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Keynote Speech

Developing a Community of Intercultural Learners:
From Cyberspace to Reality

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INTRODUCTION

Today's students are living in a world full of information technologies. Language learners have innovative technologies at their fingertips for authentic communications and intercultural learning. Among the array of emergent informational technologies, Web 2.0 has advanced as a potentially transformative tool in the area of education in general and language learning in particular (Haythornthwaite & Hagar, 2004; Lankshear & Knobel, 2007; Harrison &Thomas, 2009). It is believed that the emergence of Web 2.0 is not merely a technological innovation, but rather a social transformation that enables and encourages communication (Conole & Alevizou; 2010). Through user-generated content and "many-to-many" forms of publication, Web 2.0 applications in the language education context can provide educators with new opportunities to create versatile online learning environments and learners to engage in intercultural interaction and collaboration. Social media, Internet tools based on the Web 2.0 technologies, provide virtual spaces where users can interact and communicate; through sharing, participating, collaborating, and networking, online communities can be quickly formed. Ideally, with the adoption of social media tools in an educational context, a student is no longer an isolated individual, but a member of a community of practice (Lave & Wenger, 1991). In such a community, students who have common learning goals can share with one another their knowledge and experiences, support one another during the learning process, and collaborate on class projects. Learning in online communities thus becomes a participatory and dynamic social process, and is learner-oriented.

Despite many proclaimed advantages of using Web 2.0 technologies in language education contexts and forming learning communities, to date findings from longitudinal studies showing the depth of change in pedagogical practice are still scarce and far from being conclusive (Conole & Alevizou, 2010). This paucity of empirical evidence however, is understandable as these technologies are fast-advancing and their uses in educational contexts are often experimental. In addition, the use of social media does raise concerns related to privacy issues and effects of teacher self-disclosure in networked communities (Mazer, Murphy, &

Simond, 2007; Tufekci, 2008). Skepticism and reluctance loom since many educators have not yet familiarized themselves with these technologies and may even fear the possible changes in teacher-student interaction dynamics when crossing the boundaries between professional and social worlds (Schwartz, 2009).

Using the empirical data collected from a year-long telecollaborative project between French and Taiwanese EFL students as an example, this presentation will first introduce the design of a series of joined Web-based intercultural tasks inspired by the social-constructive theoretical principles. Then, how the students performed in the teacher-monitored interaction will be reported to illuminate if the socio-constructivism inspired telecollaborative activities have lived up to the expectations of enhancing intercultural learning and collaboration. Next, and more importantly, a critical turning point of why and how the participants of the project autonomously initiated a transition from the academic-based, instructor supervised online collaboration to social-oriented, self-directed Web learning community via the use of social media in preparation for "real" exchanges will be analyzed and reported. By tracing the interactional and interpersonal dynamics brought on by the uses of different Web-based communication media, issues of how the cultures-of-use (Thorne, 2003) have made an impact on the language and intercultural learning of the participants will be addressed. Finally, based on the results, challenges for cultural responsive technology use to benefit students from being members of online communities will be discussed.

REVIEW OF RELATION LITERATURE

Telecollaboration for language and intercultural learning

With the advance of computer technologies, language educators are increasingly using information technology resources in their teaching. It is a well-known fact to language educators that culture is embedded in language. However, developing an awareness of the complex relationships between culture and its linguistic expression is extremely challenging. Therefore, language educators need to investigate creative ways of constructing learning environments that promote sustained engagement in online communication, so that students can benefit from the kinds of intercultural encounters that technology has the potential to provide. Internet-mediated communication has been used by foreign language teachers as interactive learning environments in which students go beyond a checklist approach to cross-cultural knowledge and literacy (Belz, 2003; Furstenberg, Levet, English & Maillet, 2001; Rogerson-Revell, 2003; Schwartz, Lin, &Holmes, 2003; Shawback & Terhune, 2002). Telecollaborative projects involving the use of interactive Internet technologies are being implemented to link L2 learners in institutionalized settings in different countries to engage in cost-effective exchanges for developing intercultural awareness

and linguistic proficiency (Davis, Cho, & Hagenson, 2005; Kern, 2006). Some best-known projects include the EU-funded LANCAM (Languages for Contract Administration and Management in Construction) project offers web-based materials to help business managers in the construction industry to understand the key aspects of European work culture and practice and to enhance their professional language skills (Rogerson-Revell, 2003) and *Cultura*, a project that brought students at the Massachusetts Institute of Technology in Cambridge, U.S.A. and the <u>Institut National des Télécommunications</u> in Evry, France, together via a network forum to observe, compare, and analyze parallel materials from their respective cultures (Furstenberg, Levet, English, & Maillet, 2001). This researcher has also developed a series of telecollabortive sites linking her students with native speakers of English in the U.S. and fellow English as an international language (EIL) speakers in France for intercultural learning (Liaw, 2007; Liaw, 2006; Liaw & Bunn-LeMaster, 2010).

The many forms of telecollaboration mediated by Internet communication tools create compelling yet sometimes problematic conditions for learning (Kern, Ware, & Warschauer, 2004; Pawan, Paulus, Yalcin,&Chang, 2003; Ware & Kramsch, 2005). Research in this area has revealed some information about how intercultural communication or miscommunication takes place and the trajectory of interculturality development (Belz, 2003). Analyses of language uses in intercultural communication settings have shown that during interaction, participants of different cultural, linguistic and socio-economic backgrounds would increasingly constitute themselves as a community, speak in a collective voice, converge on a linguistic style and concur on topics of conversation, the goals of the group and even strategies for achieving them (Cassel & Tversky, 2005). Other studies, however, found that discussions did not become interactive and collaborative simply because the participants were put in touch via Internet-mediated communication (Pawan, Paulus, Yalcin, & Chang, 2003). Many contextual factors – including social and cognitive ones – as well as interaction patterns play important roles in the process and remain to be examined to gain insights into the complexity involved. These findings echo what Kern (2006) has pointed out that language competence per se is not the key variable in the success of intercultural exchange projects; other factors, such as the willingness to be socialized into the online community and to follow its discourse rules play key roles in intercultural communication projects (Hanna & de Nooy, 2003). Participants must see an intercultural stance online as a joint responsibility in which individuals agree to stay engaged in the interaction.

Learner community building in the cyberspace

The emergence of Web 2.0 tools provides new possibilities for forming communities of practice in the cyberspace (Lave & Wenger, 2001). The social interface of Web 2.0 offers novel ways for people to share and discuss ideas and thus

has the capacity to support and enhance existing communities or to foster the development of new communities of inquiry and exploration. Social networking tools provide students with mediation artifacts for more channels to self-represent, express, and reflect, as well as to organize collaboration and knowledge building than earlier communication tools could. Applying social networking tools in language education contexts is encouraged by researchers and language educators since it appears to match the socio-constructive perspectives of sound pedagogy in which knowledge is co-constructed by learners through shared, meaningful endeavors (Conole & Alevizou. 2010; Dalsgaard, 2006).

Even though the uses of social networking tools in language teaching contexts are positively viewed by researchers, studies looking into the actual implementation are newly emerging. Some found positive results but some found otherwise. Mills (2011) applied the situated learning theory to analyze the joint enterprise, mutual engagement, and shared repertoire experienced within the Facebook community of an intermediate French course. The findings from Facebook postings and a post-project survey reveal that the participating students made connections to course content, developed identities through the enhancement of interpersonal, presentational, and interpretive modes of communication. It was concluded that the use of Facebook complemented the classroom environment and established an interactive community where students shared various resources and collective reflected on their learning. In another study, Blattner and Fiori (2011) investigated whether using the Facebook group application could facilitate the development of multiliteracy and L2 sociopragmatic awareness of undergraduate students who enrolled in an intermediate-level Spanish culture course. The students were asked to search groups in Facebook that were linked to the course themes and conduct a linguistic analysis focusing on greetings, leave-takings, and vocabulary selection to identify the language typically used in it. They reported that the students learned to identify socio-pragmatic elements in this medium and were able to transferable these skills to their own electronic foreign language communication. Through the process they also built a better rapport with their instructor.

Not all of the findings from empirical studies suggest positive responses from learners. Stevenson and Liu (2010) conducted an online survey and performed a usability test on three foreign language learning websites that use Web 2.0 technology (i.e., Palabea, Livemocha, and Babble). The study aimed to gain an understanding of how the users of these sites use them for learning and social purposes. The pedagogical and technical usability of these sites were also explored. Results, contrary to some popular beliefs, showed a great user interest in traditional Web 1.0 learning technologies than in Web 2.0 technologies. Survey findings further indicate that sites employing social networking tools run the risk of alienating adult learners who visit them with specific education goals in mind, especially those sites that look "young,"

"cartoony" or resemble a "dating website" as opposed to a "learning website." They conclude that while the social networks enable new forms of communication and collaboration for accesses to resources not otherwise available on traditional websites, the importance and value of traditional language learning content cannot be denied.

As of today, empirical studies are still limited and findings far from conclusive. The recurring research discourse advocating the transformative capacity of Web 2.0 still needs to be examined by in-depth empirical investigations.

The *Beyond These Walls* Telecollaborative Project

In a series of telecollaborative projects implemented by this researcher and her colleagues, the one implemented in 2010/2011 bears specific significance to the discovery of the roles social networking tools play in an online community of practice. In the Taiwan-France telecollaborative project, entitled *Beyond These Walls*, a series of carefully crafted, join-tasks were created by the researchers and hosted on an official project website in Taiwan (http://candle.ntcu.edu.tw:8080/project2011/). The French students in this project were either engineering or management students while the students in Taiwan were English majors. The course was centered on developing communication skills as well as learning English, via asynchronous text, graphic, and audio/video exchanges. Because the students had different majors, the instructors designed tasks that would provide a convergence of interest to foster the synergy necessary for sustainable communication. The tasks included a self-introduction activity, word associations, the presentation and explanation of a selection of culturally meaningful art followed by a creativity seminar in which students collaboratively designed, constructed, and presented original utensils. They also conceived marketing plans, wrote technical documentation and user manuals for their inventions. In each activity, students strove to write in such a way that their documentation would be readily accessible to a general and globalized public. In addition, as contacts among participants progressed, the students initiated and built their own social networking site, parallel to the official site, in order to discuss and arrange "real" exchanges without the monitoring of their instructors.

DATA COLLECTION and ANALYSIS

As the main objective of the telecollaborative project was to enrich the participating students' intercultural experience and foster communicative competence, the students' performances are examined against the Intercultural Communicative

Competence Model[1] and evaluation criteria[2] proposed by Byram (1997). Also, since the key to successful telecollaborations lies in the participants' willingness to socialize into the online community and to stay engaged in the interaction, whether or not the participants of this project formed a community of practice was also looked into. The three crucial elements[3] in distinguishing a community of practice from other groups of communities defined by Wenger (2007) are used to identify the formation of such a community.

OUTCOMES and DISCUSSION

Virtual contacts

Word association. The word association task required the students write down 3-5 words that they consider related to the words given by the professors/researchers. The words given included *elite, authority, Taiwan, France, U.S.A., family, religion,* and *individualism.* After writing associated words, the students then had the chance to view the results and compare the words associated by both sides. They could also write down their responses to the results.

A review of the responses written by the Taiwanese students revealed the intercultural competence outlined in Byram's model. Their responses demonstrated a

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[1] Byram's (1997) Model of Intercultural Communicative competence -Learning Objectives to develop ICC include: A) Knowledge: of social groups and their products and practices in one's own and one's interlocutor's country, and the general processes of societal and individual interaction; B) Skills of interpreting and relating: ability to interpret a document or event from another culture, to explain to it and relate it to documents or events from one's own; C) Skills of discovery and interaction: ability to acquire new knowledge of a culture and cultural practices and the ability to operate knowledge, attitudes and skills under the constraints of real-time communication and interaction; D) Attitudes: curiosity and openness, readiness to suspend disbelief about other cultures and belief about ones' own; E) Critical cultural awareness/political education: an ability to evaluate, critically and on the basis of explicit criteria, perspectives, practices and products in one's own and other cultures and countries.

[2] The criteria include A) an interest in other people's experience of daily life, B) ability to change perspective, C) ability to cope with living in a different culture, D) knowledge about another country and culture, E) knowledge about intercultural communication

[3] The elements include A) a *domain of shared interest* that members are committed to, B) a community in which members engage in joint activities and discussion, help each other, and share information; in other words, they *build relationships* that enable them to learn from each other, C) a *shared practice* by which members develop experiences, stories, tools, and ways of addressing recurring problems together.

high level of curiosity to French culture and the students welcomed the challenge to their previous perceptions toward French people and culture. The following response to the associated words to "France" exemplifies this openness and at the same time demonstrates the students' ability to apply an analytical approach to reasoning their discovery:

"We find that French students and Taiwanese students have similar word association about location, food and building. Such as, Paris, bread, baguette, wine, gastronomy and Eiffel Tower. However, we have totally different word association about personality. After we count, it has 26 words about romantic and 14 words about fashion in Taiwanese students' word association. But these two words are not mentioned by French students. They write words such as lazy, moan, grumpy and strike action which are opposite to us."

The Taiwanese students were also capable of interpreting and relating to French students' thoughts and beliefs embedded in their associated words. The followings are two examples:

"After contrasting the differences between Taiwanese students and French students' view of school, we find that most of the word associations are the same. We all link the word "school" to words of "teacher", "student", "classroom", "homework", "exam", "book", "study", and "learn"....But there are still something special and different words in their papers. We find out the words like "future", "job", "skill", "social", "chance" and a more special word" key's life"... The French students have more optimistic thinking way toward future. Most of them link school and future life together. ...But contrasting what we Taiwanese students wrote down, we just mention the subjects and objects inside the school."

"When the word "elite" coming up your mind, the students in Taiwan think about some professions such as professors, doctor, and chief executive officers. ..In contrast, we found that the words of French students ...mentioned the most is "school" and "chance". In fact, this is different from the meaning of "elite" itself. That's special. They also mentioned "best, success, high level," and even "star, solider, selection." The range they consider of is very wide."

It was evident that the activity sensitized the students to become aware of their own ideological perspectives and values and then critically evaluate them against those of the French students. Instead of feeling confused or comfortable about the differences, the students valued the intercultural insights and enjoyed the opportunity to see things differently:

.. After listing the different words out, we see the cultural differences of Western culture and eastern culture. We do learn a lot from it."

"We do love this activity because we can know more about the French students. This activity gives us a chance to know the differences between the thoughts of Taiwanese students and French students."

Art selections: In addition to word associations, the students were asked to selected art works which they consider most representative of their own culture and post them on the project website for the other side to view and make comments. The selections made by the Taiwanese students were all performing art, including the dances performed by Cloud Gate, the dance performed by Eight Generals, and Taiwanese opera. The French students selected paintings by Renoir, Prise de la Bastille by Jean-Pierre-Louis-Laurent Houel, and a video jointed created by Youtube and the Guggenheim Museum.

Selecting the artworks that are representative of their own cultures and justifying their selections committed the students to making an effort to search, negotiate, and then come to a consensus about the significant individuals and emblems that constituted their collective identities and memories. In their responses to the art selections and justifications made by the French students, the Taiwanese students demonstrated skills of interpreting and relating to the cultures of their interlocutors; they carefully explained their understandings of the art works and related themselves to the French students' views on Art.

The one piece of artwork that generated most discussion was the paintings by Auguste Renoir. The students were eager to express their knowledge about the painting, the painter, and their cultural significance to the French:

"Auguste Renoir is one of my favorite painters. I am impressed by his words "La douleur passe,la beaute reste." which means "The pain passes, but the beauty remains." in English. Because of the belief, he portrays many beautiful works, creating numerous memories in viewers mind. It seems that we are in his times, tracing them back through views of our days, seeing our world in his way of living as well. I am fond of his painting style. It is energetic, warm-hearted, filled with harmony atmosphere. Viewers can be closer to the characters like there is no boundary between the two worlds."

"I think you really choose a good representation of France. The painting you choose, Bal du moulin de la Galette, is a work of impressionism. And as you say, impressionism is a method of painting originating from France. Watching this painting can realize bustling at that moment. The scene in the painting can mirror the situation of society at that period in France. No matter the method this painting is painted or the scene of this painting also have strong relation of France. By the way, the paintings you post are beautiful. And I like the painting of Renoir, Girl at the Piano very much."

By "reading" the art selections by the French, the Taiwanese students found shared meanings and values that transcend cultural boundaries:

"Thank you for showing us these paintings. All of them are colorful and meaningful. Although I am not an art genius, I like to appreciate pictures about the people's daily life. I think it is a good way to understand more about other country's culture directly. It just likes a short story about the people in that country. The viewer can understand easily instead of asking too much or searching for much

information. By the way, I like the forth painting best. There are many people dancing and drinking happily. When I see this painting, I can experience the atmosphere of delight. I even want to join them as soon as possible"

Creative seminar. The students worked in group to build a prototype to be used in a kitchen and then presented the object to the class using a PPT presentation. After the in-class PPT presentation, then the students presented their creations to the telecollaboration partners via Videoconferencing. Due to scheduling and technical difficulties, only the Taiwanese students had the opportunity to present their creative objects to the French students. The French students were very impressed by the creativity that the Taiwanese students had demonstrated. More importantly, the real-time, "face-to-face" contact made the intercultural communication real and exciting. The French students became immensely interested in making real contacts with the Taiwanese students; they decided to pay a visit to them. They immediately constructed a group Facebook so they could communicate with the Taiwanese students without the monitoring of their instructors.

Facebook and "real" exchanges

The construction of a group Facebook for the telecollaboration was a surprise to the instructors/researchers. After the creativity seminar videoconference, the French students initiated a group Facebook for the purpose to communicate with Taiwanese students and to arrange exchanges.

The first group Facebook postings were mostly by French students for them to share information about what to prepare for their trip to Taiwan and the hosting plans for the Taiwanese students who were going to Paris. A few weeks later, the Taiwanese students introduced themselves and joined the Facebook discussions. The language for the postings became mostly English. After arriving in Paris, the Taiwanese students then invited all their classmates to become members of the group Facebook and used it to post their thoughts and experience in Paris. The postings continued after they returned to Taiwan. The group Facebook was then used by the Taiwanese students to communicate among themselves to plan the itinerary for the French students. The language was mostly in Chinese. The Taiwanese students later switched to writing in English after finalizing the itinerary to inform their French partners. They continued to use the group Facebook to keep the French students posted of the progress of their hosting plans and details. After the French students arrived in Taiwan, the group Facebook was a very important venue for them to update one another on changes of plans, give warnings to problems that would occur, forecast surprises and interesting arrangements, and express thoughts and feelings, etc. Interestingly, some simple French was interjected in the Taiwanese students' postings. After the visits were over, the group Facebook continues to be a portal for the two

sides to share and exchange thoughts and intimate feelings. In addition to text, they also share with one another web links, videos, and graphs. English, Chinese, and French are now all used in their postings.

The following was posted when a French student was found to have contracted measles and had to be quarantined in a hospital in Taiwan. His friends, after returning to Paris, wanted to know if he was on his way back to France or still in a hospital. We can see from the postings that the students had no difficulty communicating in English. The humor in their exchanges demonstrated closeness among them. Via Facebook, they could communicate at any time and any place they desire, even in class!

French student A: *Hi everyone, do you know which plane Sebastien take/took? Thanks a lot! Which company? Kiss :X*

Taiwanese student A: *Yeah~ he is very healthy now!!!*

French student A: *Liars!*

French student B: *He is here with us in class !!! :)*

Taiwanese student B: *do not facebook in classXDDDDDD*

French student C: *we love facebook in class!♥*

Taiwanese student B: *facebook is a more deadly disease then measles!*

Although the visits had completed months ago, the students still post messages on the group Facebook from time to time to openly show their affection toward each other and to maintain their intercultural friendship. The communication was free from cultural boundaries and the affection genuine.

French student: *I still miss all of you like crazy! Do you have Chinese medicine for that? Because I need to be cured urgently :p*

Taiwanese student: *Here is a prescription from Dr. Helen: put the picture of us under your pillow, then you can see us in your dream! XD (just for fun~) *I miss all of you!!!*

French student: *ok I'll take your kisses and of course French medicine would be kisses too but real ones ahahah !! Helen you really could be a doctor! I will try the picture under the pillow but I'm afraid I may cry every night :D*

Taiwanese student: *No no no~ we will laugh together!! only the time you wake up we will cry.*

The visit even prompted the interest of learning Chinese in some French students. Some of them are now actively looking for opportunities to come back to Taiwan for their Taiwanese friends and learning their language and culture:

FR: 我要回來看你們所有的人!

TW: OMG!! Its Chinese!!! I'm sure that you can become a Taiwanese!! And if you don't mind, you also can bring me back to Paris~~~ XD

FR: Well, it's more Google Translate ... :D ^^ But one day, I hope I'll be able to say and write that by myself...

I'll bring you back too. ;)

TW: 中文真好!!

FR: 謝謝!

TW: 大家等你回來!

FR: 我们会来的

According to Wenger (2007), communities of practice are formed by people who engage in a process of collective learning in a shared domain of human endeavor. The members of the community share a concern or a passion for something they do and learn how to do it better as they interact regularly. As human beings we are constantly engaged in the pursuit of enterprises of all kinds, from ensuring our physical need to seeking the most profound pleasure. When defining these enterprises and engaging in the pursuits, we interact with each other and with the world. During the interaction processes, we learn together and the collective learning results in communities of practice. A review of the group Facebook postings shows that a full-fledged community of practice as described by Wenger has been formed by the participating students.

Although the students started virtual contacts with the other side while working on the different tasks assigned by their instructors/researchers, the forming of a community of practice was not until the group Facebook was initiated. The group Facebook commemorated collective buildings of events, communications, celebrations, and membership. Planning the visit itinerary and hosting their partners was a shared domain for the students to engage in intercultural learning. Through the process, not only were membership formed but also friendship. The exchanges have become a shared experience and an intercultural practice for all of the students. The group Facebook was instrumental in cultivating a sense of belonging within the various interconnected levels of the intercultural learning community

PEDAGOGOCAL IMPLICATIONS

A telecollaborative project between Taiwan and France was launched to enrich the participating students' intercultural experience and communicative competence. Various online activities were designed for the students to encourage social interactions and engagements for authentic use of the target language. All of the activities helped to foster the students' intercultural competence and communication

skills but to different degrees. However, among the different means of telecommunication tools, social networking played a key role in the formation of a community of practice. The outcomes of this telecollaborative project suggest pedagogical implications.

Changing technologies

Nowadays a plethora of synchronous and asynchronous Internet-mediated communication tools (e.g., email, instant messaging, blogs, wikis, forums, social networking sites, etc.) are available for teachers and students to implement telecollaborative projects. These tools have revolutionized the communication process by reducing time and distance as communication barriers. These tools are not neutral media; rather they are sensitive to cultural and age preferences (Thorne, 2003). Social networking tools such as Facebook, the most popular Internet-mediated communication tool and reported an inseparable part of the Net Generation students' life (Godwin-Jones, 2010; Tapscott, 2009), have not been widely used in foreign language classrooms. Despite suggestions from researchers and scholars that their uses would fit the thought patterns and new socialization habits of the new generation of students, we still know very little about how to rein the power of the social networking to foster intercultural competence. In our project, Facebook was not one of the choices selected by the instructors; nevertheless, the student-constructed group Facebook has become a social context of a community of practice for all of the participating students. This positive experience not only supports the optimistic outlook envisioned by researchers but also points to a new approach for future design and implementation of multimodal interactions for language learners.

Changing learning and learners

A recurring theme emerged from the analysis of student interactions mediated by the group Facebook was student autonomy. The students initiated the construction of the group Facebook and took charge of the entire exchange and intercultural learning process. This self-directed learning context was an extension to the classroom environment and an interactive community where collective reflection, immediacy, and interaction were encouraged. The social networking community created by the students allowed its members to express themselves, to interact with and learn from other members, and to be autonomous learners and problem-solvers. The members engaged in targeted performance without the intervention from instructors and came out of this experience more confident, interculturally sensitive, and open-minded than before.

An important idea to grasp here is then the extent to which classroom teachers should let go of its authority in their students' learning. Also, a further key element to

consider is the need to extend learning contexts to outside of classroom settings since learning is ubiquitous and can take many forms in the information technology age. These are fascinating areas for exploration and, to some significant extent, take language educators in a completely different direction to the dominant pressure towards accreditation and formalization.

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Conference Papers

The Effects of an On-line Syntactic Analysis Strategy Instruction on University Students' Reading Comprehension of English Science Texts

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Abstract

This paper presents the effect of an on-line reading strategy instruction based on Cumulative Sentence Analysis (CSA) to enhance engineering students' reading comprehension of science texts. Reading is the core ability to learn, make decisions and solve problems. In this increasingly knowledge-driven society, few would deny that reading is essential for academic, economic and social success. Among the components of reading comprehension, syntactic knowledge has been identified as an important element. The literature review on reading research shows that basic decoding, higher-order syntactic and text construction skills develop simultaneously and interactively, which indicates that reading instruction should integrate higher-order reading strategies, regardless of students' proficiency of basic decoding skills. The increasing awareness of the contributions of syntactic knowledge for successful comprehension has urged for more substantial and systematic investigations of higher-order reading activities. Although many researchers have proved strategy instruction as an effective approach to enhance L2 reading comprehension, a strategy instruction integrating sentence analysis has been rarely found. It is therefore of particular interest to investigate whether a strategy instruction supporting students' syntactic knowledge may facilitate their English reading comprehension. The participants in the experimental group of the present study were 170 engineering students. The on-line CSA-based instruction offers exercises with various syntactic patterns from authentic textbook materials for students to analyze stepwise. The comparison of the pretest indicated no difference between the experimental and control group before the reading course. The results showed that the system can enhance the students' reading comprehension in that the experimental group significantly outperformed the control group in the posttest. Significant difference was also found between the pretest and posttest of the experimental group. The results demonstrate that the CSA instruction successfully improves students' comprehension in English reading by enhancing their sentence analysis ability. Pedagogical implications are briefly discussed based on the findings of this study.

Keywords: cumulative sentence analysis instruction, reading comprehension, English science texts

INTRODUCTION

Syntactic knowledge is one essential component of reading process. Few would deny the contribution of syntactic knowledge to reading comprehension, no matter in L1 or L2. On the investigation of reading, Berman (1984) has conducted one research related to syntactic knowledge and reading comprehension. Later, Urquhardt and Weir (1998) appealed to make emphasis on grammar in reading research, since it has been ignored for a long time and they stated that it was an interesting and potential direction for researches. Alderson (2000) emphasized specifically on the knowledge of specific effect of syntactic structure or processing ability on second language reading comprehension, stating that syntactic parsing was a kind of essential ability as a correct structural ability on comprehending texts. Shiotsu and Weir (2007) also verified that syntactic knowledge helped readers to reach higher achievement than vocabulary knowledge in reading comprehension test.

