responded reflect their preferences in various CALL activities. The findings would be helpful for university EFL/ESL instructors and administrators to understand students' needs and desires for certain activities of CALL, embedded in effective English instructional approaches. The following recommendations emerge from the literature review, research findings, and discussion of the study:

1. Motivation is an important factor that affects ESL/EFL students' attitudes toward CALL. Thus, how to motivate students to apply computers to English learning becomes a critical issue.

2. Further study can investigate university English instructors' attitudes toward CALL in Taiwan. The results between students and teachers can then be compared.

3. Teachers and students should adopt the process of learner autonomy gradually. Teachers should become thoroughly familiar with the process of autonomy in order to control the degree of autonomy and direct students more effectively in CALL environments.

4. Training should be provided in the ability to deal sensitively with students who may resist CALL or the sort of autonomy that CALL offers, or fail to interact socially and communicatively through the computer when interaction is part of learning.

5. Technical training should be implemented for language teachers.

6. Examining language teachers' needs for implementing CALL in the classroom

could provide information concerning language education in Taiwan, allowing the design of future pre-service or in-service teacher training programs.

7. Designing an assessment framework for CALL instruction to gather information, including 1) whole teaching process: learning materials, instructional strategies, learning activities, and evaluation; and 2) surrounding environments: teachers, students, administrators, classroom setting, computer laboratories, Internet, digital materials, and instruction/learning software.

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# Appendix A

## Students' Introspections Toward CALL Activities (SITCA)

Directions:

1. The purpose of this survey is to gather information concerning college students' attitudes and feedbacks of activities preferences toward computer assisted language learning (CALL).

2. This is not a test; therefore, there is no right or wrong to answer each question. In answering the questions, please check (√) the answer in the box (□) which best indicates your situation and feelings. It is important that you respond to each statement truthfully. Your opinions will be strictly confidential.

**Part I Personal Information**

Name of school_____

1. Gender: (A) Male (B)Female

2. Grade: (A) Freshman (B) Sophomore (C) Junior (D) Senior

3. Age: (A) Below 20 (B) 20-22 (3) 23-25 (4) Above 25

4. My major of study is in the college of:
   (A) Liberal Arts, Foreign Language, or Journalism and Mass Communication
   (B) Science, Engineering, Agriculture, or Environmental Design
   (C) Law, Business, or Social Science
   (D) Medicine, Pharmacy
   (E) Education, Arts Education

5. Geographic region of your hometown:
   (A) Northern Taiwan (B) Central Taiwan (C) Southern Taiwan
   (D) Eastern Taiwan (E) Other regions

6. Why do you want to learn English? (check all that apply)
   (A) Interested in the language/culture
   (B) Required to take a language course to graduate
   (C) Have friends who speak the language
   (D) Need it for my future career
   (E) Need it for travel

7. My family income (N.T.)/month
   (A) More than 200,000 (B) 200,000 to 100,000
   (C) 50,000 to 100,000 (D) less than 50,000

8. Parents' level of education (the higher one) is:
(A) Middle high school (B) High school
(C) College/University (D) Graduate school

9. What is your approximate grade in English class(es) this school year?
(A) A (100-90) (B) B (89-80) (C) C (79-70)
(D) D (69-60) (E) Below D (less than 60)

10. How would you rate your computer abilities in general?
(A) Extremely poor (B) Below average
(C) Average (D) Above average (E) Extremely good

11. On average, how many hours a week do you spend using a computer for learning English (either at school or outside of school)?
(A) none (B) less than 1 hour (C) 1 to 3 hours
(D) 4-6 hours (E) more than 6 hours

16. Number of hours spent per week using English on the Internet:
(A) Less than 3 hours (B) 3-7 hours
(C) 7-15 hours (D) Over 15 hours

17. Have you experienced an English course with CALL instruction (i.e., the teacher applies computers as a tool to teach 4 skills of English) before?
(A)Yes (B) No

**Part II Attitude Toward Listening Activities**

SD= Strongly Disagree; D= Disagree; A=Agree; SA= Strongly Agree

| | SD | D | A | SA |
|---|---|---|---|---|
| 18. I enjoy using the computer to practice listening skills. | □ | □ | □ | □ |
| 19. I agree to make use of downloadable audio files provided by ESL/EFL Websites. | □ | □ | □ | □ |
| 20. I agree that using the audio data/CD provided by the publishers of textbooks can improve listening comprehension easily. | □ | □ | □ | □ |
| 21. I think that pictures, annotations, and videos related to the text of listening helps my listening comprehension. | □ | □ | □ | □ |
| 22. Practices and drills from the computer software designed for listening comprehension are beneficial. | □ | □ | □ | □ |