Another track of evidence concerning the relevant contribution of syntactic knowledge to reading came from the difference between oral and reading performance in the first language among children. Scott (2009) observed that there was a large linguistic heterogeneity between language comprehension and production of children. Indeed, not all of the children had the same sources of reading difficulty; however, it was obvious that if children had difficulty with understanding sentences and making sentences, they would encounter more difficulties with reading comprehension than their peers.

It can be observed that many students learning a foreign language had problems with reading at syntactic levels. If students can not distinguish which the subject, main verb or object are, the accumulation of these problems may cause the mistakes of paragraph understanding. Therefore, the present study plans to develop instruction of English reading strategy and establish patterns of syntactic analysis of detecting error types based on the syntactic processing of reading process. The contribution of this study can assist researchers or educators to identify in what situation students made mistakes most in order to propose useful solutions for students.

LITERATURE REVIEW

Syntactic Knowledge and Reading Comprehension

In addition to the importance of reading strategy instruction on reading comprehension, syntactic knowledge plays an essential role while learners encounter difficulties during the reading process of analyzing sentence structure. Since syntactic knowledge can be applied on reading comprehension, it has become a popular issue for more researchers to investigate. Not only for dealing with comprehension by adopting low-level ability, many scholars have also emphasized the processing ability of high level (NRP, 2000; Oakhill, Cain & Bryant, 2003; Paris & Paris, 2003; Rapp, van den

Broek, McMaster, Kendeou & Espin, 2007; Snow, 2002; Van den Broek, Kendeou, Kremer, Lynch, Butler, White, & White, 2005). The processing ability of high level reading comprehension includes syntactic parsing, discourse markedness, and the analysis of context structure which were described by Koda (2007), but also other factors involving the combination of prior knowledge and the representation of the sequential knowledge which was established between memory and context information (Rapp, et al., 2007).

According to Koda (2007), syntactic processing means that the vocabulary information would be integrated into a language chunk, such as phrases or clauses, and the process of the combination, or so called syntactic parsing, would be operated by three assumptions. First, the structure of syntactic knowledge will be developed in terms of each individual's biology clock. Second, because the syntactic knowledge is set in advance, there is no relationship between the complexity of syntactic structure and the acquisition. Third, most language systems are established before receiving formal education, applied in the first language. To sum up, although syntactic knowledge is necessary to sentence comprehension, it plays secondary role in first language comprehension, excluded from second language acquisition. Therefore, foreign language learners should learn how to combine the phrase in the target language and how to assign case during syntactic parsing. According to Nagy, McClure and Mir (1997), the finding shows that there is a significant contribution of syntactic knowledge to reading performance of learners of second language acquisition.

Most exploration on the processing of syntactic knowledge has been found on priming investigation research (Bock & Griffin, 2000; Chang, Dell & Bock, 2006; Potter & Lombardi, 1998; Savage, Lieven, Theakston & Tomasello, 2006; Smith & Wheeldon, 2001). Although most of the priming investigation focused more on language production than language comprehension, more and more scholars proposed that structural priming could increase the comprehension of syntactic structure during the process of language comprehension (Pickering & Ferreira, 2008). There are several questions to be answered. Is the representation of syntactic structure mono-level or multi-level while reading? Is the syntactic structure represented in terms of parts of speech or thematic roles? Or do they exist simultaneously? Furthermore, what is the relationship between syntactic structure and meaning? Is the relation of abstract syntax and vocabulary represented separately or coped with at the same time? The reason why the priming investigation has been emphasized was because some scholars stated that learning of implicit knowledge could be testified through structured priming (Bock & Griffin, 2000; Bock, Dell, Chang, & Onishi, 2008; Chang, Dell, Bock, & Griffin, 2000; Savage, et al., 2006). Pickering & Ferreira (2008) stressed that if learners want to produce or comprehend language, they need to learn various language structure and the way of representation to map to another framework, so does the implicit learning of syntactic knowledge. Recently, further findings showed that structural priming provided

a method to test the representation on syntactic structure used by bilingual learners and the process of processing. Papadopoulou and Clahsen (2003) noted that there was a significant difference between the processing strategy of using Greek as the second language learning and using Greek as the mother tongue. Besides, bilingual learners may use totally different systems to represent different languages. For example, bilingual learners may possess more procedural knowledge about syntax in the first language, but may possess more descriptive knowledge in the second language (Ullman, 2001). On the other hand, they may own the same knowledge in two languages but store them in different locations.

Using the sharing system to show syntactic structure in various languages by bilingual users can have economical effect, and bilingual users can use the knowledge of the first language to support the performance of the second language as well. On the contrary, separated system could avoid the confusion of language learning, and skilled bilingual users could have higher probability to share language systems. It could be realized which structures could be represented in the same way in different languages via priming investigation, providing evidences for degree of grammar sharing among languages.

Cain and Oakhill (2007) verified that syntactic knowledge processing was one of the reasons causing difficulty on reading comprehension, separating into syntactic knowledge and syntactic awareness. Syntactic knowledge is a kind of implicit knowledge, which means learners use implicit knowledge to understand sentences subconsciously; however, syntactic awareness is explicit and meta, which means that learners detect and correct syntactic mistakes via this knowledge. It was found that most investigations were tested implicit knowledge, but the strongest part related to reading was explicit knowledge. Therefore, it was not suitable to impute the monism of syntactic knowledge as the main cause, because syntactic knowledge had diversity by itself.

The Application of On-Line Cumulative Syntactic Analysis (CSA) Instruction

Since syntactic knowledge is a core part during the process of reading comprehension, and in order to improve students' ability of syntactic analysis, establishing a system to reduce students' automatic reading process could avoid the breach of reading to enhance their reading comprehension. In this concern, Chang's (2007) Cumulative Syntactic Analysis (CSA) is a strategy which can be applied to reading comprehension, and students' process of analyzing syntax can be recorded and simplified by the automatic system. The procedure of CSA was as follows.

1. Identify finite verbs/ key words
2. Divide clauses
3. Find subject and main verb in each clause

4. Add words step by step
5. Combine the order of words and translate the sentence

Although there have been numerous research related to teaching technology to enhance students' reading and writing ability, almost no finding was shown the strategic teaching designed for students by syntactic knowledge. Two research questions are raised in the current study:

1. What is the effect of the on-line syntactic analysis strategy instruction on EFL learners' reading comprehension?
2. What is the relationship between syntactic analysis ability and EFL reading comprehension?

METHOD

Subjects

The subjects of the current study involved freshmen taking the course of English for Science and Technology and General English. There were 170 students involved in the experimental group, and 80 students were included in the control group. The students in the experimental group received the curriculum of English for Science and Technology, using computer lab as learning environment in combination with the on-line course management system of CSA. The students in the control group were given lessons of General English via conventional language teaching in traditional classrooms, using paper as teaching material. Both of the two groups received lectures two hours per week, summing up 14 weeks.

Materials

CSA instruction

The teaching approach adopted by the experimental group is the strategic instruction of Cumulative Syntactic Analysis (CSA), designed by Chang (2007). In the CSA system, students only need to click buttons to process each step except step 6. The clicked words will turn into different colors. Students can check the correct answers provided in the system. The reading materials were adapted from "Absolute C++" (Savitch, 2006). The students have received explicit CSA on-line reading instruction. The six steps of the CSA Instruction are described below:

1. Identify finite verbs: Click on the finite verb(s) of the sentence. The chosen correct finite verbs will turn red, and the chosen correct key words will turn green. The number of finite verbs and key words will be written in the brackets after each sentence.
2. Identify key words (such as relative pronouns or conjunctions, only in non-simple sentences). There is no key word in simple sentences. However, it should be noted

that this step would be separated into two steps during the curriculum instruction and the CSA on-line test; step one is to identify finite verbs, and step two is to find key words.

3. Divide clauses (only in non-simple sentences): Click different clauses in non-simple sentences. The number of the clauses will be written in the brackets.

4. Find subject and main verb in each clause: Each set of subject and verb will be shown in different colors. The number of the words which should be chosen will be represented in the brackets after each sentence.

5. Add words step by step: Click words to analyze the steps of each sentence.

6. Combine the order of words and translate the sentence: Translate sentences via each step.

The content of the material was uploaded on the website: http://freefall.csie.isu.edu.tw/~est09/csa2/6p/pset1.htm. Based on the steps of CSA, students practiced these exercises after the teacher provided instruction by using examples.

Reading Comprehension Test

As for the evaluation for teaching effect, pretest and posttest were designed for quantitative data to compare scores between experimental group and control group. Pretest and posttest adopted the same types of questions. The evaluation of teaching effect would emphasize reading comprehension in order to value significant improvement via reading strategy in experimental curriculum. Reading comprehension test would include two articles containing around 500 words related to technology English, and there were 10 questions for each article. The definitions of vocabulary words were provided by the researchers to assist students to realize the meaning of the words. The main purpose was to test whether students from the experimental group and control group have significant difference of reading comprehension between pretest and posttest.

On-line CSA test

In order to examine students' performance after receiving the current curriculum, the researchers asked the students in the experimental group to take the on-line test. 21 multiple-choice sentences, meaning 126 questions because of six steps in each sentence, were selected randomly by the system so as to be answered by each student. In addition, an automatic on-line system was constructed to evaluate students' performance on CSA. Therefore, during the implementation of the experimental curriculum, the researcher compiled CSA question bank in order to examine students' error types. The error types were identified from the mistakes made by the students who took the course of "English for science and technology" in the previous semester.

Procedure

The pretest was conducted for the experimental group and control groups during the first week of the instruction. Then, the experimental group started to receive CSA training for 14 weeks. After the instruction, the experimental group was invited to have a CSA on-line test to evaluate their learning outcome. Furthermore, the posttest was used to evaluate the learning effect between two groups. Through collecting the data assembled in the previous semester, the researcher could use the records of mistakes to create questions in order to implement on the course website.

RESULTS

Reading Comprehension Performance

First, an independent samples T test is performed to examine significant differences of students' performance on reading comprehension in different tests between the experimental group and the control group. The statistical results in Table 1 indicate that there is a significant difference between the experimental group and the control group in the posttest ($p = 0.002$), but not in the pretest ($p = 0.197$). It shows that students have differences on reading performance after receiving the on-line Cumulative Syntactic Analysis (CSA) strategy instruction.

Table 1

Independent Samples T Test between the Pretest and the Posttest

	N		Mean		SD		F	t	Sig. (2-tailed)
	Ex.	Con.	Ex.	Con.	Ex.	Con.			
Pretest	171	84	56.61	53.45	18.11	18.69	0.09	1.29	0.197
Posttest	169	75	63.73	56.93	14.42	18.94	9.34	3.07	0.002*

Note: *= $p < .05$. Ex.= Experimental group, Con.= Control group.

In addition to the independent samples T test, a paired-sample T test is performed to analyze students' performance on reading comprehension in different groups between the pretest and the posttest. The statistical results in Table 2 reveal that there is a significant difference in the experimental group ($p = 0.000$), but not in the control group ($p = 0.463$).

Table 2

Paired-Sample T Test between the Pretest and the Posttest in the Control Group and the Experimental Group

		Paired Differences						t	Sig. (2-tailed)
		No.	Mean	Std Deviation	Std Error Mean	95% Confidence Interval of the Difference			
						Lower	Upper		
Pretest - Posttest	Con.	69	-1.67	18.76	2.26	-6.17	-2.84	-0.74	0.463
	Ex.	165	-7.12	15.40	1.20	-9.49	-4.75	-5.94	0.000**

Note: **p =.000. Ex.= Experimental group, Con.= Control group.

Moreover, highly significant difference of the experimental group between the pretest and the posttest indicates that students had made considerable progress after the instruction of the on-line Cumulative Syntactic Analysis (CSA) strategy.

Syntactic Analysis Ability and Reading Comprehension

In order to investigate the relationship between the six steps in CSA on-line test and the posttest, the mean and standard deviation of students' accurate rate are computed. Table 3 shows the means and standard deviations for the accurate rate of the 6 steps in CSA on-line test, noting that there are 21 questions in each step. Based on the analysis, students got the highest scores in step 2 (M = 14.79, SD = 5.33), which means that they had better understanding of manipulating to find key words in non-simple sentences, followed by step 1- identify finite verbs (M = 14.38, SD = 4.98), step 4- find subject and main verb in each clause (M = 11.43, SD = 5.51), step 3- divide clauses (M = 10.88, SD = 4.97), and step 5- add words step by step (M = 9.50, SD = 5.38). However, the lowest rate of accuracy among the six steps is step 6 (M = 7.72, SD = 4.15), indicating that students did have difficulties when they were asked to combine the order of words and translate those sentences.

Table 3

Descriptive Statistics for the Accuracy of the Six Steps in CSA On-Line Test

	Mean (Percentage)	Standard Deviation
Step 1- identify finite verbs	14.38 (68%)	4.98
Step 2- find key words	14.79 (70%)	5.33
Step 3- divide clauses	10.88 (52 %)	4.97
Step 4- find subject and main verb in each clause	11.43 (54%)	5.51

Step 5- add words step by step	9.50 (45%)	5.38
Step 6- combine the order of words and translate the sentence	7.72 (37%)	4.15

After presenting the overall results for each step, Pearson correlation is conducted to analyze the relationship between the posttest and the six steps in CSA on-line test (Table 4). The results indicate that each step has highly correlation with each step from step one to step six (p =0.000). However, the relationship between the posttest and the six steps does not all have a significant correlation; for instance, the significant correlation is only between the posttest and step 5 (p =0.002), step 6 (p =0.002), the total score (p =0.021) and step 3 (p =0.039). Therefore, the posttest has correlation with the total score in CSA on-line test, instead of each step.

In the present study, the sentences in CSA on-line test were classified into seven patterns for researchers to do further investigation: simple sentences, compound sentences, complex sentences, compound-complex sentences, relative clauses-subject modifying, relative clauses-object modifying, and noun clause as the subject. Mean and standard deviation are calculated to analyze the relationship between the seven patterns in CSA on-line test and the posttest.

Table 4

Correlations between the Posttest and Six Steps

	Posttest vs. six steps				
	MS	F	Sig.	*p*	R S.
Step 1	470.009	2.511	.115	.131	.017
Step 2	143.823	.759	.385	.072	.005
Step 3	803.925	4.348	.039*	.171	.029
Step 4	524.813	2.809	.096	.138	.019
Step 5	1698.141	9.505	.002**	.249	.062
Step 6	1784.358	10.021	.002**	.255	.065
Total	997.069	5.433	.021*	.191	.036

Note: MS = Mean Square; Sig. = Significant (2-tailed); *p* = Pearson correlation; R S. = R Square; ** Correlation is significant at the 0.01 level (2-tailed); * Correlation is significant at the 0.05 level (2-tailed).

Table 5 shows the ratio of errors based on the CSA on-line test in each pattern of sentences. Students got the lowest error rate in pattern 1 (35%), which was about simple sentence, followed by pattern 3 (37%), pattern 2 (43%), pattern 6 (44%), pattern 5 (45%), and pattern 7 (46%); however, students got the highest error rate in pattern 4 (48%), meaning that they made more mistakes in analyzing compound-complex sentences.

Table 5

The Ratio of Errors in Each Pattern of Sentences

	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	Pattern 6	Pattern 7	Mean (step)
Step 1	14%	22%	23%	25%	39%	33%	43%	28%
Step 2	22%	33%	17%	40%	27%	22%	20%	26%
Step 3	28%	38%	35%	54%	59%	56%	50%	46%
Step 4	36%	49%	38%	50%	42%	38%	46%	43%
Step 5	52%	54%	56%	53%	43%	52%	56%	52%
Step 6	59%	64%	56%	66%	60%	63%	63%	62%
Mean (pattern)	35%	43%	38%	48%	45%	44%	46%	43%
SD	17.46	15.25	16.26	14.01	12.60	15.56	14.76	13.89

Note: Pattern 1- simple sentence, Pattern 2- compound sentence, Pattern 3- complex sentence, Pattern 4- compound-complex sentence, Pattern 5- relative clause (subject-modifying), Pattern 6- relative clause (object-modifying), Pattern 7- noun clause.

Besides, further information could be obtained in the error rates of each step in each pattern. Students had fewer mistakes in step 1- identifying finite verbs, when it came to pattern 1, pattern 2, and pattern 4; nevertheless, when the focus was in pattern 3, pattern 5, pattern 6, and pattern 7, the lowest error rate was in step 2- finding key words. It is obvious that step 6 which requires the translation of the sentences is the most difficult step for students to perform, thus it obtained the highest error rate among all the patterns.

Furthermore, Pearson correlation analysis was used to investigate the relationship between the posttest and the seven patterns in CSA on-line test (Table 6). The results indicate that each pattern was highly correlated with each pattern from pattern one to pattern seven (p =0.000). Nevertheless, the results indicate that the posttest only has significant correlation with pattern 6 (p =0.006), pattern 4 (p =0.012), the total score (p =0.021), pattern 2 (p =0.034), and pattern 7 (p =0.040); among all of the patterns, the sentence pattern of relative clause (object-modifying) gets the highest correlation with the posttest. Therefore, based on the results, the posttest does not have correlation with each pattern.

Table 6

Correlations between the Posttest and Seven Patterns

	Post test				
	MS	F	Sig.	p.	R.S.
Pattern 1	678.310	3.652	0.058	0.157	0.025
Pattern 2	847.830	4.594	0.034*	0.176	0.031
Pattern 3	338.646	1.800	0.182	0.111	0.012
Pattern 4	1187.835	6.519	0.012*	0.208	0.043
Pattern 5	604.489	3.245	0.074	0.148	0.022
Pattern 6	1401.583	7.755	0.006**	0.226	0.051
Pattern 7	793.084	4.288	0.040*	0.170	0.029
Total	997.069	5.433	0.021*	0.191	0.036

Note: P.= Pearson correlation; S.= Significant (2-tailed); ** Correlation is significant at the 0.01 level (2-tailed); * Correlation is significant at the 0.05 level (2-tailed).

DISCUSSION AND CONCLUSION

The effects of on-line learning in the present study play an important role during the process of reading comprehension. Through the CSA reading system, learners can work with the on-line exercises which are provided by the instructor when they are available anytime. Besides, since on-line learning system is not like traditional teaching curriculum, learners can enhance their learning motivation by means of multimedia materials to reduce monotonous and dull sensations. Moreover, the results has shown that the on-line CSA reading system provides a useful platform for learners to improve their reading comprehension via analyzing sentences step by step, assisting learners to gain better syntactic analytic ability of deconstructing sentences.

The findings of the study indicate several pedagogical implications for teachers. Firstly, the experimental group obtained significant difference in comparison with the control group, which means that students can achieve better learning effect after receiving the Cumulative Syntactic Analysis strategic instruction. Besides, owing to the system of on-line learning, students can practice exercises anytime to increase their familiarity with the sentential structures in order to master their analytic ability. Therefore, it is suggested that teachers can adopt the strategic teaching of Cumulative Syntactic Analysis to teach students so as to assist them to get better reading comprehension. In addition, on-line learning has proved to be an efficient solution to improve learners' English reading comprehension, for students can have more opportunities to practice those exercises and the design of the web-site can help students easily understand how to analyze sentences and manipulate the system.

Secondly, as the accuracy of the six steps is shown in Table 3, teachers could know which step is difficult for students to figure out what their problems are in order to strengthen the practice or enhance students' syntactic knowledge. By means of comparing these six steps, the most difficult step is to translate sentences step by step, which means that teachers can help students build more stable syntactic knowledge. For instance, basic grammatical concept is necessary for students to review, and more sentences should be provided for students to practice their translation.

Thirdly, the ratio of error in each pattern is presented in Table 5, showing that in which pattern students make mistakes. Teachers can provide specific sentential patterns for students do practice. For example, pattern four is the most difficult pattern for students to comprehend the structure; therefore, compound-complex sentences should be explained more clearly by teachers and practiced more by students to increase students' conception when they come across this pattern of sentences.

The present study aimed at investigating the effect of the on-line Cumulative Syntactic Analysis (CSA) strategy instruction on EFL learners. Although considerable contribution can be offered for teachers and students as a reference, several limitations are found in the study.

Firstly, the population of the control group was not as equal as the experimental group. Due to time limitation and curriculum design, there were not enough classes to get involved as the control group in the present study. Secondly, the sample selection was limited at one University in southern Taiwan. The results could hardly be generalized to other schools, areas or countries. Thirdly, the on-line system of Cumulative Syntactic Analysis needs to be installed and set question banks by manpower, restricted only in the subject of English for Science and Technology at the present time. It would take lots of time to upload the content and design exercises and tests, depending on different subjects. Fourthly, technology has been flourished nowadays, but it does not mean that there are enough computerized facilities in each school. Besides, the on-line strategy instruction of Cumulative Syntactic Analysis may not fit any subject, since there is no evidence to prove it. Finally, owing to the innovative strategy instruction, there are not enough references for researchers to survey. Little proof of the previous studies related to the current research could be searched.

Some suggestions are proposed for future research. First, the number of control group should be increased as equally as the experimental group. Researchers could try to find more students in the control group in order to make balance with the experimental group to increase the validity in the study. Second, the sample selection should be enlarged to other regions, such as middle, northern or eastern Taiwan. By means of comparing various districts, the results could be generalized to more areas to manifest the reliability. Third, computerized design should be developed to assist the current on-line system so as to decrease the manipulation of manpower. Researchers or teachers could reduce plenty of time to upload the exercises or make questions via

computerized automatic device. Finally, it is suggested that the on-line system of Cumulative Syntactic Analysis should be applied to other subjects to examine the effect of implementation. The result could be provided as a reference for other researchers or teachers to investigate, and there would be more and more references which could provide evidence for the effect of the on-line system of Cumulative Syntactic Analysis.

Based on the results of this study, three major findings are summarized. Firstly, this study confirms the strong relationship between syntactic knowledge and reading comprehension. There was a significant difference between the pretest and posttest, which indicates that learners can reach better reading comprehension if they realize how to deal with complicated steps or sentence patterns. Secondly, there was a significant effect between on-line learning and reading comprehension based on the research. Learners could understand more easily how to manipulate the strategic teaching of Cumulative Syntactic Analysis, increasing their motivation to learn English. Moreover, on-line learning provides more flexible ways for learners to practice exercises anytime and anywhere.

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A Case Study of Teacher's and Students' Perspectives on Computer Assisted Language Learning—A Qualitative Inquiry

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Abstract

The purpose of the study was to explore (a) teacher's beliefs and course design of English classes with computer assisted instruction, and (b) students' perspectives on teachers' instruction and the application of CALL. One English teacher and thirty-seven students from the "Multimedia English" course participated in this study. Through interviews and classroom observations, the researcher came to understand the context of EFL classes with the aid of computer technology and how both the teacher and the students describe and explain their perspectives towards CALL.

The major findings of the study include eight statements, which were organized and concluded from the comparison of the teacher's and students' perspectives. First, an EFL class with the aid of computer technology creates an innovative learning condition for the students. Second, the EFL teacher expects to achieve learners' autonomous learning and lifelong learning via Internet resources. Third, the teacher's course design and the special features of CALL enhance students' language skills and computer literacy. Fourth, the teacher has to advance her knowledge about the current computer technology and reflect upon students' feedback so as to modify her teaching practice or to restructure her course design. Fifth, teacher's direct instruction and the social interaction are essential for language learning classes. Sixth, the integration of fun activities and the "learning by playing" concept stimulate students' learning motivation. Seventh, team work and peer competition enhance students' learning outcome. Eighth, students' learning attitude toward the computer technology is the critical element of the effectiveness of CALL.

Keywords: Computer assisted language learning, Beliefs and perspectives

INTRODUCTION

Since the integration of computer technology with that of language teaching and learning became a trend, language teachers and researchers have conducted numerous studies in CALL (cf., Chapelle & Jamieson, 1996; Lee, 2004; Osuma & Meskill, 1998; Warschauer, 1999; Warschauer, 2000). In this vein, some of the studies focused on the effect of the application of online courses, the Internet or course websites (cf., Chang& Yeh, 2002; Hsu & Chen, 2005; Huang, 2002; Liou, 2002; Osuma & Meskill,

1998), while other studies worked on other computer technologies (cf., Kramsch & Andersen, 1999;). Despite the fact that the research on CALL in the past twenty years never fell short on introducing the latest hardware and software for language teaching, Only a few studies explored teachers' and students' perspectives on Web-based or Internet-based teaching and learning. (cf., Hsu & Chen, 2005; Lee, 2004; Lin, 2001)

In recent years, educational research has also revealed the powerful influence of teachers' belief on their instructional decisions, such as the lesson planning and the application of their teaching strategies. There were also some studies conducted to explore the influence of EFL teachers' and students' perspectives on their teaching and learning strategies in Taiwan (cf., Chiang, 2003; Huang, 2001; Hung, 1999; Wu, 2002). Some of these studies highlighted teachers' perspectives on language teaching (Chiang, 2003; Wu, 2002), and some of them focused on exploration of students' perspectives on language learning (Fong, 2000; Huang, 2001). Moreover, Wu's (2002) and Chiang's (2003) studies investigated the TVE reading teachers' beliefs, knowledge, and interactive decision making; Chang (2004) probed into TVE teachers' and students' perspectives on English writing instruction.

With the rapid advancement of information technology affecting English teaching and learning (Kim, 2001) and a growing attention to explore teachers' and students' perspectives, inquiries of teachers' and students' perspectives on CALL is vital for understanding the role of CALL in EFL teaching and learning. With the aforementioned premises, this study set out to explore teacher's and students' perspectives on the EFL classes in which computer technology is utilized. In its essence, the study referred to the research design of many studies (cf., Chiang, 2003; Huang, 2001; Hung, 1999; Wu, 2002) and conducted classroom observation, interviews and questionnaires based on the theoretical framework specified by Patton (2002) and Goetz & LeCompte (1984). Expectantly, the findings of the current study would facilitate language teachers with more insightful suggestions for achieving excellence in teaching.

With the intention to understand the application of CALL in language teaching and learning, the purpose of the study was to explore (a) teacher's beliefs and course design in the English class with computer assisted instruction, and (b) students' perspectives on the language teacher's instruction and the application of technology to English classes. This study was guided by the following three questions:

1. What are the language teacher's perspectives on computer assisted language learning?
2. With the aid of the computer technology, how does the language teacher design the instructional activities for EFL classes?
3. What are the students' perspectives on the language teacher's instruction and computer assisted language learning?

LITERATURE REVIEW

In order to research on teachers' belief, course design and the students' perspectives on teachers' instruction in language classes which computer technology is utilized, two areas of related literature are reviewed in this paper. First, the theoretical background of research on computer assisted language learning, including the advantages as well as disadvantages of using CALL, are introduced. Second, the relevant literature on teachers' beliefs and course design for language learning and teaching, and studies of students' perspectives on the teachers' instruction are reviewed.

Theoretical Background of Research on Computer Assisted Language Learning (CALL)

Several different perspectives on the historical background of CALL were previously explored. Levy (1997) described the background of development of CALL from a historical perspective and selected several significant projects in 1960s and 1970s, 1980s, and 1990s to represent the CALL development. The PLATO and TICCIT were the two prominent projects in the 1960s and 1970s. Storyboard and the Athena Language Learning Project (ALLP) represented CALL projects in the 1980s and the International Email Tandem Network, the CAMILLE/*France Inter Active* Project, and the Oral Language Archive (OLA) were for 1990s. Levy aimed to emphasize the insight and thinking in the CALL development with clear description of the trends in language teaching from the 70's through 90's. The following table, titled "The Role of CALL in Structural, Cognitive, and Socio-cognitive Frameworks" presents the shifts of approaches in the development of CALL.

Table 2.1

The Role of Computer in Structural, Cognitive, and Socio-cognitive Frameworks

Role \ Framework	Structural	Cognitive	Socio-cognitive
The principal role of computers	To provide unlimited drill, practice, tutorial explanation, and corrective feedback.	To provide language input and analytical and inferential tasks.	To provide alternative contexts for social interaction; to facilitate access to existing discourse communities and the creation of new ones.

(Warschauer, M. & Kern, R., 2000, p. 7)

Advantages and Limitations of CALL

With the advancement of computer technology, language teaching has come to a new era. The application of computer technology and CALL has become a trend as well as a challenge in language teaching for the language teachers and learners. Undoubtedly, the use of computer in language classrooms has positive effect on students' language learning based on the increasing research findings (cf., Chen, 2004; Chiang & Chiu, 2005; Ho, 2000; Huang, 2002; Lee, 2004; Osuma & Meskill, 1998). The effective CALL can be the combination of independent and collaborative learning; however, it still had its limitations and weaknesses. The most known advantage was that computer assisted language learning programs allow the students to learn autonomously and independently; furthermore, the online learning websites provide the students with opportunity to retrieve more sufficient information. They are able to choose what they want to learn and it is much easier for them to retrieve the useful information with the search engine anytime and anywhere. Additionally, Warschauer & Healey (1998) claimed that languages teachers have more opportunity to offer communicative and interactive CALL with the advent of the Internet technology. Students nowadays can communicate with their teachers and classmates online; in addition, they can interact with other learners around the world with the applications of E-mail, chat rooms, audio-video conferencing, windows live messenger and bulletin board system asynchronously or synchronously. Thus, self-paced learning, increased motivation, learner autonomy enhancement, easier access to authentic target language were regarded as the benefits of the use of Internet in the second or foreign language classrooms (Warschauer, 1996).

Studies indicate that students tend to become not only autonomous learners, but also active knowledge seekers with the aid of computer technology and the Internet. They are able to obtain the authentic materials and decide what to learn and when to learn. In addition, they have the chances to interact with others from different cultures and in virtual communication scenarios. CALL provides them the opportunity to study English individually and collaboratively.

Even though the advantages or benefits of the application of computer technology were recognized in language classrooms, CALL still had its own limitations. Gips, DiMattia, & Gips (2004)) specified four main limitations and disadvantages in CALL. First of all, CALL increased educational costs and impair the equity of education. Second, the advantages of computer technology might be in vain if the teachers do not have enough technical knowledge and the students are not familiar with computer. In other words, teachers and students cannot take advantage of computer technology if they are not familiar with it. Third, the learning functions of current CALL programs are still limited in enhancing speaking skills. Most of the available computer programs mainly emphasized the practice of listening and reading. Fourth, computer technology and learning programs nowadays are not able to interact

with the learners immediately like the face-to-face human communication.

Barriers for the language teachers to use CALL were regarded as the limitations and those barriers were presented in the following categories. They were (a) the increase of educational costs; (b) the availability of computer hardware and software; (c) the lack of computer skills and theoretical knowledge of promoting learning; and (d) the unwillingness of taking the challenge of the computer technology (Lee, 2002). Kennedy (1989) also indicated other disadvantages of the use of CALL, such as the lack of the reliability and validity of online materials, the inappropriate pedagogical design of the learning programs and websites and the technical support for the programs.

Research on the Application of Computer Technology to EFL class in Taiwan

The technology revolution has transformed education and the language teachers in Taiwan were also encouraged to integrate computer technology in their language classes. For most of the teachers, adopting CALL might pose a huge challenge for them; however, it could be a useful tool in their future teaching if they knew how to utilize it. Thus, studies of how to apply computer technology to achieve effective EFL teaching and learning in Taiwan has been proliferating these years. Some researchers and teachers focused on how to construct course websites, design web-based materials and create a virtual EFL language center (Chen, 2001; Chen, 2004; Huang, 2001; Lin, 2001). Some investigated the effectiveness of the applications of course website, web course, online learning resources, online chat, online discussion and some focused on exploring the use of interactive multimedia technology like CD-ROM (Cheng, 2000; Chiu & Chiang, 2005; Ho, 2000; Huang, 2002; Su, 2005).

Being an active researcher in CALL, Chen (2001) deemed that there are few virtual multimedia language centers in Taiwan. He created a virtual language center at Nation Taiwan Ocean University that offered several learning resources and tools for promoting the four skills. In this virtual multimedia language center, students are reported to have strengthened their listening skills by using audio on demand, improved speaking skills through online chat; enhanced reading efficiency with the help of vocabulary analyzer and online bilingual dictionary; and improved writing skills by exploring online concordancer. He believed that the online services provided by the multimedia center support students' learning without the limitation of timing and location. He claimed that the virtual language center may serve to encourage other language teachers and researchers to design more web-based teaching and learning materials. It is concluded that meaningful and interesting resources prevail in language teaching and learning.

In addition to the virtual language center, Chen (2004) developed a web-based reading website which offered authentic readings with the help of vocabulary assessor and online bilingual dictionaries. Teachers were able to assign readings to their classes

and monitor student' progress; in addition, online exercises and reading strategies training course were also provided. More than 500 students registered in this system and students considered this website very useful in enhancing their reading proficiency. However, some students noted that the some words were not found in the online dictionaries. Student users also provided some valuable suggestions for the improvement of this website, such as the request of more interesting stories and fictions and different types of post-reading exercises. Huang (2001) proposed five directions for the Web-based English course design, including: 1. the teacher should be familiar with the characteristics of the World Wide Web environment; 2. follow the standard guidelines and principles in course design and evaluation of the web-based instruction; 3. make sure of the teaching objectives and the web-based content; 4. understand learners' characteristics; and 5. search for the user-friendly and easy-to-use authorized software.

The effectiveness of the applications of online materials and online chat-room were also assessed by some of the researchers. Huang (2002) investigated the potential role of online materials and chat-rooms in promoting the target language's cultural understanding as well as language learning. The participants in that study had to accomplish the online reading tasks and join in the chat-rooms to discuss some topics about the target language culture.   Results of this study showed that students hold positive attitude toward Web-based reading tasks. The findings also demonstrated that more than 60% of the students enjoying using online chat-rooms and they thought the language class became more interesting with the integration of online materials and chat-rooms. The learners believed that they not only built up cultural understanding, improved their English proficiency, developed their competence in reading comprehension, and increased vocabulary size by reading the online materials.   Moreover, all the students in that study conceived that the internet provided them useful information not found in textbooks.   More than 80% of the students regarded the Internet as a useful tool.

Some studies also revealed that computer-assisted language learning program or multi-media technology facilitated young learners' communication and stimulated their motivation (Chiu & Chiang, 2005; Ho, 2000). The application of computer-assisted language learning programs had positive impact on students' oral communication and stimulated their motivation in the experiment of Chiu & Chiang's (2005) study. The use of computer technology in language courses created a more effective and interactive environment because of the various activities, authentic sounds, and appealing images. In addition, Ho (2000) claimed that creating an all-English environment with the multi-media resources and synchronous interactive network communication system is beneficial for children's English acquisition and language development. This environment enhanced children's four skills and they became more autonomous and positive.

However, not all the research revealed the positive impact of using the Internet, World Wide Web and CMC. Cheng's (2000) studied the effectiveness of using Bulletin Board System (BBS) to facilitate English learning and the findings showed that asynchronous online pre-writing discussion achieved students' better organization, vocabulary and language use in writing. However, the utilization of BBS is not as efficient as she expected due to the less frequent use of the class-based bulletin board. Abundant research indicated that how the teachers plan, design and implement the computer technology to language classrooms is more important than the software or hardware per se. Su (2005) introduced and analyzed different kinds of online chat services as he believed that it is very important for English teachers to have better understanding of these systems. If the teachers know more about the features and limitation of different chat systems, they are more likely to apply them to language classrooms successfully.

Teachers' and Students' Beliefs / Perspectives on Language Teaching and Learning

The concept of belief has aroused considerable research interest in education over the years; however, there is a lack of concordance about what the term presents. Researchers applied different terms to represent the concepts they explored in the teaching and learning process, such as belief, perspective, perception, conception, practical knowledge, or implicit theory (Wu, 1999). Despite the researchers used different terms in their studies, their intention to seek to explore teachers' instruction and cognition about language teaching and learning is evident. Teaching was considered a thinking activity and teachers were regarded as people who construct their own particular and feasible theories of teaching (Borg, 2003; Fang, 1996; Richards, 1998). These theories often consisted of implicit personal understandings of teaching and learning which teachers developed through educational and professional experiences in their lives. O'Loughlin (1989) also noted that teachers' core beliefs contained teachers' understanding of pedagogical and child development theories, historical and social foundations of the educational disciplines and so on.

As student-centeredness approach progressed over the years, Kember and Wong (2000) conducted a study titled "Implications for evaluation from a study of students' perceptions of good and poor teaching." The students believe that learning can be placed on a continuum between passive and active learning. Their perspectives of the instructors' beliefs in teaching range between transmissive and non-traditional teaching. The intersections of the representations of beliefs about learning and perceptions of teaching divided the quality of teaching into two sets counter-categories, including active learning vs. passive learning; non-traditional teaching vs. transmissive teaching. The representation of the four categories formed the quadrants and they are examined in turn to reveal how students with active and passive beliefs

in learning conceive quality in transmissive and non-traditional teaching (Kember & Wong 2000, pp. 69-97).

Some studies focused on describing and explaining learners' perspectives on language learning via the computer technology and the Internet. Findings of the research indicate that students considered networked learning different from the traditional classroom environment (Hsu & Chen, 2005; Lee, 2004). The non-native speakers in Lee's (2004) study regarded the networked collaborative interaction with the native speakers as a unique learning condition, for they were able to enhance their language learning in a real-world setting.   In addition, the online exchanges with the native speakers promoted their linguistic and cognitive skills. Over half of the student participants in Hsu & Chen's (2005) study considered online discussion board a good place to discuss ideas and exchange opinions with their classmates. However, some student complained about the extra workload of the utilization of the online discussion board in this course. Some system users suggested the online discussion should be opened to the students for discussions of anything related to English. Chang & Yeh (2002) explored students' perceptions of e-mail usages during online learning. They deemed that the E-mail news project enhanced their writing and reading skills in English. Furthermore, the E-mail discussion activity improved their expressing skills. Moreover, the student participants in Lin's (2000) study stated that browsing web pages enhance their reading skills. In addition, the Internet, browsing and E-mail contributed to their vocabulary growth.

METHOD

With the goal of delving into the teacher's and students' perspectives on CALL, the researcher applied qualitative research methods on the basis of several researchers' theoretical framework and suggestions (cf., Kvale, 1996; Patton, 2002). Patton (2002) claimed that in-depth, open-ended interviews, direct observation and written documents are three kinds of data collection method which lead to the qualitative research findings. Thus, in order to deeply understand the world of the participants' viewpoints and the phenomenon and interaction in the real setting, demographic questionnaire, interviews, and participant observations were essential in the study. In addition, the documents of teacher's and students' online discussion and learners online tasks also offered their contribution in this study. In the following sections, criteria for selecting participants, data collection method, data collection procedures, and data analysis in this study are described.

Selection of Participants

The participants of the study were selected by using the purposive sampling approach. Participants and the settings were carefully selected so as to increase the

variability common. Maykut & Morehouse (1994) noted that "Purposive sampling increases the likelihood that variability common in any social phenomenon will be represented in the data, in contrast to random sampling which tries to achieve variation through the use of random selection and large sample size" (p. 45). Therefore, the researcher has to define the criteria for selecting the participants in order to gather meaningful data from them. Based on the criteria the researcher has formulated, the desired participants are people who are currently teaching and learning English with assistance of computer technology. Those who are willing to share their viewpoints with the researcher in the computer assisted language learning class are the most appropriate ones.

In this study, the "Multimedia English" course was chosen mainly because this class was regarded as the online language learning class admitted and supported by the university. Therefore, this course contains two kinds learning situations; one is onsite learning and the other is the online learning. Classroom practices of the teacher in the Multimedia English course were definitely important in exploring teacher's and students' perspectives; thus, both the onsite and online learning contexts were observed. Furthermore, the recommendations from the chair and other professors of the Department of Applied Foreign Language were also considered valuable during the selection of participants. The cover letter and informed consent statement were also distributed to the recommended teacher so as to understand her willingness and obtain her consent to participate in the study. The teacher is a female, non-native speaker of English. She has been teaching EFL courses for five years. She has been applying computer technology to language classes for three years. Table 3.1 shows her experience in teaching EFL, the length of time she had been teaching with CALL, and her qualification.

Table 3.1
Demographic Data of Teacher Participant

Teacher	Teaching experience (years)	Teaching Experience in EFL with CALL	TESOL Qualification	Number of students in this class
Dr. ***	5	3	Ph.D. in TESOL	37

One instructor and thirty-seven English majors participated in the study and this course is a required one for the juniors. The demographic information questionnaire, cover letter, and consent statement were given to the thirty-seven students. The average age of the students is 21, including seven males and thirty females. According to the teacher's explanation, students' language proficiency is quite homogenous because they all passed the same entrance exam. Based on purposeful

sampling, fifteen students from the teacher participant's class were interviewed. Even though their English proficiency is almost at the same level, their past experiences of language learning with CALL are quite diverse. Table 3-2 showed a succinct demographic information of the fifteen student participants. The last column "Acceptance of using computer" also showed how comfortable they feel about using computer to assist language learning. They self-evaluate their preference of using computer as a learning tool to assist language learning. One point means that they feel very frustrated in using computers to assist language learning and five points mean that they are quite comfortable in using computer as a learning tool.

Table 3.2

Demographic Data of Student Participants

Student	Gender	English learning Experience (years)	Previous English Learning Experience with CALL (years)	Acceptance of using computer (points)
I	F	8	5	4~5
II	M	11	5	3
III	M	5	0	5
IV	F	10	3	3
V	F	8	4~5	4
VI	F	8	1	3
VII	F	10	1	2
VIII	F	9	5	4
IX	F	9	2~3	4
X	F	8	4~5	3
XI	F	10	0	5
XII	M	8	4~5	4.5
XIII	F	10	3~4	3
XIV	F	8	5	3
XV	F	8	3	3

Data Collection

For the purpose of exploring teacher's and students' perspectives towards CALL, classroom observation was implemented, including six onsite classes and twelve online classes based on the teacher participant's syllabus. The researcher has to log on the online course website as often as possible in order to observe the online interaction between the teacher and students. The cover letter, consent statement and the demographic questionnaire for the teacher participant and student participants were distributed in the first class. The first interview for the instructor was conducted at the beginning of the semester and the second one was accomplished at the end of the same semester. The first interview for the students was implemented before midterm and the second one was conducted after final. The researcher made appointments with each participant before the interview to be conducted. In order to enhance the quality and quantity of the interview data from the participants, the interview questions were sent to them in advance. Chinese was the primary language used in the interview and it is okay for the participants to speak English if they feel more comfortable using English. All the interview data was recorded with interviewees' permission to use an MP3 player. Notes were taken during each interview. All the interviews were transcribed by the researcher.

Data Analysis

The researcher first analyzed the field notes taken during the classroom observations, and then categorized the data collected from the questionnaires for students and the interviews with the teacher and students. The researcher followed the content analysis and employed the constant comparative method to analyze the notes and the interview transcripts. In addition, for the purpose of depicting the theoretical model for describing the teacher's belief and students' perspectives, the researcher constantly compared among the students' ideas and viewpoints. Through continuously comparing their perspectives, their divergent and convergent points of view were found in these processes. The constant comparative method is about using explicit coding and analytic procedures to create theory in a more organized way (Glaser and Strauss, 1967).

FINDING AND DISCUSSION

Major Elements Constituting the Teacher Participant's Perspectives on CALL

The first research question aimed to explore the teacher participant's perspectives on computer assisted language learning. In this study, four major elements constituting the teacher participant's perspectives on CALL were concluded from the teacher in the "Multimedia English" class. They were (a) teacher's core belief; (b) challenge for the teacher; (c) students' mindset; and (d) abundant resources. The four elements constituting the teacher participant's perspectives on CALL, together with their themes and sub-categories are portrayed in Table 4.1

Table 4.1

EFL Teacher's Perspectives on CALL in the Multimedia English Class

Elements	Themes	Sub-categories
Teacher's Core Belief	1. Past teaching experience	
	2. Learning theory	● Social interaction
		● Learning community
	3. Teacher's role	● Resource provider
		● Observer
		● Answer provider
		● Problem solver
		● Evaluator
Challenges for the Teacher	1. Time consuming	
	2. Rapid development of computer technology	
	3. Public misconception	
Students' Mindset	1. Learner's role	● Resource provider
		● Active vs. passive
	2. Learning style	
	3. Learning attitude	● Motivation
		● Anxiety
Abundant Resources	1. Well-established websites and modern technology	● Self learning
		● Unlimited learning
		● Lifelong learning
	2. Thinking extension	

Element I: Teacher's Core Belief

The teacher participant in this study revealed that EFL teaching is highly related to teacher's core beliefs. Teacher's core belief would affect the use of computer technology in the Multimedia English class or other EFL classes. The teacher participant believed that merely using the computer does not guarantee true learning and the key is how teachers design their courses. The underlying themes of the teacher's core beliefs are their past teaching experience, the learning theories that teacher advocated, and teacher's different roles.

The teacher participant has taught "Multimedia English" for several years and she realized that computer is not everything and using computer technology is not the only way for learners to achieve high language proficiency. The teacher stated that past

teaching experience affected his viewpoints about computer assisted language learning. She never considered that the facility of the computer lab in where she teaches was so outdated that confined her teaching. In addition, she never assumed that some students dislike all the activities related to computers. The teacher indicated that computer technology has greater influence on the supply of resources for the students than the teaching per se. Moreover, the teacher designed several tasks for the students to discuss with their peers because the teacher believed "social interaction" activities and "learning community" can enhance students' language learning. The teacher noted that she was much like a lecturer in the traditional onsite classes; however, she played several different roles in online classes, such as resource provider, observer, answer provider, problem solver and evaluator.

In sum, the teacher's core belief, past teaching experience and teacher's role affected her perspectives on the EFL classes with the aid of computer technology. In addition, the applications of computer technology in EFL classes vary with the teacher's beliefs.

Element II: Challenge for the Teacher

How to apply computer technology to assist EFL learning is the teacher participant's major concern as well as challenges for her teaching. This element, "challenge for the teacher", consisted of three aspects: (a) time-consuming, (b) rapid development of computer technology, and (c) public misconception.

It took a large amount of time for the teacher to design the tasks and compile the learning files for the students. The teacher stated that preparing the online materials to meet students' interests was very time-consuming. She also noted that it is not easy to teach this "Multimedia English" course, for she had to fully apply computer technology to language classes, not merely considered it an assisted tool. Thus, she thought that teachers should demand themselves to know the latest information about computer technology and they have to keep up with the advance of modern technology, for modern technology is rapidly growing. Public misconception is another major concern for the teacher. The teacher was also challenged by students about their course design with computer assisted instruction. For instance, some student participants thought that teaching online classes is not very difficult. In another words, teacher's professional expertise was questioned.

In this study, the teacher participant is aware of the aforementioned challenges. Being a very busy teacher and oftentimes overwhelmed by the workload, the teacher participant was persistent on making the best of computer technology in her teaching, despite the public misconception about the application of CALL in language classrooms and the rapid development of modern technology.

Element III: Students' Mindset

Students' mindset is another element which affects the teacher's perspectives on computer assisted language learning. The teacher participant noted that students' willingness to utilize computer technology to assist their language learning is more important than everything. The three themes that constitute students' mindset are (a) learners' role; (b) leaning style; and (c) learning attitude.

Some students were active and autonomous learners and they can also be the helpful resource providers in this course. However, based on the interviews with the student participants, some students just wanted get the credits and they would not expand their learning if no tests are to be given. The teacher designed the online tests and required them to go through the learning process. She then found that the limitation of online test is that she was unable to identify who was cheating if one student sent the correct answers to others. The teacher participant also realized that every student has his/her own learning style. Some students who have greater motivation would go for learning via Internet or computer, but some of them brewed anxiety about applying computer to assist language learning. Not all the students benefited greatly by using computer technology to assist their learning. However, the teacher participant still wanted her students to know how to take advantage of these resources and expected them to find out the solution when they run into difficulty.

In conclusion, students' roles, learning style, and learning attitude affected the teacher's perspectives on applying CALL in her English classes. The teacher regarded the anxiety of some students as the challenge of using computer technology to assist language teaching and learning. She found that some students had great anxiety when using computer and they refused to collaborate. Even though most of the student participants were benefited by using computer technology to search for the information they need, students with diverse learning styles that can be profited from this kind of learning situation are still yet to be verified.

Element IV: Abundant Resource

The fourth element that constitutes the teacher participant's perspectives on CALL is "Abundant Resource." The teacher insisted on introducing some useful websites for language learning, though she encountered some difficulties and challenges. She believed that the unlimited learning via Internet can extend students' thinking. The element "Abundant Resource" consisted of two themes: (a) well-established websites and modern technology; and (b) thinking extension.

The teacher regarded computer technology as another alternative for students to enhance their language learning. She considered that the Internet provided abundant resources for language learning and teaching. Students are able to choose what they want to learn and they can learn by themselves. In addition, there are some

well-established websites created based on the language learning theories. Those websites are very useful for teachers and students. The teacher recommended the prospective teachers who planned to integrate computer technology into EFL classes to introduce some well-established websites to their students. The teacher expected that the introduction of the Internet resources and the applications of software can help the students achieve unlimited learning and lifelong learning.

Major Elements Constituting the Teacher Participant's Course Design with the Application of Computer Technology

The second research question designed to explore how the teacher designed the course with the aid of computer technology. In this section, the major elements that constitute the teacher's course design are represented first. They were (a) students' needs; (b) four skill integration; (c) teacher's belief; and (d) modern technology development. The four elements, together with their themes and sub-categories are displayed in Table 4.2

Table 4.2

EFL Teacher's Course Design with the Application of Computer Technology

Elements	Themes	Sub-categories
Students' Needs	1. Students' interests 2. Students' proficiency 3. Students' computer literacy	
Four Skill Integration	1. Online tasks 2. Online tests	● Combination of technology and EFL learning
Teacher's Perspectives	1. Past teaching experience 2. Learning theory	● Social interaction ● Learning community
Development of computer technology	1. Website resources about EFL teaching and learning 2. Platform	

Element I: Students' Needs

The teacher participant claimed that she would modify her course design based on students' reaction and their feedback and she also took students' interest, students'

proficiency, and students' computer literacy into consideration. The teacher participant hoped that students would consider language learning to be interesting. She created various learning files about the applications of software in language learning in order to cater for students' interests. Thus, the students can select which learning file they want to learn online. She also had to consider students' language proficiency and computer literacy in her course design. Even though the students are English majors, some students have better language skills than the others. In addition, not all the English majors have proficient computer skills. Some of them even declared that they are "computer idiots" (meaning incompetent computer users). As for the students who had lower computer literacy, the teacher participant designed some tasks that could be accomplished without any computer skills. In sum, the teacher participant would modify the difficulty level of the tasks according to students' computer and language skills and add or eliminate some tasks or assignments based on students' average level.

Element II: Four Skill Integration

The teacher participant designed all the tasks and activities with different focus, for she wanted to integrate four skills training in this course. In addition, the online task also included the computer skills training. The teacher participant expected the students to enhance their language skills through different kinds of activities. The online tasks and tests were designed to monitor students learning stages. She believed that using online tests is to encourage the students to experience the learning process, not a mean to access students' grades. Moreover, she found that most students would read through the required readings or learning files because there were tests for them. The teacher participant expected them to know these resources of CALL in their future learning or teaching. She wanted to stimulate students' motivation and enhance their English learning; thus, she designed diversified tasks with language skills and computer skills training with the aid of computer technology.

Element III: Teacher's Perspectives

The teacher's perspectives on EFL teaching and computer assisted language learning would affect her course design as well as the role of computer technology in the Multimedia English class or other EFL classes. The teacher's teaching experience and her knowledge in some learning theories would affect her instructional decision making and course design. The teacher participant believed that merely using the computer does not guarantee true learning and the key is how the teacher designs a course. She has tried several textbooks and she found none was entirely suitable for this course. She then began to create her teaching materials suitable for the students. Furthermore, she designed some activities about "online discussion" and "online chat", since she believed that "social interaction" and "learning community" are beneficial to

students' language learning. Moreover, she indicated that computer technology provided considerable resources for the students so that they can learn on their own. The interaction between the teacher's course design and the characteristics of CALL led to students' individual learning and learning from peers.