**Part III Attitude Toward Speaking Activities**

SD= Strongly Disagree; D= Disagree; A=Agree; SA= Strongly Agree

| | | | | |
|---|---|---|---|---|
| 23. I am more confident when using computers to practice speaking than speaking face-to-face. | SD ☐ | D ☐ | A ☐ | SA ☐ |
| 24. I am willing to use synchronous computer mediated communication (CMC) to communicate with native speakers. | ☐ | ☐ | ☐ | ☐ |
| 25. I like to speak with peers on the local area networks (LAN) or the Internet because the interactive communication in the networked environment. | ☐ | ☐ | ☐ | ☐ |
| 26. It is helpful to record parts of a dialogue on a storage device after the cue sentences and then listen to the whole dialogue to check or try again. | ☐ | ☐ | ☐ | ☐ |
| 27. I enjoy engaging in role-play when using conferencing software to practice speaking tasks in pairs. | ☐ | ☐ | ☐ | ☐ |
| 28. I like to practice pronunciation by using automatic speech recognition (ASR) software. | ☐ | ☐ | ☐ | ☐ |

**Part IV Attitude Toward Reading Activities**

SD= Strongly Disagree; D= Disagree; A=Agree; SA= Strongly Agree

| | | | | |
|---|---|---|---|---|
| 29. Browsing the Internet in English is a good way to practice reading. | SD ☐ | D ☐ | A ☐ | SA ☐ |
| 30. The Internet provides useful resources for learning about Western culture and society. | ☐ | ☐ | ☐ | ☐ |
| 31. I feel intimidated by lacking of substantial vocabularies displayed on a Web page. | ☐ | ☐ | ☐ | ☐ |
| 32. I feel that an on-line electronic dictionary can help me to read. | ☐ | ☐ | ☐ | ☐ |
| 33. I feel that a reading software including different types of multimedia annotations (e.g., graphics, videos, and sounds) help me in reading comprehension. | ☐ | ☐ | ☐ | ☐ |
| 34. Using the Internet to search sources is helpful and effective when doing research. | ☐ | ☐ | ☐ | ☐ |
| 35. Reading e-mail messages has helped me increase my English vocabulary. | ☐ | ☐ | ☐ | ☐ |
| 36. I have learned to read faster because of reading e-mail messages. | ☐ | ☐ | ☐ | ☐ |
| 37. E-mail writing has motivated me to read English. | ☐ | ☐ | ☐ | ☐ |
| 38. I can read better in English if I keep reading English e-mail messages. | ☐ | ☐ | ☐ | ☐ |

**Part V Attitude Toward Writing Activities**

SD= Strongly Disagree; D= Disagree; A=Agree; SA= Strongly Agree

| | SD | D | A | SA |
|---|---|---|---|---|
| 39. I can write better and feel creative when writing compositions on computer. | □ | □ | □ | □ |
| 40. Revising my papers is a lot easier when I write them on computer. | □ | □ | □ | □ |
| 41. I like to type my homework by word processing (e.g. *Microsoft Word*) rather than handwriting. | □ | □ | □ | □ |
| 42. I enjoy seeing the things I write printed out. | □ | □ | □ | □ |
| 43. Writing papers by hand save time compared to by computer. | □ | □ | □ | □ |
| 44. Writing in English using word processing is more creative and enjoyable than handwriting. | □ | □ | □ | □ |
| 45. I likes to corporate with others to finish different tasks by using word processing. | □ | □ | □ | □ |
| 46. Because of e-mail writing, I know how to revise my writing better. | □ | □ | □ | □ |
| 47. I think I can express myself better in English due to the practice of e-mail writing. | □ | □ | □ | □ |
| 48. I enjoy e-mail exchanges because I can make friends with others and learn about different people and cultures. | □ | □ | □ | □ |
| 49. An advantage of e-mail is you can contact people any time you want. | □ | □ | □ | □ |
| 50. Communicating by e-mail is a good way for me to improve my English. | □ | □ | □ | □ |
| 51. I recommend e-mail writing to be an integral part of an English class. | □ | □ | □ | □ |
| 52. In general, I think e-mail writing has increased my interest in learning English. | □ | □ | □ | □ |
| 53. I enjoy using e-mail exchange, pen-pal writing, shared research projects, and joint student publications to communicate with others using English. | □ | □ | □ | □ |