Element IV: Development of Computer Technology

The application of computer technology to EFL classes would vary with its rapid development. The teacher's course design would be modified since the computer technology drastically developed over time. For example, web-based CALL attracted a growing interest in EFL teaching and learning over these years. Teachers and students nowadays had the opportunity to utilize the resource of the Internet. The teacher participant utilized the websites resources about EFL teaching and learning as well as the platform of E-campus. She introduced some instructional websites and the Internet resources to the students in each task so that the students would acquire the information during the process. She stored the learning files and posted the information on the platform of E-campus. She had to update his knowledge and reflected on her course design due to the advancement of computer technology. The students are able to retrieve the files anytime since the Internet is available for all the students in this university. In addition, they had to upload their assignments online and take the online tests on E-campus. Thus, they can learn at their own pace.

Major Elements Constituting the Student Participants' Perspectives on the Teacher's Instruction and Computer Assisted Language Learning

The third research question intended to probe into the student participants' perspectives on the teacher's instruction and computer assisted language learning. Three major elements constituting the student participants' perspectives on their teacher's instruction and CALL were concluded from the student participants in the Multimedia English class. They were (a) innovative learning situation; (b) student-centered instruction; and (c) integrated learning. The three elements constituting the teacher participant's perspectives on CALL and the teacher's course design and teaching practice, together with their themes and sub-categories, are portrayed in Table 4.3

Table 4.3

EFL Students' Perspectives on the Teacher's Instruction and CALL in the Multimedia English Class

Elements	Themes	Sub-categories
Innovative Learning Situation	1. Characteristics of CALL	● Convenience ● Flexibility ● Abundant resources ● Repeated learning
	2. The aid of computer technology	● Internet sources ● Platform of E-campus
	3. Combination of onsite and online classes	
Student-centered Instruction	1. Students' needs & interests	
	2. Autonomous learning	● Leaning attitude ● Extensive learning
	3. Peer learning	● Discovery learning ● Peer competition
Integrated Learning	1. Improvement of computer literacy & language proficiency	
	2. Language skills integration	● Final project ● PBS Frontline

Element I: Innovative Learning Situation

The student participants regarded the teacher participant's instruction and computer assisted language learning as innovative learning. Some of them have never considered using computer technology to enhance their language learning; however, they understood how to utilize computer technology as a learning tool after they took this course. In addition, this "Multimedia English" course included both onsite and online classes. The student participants never have taken this kind of course before. All the student participants stressed that it is fairly convenient and flexible to utilize computer to assist their language learning. In addition, the students become familiar with the Internet resources about language learning and they knew how to utilize the platform of E-campus. There is considerable information for them on the Internet and their learning hours were not limited. They can also save the learning files of E-campus and repeated

learning whenever they wanted to learn.

In a nutshell, most of the student participants agreed that online classes with the aid of platform of E-campus provided abundant resources and it was more flexible and convenient to enhance students' language learning. Nevertheless, lack of face-to-face interaction in online classes is one of their concerns. They emphasized the significance of onsite classes, for they believed that human interaction and the teacher's direct instruction are needed.

Element II: Student-centered Instruction

In this course, students can learn from the teacher in onsite classes and from their learning online, which signifies the importance of autonomous learning. The teacher was not the only one who decided which students would learn in this course and the students truly had to go through the learning process. The teacher had to create the learning files based on students' needs and interests so that the students can decide what to learn by themselves. In addition, most of the student participants hoped that what they have learned from this class is practical in the real world. Some of them revealed that they are more motivated if the tasks are fun and they also enjoy learning by playing. Students have diverse needs and interests so the teacher should offer extensive learning files and resources to them and it would best if the tasks were fun and practical for them. In fact, the student participants appreciated the opportunity to learn by themselves. They even expressed that the abundant resources on the Internet were useless if they did not fully utilize them. The realized that they had to be more self-controlled, active, hard-working in this student-centered learning situation. Moreover, peer competition was the stimulus for the students and the cooperation with the group members was regarded as the aid in students' language learning. Discovery learning exists in students' learning process. They solve their problems together and learn from each other without the assistance of the teacher.

Element III: Integrated Learning

The student participants stated that they became familiar with some websites about language learning and some websites of their interests areas. In addition, they considered that they have better understanding about multimedia and computer technology. They also acquired the knowledge and techniques of some application of software. Most of the female students revealed that they are not competent computer users before; however, they considered that their computer literacy was greatly upgraded. In addition, most of the student participants esteemed that current computer technology and the Internet resources resulted in their improvement in listening, reading, writing and speaking. The four skills were strengthened in various tasks with different design and goals. For example, the PBS Frontline was regarded as the most

advantageous task in language learning by most of the student participants, for this task involved the training of listening, reading, writing, and vocabulary learning. The student participants expressed that the final project stimulated their motivation the most. They had to write a play and record their performance by themselves. PBS Frontline and the final project made them practice listening, reading, writing and increase vocabulary in the process.

CONCLUSION AND SUGGESIONS

A theoretical model composed of the three elements was constructed and presented in Figure 5.1 to illustrate the deciding factors of effective CALL.
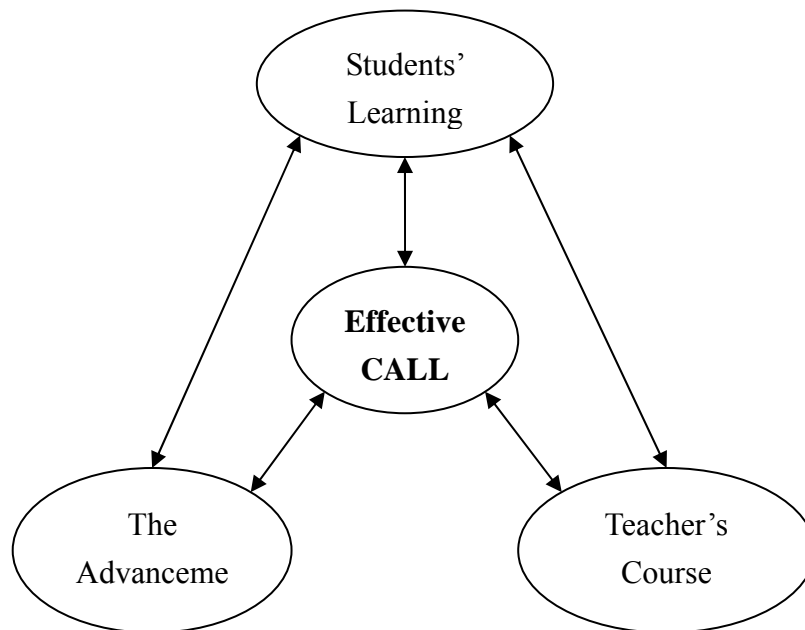
Figure 5.1 A Conceptual Map of the Deciding Factors of Effective CALL

The findings presented in the previous sections were the answers to the three research questions in this study. They described and explained the teacher participant' and the student participants' perspectives on computer assisted language learning. These findings are further organized into the following eight statements in this section and then the researcher discusses the findings of the study according to these statements.

1. This course with the aid of computer technology created an innovative learning situation for the students.
2. The EFL teacher determines to achieve learners' autonomous learning and lifelong learning about the Internet resources.
3. The teacher's course design and the characteristics of CALL lead to the enhancement of students' language skills and computer literacy.

4. The teacher has to advance her knowledge about current computer technology and consider students' feedback so as to modify her teaching practice and better her course design.

5. Teacher's direct instruction in class and fluid teacher-student interactions are essential.

6. The integration of fun activities and the "learning by playing" concept can stimulate students' learning motivation.

7. Team work and peer competition can enhance students' learning outcome.

8. Students' learning attitude toward computer technology is the critical element of the effectiveness of CALL.

In sum, based on the teacher's perspectives on CALL and course design with the aid of computer technology, together with students' perspectives on the teacher's instruction and CALL, effective CALL is constituted by three major elements. They are: (a) students' learning attitude; (b) teacher's course design; and (c) the advancement of computer technology. Effective CALL was identified when the advancement of computer technology overcome some technical problems; when the students hold positive attitude toward using computer technology to assist language learning; and when the teacher modify the course design based on the integration of computer technology and language learning after teaching the same kind of course for several years.

This qualitative inquiry proposes a number of suggestions for EFL teaching with the aid of computer technology. First, the teacher participant expects that the introduction of the Internet and the multimedia resources can assist the students for autonomous and lifelong learning. Teachers can utilize any platform that students preferred and select some helpful websites as the source for students to repeat their learning and files retrieval. The teacher participant has taught this course for several years and she has been continuously preparing the learning files and gathering suitable websites for the students. She believes that if the students are aware of the available resources, they could learn by themselves and learn to solve their problems. Thus, as for the teachers who plan to enhance students' self-learning and develop their problem-solving ability, they have to be keen in utilizing the Internet resources.

The teacher participant also suggests that language teachers need to integrate some well-established websites into language courses. For example, CNN Story Archives provides numerous news stories in different fields and the activities include reading comprehension and the vocabulary assessment. Students are able to strengthen their listening and reading and increase their vocabulary by watching the news, reading the stories and completing the activities. In addition, teachers can select any platform with the interactive function, such as online chatting. Therefore, the students have the chance to interact with other classmates and the teachers after class.

Second, both the teacher participant and the student participants esteemed the importance of students' needs and interests in course design. The teacher participant in this study collected the students' feedback and suggestions to modify her course design. The student participants in this study hoped that the applications of software they learned are practical for them and they can apply those computer techniques to their daily life. In all, teachers utilizing CALL may find the following suggestions useful:

1. Make sure that all the tasks are catering to the learning objectives.
2. Make best use of films, animation, or creative stories to stimulate students' learning motivation.
3. Consider the variety of the tasks and assignments.
4. Get students' feedback. Evaluate and reflect about the course design so as to understand students' needs and interests.
5. Incorporate collaborative learning and group competitions to maximize students' learning outcome.

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Impacts of Computer-mediated Nicenet on EFL College Students' English Writing

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Abstract

A considerable body of research has indicated the positive correlation between computer-mediated communication (CMC) technology and instruction in various subject matters. However, little research has reported on the impacts of incorporating CMC technology and knowledge-building pedagogy into English as a foreign language (EFL) instruction in general, and EFL writing instruction in particular. Therefore, the purpose of this research was to explore the impacts of internet classroom assistant Nicenet, taking a knowledge-building approach, on EFL college students' English persuasive writing performance. The participants in this research were thirty second-year university students of the Department of Applied Foreign Languages of a university of technology in central Taiwan. Among the 30 participants, 5 were male and 25 female. Two interventions were made, over one-semester period, to probe into the impacts of CMC Nicenet on their writing performance in this online knowledge-building environment. Three kinds of data were collected at the end of this research: (1) pre-/post-test essays; (2) online discussion notes of knowledge-building ideas; and (3) semi-structured interviews. The research findings suggested that participants' attitudes towards Nicenet were positive and that participants made remarkable progress in their persuasive writing performance. It was implied that rather than acting as passive recipients of incoming information, the participants of this research ultimately became active participants in the knowledge-building community.

Keywords: computer-mediated communication, knowledge-building pedagogy, EFL, Nicenet, knowledge-building community

INTRODUCTION

There have been growing concerns, over the past decades, about the appropriateness of conventional education in terms of cultivation of students' higher-order knowledge and in terms of its utility in preparing students for the 21st century. Some researchers have argued that neither teacher-directed knowledge transmission nor student-centered discovery learning can satisfactorily create the culture for advancing students' higher-level knowledge, as required in the knowledge era. What is required, however, is a promising epistemology of the nature of knowledge and

learning, new forms of interactivity, and the implementation of reform-oriented educational innovation (e.g., curricular and technological innovation). In short, there is a need for new cultures of education.

In this paper, the author proposes that turning schools into knowledge-building communities and transforming classrooms from an emphasis on tasks and activities to a focus on higher-order knowledge will help prepare students for the 21st century. In these communities, knowledge building is incorporated into the social fabric of the community and into the technologies that support knowledge work (Scardamalia, 2002, 2003, 2006). The notion of schools functioning as knowledge-building communities rather than traditional and typical service organizations is well elaborated by Scardamalia and Bereiter (2006), who regard the knowledge-building community model as an alternative to the two traditional instructional models of teacher-directed didactic instruction and student-centered discovery learning. In order for schools to function as knowledge-building communities, Scardamalia and Bereiter (1999, 2008) suggest a new discourse medium and computer network technology to provide possibilities for more decentralized forms of discourse. The new discourse medium and computer network technology, they claim, can help reframe classroom discourse and may, in turn, effectively facilitate participants' knowledge-building processes (e.g., positive attitudes, active and constructive involvement/participation, productive electronic discussion and purposeful contribution). These developed processes collectively constitute a knowledge-building pedagogy, which is characterized by a series of contrasts with conventional schooling processes including: (a) higher-order thinking focus versus task completion focus, (b) production of knowledge objects versus media objects, (c) contribution versus display, (d) knowledge advancement versus finding answers, (e) public versus person-to-person communication, (f) opportunity for reflection versus one-second wait time, and (g) collective knowledge building versus individual work. In brief, knowledge-building pedagogy integrated into a computer-mediated communication technology is called for so as to transform a classroom into a collective knowledge-building community.

In this study, the researcher used Nicenet to provide the technological support for EFL students' English writing and the collaborative process of knowledge building. Nicenet, released in 1998, is a free web-based learning environment for classrooms, distance learning program, and collaborative academic projects. It is a sophisticated communication tool that brings powerful web-based conferencing, personal messaging, document sharing, scheduling, and link/resource sharing to a variety of learning environments. With Nicenet, any number of individuals and groups can share information, launch collaborative investigations, and build networks of new idea together. Nicenet includes the following knowledge building functions (a) conferencing, (b) scheduling, (c) document sharing, (d) personal messaging, and (e) link sharing.

In summary, to bring about change in the classroom culture, we need to create a knowledge-building environment efficiently and effectively. Two research questions, therefore, were formulated to guide this study:

1. To what degree does computer-mediated Nicenet affect their writing?
2. What are EFL students' attitudes towards computer-mediated Nicenet?

LITERATURE REVIEW

Teacher educators began to incorporate computer-mediated communication (hereafter referred to as CMC) technology into second- and foreign-language teaching in the late 1980s. To illustrate, a number of researchers started to examine the relationship of technology with second language (L2) writing (Matsuda et al. 2003; Warschauer, 2000; Warschauer & Kern, 2000). Since then, computer use in writing instruction has attracted worldwide attention (Matsuda et al. 2003; Matsuda & Silva, 2010; Schultz, 2000, Warschauer, 1996, 2007). Some scholars describe the computer as an educational tool that may facilitate the process of writing and revising, and conclude that the computer can be of value for L2 writers if it is used under certain conditions (Pennington, 1996). However, these are conventional views of computers and L2 writing. In other words, the computer was used primarily as a word processor (Hyland, 2003; Joram et al. 1992; Owston, Murphy & Wideman, 1992; Pennington, 1996, 1999, 2003).

In addition, there has been a significant development in computer networks, which, from a socio-cognitive perspective, allow the computer to be used as a vehicle for interactive human communication. With the advent of considerable computer use in language and literacy, computer technology continues to "affect how we read, how we write, and how we use written language to learn and to communicate with others" (Kern, 2000). Computer technology has had a very important impact on literacy practices in L2 classrooms over the last decade, and writing instruction is now making widespread use of computer technologies (Hyland, 2003; Pennington, 2003). As Pennington (2003) notes, "the value of the computer for the L2 writer is considerable for helping to automate the production and revision of text, to encode ideas, and to spark and energize the writing process" (p. 304). Therefore, it is essential that writing instructors take an active role in deciding the best ways to make use of computer potentials and to open up new possibilities for our L2 students.

A considerable body of research has indicated the positive correlation between computer-mediated communication (CMC) technology and instruction in various subject matters (e.g., Alvarez, 2003; Brown & Warschauer, 2006; Chan & Lam, 2003; Grimes et al. 2006; Kern, Ware & Warschauer, 2008; Nason & Woodruff, 2003; Russell & Perris, 2003; Scardamalia, Bereiter & Lamon, 1994; Schramm, 1991.). However,

little research has reported on the impacts of incorporating CMC technology and knowledge-building pedagogy into English as a foreign language (EFL) instruction in general, and EFL writing instruction in particular. Therefore, the purpose of this research was to explore the impacts of internet classroom assistant Nicenet, taking a knowledge-building approach, on EFL college students' writing performance.

RESEARCH METHOD

Research Design

The overall research design incorporated a case study model. During the period of the study, the author was both a course instructor and researcher. The research was carried out during two regular 50-minute class periods on a weekly basis for one semester (approximately four months) at a university of technology in central Taiwan. Since the computer technology was part of the writing course, the participants employed the learning forum, Nicenet, in two regular 50-minute class periods in a computer lab on campus on a weekly basis. Therefore, the time involved was 100 minutes in class per week. In addition, participants could log on to the Internet and engage in online discussion wherever they could get access to the Internet and whenever they needed to.

Three stages of the research design are modeling stage, guided practice stage, and independent application stage. In the modeling stage, a model of a five-paragraph essay was shown to the whole class. At this stage, the researcher encouraged the participants to come up with ideas that might improve the features of the model. At the guided practice stage, in order o promote new forms of discourse in a technologically-mediated learning community, the researcher guided participants to use general reasoning skills and to contribute to this online community. At the independent application stage, participants were expected to transform the knowledge they gained during the previous stages into a persuasive/persuasive essay, which they were to write on their own. Thus, participants would be able to construct "ubiquitous knowledge" (Scardamalia, 2002) and apply it to different contexts.

Participants and Instruments

The participants in the research are 30 second-year university students of the Department of Applied Foreign Languages (mainly English) of a university of technology in central Taiwan. Among the 30 participants, 5 were male and 25 female. In terms of their English proficiency level, the 30 participants, aged 20 to 23, had studied English part time in Taiwan for 7 to 10 years. The instruments include pre- /post-test essays, online discussion notes of knowledge-building ideas, and semi-structured interviews.

Data Collection Procedure

At the outset of the research, two interventions were conducted to the class: the organization of essay writing and a model essay. Throughout the whole semester, the researcher asked participants to discuss the following three questions and write their response to them.

1. *In some societies, the individual is more important than the group and feels more comfortable acting alone. In other societies, people find it more comfortable making decisions in groups. Which do you think is better and why?*

2. *Recently, people in Taiwan seem to have been crazy about the lottery game. Discuss whether the lotto has had a positive or negative influence on our society and why? Please provide specific reasons and/or examples to support your opinion.*

3. *People have different ways of escaping the stress and difficulties of modern life. What are your ways? Please provide specific reasons and/or examples to support your options.*

The researcher collected three kinds of the research data – persuasive essays, online discussion notes of knowledge-building ideas, and semi-structured interviews. First, the researcher collected student's pre- and post-test of the same essay question. Second, in order to examine if participants advanced their knowledge, the researcher used a coding scheme to reflect participants' knowledge attribute in the online discussion notes of three stages. Third, the researcher conducted the semi-structured interview to 30 participants, 20-30 minutes for each student. The researcher analyzed participants' responses to the interview questions to examine if participants positive attitudes/interest increased in using knowledge-building technology to improve their writing and their perceptions about this research.

Data Analysis

Analysis of the Pre- /Post-Test Essays

Before the classroom interventions began, the researcher administered a pre-test to determine participants' entry point and their ability to write an essay. The researcher asked the participants to write an essay based on the following topic. *What is a very important skill a person should learn in order to be successful in the world today? Choose one skill and use specific reasons and/or examples to support your option.* At the end of the research, the researcher conducted a post-test with the same topic. In order to verify if there was a general trend towards an improved level of writing quality, the researcher rated each essay using a scale from zero to six (0=off-topic, 1=incoherent, 2=underdeveloped, 3=inadequate, 4=adequate, 5=well-developed, 6=effective).

Analysis of Online Discussion Notes of Knowledge-building Ideas

In order to examine if participants had advanced their knowledge, the researcher used a different coding scheme from zero to four (0=This note reads like the author seems unable to take his/her position clearly. 1=This note reads like the author seems to be telling us what s/he knows. 2=This note reads like it is unclear if the author is knowledge telling or knowledge building. 3=This note reads like the author seems to be knowledge building. 4=This note reads like the author seems to be demonstrating comprehensive knowledge-building ability.) to reflect participants' knowledge attribute in their online discussion notes.

Analysis of the Semi-structured Interview

Finally, in order to extend this inquiry into participants' perceptions, the researcher supplemented the pre- /post-test with a semi-structured interview involving all participants at the completion of this research. The researcher used the interview schedule to solicit information on participants' feedback to and perceptions about the research in order to help the researcher fine-tune or refine curriculum or software to optimize student interactions and hopefully to create a knowledge-building community. The researcher conducted and transcribed the interviews. The researcher conducted each interview in Mandarin Chinese, which lasted approximately 30 minutes. And the researcher tape-recorded, translated, and then later transcribed into English. In short, the English translations of the Mandarin Chinese interviews presented in this analysis are semantic, not literal. They are aimed to capture the essential content of each participant's responses.

Viewed together, these data sources help construct summative reports and a detailed set of cases that illustrate participants' attempts to understand and apply CMC technology and create a knowledge-building EFL writing environment over the course of one semester.

RESULTS

Quality of Participants' Pre- and Post-test Essay Data

Furthermore, looking at the essay data from the beginning and at the end of the research revealed remarkable improvement in participants' writing quality. For all 30 participants, the overall percentage of participants' essays at the 'adequate', 'well-developed', and 'effective' levels increased. The overall percentage at the 'adequate' level rose from 0% in pre-test to 7% in post-test. The overall percentage at the 'well-developed' level rose from 0% in pre-test to 71% in post-test. And the overall percentage at the 'effective' level rose from 0% in pre-test to 22% in post-test. In other words, the overall levels of achievement on this essay task were high, with 71% able to write the essay above the 'well-developed' level, 22% able to write the essay above the

'effective' level, and only 7% able to write the essay above the 'adequate' level.

Advancement of Knowledge-building Ideas in the Online Discussion Notes

The overall percentage of participants' online discussion notes at the 'seemingly knowledge-building,' and 'comprehensive knowledge-building' levels increased. The overall percentage at the 'seemingly knowledge-building' level rose from 0% at stage 1 to 25% at stage 2 and to 61% at stage 3, and the overall percentage at the 'comprehensive knowledge-building' level rose from 0% at stage 1 to 17% at stage 2 and to 36% at stage 3. That is, the overall levels of achievement on this online discussion task were high, with 61% able to write the notes above the 'seemingly knowledge-building' level, 36% able to write the notes above the 'comprehensive knowledge-building' level, and only 4% able to write the notes above the 'unclear' level. In brief, as compared to the discussion notes at the outset of data collection, this change over time was significant.

Semi-structured Interview Data

The researcher analyzed the interview data to examine how new forms of interactivity in a technologically-mediated learning community contribute to knowledge building in EFL persuasive writing.

Based on the findings of the interview data, the vast majority of the participants viewed the online computer-mediated forum, specifically Nicenet, as a useful technology that could help them write. In addition, several participants expressed that they liked to write using a computer (e.g., "It is interesting to write the article by using the computer."), while some participants enjoyed sharing ideas with their classmates (e.g., "…I like this course. It is good to share ideas with our classmates using the functions of conferencing and document sharing in Nicenet.").

According to the interview data, the vast majority of participants showed positive feedback to the usefulness of the modeling and guided practice stages. Participants suggested that these two stages were instrumental in improving their writing in general, and persuasive writing, in particular. Many participants, it should be indicated, tended to make a comparison between their previous experiences with writing and this research experience with writing, and they were satisfied with their composing processes. Above all, during the interviews, all of the participants expressed positive reactions to the research.

DISCUSSION

According to the three different kinds of data (i.e., pre- and post-test essays, online discussion notes of knowledge-building ideas, and semi-structured interviews), the majority of research participants, by and large, maintained a high level of positive

attitudes towards this research, and the quality of the essays significantly improved over the one-semester research period. The researcher will discuss the research findings based on the following three sets of data: (1) pre- and post-test essay rating, (2) advancement of online discussion notes of knowledge-building ideas, and (3) semi-structured interviews in more detail respectively.

Comparison of Pre- and Post-Test Essay Ratings

The researcher used the pre- and post-test essay ratings to answer the first research question. The quality of the participants' essays improved phenomenally after the research interventions were carried out. Before the interventions began, the researcher administered a pre-test to know participants' entry point and their essay-writing quality. The researcher asked participants to write an essay on one topic. At the end of the research, the researcher conducted a post-test with the same topic. The overall percentage of participants' writing samples at the 'adequate', 'well-developed', and 'effective' levels increased. To put it differently, the overall levels of achievement on this essay task were high, with 71% able to write the essay above the 'well-developed' level, and 22% able to write the essay above the 'effective' level, and only 7% rated above the 'adequate' level.

The researcher observed that all participants whose essay received a higher rating in the post-test than in the pre-test essay seemed to have something in common. Their persuasive essay in the pre-test was not well developed and supported, often because of a lack of rhetorical features (e.g., position, evidence, summary…etc.), and their persuasive essay in the post-test was well developed and supported, since participants had knowledge of the organizational features of an persuasive essay (e.g., introductory paragraph, body paragraphs, concluding paragraph, thesis statement, topic sentences, main ideas, concluding sentence, etc.). This knowledge very likely helped participants improve their essay writing quality. In summary, the results of the essay ratings in the pre-test and post-test showed that the quality of all participants' essays improved.

Advancement of Knowledge-building Ideas in the Online Discussion Notes

The researcher used the knowledge-building attribute to answer the first research question. The quality of the participants' knowledge in the online discussion notes advanced considerably after the research interventions were conducted. The shift from knowledge telling towards knowledge building on the part of the participants was evident as time progressed. The researcher observed that all participants whose notes received a higher rating at stage 3 than at stages 1 and 2 yielded notes at stage 1 that were not well argued, often because of knowledge-telling elements, and their notes at stage 3 were sufficiently reasoned, as participants applied the knowledge-building features notes. The design principles of an effective and reform-oriented educational

innovation in a knowledge-building EFL environment likely helped to facilitate participants' idea-centered cognitive processes, and may also account for their knowledge advancement.

The knowledge attributes presented in all 30 participants' online discussion notes appear to have changed from knowledge telling toward knowledge building. The progressive advancement in the knowledge attribute of participants' writing is obvious. In summary, the results clearly indicate that the culture of the classroom was changing and that while the participants may not be knowledge-building yet, they did seem to be moving in that direction.

Semi-structured Interviews

The researcher used the participants' responses to the semi-structured interviews to answer the second research question. According to the interview data, all participants had positive feedback to the course. Of the 30 participants, 27 expressed, during their interviews, positive reactions to the course contents, specifically to the benefits of the first two stages (i.e., modeling stage and guided practice stage).

Creating a knowledge-building EFL writing environment, as the research suggests, requires both the instructor's and the participants' commitment to knowledge and learning. According to the interview data, research participants frequently made comparisons between knowledge-building pedagogy and the traditional pedagogy that they were accustomed to. They noted the differences, and found that they appreciated the knowledge-building pedagogy, and that their essay-writing quality improved a lot.

Based on the interview data, particularly noteworthy are the most important features of a knowledge-building EFL writing environment, which are identified as follows: new forms of interactivity, focus on higher-order questions (rather than yes/no questions, please see Appendix A), learner autonomy, equality of online participation, and peer evaluation (please see Appendix B). These features are significant because, altogether, they lend themselves to facilitating participants' positive attitudes, active and constructive involvement/participation, productive electronic discussion, and purposeful contributions in an electronic learning community, which in turn, may be conducive to creating a knowledge-building EFL writing environment.

CONCLUSION AND IMPLICATION

To turn schools into knowledge-building communities, Scardamalia and Bereiter (1999, 2006, 2008) suggest a new discourse medium, computer network technology, to provide and realize possibilities for more decentralized forms of discourse and more knowledge-building capabilities for discourse. In this research, the classroom culture changed over a one-semester period such that participants' positive attitudes and contribution were significantly enhanced. As a result, their essay-writing quality

improved. The epistemology, innovative curriculum, and knowledge-building technology, together, helped to shape the transition.

Knowledge-building pedagogy, as the research suggests, might be a solution to EFL students' considerable difficulty with persuasive writing because a knowledge-building environment can effectively facilitate EFL students' knowledge-building processes and, therefore, can help cultivate students' reasoned thinking abilities and understandings of the persuasion. As evidenced in this research, participants improved their persuasive writing and sharpened their knowledge of persuasive structure not only by identifying the text features and organization required in persuasive writing, but also by noticing and applying "strategic, rhetorical, and linguistic' aspects (Silva, 1993; Silva et al., 2003) in the composing process. They were also able to flexibly apply the principles of good persuasion skills, transfer their knowledge to a variety of topics, and strengthen their general reasoning and higher-order thinking skills (e.g., critical thinking). This should turn their knowledge-telling capability into a knowledge-transforming one. This was achieved through creating a knowledge-building EFL writing environment. In short, the research findings suggested that participants' attitudes towards Nicenet were positive and that participants made remarkable progress in their essay writing performance. It was implied that rather than acting as passive recipients of incoming information, the research participants ultimately became active participants of knowledge building.

When it comes to creating an innovative computer-mediated EFL writing environment, the learning process needs to encompass meaningful knowledge learning and deep understanding while the learning outcome is supposed to be the advancement of learners' higher-order knowledge and the promotion of knowledge-building capability, as required in the knowledge era. The researcher argues that when instructors consider integrating CMC technology into English writing instruction, it is instructor's pedagogy rather than CMC technology per se that plays a very important role in achieving the success of instruction. In this spirit, additional academic discourse is invited and more research is needed so as to verify how other innovative pedagogy aligned with CMC technology could help to create a better computer-mediated learning environment for our students.

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APPENDICES

Appendix A: A Model of High-level Questions

Appendix B: A Model of Peer Evaluation

Vowel and Consonant Lessening: A Study of Articulating Reductions and Their Relations to Genders

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Abstract

Using English as a global communicating tool makes Taiwanese people have to speak in English in diverse international situations. However, consonants and vowels in English are not all effortless for them to articulate. This phonological reduction study explores concepts about phonological (articulating system) approximation. From Taiwanese folks' perspectives, it analyzes phonological type, rate, and their associations with 2 genders. This quantitative research discovers Taiwanese people's vocalization problems and their facilitating solutions by articulating lessening. In other words, this study explains how English emerging as a global language can be adapted and fluently articulated by Taiwanese. It was conducted at National Changhwa University of Education from 2010 fall to 2011 spring, investigating Taiwanese university students' phonological lessening systems. It reveals how they face the phonetics challenges during interactions and give speeches by ways of phonological lessening. Taiwanese folks' lessening patterns belong to simplified pronouncing methods, being evolved through Mandarin, Hakka, and Holo phonetic patterns. This genre of facilitated articulation can be also titled as transformed or approximate methods of articulating formula. In this investigation, 59 students according to their individual articulating experiences provided their perceptions, based on their observations in their own English articulation systems. Statistics graphs analyzed by Statistical Package for the Social Sciences (SPSS) display 4 consonants and 4 vowels that have been reduced and adapted. Moreover, the gender factor was taken into consideration, revealing male's and female's dissimilar difficulties in pronunciation.

More specifically, this empirical study investigated the correlation between elements of gender and phonological reduction. Through statistical analysis, 8 intricate vowels and consonants are compared and contrasted based on Taiwanese students' perfections and difficulty-confessions in articulating them. Simplified phonetic patterns with Taiwanese accents involved into the articulating lessening system in Taiwanese students' English utterances were provided by the instructor. Based on 2 variables of female gender and male gender, the study discovered the lessening sequences in 8 phonetics. The significance of this study is its contribution to giving confidence to

English speakers in Taiwan. Although they are non-native speakers, they still can resolve the pronunciation difficulty and talk with fluency by their created phonological reduction system.

Keywords: Vocalization, Approximation, Fossilized, Pidginized, Phonological Lessening

INTRODUCTION

Despite Taiwanese folks' pronunciation difficulties of some English vowels and consonants might have not been revealed by any linguist so far, smooth and comprehensible articulation systems have actually been formed and applied in Taiwanese English-speaking communities. In fact, our young generations in Taiwan pronounce English via simplified ways of articulating. Hence, English communication can be successfully achieved by Taiwanese university students. Intelligible phonological systems for English oral interaction should be regarded as reasonable and tolerable under globalization trend of the 3rd millennium. Although English has become an obligatory subject matter in any primary school for more than 20 years, Taiwanese people's English proficiency and pronunciation accuracy might not yet approach native speakers' phonological effectiveness. To draw alongside the temple of communication as non-native speakers, adult English speakers in Taiwan should acknowledge their weaknesses in non-native like ways of articulation and adopt some phonological reduction system for speedily effective communication with native speakers or foreigners. Serious scholars might point out that full articulations via Standard English pronunciations should be more helpful for mutual understanding or reduced systems might be unclear to non-native listeners; however, developing Americanzied or English-like accurate articulating system seems to be Utopian (e.g., McKay, 2002) learning objectives for non-native speakers.

In fact, lessened but intelligible phonological systems can be easily observed from Taiwanese language speakers' speeches, especially from Taiwanese elder scholars' flowing academic speeches. To orally converse with foreigners in a smoothly effective way, they do not slow down their speed of carrying out speeches. All what they can do is to lessen articulating accuracies in some difficult phonetics. This recommended reduction system of pronunciation had long time ago, been created from approximation phonological angle by numerous local Taiwanese scholars. As a matter of fact, some university lectures worldwide could be delivered by phonological lessening systems by foreign professors from Asia, Africa or Europe. As long as the contents are knowledgeable, the non-standard like pronunciations can be formally accepted. Therefore, this study not only promotes the concepts of phonological lessening to

students, but also it analytically reveals 8 consonants, assumed to be intricate.

In fact, this phonological lessening system indicates reducing quantity and decreasing accuracies of phonemes can establish a short cut to English smoothness for non-native speakers, implying that being an international scholar cannot be just a dream. It is emphasized that English articulating can be an adjustable process to manipulate verbalizations. The sound pronounced can involve Taiwanese, Mandarin, Holo, Hakka and even original tribe language accents.

LITERATURE REVIEW

Phonological Accuracy under the Globalization Trend

McKay (2002) argues teaching English as a universal language requires researchers and educators to thoroughly examine the learners' specific usages of learning English within their particular speech communities. This implies that native-like pronunciation is not an essential goal of English learning, as Englishes in non-native like ways can be formed within diverse international communities based on different needs. From a realistic viewpoint, this study emphasizes while teaching and learning English pronunciation in the 3rd millennium, pidginized variables in vowels and consonants can be accepted and integrated into English interactions by non-native speakers. In other words, facilitating English speaking to be more fluent, quick and comprehensible by articulation lessening can be a trend in different non-native speaking countries, although the accents from diverse languages could be very obvious and non-native like. In fact, while Taiwanese people interact in English with non-native speakers or native speakers for doing business, researches, and so on, non-native like English articulating by Taiwanese can be regarded as normal.

To investigate non-native speakers' communication strategies from perspectives of diverse phonological visions in different non-native speaking countries, articulating lessening Englishes have been evolved diversely in areas and multi-races. To achieve the effectiveness in English interaction in our global village, this research emphasizes that a Taiwanese framework of phonological reduction should be thoroughly discovered and analyzed. For example, Çelik (2008) offered a description of Turkish-English Phonology to this field.

Many phonological reduction studies were based on American Pronunciation (AP) and have evolved over time (Hartmann & Fosler-Lussier, 2009). Alptekin's (2002) study indicates the practical aspect of articulating lessening, considering intercultural differences in pronunciations of languages. Likewise, Yasukata (2001) suggests that lack of confusion and transparency could be accepted, since the major rationale in interaction is understanding meaning in the broadest sense, instead of the forms of utterances.

Perspectives from Taiwanese

Although numerous international phonological studies have focused on phonetic reductions used by native English speakers (e.g., Flemmings, 2005), yet few are conducted from Taiwanese folks' aspects. Hence, this study is significant, proposing phonological vowel reductions by 8 sounds, according to Taiwanese folks' dialects and habits of articulations. It mainly contributes to finding out the challenging phonetics and the reduction system's correlations with 2 genders. From future teachers' view, as well as the freshmen at Changhwa University of Education, this study was conducted for a year. For Taiwanese, to achieve higher economic status, political materiality or academic goals, our popularity of 23.2 million should be familiar with this issue of articulating lessening.

Jenkins (2000, 2002) stresses the "lingua franca core", indicating pronunciation can actually function for non-native speakers of English to converse with each other in their own communities. It is implied that different non-native like pronunciation systems can be easily formed and accepted by people in the same language community and even by native-speakers. From a sympathetic viewpoint, Jenkins (2000, 2002) repeatedly argues in the publications that trying to articulate in a native-like way by non-native speakers is not a realistic and attainable goal for grown-up learners in non-native speaking areas. In parallel, the researcher of this paper argues that Taiwanese people should also evolve their own Taiwanese phonological reduction system for more realistic goals of English learning.

Lessenings and Pidiginalizations on Our Globe

Take Singapore as an example, English has been developed into a particular system of Singlish. It has been pidgininalized into non-native like but fluent Englishes in Chinese communicates of Singapore. Singapore is not the only case on our globe. Grosjean (1982) has estimated that about half the world's population is bilingual, so in the future a great number of people speaking English will be with their strong accents which influence the "intelligibility" of their speeches. Being familiar with English accompanying with accents has become a world-wide trend. If learners are fluently using the articulating lessening systems, there should be no wonders.

Phoneticians, Smith and Rafiqzad (1979) have defined "intelligibility' to be capacity for understanding a word or words when spoken/read in the context of a sentence being spoken/read at natural speed, implying the existence of a breakdown which makes the interaction stop due to the vagueness caused by obvious phonological errors. Hence, although the reduction is acceptable, it cannot be applied too frequently or too outlandishly. Within reasonable range of reductions, the created lessening articulations need to be familiarized by community members first. Accordingly they can speak to people outside of the community.

Englishes in Hong Kong and Macaw have been developed into fluent phonological reduction systems, with Cantonese/Mandarin accents. The trend of Cantonese/Mandarin English can be explained by Marinova-Todd, Marshall and Snow (2000). They mention that pronunciation is the only component of second/foreign language learning process in which adult learners are highly unlikely to achieve native-like accuracy. No matter how much effort can be placed on it. In parallel, Çelik (2008) also agrees with non-native like articulation systems and conducted a study to categorize the examples occurring in various strategies, creating Turkish-English phonology. It is not only a reduced system, but also a teachable form for Turkish English learners.

The strategies Çelik (2008) applies are: 1. utilizing across major varieties such as Received Pronunciation and General American, 2. collapsing similar sounds based on their perceptions of similarity between English and 3. resorting to the orthographic pronunciation of a written symbol in Turkish, when they have no idea as to the correct pronunciation. In fact, above 3 rules can be applied by all languages worldwide. By adopting similar strategies, non-native like English of Taiwan with Mandarin, Holo, Hakka and aboriginal tribe accents, may also be phonologically reduced and systemized.

Phonology Reduction Pattern

Vocalization accuracy lessening from perspectives of Sociolinguistics and English as an International Language emphasizes numbers and accuracies of Standard English phonemes, including British and American English in general, can be reduced. For non-native speakers' needs of applying English in real communication of international situations, facilitating English can be adapted into their communication strategies. Phonological lessening system includes vowel reduction and consonant reductions, depending on individuals' diverse pronunciation needs and abilities.

Free Variations of UK and AP's

Free variation in linguistics is the phenomenon of 2 or more sounds appearing in the same environment without a change in meaning and without being considered incorrect by native speakers (Wiki, 2011). In other words, if 2 sounds occur in the same setting of a lexical item, they do not create a diverse word form or meaning. They are merely a different articulation of the same word in different places. This can happen in pronunciation between British English (Received Pronunciation/Standard English) and American English. This concept can be applied to create a model of free variation of Taiwanese phonological reduction systems. Differences in English pronunciation for same words, as well as variations closer to Taiwanese languages can be adopted and recommended to learners.

One way of phonological lessening closer to Standard English must be introduced to learners. Between United Kingdom Pronunciation (UK) and AP, the one closer to Taiwanese folks' habits of articulation needs to be recommended to learners to adapt in to their free variation articulating systems. For example, saying "tomato" as [to'mato], closer to UK, saying "war" as [wɔ], close to UK, saying "pure" as [pjɑ] closer to UK, and saying "often" as ['o,fən] closer to AP. In other words, between UK and AP, one closer to Taiwanese language should be adopted.

Disintegrating problematical phonemes

While a learner encountering any tongue-tied phoneme, an approximate sound can be applied to surrogate and preserve a smooth communication. The bilingual phonology in its field of "Collapsing Close Sounds" recommends that tricky and complicated phonetics can be replaced with more trouble-free ones. For examples, [ʒ] can be replaced by [dʒ] or [ʃ].

Simplified Vowels

To keep away from vowel obscurities, generalization strategy by simplifying difficult vowels can be applied. Some interchangeable and inflexible vowels found in Taiwanese adults' speeches can be used to enlighten this vowel reduction system. In other words, among diverse vowel pronunciations of UK and AP, some simpler sounds more frequently applied by Taiwanese should be found and revealed. Appendix B displays the examples of simplified vowels, adopting sounds from either UK or AP. Merely speaking with 5 major vowels spelled by "A, E, I, O, U," all vowels with micro articulating-position differences as well as the more difficult ones can be substituted and articulated. For example, [æ, ʌ, ə] sounds can be replaced by [ɑ] sound. The challenging [ɔ] sound can be alternated into [o] sound. Also, the Americanized [ɪ] sound should be changed into longer [i] sound, that Taiwanese are more familiar with.

Consonant Variation

To cast away limitations from complicated English consonants, non-native Taiwanese articulators are allowed to resort to generalization strategy and replace formal standard phonemes with the sounds closer to their native languages. After confirming individuals' characteristics of difficulties with the phonetic alphabet list, the phonology consultants should discover an easier phoneme in place of the speaker's as well as the language learners' problematic ones. Consonant limitations could be more multifarious, due to each individual's various types of oral proficiencies and diverse language backgrounds. The variables for replacing phonemes not existing in Taiwanese phonetics can be [v] being replaced by [b], [θ] by [s], [ð] by [z], [r] by [l], and [ʒ] by [s] or [dʒ]. It could be assumed that [r] by [l] might be less frequently applied and the others

could more often appear in Taiwanese phonological reduction systems.

METHODOLOGY

The study quantitatively measured the frequencies of 8 phonetic alphabets (phonetics symbols) being reduced. Based on 2 classes of participants at National Chunghwa University of Education, most complicated consonants and vowels were compared, investigated and revealed. At the beginning of the study, the instructor invited the students to discover if they had reduced accuracies of certain phonetics symbols, due to their continuous considerations in English speaking. At the end of the study, the students responded the survey questionnaires in Appendix A. This study mainly focused on gender differences in pronunciation difficulties, which evaluated the sequences of lessened sounds.

Research Questions

The research questions were investigated based on 8 phonetics symbols, including 4 consonants [ð], [ʃ], [θ], [ʒ], and 4 vowels [æ], [ɚ],[ɝ], [ə]. The participants decided which one might be accuracy-reduced and which phonetics alphabets can stand-in them? The questionnaires in the survey were designed by the researchers based on their Taiwanese backgrounds.

Participants

The participants were 2 classes of non-English majors in the intermediate and advanced English language level. The placement criteria were based on students' entrance examination scores. The freshmen included 37 intermediate-level and 22 advanced-level students were from Departments of Chinese, Chemistry, and Mathematics. There were 17 females and 42 males. In response to which phonetics alphabets were in their own phonological reduction system, they answered based on their daily-life communication observations. After a simple lecture about the discussing issues at the first week of this research, respondents waited for a year to answer the questions at the end of the course year. The long-term observations by students would enhance the accuracy and reliability of the collected data.

An Instrument via Survey

A survey with 8 assumed phonetics symbols were provided, but the probable replaced ones were not. In order to achieve the study's confidentiality and reliability, participants' names and ID numbers were not requested and consent forms were signed by each. With students' neutral attitudes, without worrying answers or perceptions might impact their grades, the data collected were more accurate closer to the real situations. Two options of "yes" or "no" were examined for percentile accounting.

Furthermore, the surrogated phonemes for problematic ones were analyzed and inspected.

Results and Discussions

The results of this study reveal that both males and females applied the phonological reduction system in their daily-life English speeches frequently. The mostly reduced consonants are [ð] and [ʒ] for females (47%, 47%) and [θ] for males (65%). From perspectives of vowels, for both males (40%) and females (41%), [æ] is the most difficult vowel to articulate. The second intricate one for females is [ɚ] (35%) and for male [ɝ] (24%). The following table shows the replaced items and the rates of accuracy-reduced symbols. Then the order and sequences of articulating lessening show in the graphs below the table.

Table 1. Percentages of females and males' phonological systems

Consonants	Vowels
ð can be replaced (by s, z, ʃ) 8 (F) 0.47 /18 (M) 0.43	æ can be replaced (by ɑ, e, ɛ, ʌ) 7 (F) 0.41/ 17 (M) 0.40
ʃ can be replaced (by s, tʃ) 2(F) 0.12/ 7 (M) 0.17	ɚ can be replaced (by ə, ɑ, ʌ) 6 (F) 0.35/ 7 (M) 0.17
θ can be replaced (by s, z, ð) 5 (F) 0.29/ 11 (M) 0.65	ɝ can be replaced (by ə, ɚ, ɑ) 3(F) 0.18/ 10 (M) 0.24
ʒ can be replaced (by dʒ, tʃ, ʃ) 8 (F) 0.47/ 18 (M) 0.43	ə can be replaced (by ɑ, ʌ) 2(F) 0.18 / 6 (M) 0.14

Graph 1. Frequencies of consonant lessening

Female   Male (Higher Frequency)

.5 .4 .3 .2 .1 0.0
N =   C1FEMALE   C2FEMALE   C3FEMALE   C4FEMALE

.7 .6 .5 .4 .3 .2 .1
N =   C1MALE   C2MALE   C3MALE   C4MALE

ð   ∫   θ   ʒ   ð   ∫   θ   ʒ
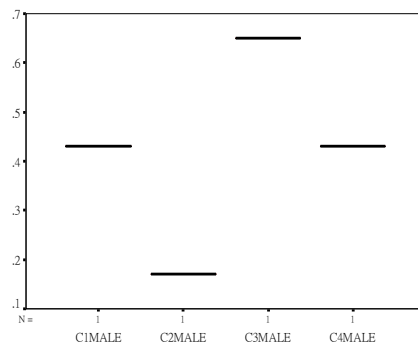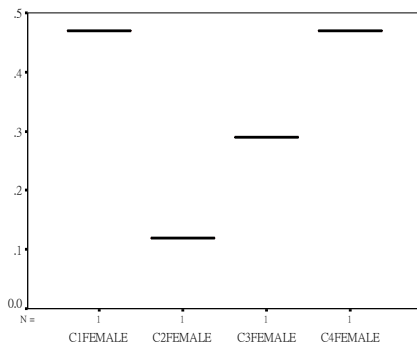
1st   3rd   2nd   1st   2nd   3rd   1st   2nd

Graph 2 Frequencies of vowel lessening

Female   Male

.5 .4 .3 .2 .1
N =   V1FEMALE   V2FEMALE   V3FEMALE   V4FEMALE

.5 .4 .3 .2 .1
N =   V1MALE   V2MALE   V3MALE   V4MALE
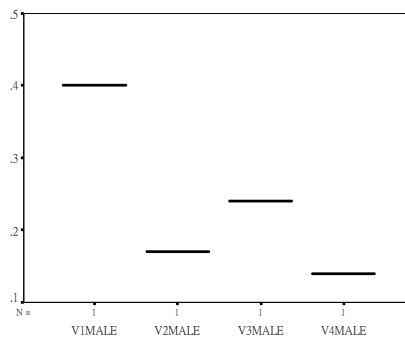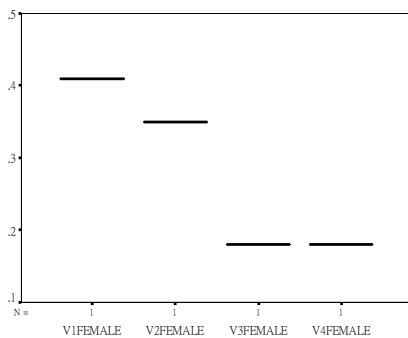
æ   ɚ   ɝ   ə   æ   ɚ   ɝ   ə
1st   2nd   3rd   3rd   1st   3rd   2nd   4th

CONCLUSION

To sum up, this paper reveals how the difficult phonemes can be facilitated by Taiwanese. This study via comparing and contrasting phonological systems of UK and AP, some phonemes has been introduced as phonological facilitating examples. It is suggested that English teachers and learners, especially elder adult language learners, need to adopt a closer UK's or AP's system, and transformed them into a simplified pidginized system, to make obvious progresses in oral communication. In addition, Taiwanese phonological lessening system can be observed in the participants' experiences and perceptions of articulating English phonemes. This is in parallel with a trend, which foreign scholars have been being accepted to give knowledgeable lectures

with their non-native like Englishes. Since English communication is commonly accepted in Taiwanese academic seminars, as non-native speakers, we need to examine our own articulating systems and try to achieve an appropriate balance among accuracy, fluency, continuousness, and understandability. This study, therefore, suggests that vocalizing imperfectly with phonological reduction systems of phonetics symbols can be a tolerable and adaptable articulating method for Taiwanese interlocutors who use English to communicate with both their peers and foreigners.

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Appendix A: Survey (Instrument)

Your Gender: Female ___ / Male___

Please refer to the following IPA system to see if you replace some English phonemes with others in your English utterances.

1. Consonant: [ð] [ʃ] [θ] [ʒ] Example: [ð] can be replaced by [z].	2. Vowel [æ] [ɚ] [ɜ] [ə] Example: [æ] can be replaced by [ɑ]
[ð] can be replaced (by ___,) Yes__ No__ [ʃ] can be replaced (by ___,) Yes__ No__ [θ] can be replaced (by ___,) Yes__ No__ [ʒ]can be replaced (by ___,) Yes__ No__	[æ] can be replaced (by ___,)Yes__ No__ [ɚ] can be replaced (by ___,) Yes__ No__ [ɜ] can be replaced (by ___,) Yes__ No__ [ə] can be replaced (by ___,) Yes__ No__

Appendix B: Vowel diversities

	RP(received Pronunciation /standard English)	NY/NJ, Philadelphia, And the Carolinas	GA (General American)	Canadian.	Taiwan
orange	ˈɒrɪndʒ	ˈɑrəndʒ	ˈɔrəndʒ		ˈɔrɪndʒ
origin	ˈɒrədʒɪn	ˈɑrədʒɪn	ˈɔrədʒɪn		ˈɔrɪdʒɪn
Florida	ˈflɒrɨdə	ˈflɑrədə	ˈflɔrədə		ˈflɑrɪdə
horrible	ˈhɒrɨbl̩	ˈhɑrəbl̩	ˈhɔrəbl̩		ˈhɑrəbl̩

quarrel	ˈkwɒɹəl	ˈkwɑɹəl	ˈkwɔɹəl	ˈkwɑɹəl
warren	ˈwɒɹən	ˈwɑɹən	ˈwɔɹən	ˈwɑɹən
borrow	ˈbɒɹəʊ	ˈbɑɹoʊ	ˈbɔɹoʊ	ˈbɑɹo
tomorrow	təˈmɒɹəʊ	təˈmɑɹoʊ	təˈmɔɹoʊ	təˈmɑɹo

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Using a Free Course Management System in a Grammar Class

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Abstract

During the 1960s and 1970s in the US, computer-assisted instruction (CAI) existed and was introduced and practiced in language instruction (Butler-Pascoe & Wiburg, 2003; Lacina, 2004; Stevens, 1989). Today, computers help teachers in their day-to day work, which involves "record keeping, searching for new information, and creating collections of teaching materials, as well as providing individualized instruction" (Provenzo, Brett, & McCloskey, 2005, pp. 24-25). Computer-assisted langauge learning (CALL) also shows advances by enabling English language learners (ELLs) "to construct meaning in a digital environment" (Lacina, 2004, p. 113). By using computers appropriately, teachers can provide a learning environment where learning is authentic and activities are interesting to students (Healy & Klinghammer, 2002; Lacina, 2004). Moreover, "CALL is now an integral part of L2 classrooms and is likely to assume increasing importance as technology improves" (Fotos & Browne, 2004a).

This study will share the experiences of using a free, open source software, Moodle that has been used in an English grammar class for three semesters. Currently, about 250s students at TransWorld University are using Moodle in their English classes. The researchers will demonstrate the use of Moodle and how the system motivates students' learning.

Keywords: English language learning, learning strategies, online/Long-distancelearning, Computer-assisted Language Learning

INTRODUCTION

Since the 1960s, computers have been used in language learning (Butler-Pascoe & Wiburg, 2003; Fotos & Browne, 2004b; Warschauer & Meskill, 2000). During the 1960s and 1970s in the US, computer-assisted instruction (CAI) existed and was introduced and practiced in language instruction (Butler-Pascoe & Wiburg, 2003; Lacina, 2004; Stevens, 1989). Today, computers help teachers in their day-to day work, which involves "record keeping, searching for new information, and creating collections of teaching materials, as well as providing individualized instruction" (Provenzo, et al., 2005, pp. 24-25). In addition, Robert Taylor (1980) explained three roles for the computer in education: tutor, tool, and tutee. As tutor, the computer can be used in ways

similar to traditional teaching or instruction. It gives students a place to work on exercises and problem-solving activites. As a tool, it is used as word processor, database manager, spreadsheet, a graphics design system, or as a link to an information resource. As tutee, the computer is programmed to perform specific tasks (Provenzo, et al., 2005, pp. 29-30; Taylor, 1980, pp. 2-4).

The history of using computers in education shows some benefits to both instructors and learners. Computer-mediated communication (CMC), a term refers to human interaction by means of computers, provides learners with "comprehensible input, of encouraging learners to produce comprehensible output, and of fostering negotiation of meaning" (Erben, Ban, & Castañeda, 2008, p. 85). On the other hand, computer-assisted langauge learning (CALL) also shows advances by enabling English language learners (ELLs) "to construct meaning in a digital environment" (Lacina, 2004, p. 113). By using computers appropriately, teachers can provide a learning environment where learning is authentic and activities are interesting to students (Healy & Klinghammer, 2002; Lacina, 2004). Moreover, "CALL is now an integral part of L2 classrooms and is likely to assume increasing importance as technology improves" (Fotos & Browne, 2004a).

Today, the most popular language learned in the world is English. David Graddol (1997) identified three kinds of English speakers: "those who speak as a first language, those for who it is a second or additional language and those who learn it as a foreign language" (p. 10). What distinguishes English today is not the number of native speakers, but the growing population of non-native English speakers who learn English as a second or foreign language. In 1999 Graddol predicted in the *AILA Review* that the number of non-native English speakers would surpass the number of native English speakers in the not-too-distant future (p. 57); while over 375 million people speak English as their first language, another billion or so are using English as a second language or are learning to do so (Crystal, 1997; Graddol, 1997).

In this article, the authors shared the experiences of using a free, open source software, Moodle that has been used in an English grammar class for three semesters. Currently, about 250s students at TransWorld University are using Moodle in their English classes. The researchers would demonstrate the use of Moodle and how the system motivates students' learning in the conference.

PURPOSE & SIGNFICANCE OF THE STUDY

The purpose of this study was to determine the learning motivations and attitudes toward English language learning at the TransWorld University (TWU) and how students feel after they use a computer-assisted program called Moodle. Moodle is an open source course management system (CMS), also known as a learning management system (LMS) or a virtual learning environment (VLE). Many people use Moodle to

work with language learning in classes or online. The researchers created an online Moodle site, and they have been using it to help students with their English classes. This study might be significant to ESL/EFL educators who want to understand the factors that contribute to effective English instruction and to educators who consider using a CMS with their language class. The results might provide useful information about Taiwanese students' learning motivations and their satisfaction of using a CMS or LMS for language learning. Moreover, this study might help students have a better understanding of their goals of learning English.

In addition, in Taiwan some studies have been done focusing on students learning motivations (余龍豪, 2003; 吳青蓉, 2009; 徐玉婷, 2004; 彭怡寧, 2001; 黃淑真, Huang, & 陳姿惠, 2009; 廖彥棻, 1999; 簡曉琳, 2004); however, most of the studies were in the field of early childhood education and secondary education. It would be interesting to find out Taiwanese university students' learning motivations toward the English language. In addition, some researchers have conducted some studies related to computer-assisted language learning (CALL) in Taiwan (Chiang, 2007; 周怡君, 2006; 戴桂芬, 2005), but not many have been done on university students' learning motivations while using a computer-assisted program.

RESEARCH METHOD AND LIMITATION OF THE STUDY

The purpose of this study was to identify students' motivations toward the English language learning and to find out students' satisfaction of using a computer management system (CMS) called Moodle with their English classes. In order to provide a comprehensive understand of students' learning motivations and satisfaction toward Moodle, the researcher used a series of survey to investigate students' learning since 2010 Fall. The data of this study used a five-point Likert scale. The data obtained from the returned surveys were analyzed, and the response to the research questions were made using descriptive and influential statistics, including item means, standard deviations, t tests, and multiple comparison tests.

The results of this study were limited by the following factors or conditions:
1. The questionnaires used in this study are self-reporting instruments and reflect students' perceptions and preferences.
2. The results of this study were limited by the willingness and ability of the respondents to complete the survey accurately and return the survey to the researchers.
3. The population was limited to a sample of students who study at the TransWorld University and who use the computer-assisted program in or off the class. The results may not be generalized beyond the specific population from which the sample is drawn and may not be generalized beyond the

English learning education.

4. Two surveys were given to students. 206 students out of 252 completed the survey of the satisfaction of the use of Moodle, an online computer-assisted learning program, and the survey of learning motivations toward English learning. Table 1 presents a summary of student demographic data.

Table 1: Demographic Characteristics of Respondents

Characteristics	f	Percent
Gender		
Female	136	74.73
Male	46	25.27
Years of Learning English		
1-4 years	34	18.68
5-8 years	36	19.78
9-12 years	76	41.76
More than 12 years	36	19.78
Hours of using Moodle		
1-2 hours	117	64.29
3-4 hours	52	28.57
5-6 hours	10	5.49
7-9 hours	3	1.65
Grades		
Freshmen	91	50.00
Sophomores	36	19.78
Juniors	18	9.89
Seniors	37	20.33

Note. N=182. f=Frequency.

FINDINGS AND CONCLUSION

The findings and conclusions are listed below:

1. The mean of the 182 participants' instrumental motivation was 4.12, and the integrative motivation was 4.20. Both male and female students tend to study English for their favorable attitude toward or personal interests in English slightly more than for the benefits they accrue from acquiring English as a second or foreign language. A summary of descriptive statistic for language learning motivation is presented in Table 2.

Table 2: Summary of Descriptive Statistic for Language Learning Motivation

Motivations	M	SD
Integrative Motivation	4.20	.680
Instrumental Motivation	4.12	.677

Note. N=182. M=Mean, SD=Standard Deviation.

2. Between male and female students, no significant differences were found in instrumental motivation and integrative motivation. However, significant differences were found in parental encouragement, $F(1,180)=5.279$, $p=.023$, and in the attitudes toward learning English, $F(1,180)=4.208$, $p=.042$. Male students felt that they had more parental encouragement than female students did, and male students had higher degree of attitudes toward English learning than female students did. Table 4 shows the summary of students' attitudes toward English learning.

3. Between male and female students, significant differences were found in students' satisfaction toward the update of course content on Moddle. Male students were more satisfied than female students, $F(1,180)=4.249$, $p=.041$.

4. In addition, significant differences were found in many items of satisfaction of using Moodle based on the time that students spent on Moodle. The more hours students spent on learning, the higher satisfaction students would have. Table 5 shows the summary of students' satisfaction of using Moodle when they learn English.

5. Significant differences were also found in students' satisfactions of using Moodle based on students' grades. Freshman students and senior students had the better satisfaction of using Moodle than sophomore and junior students. Both freshman and senior students were more significantly confident with Moodle, $F=5.194$, $p=.002$; would learn the function of Moodle more initiatively, $F=3.175$, $p=.026$; thought Moodle was easy to understand, $F=3.046$, $p=.030$; and thought they could easily operate what they want to do on Moodle, $F=3.569$, $p=015$. Table 6 shows the summary of students'' satisfaction of using Moodle when they learn English.

DISCUSSION & RECOMMENDATION

The findings related to learning motivations showed that the majority of the participants were more integratively motivated than instrumentally motivated when learning English. However, the scores (Table 4) showed that male students felt that they had more parental encouragement than female students did, and male students had higher degree of attitudes toward English learning than female students did. Based on Gardner's theories, Schmidt, Boraie, and Kassabgy (1996) have stated that "cultural beliefs influence the development of the integrative motive and the degree to which integrativeness and achievement are related"(p. 13). Students' genders and family

background might influence students' motivations and attitudes in English language learning.

In addition, after students used Moodle, a computer management system (CMS) for English learning, male students were more satisfied than female students. Moreover, the more hours students spent on learning, the higher satisfaction students would have. The scores (Tables 5 & 6) also showed that most of students were satisfied with the CMS, Moodle, and were confident when they use it. Even though, most students, who participated in this study, had high satisfaction of using Moodle while learning English, little research has shown that students might have different motivations and attitudes in English learning after years' learning. To study students' learning motivations and attitudes toward English language learning will be continued for at least another one or two years at the TransWorld University. To study students' learning from other schools is also important and on the plan of future study. In addition, the researchers will keep monitoring students' use with Moodle and determine that if students may change their learning strategies after they use the CMS.

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Table 4: Summary of Variation in Language Learning Attitudes by Gender Differences

Attitudes and Motivations	Male (N=46)		Female (N=136)		F	p
	Mean	SD	Mean	SD		
Interest in Foreign Languages	4.03	.722	4.01	.785	.026	.873
Parental Encouragement	3.86	.569	3.59	.699	5.279	.023*
Motivational Intensity	3.39	.566	3.36	.712	.060	.807
English Class Anxiety	3.31	.844	3.07	.883	2.555	.112
English Teacher Evaluation	3.99	.750	3.82	.667	2.380	.125
Attitudes toward Learning English	4.36	.643	4.13	.672	4.208	.042*
Attitudes toward English Speaking People	4.23	.667	4.01	.690	3.506	.063
Integrative Orientation	4.32	.656	4.16	.686	1.831	.178
Desire to Learn English	4.04	.608	3.89	.711	1.708	.193
English Course Evaluation	4.11	.625	3.92	.725	2.571	.111
English Use Anxiety	3.23	.604	3.16	.804	.332	.565
Instrumental Orientation	4.25	.607	4.08	.697	1.994	.160

Note. SD=Standard Deviation. *p<.05.

Table 5 Summary of Variation in satisfactions of using Moodle by the Length of Learning Time

Satisfaction	1-2 Hours/week		3-4 Hours/week		5-6 Hours/week		7-9 Hours/week		F	p
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
I would like to learn more with the interactive online teaching platform, Moodle.	3.85	.903	3.94	.698	4.70	.675	5.00	.000	4.803	.003*
I think Moodle can increase my learning performance.	3.97	.798	4.17	.678	4.70	.675	5.00	.000	4.890	.003*
I think the network platform can help me learn.	3.88	.853	4.23	.509	4.70	.675	5.00	.000	7.000	.000*
I am confident using the functions of Moodle.	3.70	.843	4.00	.626	4.50	.707	5.00	.000	6.633	.000*
I will learn the function of Moodle initiatively.	3.74	.853	4.15	.573	4.40	.843	5.00	.000	6.783	.000*
I am confident with the extent of online learning.	3.66	.853	4.29	.637	4.50	.707	5.00	.000	11.066	.000*
It is easy to understand how to use Moodle.	4.01	.836	4.10	.774	4.50	.707	5.00	.000	2.512	.060
Moodle is flexible, and it is easy to interact.	3.95	.972	4.27	.819	4.50	.707	5.00	.000	3.266	.023*
I can easily operate what I want to do on Moodle.	3.97	.856	4.31	.612	4.50	.707	5.00	.000	4.417	.005*
I am satisfied with the learning environment on Moodle.	3.89	.828	4.19	.445	4.50	.707	5.00	.000	5.503	.001*
The courses and activities on Moodle are diversity.	3.80	.812	4.31	.673	4.50	.707	5.00	.000	8.518	.000*
I am satisfied with curriculum on Moodle.	3.83	.802	4.25	.711	4.50	.707	5.00	.000	6.884	.000*
I am satisfied with the speed of material update on Moodle.	3.93	.807	4.27	.689	4.50	.707	5.00	.000	4.977	.002*
I think that Moodle and the courses on it suit my needs	3.79	.866	4.19	.768	4.50	.707	5.00	.000	5.925	.001*
I am satisfied with the course design on Moodle.	3.85	.805	4.19	.525	4.50	.707	5.00	.000	6.447	.000*

*Note. SD=Standard Deviation. *p<.05.*

Table 6 Summary of Variation in satisfactions of using Moodle by Grades

Satisfaction	Freshmen		Sophomores		Juniors		Seniors		F	p
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
I would like to learn more with the interactive online teaching platform, Moodle.	3.99	.863	3.83	.737	3.56	.856	4.14	.918	2.162	.094
I think Moodle can increase my learning performance.	4.12	.786	4.06	.674	3.89	.900	4.11	.809	.468	.705
I think the network platform can help me learn.	4.13	.748	3.86	.798	3.78	.878	4.14	.822	1.880	.135
I am confident using the functions of Moodle.	4.00	.760	3.53	.696	3.44	.856	4.00	.882	5.194	.002*
I will learn the function of Moodle initiatively.	4.02	.774	3.89	.854	3.39	.778	3.95	.815	3.175	.026*
I am confident with the extent of online learning.	4.02	.906	3.83	.811	3.44	1.042	3.92	.722	2.324	.077
It is easy to understand how to use Moodle.	4.19	.773	3.94	.860	3.61	.778	4.16	.834	3.046	.030*
Moodle is flexible, and it is easy to interact.	4.22	.742	3.81	1.238	3.78	1.114	4.19	.845	2.596	.054
I can easily operate what I want to do on Moodle.	4.29	.735	3.94	.860	3.72	.826	4.05	.815	3.569	.015*
I am satisfied with the learning environment on Moodle.	4.12	.743	3.97	.609	3.67	.970	4.03	.763	1.934	.126
The courses and activities on Moodle are diversity.	4.09	.770	3.92	.841	3.61	.916	4.08	.795	2.018	.113
I am satisfied with curriculum on Moodle.	4.07	.800	3.92	.770	3.72	.826	4.08	.829	1.175	.321
I am satisfied with the speed of material update on Moodle.	4.19	.729	4.00	.894	3.78	.878	4.03	.763	1.628	.185
I think that Moodle and the courses on it suit my needs	4.02	.869	3.83	.811	372	1.018	4.08	.795	1.120	.343
I am satisfied with the course design on Moodle.	4.09	.784	3.94	.630	3.67	.767	4.00	.782	1.650	.179

Note. SD=Standard Deviation. *p<.05.

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EFL Learners' Metacognitive Knowledge and Learning Activities in Classroom-based Pronunciation Training and Computer-assisted Pronunciation Training

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Abstract

The learner-centered ideology nowadays has led us to emphasize students' metacognitive skills in language learning. However, even though numerous researchers have studied learners' metacognitive knowledge in writing, reading, and listening, scarce research can be found on learners' metacognitive awareness in pronunciation learning despite the fact that pronunciation instruction research is eagerly needed in L2 learning. On the other hand, computer-assisted language learning (CALL) has provided teachers and learners another way to reflect what language learning is. Researchers have been comparing the effectiveness of language teaching and learning in traditional classroom and computer assisted language learning environments. These comparisons render a more integrated picture of language learning.

The present study was intended to investigate EFL learners' metacognitive knowledge and learning activities in two learning contexts, computer-assisted pronunciation training (CAPT) and classroom-based pronunciation training (CBPT). This study is significant in two ways. First, by investigating learners' metacognitive knowledge in pronunciation, researchers can construct a sound linguistic theory with the information provided by second language phonology, and assist learners' pronunciation leaning. Second, analysis of learning activities in different contexts and learners' awareness in pronunciation learning process may promote effective techniques for different learners and under different environments.

Sixty five students participating in CAPT or CBPT were recruited to answer the questionnaires. The results show that firstly, the distribution of pronunciation activities between CAPT and CBPT are different; secondly, learning context and pronunciation activities are related. It implies that when pronunciation is concerned, teachers and program designers tend to employ learning activities for students. Moreover, no significant difference was found in learners' metacognitive knowledge between CAPT and CBPT, both with scores slightly higher than the average. Pedagogical and theoretical implications are as follows. Firstly, according to the results, CAPT can simulate traditional pronunciation classroom teaching in terms of

metacognitive awareness. This may help those who are not able to learn from pronunciation classes to plan, monitor, and evaluate their own pronunciation learning as well as construct their autonomy outside the classroom. Secondly, teachers or

INTRODUCTION

Nowadays, many researchers investigate pronunciation teaching from learner' perspective, where native speakers' pronunciation is no longer the only authority of acceptable accent (Jenkins, 2000, 2002). This learner-centered ideology has led us to emphasize students' metacognitive skills in language learning (Oxford, 1990; Scarcella & Oxford, 1994; Lin, Fan, & Chen, 1995; Elliott, 1995; Wenden, 1998; Osburne, 2003). It is believed that metacognitive skills help learners learn how to learn a language as well as raise their awareness of learning (Oxford, 1990).

However, even though numerous researchers have studied learners' metacognitive knowledge and skills in writing (Schoonen & de Glooper, 1996; Schoonen et al., 2003), reading (Gaultney, 1995; Sheorey & Mokhtari, 2001), and listening (Bacon, 1992; O'Malley & Chamot, 1990; Goh, 1997; Vandergrift, 1997, 2002; Vandergrift, Goh, Mareschal, & Tafaghodtari, 2006), scarce research can be found on learners' metacognitive awareness in pronunciation learning despite the fact that pronunciation instruction research is eagerly needed in L2 learning. Research in pronunciation teaching remains a marginalized role in applied linguistics compared with grammar and vocabulary (Derwing & Murno, 2005), and such little attention to pronunciation teaching has led to "limited knowledge about how to integrate appropriate pronunciation instruction into second language classrooms" (Derwing & Murno, 2005, p. 383). Learners' metacognitive knowledge in pronunciation may facilitate their acquisition of comprehensible pronunciation, and thus to decrease the opportunities of being placed unequally in L2 societies because of their strong foreign accents (Morley, 1991). Besides, with the help of these meta-skills, learners can manipulate their pronunciation learning and find out the most appropriate way by themselves, especially when many pronunciation teachers lack sufficient knowledge about pronunciation teaching due to their little or no training (Breitkreutz, Derwing, & Rossiter, 2002).

Pronunciation learning at present is not confined within traditional classroom-based pronunciation training (CBPT); computer-assisted pronunciation training (CAPT) has provided learners another way to access it. Many researchers have been comparing the effectiveness of language teaching and learning in traditional classroom and computer assisted language learning (CALL) environments (Al-Seghayer, 2001; Salaberry, 2001; Engwall & Ba¨lter, 2007). These comparisons render a more integrated picture of language learning. As for pronunciation teaching,

investigating learners' metacognitive awareness and learning activities in CAPT and CBPT helps delineate learners' pronunciation learning process in different contexts and evaluate these two learning environments.

LITERATURE REVIEW

The importance of metacognitive knowledge

Many researchers nowadays agree that metacognition consists of two main components, including *knowledge of cognition* and *regulation of cognition* (Flavell, 1987; Jacobs & Paris, 1987). *Knowledge of cognition* refers to "what individuals know about their own cognition or about cognition in general", and *regulation of cognition* refers to "a set of activities helping students control their learning" (Schraw, 2001, p. 4). Knowledge of cognition also consists of three types of metacognitive knowledge, which are *declarative, procedural, and conditional knowledge*. Declarative knowledge is "knowledge about self and about strategies", procedural knowledge is "knowledge about how to use strategies", and conditional knowledge is "knowledge about when and why to use strategies" (Schraw & Dennison, 1994, p. 460). On the other hand, regulation of cognition includes many different subcomponents such as planning, selecting, monitoring, evaluating, and debugging. Moreover, knowledge of cognition and regulation of cognition are believed by some researchers that they are mutually correlated (Flavell, 1987; Jacobs & Paris, 1987; Baker, 1989).

Based on the findings of previous studies (Swanson, 1990; Pressley & Ghatala, 1990; Leonsario & Nelson, 1990), Schraw and Dennison (1990) claim that we can separate metacognition form other cognitive variables in learning including intellectual ability or aptitude. The teaching of metacognitive knowledge is thus suggested in class when these meta-skills cannot be transferred from cognition. On the other hand, researchers and teachers are beginning to review pronunciation teaching from learners' perspective nowadays. Students' metacognitive knowledge plays a very important role both for learners to facilitate their learning (Bransford, Brown, & Cocking, 1999; Hacker, Dunlosky, & Graesser, 1998), and for us to explain their pronunciation learning process (Joseph, 2010). Wenden (1998) also argues that learners' metacognitive knowledge should be taken into consideration in the learning process of self-regulation with the aid of plan, monitoring, and evaluation. Learners manipulate their cognition with their metacogntive knowledge and skills. In other words, they learn how to learn.

Classroom-based and computer-assisted pronunciation training

Pronunciation learning contexts nowadays include face to face classroom-based pronunciation training (CBPT) and computer-assisted pronunciation training (CAPT). In learner-centered CBPT curriculum, learner involvement is encouraged by teachers to build their monitoring skills and responsibility in learning. Teachers should take into students' goal, belief, and concern into account when designing pronunciation curriculum. This involvement along with learners' awareness toward pronunciation is often accompanied with their monitoring skills. Learners' no or few responsibility in pronunciation improvement has now been replaced by learners' role in self-monitoring and awareness from traditional approached to research-based approach (Scarcella & Oxford, 1994). In order to raise learners' awareness, researchers also proposed multifarious techniques for pronunciation teaching (Scarcella & Oxford, 1994; Lin, Fan, & Chen, 1995).

On the other hand, previous studies agree that CAPT has its place in oral training (Pennington, 1999; Neri, Mich, Gerosa, & Giuliani, 2008). There have been legions of studies investigating the effectiveness of CAPT (de Bot & Mailfert, 1982; de Bot, 1983; Weltens & de Bot, 1984a, 1984b; Johnson, Dunkel, & Rekart, 1991; Schwart, Markoff, & Jain, 1991; Stenson, Downing, Smith, & Smith, 1992; Neri, Mich, Gerosa, & Giuliani, 2008). Pennington (1999) claims that in terms of capacities, CAPT is faster than CBPT in analyzing learners' output and providing immediate feedback, and the analysis from CAPT is also repeatable, so as to increase its reliability. Besides, CAPT is also beneficial to students by its multi-modal presentation and individualization. Based on these capacities in CAPT, the positive potentials include increasing learning motivation, and students' effort on pronunciation, raising learners' awareness, understanding, and skills on the varieties of phonological feature in different languages, and improving their learnability of phonology. Therefore, learners may reach automaticity of pronunciation after practice and their confidence may be built in the process of individualized and private practice.

PURPOSE AND SIGNIFICANCE OF THE STUDY

The purpose of this study is to compare EFL learners' metacognitive knowledge and learning activities in CAPT and CBPT. This study is significant in two ways. First, by investigating learners' metacognitive knowledge in pronunciation, researchers can assist learners' pronunciation leaning. Second, in response to pronunciation instruction, analysis of learning activities in different contexts and learners' awareness in pronunciation learning process may promote effective techniques for different learners and under different environments. Therefore, this study has both theoretical and pedagogical implications.

RESEARCH QUESTIONS

The research questions for the present study are as follows:

1. What are learning activities in CAPT and CBPT? Is there any significant correlation between learners' pronunciation activities employed in CAPT and CBPT?

2. Are there any significant differences between learning contexts of CAPT and CBPT in learners' meatcognitive awareness?

METHOD

Participants

Sixty five college students who attended pronunciation training classes and used computer-assisted pronunciation training programs participated in this study. These 65 participants include 26 students who only learned pronunciation by using the software in the lab, and who used the software at least two hours per week; 39 students who only learned pronunciation by attending the weekly classes. 70% of the participants are female, and 30% are male. These participants all joined The General Scholastic Ability Test to enter into college. The test is nationwide and English is one required subject. Their English scores fell into the top 25%. In other words, their English proficiency level is form advanced to high-intermediate.

Instruments

The pronunciation training classes are only available and required to English majors and minors. Students in these classes are taught and guided by professors from English department for two semesters, two hours a week.

As for computer-assisted pronunciation training programs, the pronunciation learning software is applied in this study. Different English learning programs can be used freely in the computer labs by the students, including college students and postgraduates. Some of these programs are developed to promote students' oral skills, including Tell Me More, Traci Talk, and My ET (My English Tutor). This study focuses on the students who used My ET to promote their pronunciation skills. The automatic speech recognition and analysis technology of My ET can analyze learners' pronunciation, pitch, timing (fluency), intonation and volume as well as indicate their pronunciation problems of a particular sound. After using microphone to record and imitate the sentences from models of native speakers, students receive a total score and four sub-scores for each utterance. The score and feedback are offered according to the criteria composed of pronunciation (50%), timing/fluency (20%), intonation (20%), and volume (10%). Some features of My ET include its design for learners'

individual differences by providing a range of lessons for different language proficiency levels. Learners can choose the lesson and task that best suit their needs and interest, and low proficiency learners can even slow down the delivery speed of the audio files. Also, the program provides learning strategies to help learners build a step-by-step process to improve their pronunciation. Finally, both norm-referenced and criterion-referenced grades are offered to learners so that they can monitor their own learning progress.

Metacognitive Awareness of Pronunciation Inventory (MAPI) is the questionnaire adapted from the Metacognitive Awareness Inventory (MAI) created by Schraw and Dennison (1994), aiming to identify students' metacognitive awareness in general learning. MAI consists of 52 items including items for knowledge and regulation of cognition and their subcomponents respectively. Reliability for the MAI is high and factors were reliable with a Cronbach alpha value of .90 and inter-correlation r of .54 (Schraw & Dennison, 1994). In this study, MAI was adjusted slightly to be more suitable for pronunciation learning, and MAPI contains 52 items in total which include 16 items for knowledge of cognition and 36 items for regulation of cognition. Using the responses from participants in the pilot study, the reliability of MAPI, as determined by Cronbach's alpha, was .92.

The List of pronunciation learning activities identification is designed for students to identify the pronunciation learning activities they had from a list. The purpose of this survey is to analyze how often certain pronunciation activities appear in different learning environments. The nine common pronunciation activities in the list were chosen based on previous studies (Derwing et al., 1997, 1998; McNerney & Mendelsohn, 1987; Moyer, 1999; Munro, 1995; Pennington, 1989; Wennerstrom, 1998), observation on pronunciation courses, and discussion from pronunciation teachers in colleges. The results in the pilot study shows that these activities are sufficient enough for participants to choose from.

Procedures

These 65 students were invited to answer two surveys, including MAPI and list of pronunciation activities identification in the end of the semester. In the beginning, the researcher explained the purpose of the study and helped students understand that their answers would not affect their grades. These participants were explained how to fill out these questionnaires and meaning of certain items. If learners have any question about the items in the surveys, they are free to ask the researcher for clarity by raising their hands. After participants' responses were collected, their feedback was further classified according to their learning experience in different environments. With SPSS, responses from participants of different learning contexts are compared to

see whether any significant difference exists.

Data analysis

The data were analyzed by using the statistics of description, *t*-test analysis, and Chi-square test. The current study attempted to figure out the correlation between pronunciation learning activities employed in CAPT and CBPT. Besides, students' metacognitive awareness in different learning environments was compared to see whether there is any significant difference across groups of CAPT (N=26) and CBPT (N=39).

RESULTS AND DISCUSSION

Pronunciation activities between CAPT and CBPT

The number and percent of pronunciation activities used in these two different learning environments are displayed in Table 1.

Table 1. Frequency count and percentage of pronunciation activities in CAPT and CBPT

Pronunciation Activities		Learning Context of Pronunciation	
		CAPT	CBPT
1. Pictures or videos showing how to pronounce	Count	20	22
	% within context	10.3%	5.6%
2. Teacher's demonstration	Count	33	51
	% within context	16.9%	13.0%
3. Imitation	Count	33	46
	% within context	16.9%	11.8%
4. Minimal-pair drills	Count	13	51
	% within context	6.7%	13.0%
5. Intonation, stress, or rhythm practice	Count	31	51
	% within context	15.9%	13.0%
6. Pronunciation activities based on different levels	Count	22	30
	% within context	11.3%	7.7%
7. Pronunciation activities based on different topics	Count	27	47
	% within context	13.8%	12.0%
8. One on one oral interaction and feedback from teachers	Count	8	47
	% within context	4.1%	12.0%
9. Pronunciation strategies given by teachers	Count	8	46
	% within context	4.1%	11.8%

Total	Count	195	391
	% within context	100%	100%

The results indicate that in both CAPT and CBPT, teacher's demonstration (16.9%; 13.0%), imitation (16.9%; 11. 8%) and intonation, stress, or rhythm practice (15.9%; 13.0%) take the highest or very high percentage among all activities, despite the fact that the percentage is consistently higher in CAPT than CBPT. Analyzing other pronunciation activities, the table also shows drastic differences in pictures or videos showing how to pronounce, minimal-pair drills, One on one oral interaction and feedback from teachers, and pronunciation strategies given by teachers between CAPT and CBPT. The percentage of pictures or videos showing how to pronounce (10.3%) in CAPT is around twice in CBPT (5.6%); however, the opposite phenomenon is found in Minimal-pair drills, One on one oral interaction and feedback from teachers, and Pronunciation strategies given by teachers, where these activities have relatively higher percentage in CBPT (13.0%; 12.0%; 11.8%) than in CAPT (6.7%; 4.1%; 4.1%). Derwing and Rossiter (2002) found that teachers in the classroom tend to initially focus on segmental difference or discrimination of a particular sound and this is also true here in their more use of minimal-pair drills than in CAPT.

A Chi-square test was conducted to investigate the relationship between pronunciation activities used in CAPT and CBPT. Table 2 presents the results of Chi-square test for pronunciation activities employment and different pronunciation training environments.

Table 2. Chi-square tests for pronunciation activities in CAPT and CBPT

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	32.66	8	.000*
Likelihood Ratio	35.23	8	.000
Linear-by-Linear Association	14.32	1	.000
N of Valid Cases			

* $p < .05$

As shown in Table 2, there exists significant difference between pronunciation activities in CAPT and CBPT at the .05 level ($p < .05$). This shows that firstly, the distribution of pronunciation activities between CAPT and CBPT are different;

secondly, learning context and pronunciation activities are related. It implies that when pronunciation is concerned, teachers and program designers tend to employ learning activities for students. The three pronunciation activities that were mostly used in both CAPT and CBPT are demonstrations from the teacher or model, teaching of prosodic features, and students' imitation. The reason why these three activities were used more often in CAPT could be that learners can actively manipulate the frequency of the model's demonstration for the convenience of their imitation, but teachers are the authority controlling activities in the traditional classroom. According to the analysis, CAPT tended to visualize the manner and place of pronunciation with graphs or pictures, but this visualization seldom happened in the classroom now. On the other hand, three activities including minimal-pairs drills, one on one interaction, and pronunciation strategy teaching appeared more often in traditional pronunciation classroom than in CAPT. It also shows that pronunciation strategies teaching weighted more heavily in CBPT (11.8%) than in CAPT (4.1%). This may imply that learning software designers need to develop a more effective pronunciation strategy instruction model to fill the gap between teaching and learning.

Learners' metacognitive awareness in CAPT and CBPT

The mean score of participants' metacognitive awareness were summarized in Table 3. In Table 3, the mean score of metacognitive awareness is 3.24 in CAPT, and 3.26 in CBPT.

Table 3. Descriptive statistics of metacognitive awareness scores

Group Type	N	Mean	S.D.	S.E.M.
CAPT	26	3.24	0.59	0.11
CBPT	39	3.26	0.39	0.06

It is obvious that both groups have similar scores in their metacognitive awareness. Moreover, a t-test analysis was conducted to determine if there is any significant difference in metacognitive awareness between the two groups. The analysis yields a t of -1.11, indicating that there exists no significant difference at the $p < .05$ level (with df=39.6) between CAPT and CBPT in learners' metacognitive knowledge. A further t-test analysis was conducted to investigate participants' responses in both groups to each item in the survey. The results basically show no significant difference between two groups among these items.

Based on these findings, students who used CAPT or CBPT have similar scores on their metacognitive skills in pronunciation, and there exists no significant difference between these groups. What we can learn from these findings are as

follows. First, according to the analysis, the pronunciation training program can simulate traditional pronunciation classes in terms of the awareness of metacognition since no significant difference was found between groups. Second, as shown in the results, the scores of students' metacognitive skills in CAPT (3.24) and CBPT (3.26) are only slightly above the average score. This implies the fact that learners did use their metacognitive knowledge in pronunciation learning, but not very often. This finding provides another way to test Pennington's (1999) claim that CAPT may be effective in raising learners' awareness. In the current study, CAPT is not a more effective mechanism than CBPT in metacognitive awareness raising. Moreover, according to Wenden (1998), self-regulation is one important skill in language learning. To achieve learner autonomy, metacognitive knowledge instruction should be included in both CAPT and CBPT.

CONCLUSION

This study investigated the effectiveness and nature between CAPT and CBPT. The main findings suggest that learning activities employed differently in CAPT and CBPT. Moreover, no significant difference was found in learners' metacognitive knowledge in different pronunciation learning contexts. Based on the findings derived form the current study, pedagogical and theoretical implications are proposed for pronunciation teaching and learning. Firstly, according to the findings, CAPT can simulate traditional pronunciation classroom teaching in terms of metacognitive awareness. This may help those who are not able to learn from pronunciation classes to plan, monitor, and evaluate their own pronunciation learning as well as construct their autonomy outside the classroom. Secondly, teachers or program designers need to raise learners' metacognitive awareness and encourage their strategy use in pronunciation more effectively.

In addition, some limitations can still be noted on the design of the current study. First of all, the samples drawn from pronunciation classes in this design are not random. These participants are English majors or minors, and thus may have some effects on the final results. Second, in this study, we have limited sample size for the reason of availability, which could be improved in the future research.

Hence, future research could enlarge the sample size of participants and collect participants form different majors in college. Also, the effectiveness of different pronunciation training programs can be analyzed in the future study to generate a more representative model for CAPT. Finally, researchers can investigate learners' meta-skills s more deeply through face-to-face interviews, so that we can have a better understanding of the actual process of how and when learners utilize these knowledge.

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Appendix A Metacognitive Awareness of Pronunciation Inventory (MAPI)

Directions: Listed below are statements about what people do when they pronounce English in a pronunciation class.

Five numbers follow each statement (1, 2, 3, 4, 5), and each number means the following:

· **1** means "I **never or almost never** do this."
· **2** means "I do this **only occasionally**."
· **3** means "I **sometimes** do this" (50% of the time).
· **4** means "I **usually** do this."
· **5** means "I **always or almost always** do this."

After reading each statement, circle the number (1, 2, 3, 4, or 5) that applies to you using the scale provided. Please note that there are no right or wrong answers to the statements in this inventory.

	Metacognitive Awareness of Pronunciation Inventory					
1	I ask myself periodically if I am meeting my goals in pronunciation.	1	2	3	4	5
2	I consider several alternatives to help me pronounce before I speak.	1	2	3	4	5
3	I try to use pronunciation strategies that have worked in the past.	1	2	3	4	5
4	I pace myself while pronouncing the sentence in order to have enough time.	1	2	3	4	5
5	I understand my strengths and weaknesses in pronunciation.	1	2	3	4	5
6	I think about what I really need to learn before I begin a pronunciation task.	1	2	3	4	5
7	I know how well I did once I finished a pronunciation test or task.	1	2	3	4	5
8	I set specific goals before I begin a pronunciation task.	1	2	3	4	5
9	I slow down my pace when encountering important pronunciation knowledge	1	2	3	4	5
10	I know what kind of information in pronunciation is the most important to learn.	1	2	3	4	5
11	I ask myself if I have considered all options when pronounce difficult words or sentences.	1	2	3	4	5
12	I am good at integrating the pronunciation knowledge I learned	1	2	3	4	5

13	I consciously focus my attention on important information in pronunciation learning.	1	2	3	4	5
14	I have a specific purpose in each strategy I use in pronunciation.	1	2	3	4	5
15	I know best when I know something about the topic.	1	2	3	4	5
16	I know what the teacher (or computer program) expect me to learn.	1	2	3	4	5
17	I am good at memorizing ways and information of pronunciation learning I learned.	1	2	3	4	5
18	I use different pronunciation learning strategies depending on the situation.	1	2	3	4	5
19	I ask myself if there was an easier way to do things after I finish a pronunciation task.	1	2	3	4	5
20	I have control over how well I learn pronunciation.	1	2	3	4	5
21	I regularly review to help understand the connections of pronunciation knowledge.	1	2	3	4	5
22	I ask myself questions about the learning material before I begin.	1	2	3	4	5
23	I think of several ways to pronounce difficult words or sentences and choose the best one.	1	2	3	4	5
24	I recall what pronunciation knowledge I have learned so far.	1	2	3	4	5
25	I ask others for help when I have difficulties in pronunciation.	1	2	3	4	5
26	I can motivate myself to learn pronunciation when I need to.	1	2	3	4	5
27	I am aware of what strategies I use while learning pronunciation.	1	2	3	4	5
28	I find myself analyzing the usefulness of strategies while learning pronunciation.	1	2	3	4	5
29	I use my intellectual strengths to compensate for my weaknesses in pronunciation.	1	2	3	4	5
30	I focus on the meaning and significance of new information in a pronunciation task.	1	2	3	4	5
31	I create my own examples to make information more meaningful in a pronunciation task.	1	2	3	4	5
32	I am a good judge of how well I pronounce.	1	2	3	4	5
33	I find myself using helpful learning strategies automatically.	1	2	3	4	5
34	I find myself pausing regularly to check my pronunciation.	1	2	3	4	5
35	I know when each pronunciation strategy I use will be the most effective.	1	2	3	4	5

36	I ask myself how well I accomplished my goals in pronunciation once I'm finished.	1	2	3	4	5
37	I use pictures or diagrams to help me understand how to pronounce.	1	2	3	4	5
38	I ask myself if I have considered all options after I solve a problem.	1	2	3	4	5
39	I use my own way to memorize important pronunciation skills.	1	2	3	4	5
40	I change strategies when I fail the pronunciation task.	1	2	3	4	5
41	I use structure or organization to learn pronunciation knowledge.	1	2	3	4	5
42	I read instructions carefully before I begin a pronunciation task.	1	2	3	4	5
43	I ask myself whether my ways of learning pronunciation are related to knowledge I learned earlier.	1	2	3	4	5

44	I reevaluate my assumptions when I get confused.	1	2	3	4	5
45	I organize my time to best accomplish my goals.	1	2	3	4	5
46	I learn more when I am interested in the topic.	1	2	3	4	5
47	I try to break studying down into small steps.	1	2	3	4	5
48	I focus on overall meaning rather than specifics.	1	2	3	4	5
49	I ask myself questions about how well I am doing when learning pronunciation.	1	2	3	4	5
50	I ask myself if I learned as much as I could have once I finish a task.	1	2	3	4	5
51	I stop and go back over new information that is not clear.	1	2	3	4	5
52	I stop and go back over new information when I am confused.	1	2	3	4	5

Appendix B   List of pronunciation activities identification

Please identify the pronunciation activities you have in the class or in the program, and write down the number(s) in the blank. The activities I have in class include: _____

1. Pictures or videos showing how to pronounce
2. Teacher's demonstration
3. Imitation
4. Minimal-pair drills, such as *pet* [ɛ] vs. *pat* [æ]
5. Intonation, stress, or rhythm practice
6. Pronunciation activities based on different levels
7. Pronunciation activities based on different topics
8. One on one oral interaction and feedback from teachers
9. Pronunciation strategies given by teachers

Computer Games Functioning as Motivation Stimulants

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Abstract

Numerous scholars have recommended computer games can function as influential motivation stimulants of English learning, showing benefits as learning tools (Clarke & Dede, 2007; Dede, 2009; Klopfer & Squire, 2009; Liu& Chu, 2010; Mitchell, Dede & Dunleavy, 2009). This study aimed to further test and verify the above suggestion, employing computer games as in-class formal or after-school leisure tasks for language learning and educational purposes. In spring semester, 2011, this research project related to on-line game play was conducted in a Taiwanese university, where 2 classes of 15 and 39 freshmen had provided their perceptions. Participants were suggested to select free on-line games during the 1st week and then inspect relations between the games and language education purposes. It was assumed participants might support or decline the concepts that educational objectives and effectivenesses can be found in games. In the 18-week research, more than 20 games with educational functions were demonstrated and presented.

The results showed participants regarded the games to be motivation stimulating. Three on-line free games on Facebook, Pet Society, Country Story, and City Ville, were nominated to be effective motivation stimulants. In this study of Facebook applying for language learning, each game was recommended by more than 3 students, with higher percentages than the other on-line games on diverse websites. Three advantages had been emphasized by the presenters. First, the games contribute to reading game descriptions bilingually to thoroughly complete missions. Second, game-based learning allows players to establish abilities of social interactions with the other on-line players in the identical game. Third, computing-mediated environment builds the learners' concepts of managing and administrating a government, a farm or a pet shop. This study implies the appropriateness and applicability of game-based teaching and learning. It did not only provide evidences of learners' excitements and supportivenesses by qualitative narrations, but also contribute to providing pedagogies on how game-based curriculum could be more formally realized in second language learning classroom.

INTRODUCTION

Miller, Lehman, and Koedinger (1999) indicated that undergraduates who either were told to first explore the micro world of an educational game or were shown the correct strategy in the game performed better than students who began playing the game without prior preparation. It is recommended that the entertaining game characteristics are motivating, but they must be supported with planed selected tasks, instructor guidance and monitoring or testing for students' learning results. Based on the above principle as a foundation, this study related to game for educational purposes not only investigated the positive or negative echo of language learning from computer, but also attempted to provide a model curriculum of game-based teaching and learning. It is argued that the previous instructions and learning goal setting for language learners in game-based language learning can be key factors whether the language acquisition from on-line game can be sufficient or insufficient.

This study was conducted in spring, 2011, aiming at encouraging students to interact with international people on-line and use computer as an instrument of English learning. The preparation tasks of this study for game-based language learning are: first, instructing appropriate websites, secondly, leading students to share advantages and results of playing and learning with classmates and thirdly, raising students' awareness what are not high-quality games for language learning. The present study collected qualitative narrations, and provided students' feedback by coding thick descriptions. It pointed out 3 games to be most popular and proper games, contributing to improving diverse English abilities, including listening, speaking, reading and oral presentations. The results were in line with a number of scholars' perspectives, noting that games are potentially powerful learning tools because they can motivate, engage, stimulate higher order thinking, replicate phenomena accurately and speed up or slow time in order to provide relevant instructional experiences (Alessi & Trollip, 2001; Charsky & Ressler; Gee, 2003; Rieber, Smith & Noah, 1998; Van Eck, 2006).

LITERATURE REVIEW

Numerous studies indicate computer games are accessible and useful for language learning use, due to its features of congruence and appeal. For example, Lepper and Malone (1987) mentioned that when the game activity and the learning activity are congruent and mutually supportive, learning improves; conversely, when

the game activity and the learning activity are mutually exclusive, learning tends not to improve, even though the learner tends to perform well in the game. According to Malone and Lepper (1987), the higher-level the game can be relevant with the educational contents, the more motivated students will be to gain knowledge. Selecting games with functions of education should be a professional English teacher's responsibility.

In light of what mentioned above, preparations for game-based learning can be a significant and necessary step in teaching and learning; however, the preparation instructions or game-play demonstration must be carried out in a moderate way. Instead of long-term lectures, reducing the fresh and exciting level of game playing, the preparation leading descriptions should be brief, learning-purpose driven and motivation-stimulating. In fact, Burleson (2005) and Swan (2010) emphasized this point. They argue that providing too much information in the beginning may have taken away elements of challenge and discovery in playing the game and render the students passive learners. Therefore, involving previous demonstration and instructions of playing in curriculum can be expected to influential upon not only the students' attention paid to playing the game, but also the level of students' satisfaction. It is stressed that more control and enjoyable learning space given to the students is essential. However, teachers' brief descriptions of learning and playing in the prior stage cannot be ignored. Although a number of scholars indicate that game-based learning can be adopted in formal classrooms (Barendregt & Bekker, 2011), some of them remind us to apply this updated pedagogy more carefully. For example, Charsky and Ressler's (2011) research carries with it a warning for educators who adopt game based learning approaches: Do not dilute the potential effectiveness of games by taking away the one distinct attribute that gives them their advantage—play. This study paid attention to this point and directs student-centered mode of learning in and out of classroom. Based on above theories and results of studies, the opening demonstrations by the instructors tended to be diminutive, excitement-eliciting, contributing to stirring students' motivation and make students learn without obtruding.

This study utilized Facebook as the instruments of game-based teaching and learning. In fact, Facebook has been being applying as teaching instrument these years. For example, Shih's (2011) and Depew's (2011) findings based on Facebook application suggest useful instructional strategies for teachers of ESL English writing courses. According to Depew (2011), using Facebook's WebPages, language learners are able to develop their writing strategies in responding to complex situations. "These alternative and unconventional sites for learning provide language learners opportunities to acquire language by using multiple modalities to respond to various

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rhetorical situations." (p. 54)

The contribution of this study is it discovered 3 appropriate games with language learning functions, approved by university students and teachers to be included into formal educational curriculum. From Taiwanese perspectives, it contributed to game-based learning and teaching field by introducing educational functions in Facebook games. The significance of this study is Facebook games have been hardly ever analyzed and reported in academic field, although they have been being played by university students.

METHODOLOGY

This study was conducted in a university of central Taiwan, where 2 classes of 15 and 39 freshmen had cooperated with the researchers to investigate appropriate on-line free games for educational purposes of English learning. This qualitative study lasted for a semester, as well as 18 weeks. The instructor as well as one of the researchers had demonstrated learning English through quite a few on-line games such as "Guessing Song King", "Farm Ville", and "City Ville"…etc, briefly. Following, the teacher advised students to discover an analogous on-line game to play, which had to be associated with purposes of English education. The lecture reminded the students to integrate their abilities of reading, writing, listening and even speaking while playing and learning. The home assignment was to request students to provide their reasons why the games they selected and played were beneficial to language learning or for any educational purposes.

RESEARCH QUESTIONS

1. What are students' perceptions of the computer game?
2. Do they regard it as an appropriate educational game?

ASSUMPTIONS

First, due to course takers' background, they might not agree with the concept that playing can be the same as learning. Second, the course takers might have approved the updated pedagogy already. The reason could be that the computer and laptop are popular in Taiwan families. Therefore, the participants could provide some reasons for why the game played were appropriate.

RESEARCH SETTING

This study was conducted in 2 classes, where 15 and 39 students had selected the 2 credit required English course. The class of 15 students was held each Tuesday night for 3 hours continuously from 6:30 pm to 9:20 pm. The other class was held on Tuesdays and Thursdays for 3 hours in the morning (10:10 am to 12:00 am) and in the afternoon (1:00 pm to 1:50 pm). The night class was in the advanced level and the day class was in the intermediate level. The criteria of their level placing were based on their English subject scores of entrance examination. Each class room was equipped with 50 seats, and a blackboard and a computer and a screen were set in the front of classroom.

INSTRUTMENTS

The instruments for playing games and language learning were a computer, a huge screen and 3 on-line games discovered by the researcher from Facebook (Guessing Song King, Farm Ville and City Ville). Facebook can be an instrument that has been being applying for educational purposes by various educators and researchers. (e.g., Mazman & Usluel, 2010; Shih, 2011) To collect qualitative statements, paper sheets with the open-ended question had been offered to participants for answering. Moreover, each student presented a game by oral presentation at the end of the semester, via playing and learning using the equipped computer and screen in the classroom. The details they commented on the game were also recorded and analyzed. Several students brought their own laptops and presented games for their classmates and teacher. Their 5 minute presentations, including feedback of relations between the games and educational functions, were analyzed by comparison and contrast methods. Three similar themes reported by most students were conceptualized, classified and revealed.

RESULTS

From students' presentations, it could be discovered that the majority students proposed 3 games to be valuable for language learning. These 3 games are Pet Society, Country Story, and City Ville. They were mentioned by more students. Participants tended to regard them to be obliging education resource for language learners and field workers. The reasons these 3 games are applicable are in the later parts.

First of all, several students pointed out the game's descriptions were different languages, including English and Mandarin. Two interfaces could be switched to each other, so game functions of translating and being a mentor can support their language learning. Game players could read in Mandarin first for fully understanding the

descriptions. Following, they played the same game by switching the screen into English interface for better understanding. The game contents contained adequate new words, so language learners could enjoy reading to enter the next stage for higher-level game sessions.

Second, game-based learning allowed players to establish abilities of social interactions with the other on-line players. Students mentioned they could be motivated since they would like to compete with or help their neighbors on the game. They were able to visit the world established by their friends, to help out or interact with neighbors. Some participants' on-line neighbor players were native English so they improved in their English communications. After helping out their friends to achieve further sessions, they felt satisfied, sociable and more internationalized. Participants indicated that they sent messages to their neighbors and received responses in English. By receiving responses from their neighbors frequently, they were motivated to play and learn for a longer term. A student emphasized an American commercial company staff was playing the same game has interactive with him, allowing him making progresses in English communications.

Third, computer-mediated environment helped the learners' built concepts of administration and development. For example, in Pet Society, they learned how to manage necessities whilst staying home. In City Ville, they learned how to make an area flourished by establishing stores, ports and government hall. The students addressed that in the imaginative world, they could become a virtual mayor or a famer, imitating to be a governor, a baker a cultivator...etc. A student mentioned that she needed to have more interactions with neighbors, so she could receive gifts to make herself wealthy. Also, a student mentioned he had to run profit-making stores, so that he could gain benefits. A student suggested the players to develop lands by building high buildings or a city hall.

CONCLUSION

To conclude, in the present study, the 3 games, Pet Society, Country Story, and City Ville were regarded by most of the students as appropriate on-line free games. The results of this research implied appropriateness and applicability of game-based teaching and learning from Taiwanese perspectives. It revealed that games can be included into the language learning curriculum in formal settings. Besides reminding language educators not to ignore the prior stage instructions and to motivate students to study by mentioning above game-based learning advantages, this study recommends that qualified course outlines for game teaching should be designed in the syllabus if the game-based pedagogies really can be included into the formal curriculum.

The findings might be in contrast with Ke's (2008) supporting a common skepticism in using computer games for learning, namely that 'game playing students may involve themselves in pursuit of pure entertainment as opposed to learning-oriented problem solving. However, sufficient researches tend to support the application of games for educational purposes. Charsky and Ressler's (2011) study also supports the idea that computer game game-based pedagogies can be applied for education purposes. In parallel, Chang and Kuo, Kinshuk, Chen, and Hirose, (2009) argue that game-based systems should be worthy in developing applying. In sum, the research results of game playing associated with language learning were conspicuous. Most Taiwanese university students in this study agreed that game-based learning is applicable in school and it can be included into the formal curricula of university English courses.

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The Effect of Using Automated Writing Evaluation in Taiwanese EFL Students' Writing

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Abstract

Writing, indeed, is used not only to evaluate students' English proficiency, but also to assess their understanding toward other disciplines. In recent decades, automated writing evaluation [AWE] has been employed in the writing class to evaluate students' English writing performance. The purpose of the study is to examine the effect of using the AWE in EFL students' writing. In this study, subjects were 27 EFL freshmen from the Department of Applied English at one university in southern Taiwan. Both quantitative and qualitative research methods were used to conduct a quasi-experimental research by employing a pair-sample t-test and a semi-structured interview technique, in order to explore the following three research questions: (1) Is there a significant difference in the writing accuracy before and after the employment of AWE? (2) What is the overall self-report of using AWE on the improvement of writing in terms of accuracy, self-learning, and interaction? (3) What are students' attitudes toward the usage of AWE on their writing development? The research results reveal that there is a significant difference between the pretest and posttest scores after the AWE application. Regarding students' perceptions toward the condition of their usage of the AWE software, it shows that students who used the AWE have obvious writing enhancement in terms of writing accuracy and self-learning awareness. However, concerning the interaction between students and the AWE, it is found that AWE has its own limitations in providing the specific feedback, especially on the aspects of content and organization. It is expected that the research results can provide EFL writing teachers with pedagogical implications to understand students' usage of the AWE in the writing process, in order to improve EFL learners' writing performance.

Keywords: Automated writing evaluation (AWE); accuracy; self-learning awareness; interaction; EFL writing performance

INTRODUCTION

With the expansion of globalization, it is observed that English written text has not only been a major source of diverse information but also played an important role in global communication. In addition, writing is used to either evaluate students' English proficiency or assess their understanding of other subjects (Rezaei & Lovorn, 2010). Therefore, how to enhance and evaluate EFL learners' writing ability has gained much attention. Giving feedback is a key element in the process of evaluating students' English writing, and it is also one of the most vital sources of information helping students to reconstruct knowledge, adjust misconception, enhance motivation, and improve academic performance (Foote, 1999; Warden, 2000). Besides, giving and receiving feedback has been a main issue in the field of writing because the quality of feedback may greatly influence students' writing (Yang, 2010; Yu, 2006). Traditionally, the authority of providing writing feedback is controlled by teachers. However, it is time-consuming for teachers to correct errors and to give individualized feedback (Yu, 2006).

With the technological advancement and the expansion of the usage of internet, computerized feedback provided by the automated writing evaluation (AWE) software has induced an increasing influence on the writing instruction (Hirvela, 2005; Warschauer & Ware, 2006; Yang, Huang, & Jia, 2006). Via adopting this artificial intelligence system, several researchers assert that students gain great improvement in their writing in three dimensions. First of all, AWE offers students more writing opportunities and feedback with explanations to help them revise the errors (Hoon, 2006; Li, 2007; Milton, 2006). Secondly, such a system facilitates students' self-learning awareness in order to improve their writing by guiding students with different functions and resources, as well as offering immediate feedback (Dikli, 2006; Griffiths & Nicolls, 2010; Hoon, 2006; Lee, 2004). Thirdly, this technology is claimed to be more consistent and more objective than human raters since students who write more neatly and who demonstrate writing mechanics better often get higher scores than students who do not have such skills, even though their content is better (Li, 2005; Rezaei & Lovorn, 2010). In contrast, some researchers still doubt the effectiveness of the usage of AWE (Beatty, 2003; Ding, 2008; Warschauer, 1999). For example, the AWE software is opposed because it is short of meaningful interaction contained in the authentic context (Ferris & Hedgcock, 2005; Hamp-Lyons, 2001; Leki, 1990; Reid, 1994). Besides, the results in some studies reveal that AWE has a negative influence on students' writing in terms of accuracy or self-learning (Beatty, 2003; Chen & Cheng, 2008; Ding, 2008; Kepner, 1991; Warschauer, 1999). Since the effect of using AWE to promote students' writing is still a controversial issue, yet few studies have been done on the exploration of the situation in Taiwan context, the

purpose of this study is to investigate the impact of using AWE in EFL students' writing.

LITERATURE REVIEW

From earlier use of tape recorders to later introduction of computer assisted language learning (CALL), language instructors of English have never hesitated to try new things for the purpose of facilitating the teaching work and promoting language learning activities, not to mention the enhancement of the proficiency of language learning (Yang et al., 2006). In the resent decade, automated writing assessment has been widely accepted since it is reliable to grade international writing tests, such as the Graduate Record Examination (GRE) Analytical Writing Sample, the Medical College Admission Test (MCAT) Writing Sample, and the Graduate Management Admissions Test (GMAT) (Ding, 2008). With the breakthrough of technology for writing assessment, computerized feedback systems have become an effective tool for language instructors.

Advantages and Criticisms of Automated Writing Evaluation (AWE)

Research on AWE shows both positive and negative effects on students' writing development in terms of accuracy (Chen & Cheng, 2008; Hoon, 2006; Kepner, 1991; Li, 2007; Milton, 2006), self-learning (Beatty, 2003; Dikli, 2006; Ding, 2008; Griffiths & Nicolls, 2010; Hoon, 2006; Lee, 2004; Warschauer, 1999), and interaction (Ferris & Hedgcock, 2005; Hamp-Lyons, 2001; Leki, 1990; Li, 2007; Reid, 1994; Slatin, 1990).

Accuracy. AWE can enhance students' writing quality because it can offer an untiring source of writing practice opportunities for students by generating individualized error feedback and explanations of grammar, spelling, sentence, and word usage (Hoon, 2006; Li, 2007; Milton, 2006). For instance, Milton (2006) conducted a research involving 323 first-year university students lasting for 28 weeks to examine how Check My Words helped students improve their writing skills. Milton stated that in most cases, the computerized feedback focuses students' attention on sentence-level errors by helping students to resolve inaccurate usage, to identify errors which have been extracted from their own, and to reformulate the errors. Besides, in Li's (2007) observation, AWE possesses not only the features of grammatical and spelling check, but also the function to guide learners to create correct sentences. By applying this software, students gain great writing enhancement and overcome Chinglish usage because they are guided to choose better words and sentence structures provided by computers. What is more, participants involved in Hoon's (2006) research responded that they had improved their grammar and spelling by using My Editor, and word meanings are also improved by using Thesaurus.

Therefore, it can be concluded that AWE is helpful on students' writing performance in terms of accuracy by providing immediate error feedback with clear explanations. However, an experimental research designed by Kepner (1991) examining the contribution of different types of writing feedback to the development of L2 writing skills yields that simple error corrections which mainly focus on accuracy are only effective toward students with low-verbal-ability rather than students with high-verbal-ability. The same conclusion is also confirmed by Chen and Cheng (2008) who implemented AWE software, My Access, in three different ways in three different writing classes with third-year English majors in Taiwan in order to explore the effectiveness of using AWE in improving student writing. The results reveal that some participants considered that their writing cannot be enhanced because this program only provides vague and repeated feedback in the area of mechanical accuracy. Therefore, these participants suggest that this software with machine-controlled rules might be more suitable for those who are beginners and intermediate learners, since those participants want to write more flexibly and creatively.

Self-Learning. Students' writing would be automatically enhanced with the use of AWE because it can help students learn how to manipulate the whole writing process by themselves in terms of the combination of other web resources (Griffiths & Nicolls, 2010; Hoon, 2006), the guide of planning (Chandler, 2003; Griffiths & Nicolls, 2010; Hoon, 2006; Li, 2007), and the management of students' first and subsequent drafts which can be saved as a portfolio online (Dikli, 2006). In depth analysis of 34 volunteers at university-level in Malaysia done by Hoon (2006) for a whole semester aimed to explore the effectiveness of My Access in automated essay assessment and students' writing development. Hoon mentioned that the software provides with abundant online resources and tools which include the user and writer guides, writer's model catalogue, quick reference guide, and instructional units. This integration of tools and resources enables My Access as a software assisting students in managing their own writing and also giving it the potential in developing students' writing competence. The findings from Hoon's interview and student feedback support that My Access helps them organize ideas and produce a better essay by showing learners graphic organizer and writing steps. Moreover, Lee (2004) conducted a research with 42 international college students to compare the difference between a paper-and-pencil based writing and a computer-based one. The results demonstrate that 60% of participants answered positively that their writing is greatly improved, and they are more willing to write on the computer due to the extended time for planning and the opportunity for correction and revision.

In contrast, some researchers found that AWE is not really useful to improve

students' attitude of self-learning and thus to enhance their writing (Beatty, 2003; Ding, 2008; Warschauer, 1999). For example, Warschauer (1999) found that AWE which combines various web sources would impair students' writing performance because "critics say the Web drowns students in a sea of unreliable information and encourages mindless net-surfing" which would reduce students' self-learning motivation due to its endless nature (p. 157). The same concern is supported by Beatty (2003) who cautions that AWE users often follow the closed steps and sequences which make learners have "only limited opportunities to organize their own learning or tailor it to their special needs", and thus their writing cannot be improved (p. 10). Moreover, Ding (2008) expressed that monolingual feedback which refers to English feedback offered by AWE can neither provide much help to less skillful students nor increase their self-learning autonomy to improve their writing due to the frustration of understanding feedback.

Interaction. A number of researchers support that student writing can be improved because the immediate feedback provided by AWE creates synchronous communication which refers to simultaneous interaction between users and computers to complete a writing task (Hoon, 2006; Li, 2007; Slatin, 1990). The majority of the students involved in the depth analysis done by Hoon (2006) perceived that AWE is effective to enhance their writing as it is interactive and the feedback is instant and helpful. The same assertion is also supported by Li (2007) who said that AWE contains instancy, interaction, and objectivity. Moreover, Slatin (1990) has essentially described interactive writing which can enhance student writing as an emerging type of L2 writing class where students get synchronous feedback from spelling and grammar checks.

However, many studies show that in the automated environment, writing is framed as a piece designed to evaluate student mastery of grammar, usage, and organization, but it has yet to be modeled on real interaction for providing meaning negotiations (Ferris & Hedgcock, 2005; Hamp-Lyons, 2001; Leki, 1990; Reid, 1994). Ferris and Hedgcock (2005) pointed out that the shortcoming of AWE software is the "lack of meaning negotiation in real-world context" (p. 109). They question about the authenticity of writing regarding whether students really become stronger writers, thinkers, and communicators by practicing their writing on such a system, or they merely apply the same kinds of test-taking strategy skills on their writing assignments. Scholars, such as Leki (1990) and Reid (1994), pinpointed that computers cannot replace the interactions with teachers because novice writers are in the need of instruction, modeling, and practice in various perspectives of writing, and these needs are especially salient for ESL writers who need more guidance of linguistic and rhetorical forms of written English than native English speakers. Likewise, AWE

systems have been criticized for eliminating the human element in writing assessment (Warschauer & Ware, 2006) and falling short of human interaction as well as the sense of the writer as a person (Hamp-Lyons, 2001). Hence, students cannot be inspired during the process of interacting with others to think and to gain ideas and meaning negotiations. Moreover, since such feedback is unable to provide responses involving rich negotiations of meaning, AWE system can be misused to reinforce artificial, mechanistic, and formulaic writing which is disconnected from communication in real-world contexts. Therefore, students' writing proficiency cannot be improved by applying AWE with the lack of real interaction and meaning negotiation.

Recent Automated Writing Evaluation Technology: CorrectEnglish

With the recent development of technology by Vantage Learning, CorrectEnglish is claimed to help EFL writers improve their critical writing and revision skills by checking grammar, style, and proper word usage, and by providing the holistic score and immediate feedback on content, focus, organization, style, and overall performance. This system (http:// www.correctenglish.com) which is consisted of artificial intelligence also gives instruction of an overview of the task, an annotated model which allows students to follow for completing the final draft, and a checklist for students to view the elements and information in their own writing. Moreover, this technology blends other resources, such as Lexipedia Word Web and multiple reference volumes, which makes writing easier for saving students time in searching information. What is more, the operation of this electronic technology is to merely submit the essay for checking, and then the diagnostic feedback will be reported immediately. In addition, students are given chances to submit their work pieces on any topics and to revise as many times as they would like to because there is no limitation of topics and times in this system. The diagnostic feedback which contains highlighted errors with a list of explanations mainly focuses on three portions: grammar and style, writing and revision, and word choice.

In the environment of CorrectEnglish, learners can access grade analysis, diagnostic feedback, and other resources. Gradually, learners may obtain the concept of how to produce a better essay via the training offered by this AWE software. Inspired by previous reports, the present study adopts the AWE in the EFL writing class in Taiwan, to investigate whether there is a significant difference between students' pretest and posttest scores after the employment of AWE, and to explore students' perceptions toward the usage of AWE. Three research questions are addressed in the following: (1) Is there a significant difference in the writing accuracy before and after the employment of AWE? (2) What is the overall self-report of using AWE on the improvement of student writing in terms of accuracy, self-learning, and

interaction? (3) What are students' attitudes toward the usage of AWE on their writing development?

METHODOLOGY

Subjects

Subjects in this study were 27 voluntary freshmen majoring in Applied English at one university in southern Taiwan. Freshmen were chosen in the present study because they did not have any experience with AWE before. A demographic questionnaire was provided to collect subjects' background information. Results from the questionnaire reveal that all of the subjects ranging from 19 to 20 years old, with an average age of 19.15, have been learning English for 9.58 years. To evaluate the effectiveness of employing AWE in English writing, subjects were trained how to utilize AWE to complete their writing tasks in the spring semester of 2011. A writing composition test related to Taiwanese culture was conducted within 30 minutes for the sake of confirming an equivalent proficiency level before the treatment of AWE. Also, the AWE software, CorrectEnglish, was used to evaluate subjects' proficiency level based on the Flesch-Kincaid Grade Level which is a valid and reliable language readability formula to test the readability of written texts. According to the previous studies, lower scores characterize text that is more difficult to read and roughly corresponds to students' lower writing ability (Cleaveland & Larkins, 2004), lower literacy level (Perin, Keselman, & Monopoli, 2003), and poorer writing quality (Darus, Ismail, & Ismail, 2008; Shang, 2007).

Sampling Strategies

Both quantitative and qualitative sampling strategies composing of multistage sampling and purposeful random sampling were employed in the present study to achieve an appropriate sample size from a larger population pool in order to gain the significant research results and reach the generalizability. In this study, 27 EFL freshmen majoring in Applied English at one university in the south of Taiwan were chosen to do the questionnaire for attaining their standpoints toward the usage of AWE via using multistage sampling strategies. The cluster sampling, which is useful to save time by collecting data at a specific site, was used first to randomly select freshmen in their writing classes. In addition, purposeful random sampling was applied for conducting the semi-structured interview to explore 15 participants' in-depth perceptions toward the usage of AWE on the writing performance in terms of accuracy, self-learning, and interaction.

Instrumentation

Writing Composition Test. To examine students' English writing proficiency, a writing composition pretest was conducted at the beginning of the spring semester of

2011 before the subjects were trained how to use the AWE, and a posttest with the same writing topic was also conducted at the end of the spring semester of 2011 after those subjects had the experience of using the AWE software, CorrectEnglish. The topic of the writing composition in the pretest and posttest, My Favorite Chinese Festival, is extracted from Yu's (2006) study because it is related to Taiwanese culture, and thus it is easier for the subjects to pool ideas and produce their own work. Each of the duration of the pretest and posttest was 30 minutes in total to assure that the subjects would have enough time to complete the writing task with the request of 300 words at least. Besides, dictionaries were allowed for looking up vocabularies. A pilot test was done by the first three subjects before conducting this research in order to ensure the content to be comprehensible.

An AWE Software: CorrectEnglish. The AWE software, CorrectEnglish, was applied in the present study for three reasons. First, this software was used to provide instructions of the task, a holistic score, and immediate feedback of grammar, style, and proper word usage to those subjects for helping them complete the final draft and produce a better essay. Second, such a software was utilized to categorize the subjects with equivalent proficiency level based on the Flesch-Kincaid Grade Level. Third, this software was employed to investigate whether there is a significant difference after the treatment of applying the AWE in the writing process in terms of accuracy.

Questionnaire Design. A questionnaire was designed and adopted by the studies of Chen and Cheng (2008), Lai (2009), Yang (2010), and Yu (2006). Thirty multiple-choice questionnaire items were composed regarding the subjects' self-reports of using the AWE to influence their writing accuracy, self-learning attitude, and interaction with the computer. Thirty items were divided into three major directions, including 10 items in the accuracy, self-learning, and interaction section respectively. Likewise, the questionnaire consisted of a 5-point Likert scale, ranging from 5 (strongly agree) to 1 (strongly disagree). A pilot study was done by five subjects to ensure that each item is comprehensible. After pilot testing, items 8, 12, 13, 17, and 27 were modified for better understanding. Besides, to testify validity of the questionnaire, each item of the questionnaire was examined by using the software, SPSS 17.0, showing that there was a significant difference ($p < .05$) in each questionnaire item, so all the items should be retained. As for reliability, the result of the internal-consistency coefficients showed that Cronbach's alpha (α) for accuracy, self-learning, and interaction were .81, .85, and .79 respectively, indicating that there is a high reliability among the questionnaire items.

Semi-Structured Interview. Fifteen participants were examined by using a semi-structured interview technique to explore students' in-depth perceptions toward their usage of AWE software. In addition, a consent form composing of the purpose

of this study, the rights to refuse to answer sensitive questions, as well as the interview process, was presented to get the permission of the participants. Each participant was interviewed about 15 to 20 minutes, and they were informed that their personal identities would be replaced with numbers. During the interview process, each participant could answer the questions in either Chinese or English depending on what language the participants can express their own perceptions explicitly. Fifteen questions were composed to explore participants' opinions toward the effect of using the AWE software in writing. Additional follow-up questions were asked in order to build up a more complete picture. Before conducting the interview to the participants, a pilot testing was conducted by two participants from those 15 chosen students in order to modify interview questions including the revision of the proper tense, the modification of some distortions of questions, and the clarification of ambiguity.

Data Collection Procedures

In the present study, the nonequivalent groups pretest-posttest control and comparison group design was applied; that is, the subjects are given a pretest, then the treatment, and then a posttest which is the same as the pretest. The overall experiment was conducted with a group of freshmen among three phases: the pre-treatment phase, the while-treatment phase, and the post-treatment phase. First, in the pre-treatment phase (Week 1 and Week 2), subjects received an instruction of how to utilize AWE, and took a writing composition pretest. Second, in the while-treatment phase (Week 3 to Week 16), the subjects received the AWE instruction for 3 hours per week, lasting for 14 weeks. During the activities of AWE, students were asked to submit their compositions to the AWE, CorrectEnglish, to read the immediate feedback through CorrectEnglish, and to revise their draft based on the feedback in CorrectEnglish. After being assessed by CorrectEnglish, students must save the revised drafts in their computerized portfolios as the proof. Finally, in the post-treatment phase (Week 17 and Week 18), all the subjects were requested to do the posttest with the same topic as the pretest. After a week of doing the posttest, a questionnaire and an individual interview were performed to obtain more in-depth information regarding the effect of AWE on accuracy, self-learning, and interaction. As for the qualitative data collection, tape recording was adopted in the process of interview, and participants' answers were transcribed for further content analysis.

Data Analysis

In this study, both quantitative and qualitative research methods were employed to explore the following three research questions: (1) Is there a significant difference in the writing accuracy before and after the employment of AWE? (2) What is the overall self-report of using AWE on the improvement of student writing in terms of accuracy, self-learning, and interaction? (3) What are students' attitudes toward the

usage of AWE on their writing development?

First of all, in order to evaluate the effect of applying the AWE software while writing, the results from the pretest and posttest scores were calculated to answer the research question 1. To analyze the data, a paired-samples t-test technique was applied to investigate whether students' writing accuracy would have a significant difference (p < .05) after the usage of the AWE software, CorrectEnglish. Secondly, descriptive statistics were used to compute the mean scores and standard deviations from the questionnaire survey for the purpose of gathering subjects' self-reports toward the usage of AWE in their writing. Finally, a semi-structured interview technique was utilized to explore more in-depth information about students' perceptions toward the usage of AWE in English writing. Regarding the qualitative data analysis, tape recording was adopted during the process of interview. After the interview, all of the participants' expressions were transcribed in order to explore students' perceptions regarding their usage of AWE while writing. After transcribing, all the data was studied carefully to discover the similarities and differences, and then the data was divided into smaller and more meaningful units related to accuracy, self-learning, and interaction of AWE so as to synthesize a grounded theory.

RESULTS

Research question 1: Is there a significant difference in the writing accuracy before and after the employment of AWE?

A paired-samples t-test analysis was implemented to investigate whether there is a significant difference in terms of students' writing accuracy between the pretest and posttest scores. As indicated in Table 1, comparing with the pretest score (M = 14.81, SD = 7.62), students made fewer errors in their posttest (M = 4.84, SD = 3.02), with a significant difference at the .05 probability level (p = .010), showing that there is a statistically significant difference between the pretest and posttest scores in terms of accuracy after students receive the treatment of using AWE in their writing.

Table 1

Results from the T-test for the Pretest and the Posttest

Test	*N*	*M*	*SD*	95% Confidence Interval of the Difference		*t*	Sig
				Lower	Upper		
Pretest	27	14.81	7.62	7.47	12.46	8.16	.010*
Posttest	27	4.84	3.02				

Note: N = number of subjects, *M* = mean of errors, * *p < .05*

Research question 2: What is the overall self-report of using AWE on the improvement of student writing in terms of accuracy, self-learning, and interaction?

The questionnaire in this study was designed as three parts to evaluate students' perspectives whether the usage of AWE can improve their English writing in terms of accuracy, self-learning, and interaction. The results manifest that using AWE is generally effective to improve students' English writing (M = 3.52, SD = 0.28), particularly on the aspect of enhancing writing accuracy (M = 3.81, SD = 0.21). Likewise, according to the results, students get assistance in the AWE not only on the aspect of figuring out grammatical errors, such as tenses and sentence structures, but also on the aspect of providing appropriate word usage. Generally speaking, most of the students reveal their positive attitude toward the AWE application to enhance their writing accuracy.

Concerning students' self-learning awareness, the results display that students are more willing to produce more and better writing due to the uplift of their self-learning attitude (M = 3.49, SD = 0.49). In addition, the results also uncover that students' self-learning awareness is increased by two main reasons. First, the beneficial functions of the AWE, such as the guidance formats and grammar, can help students not only to organize their own writing easily, but also to reexamine their products in order to find out their own writing weaknesses. Second, students' self-learning attitude is enhanced because there is no time limit and frequency of usage; therefore, students can complete their writing task and get the immediate feedback at any time and any place.

Regarding the interaction between students and AWE, however, there is less interaction between them (M = 2.73, SD = 0.43). According to the results, most of the students consider that their writing cannot be improved when they confront some writing difficulties which cannot be discussed with the AWE software in a real and meaningful way because the feedback from the AWE is too rule-based for them in terms of sentence meaning, even though interacting with the AWE is faster. In sum, the majority of students reveal their negative attitude toward the AWE due to lack of meaningful interaction with the computer.

Research question 3: What are students' attitudes toward the usage of AWE on their writing development?

Writing Accuracy

Grammatical accuracy. Regarding the improvement of students' writing accuracy by using AWE in English writing, 12 out of 15 participants agreed that utilizing the AWE software can facilitate their writing accuracy. To demonstrate more explicitly, participant #2 mentioned that, "… I think it is really useful to check my grammar by using the AWE, especially on the aspect of tenses. I usually forget to add

"s" or "es" when it comes to the third person in the present tense. Also, I am really careless to use the correct form of verbs referring to the past tense. This software can help me to check my grammar errors, and I especially prefer that the feedback is always with explanations, so that it is easy for me to get the points to do the writing revision."

Difficulties in improving writing accuracy. However, some participants declared that the feedback provided by the AWE can be too simple or vague to enhance students' writing accuracy, which produces writing difficulties to them. For example, participant #1 illuminated that "I think that the feedback from the AWE is too simple to me because I can check grammar mistakes by myself." Additionally, participant #14 declared that "sometimes the feedback from the AWE is vague to me, so I do not understand how to do the correction. For instance, when I saw the feedback 'clause error,' I just could not find out where the mistakes were because the explanation is not clear enough to me, especially when it provides me without word substitution." From the above excerpts, these minorities consider that the AWE is not effective in checking grammar, suggesting word usage, nor even guiding corrections.

Self-Learning

Operations of the writing process. The interview results show that 11 out of 15 participants agreed that it is efficient to use the AWE in student writing by following the guidelines as well as using the multiple functions in this software. For example, participant #6 stated that "I take more responsibilities of my whole writing after utilizing the AWE because I used to wait for the feedback from teachers and I depended on teachers a lot. I thought that after handing in my writing, everything was not my business anymore, and teachers had to correct and grade my work and they had to explain the mistakes to me, but right now, I have to revise everything by myself based on the feedback and guidelines from the AWE."

Difficulties in improving self-learning. However, the other participants argued that they encountered some difficulties to decrease their self-learning motivation. For instance, participant #4 ascertained that "it restricts my creativity and ideas because sometimes I might rely on the software too much." Moreover, participant #14 declared that "I cannot understand all of the feedback because the feedback is only written in English. It frustrates me." Consequently, the minority discloses that the restriction of creativity, the endless searching of web resources, and the English-only feedback are the main reasons which reduce their self-learning attitude.

Interaction

Synchronous interaction. A small group of participants expressed that there is an interaction between the AWE and themselves due to the synchronous function. For instance, participant #3 replied that "I think that the feedback from the AWE is real

and meaningful to me, and I usually treat the computer as a real audience because it offers me immediate feedback." Hence, the minority approves that the AWE plays an active role of interacting with the students.

Difficulties in enhancing interaction between students and the AWE. Although several participants considered the immediate feedback from the AWE as synchronous interaction, 12 out of 15 participants disputed that there is almost no interaction between the AWE and themselves, and they still prefer to interact with human beings. To be specifically, participant #9 also mentioned that, "… I still prefer interacting with human beings because I cannot discuss my writing difficulties with the AWE software, although it is useful to check grammar errors with efficiency. I think human beings can give me more specific and meaningful feedback, especially on the content and organization."

DISCUSSION

The purpose of this study focuses on investigating whether there is a significant difference between the pretest and posttest scores after the application of AWE, and further to explore students' perceptions towards the usage of the AWE in the EFL writing classes in terms of accuracy, self-learning, and interaction.

First of all, regarding the difference before and after the employment of AWE in terms of writing accuracy, the findings of the present study demonstrate that students make significantly fewer errors after receiving the treatment of AWE in terms of writing accuracy after receiving the assistance of AWE. Such results match the previous studies (Dikli, 2006; Hoon, 2006; Li, 2007; Milton, 2006), indicating that by receiving detailed and diagnostic feedback with clear explanations provided from the AWE, students can significantly improve their grammar, word usage, and spelling, and thus gain great writing enhancement on the aspect of writing accuracy.

Secondly, the overall finding from the questionnaire survey indicates that students hold positive attitudes toward the effect of using AWE on the improvements of their writing accuracy. Such a result supports the previous studies (Hoon, 2006; Li, 2007; Milton, 2006), illustrating that it is effective for students to utilize the AWE to improve their usage of grammar, vocabulary, and spelling because students' writing can be checked and guided by the AWE software, so as to get the immediate feedback for revision. Likewise, regarding the result of students' self-learning awareness, it is also shown that students who receive the treatment of AWE increase their self-learning motivation and their responsibility of completing their writing task. Such a result coincides with previous studies (Chandler, 2003; Dikli, 2006; Griffiths & Nicolls, 2010; Hoon, 2006; Lee, 2004), suggesting that first, students learn how to manipulate the whole writing process by themselves with the guidance of using web resources, the function of guiding planning with leading questions, and the

management of portfolios. Second, students are automatically motivated to produce more and better written texts due to the convenience and easy accessibility of the AWE without the restriction of time and frequency of the usage. Nevertheless, as for the result of interaction, it is exposed that there is no obvious interaction between students and the AWE. Such a result confirms the previous studies (Ferris & Hedgcock, 2005; Hamp-Lyons, 2001; Leki, 1990; Reid, 1994), showing that it is lack of real communication if writing in the automated environment. No wonder the majority of EFL students still prefer getting the feedback from human beings because they cannot communicate with the computer to solve their writing problems in manifold aspects.

To further explore students' perceptions toward the conditions of their usage of AWE while writing, the majority of students state that the computerized feedback from the AWE focuses their attention to correct the sentence-level grammatical errors, to resolve inaccurate word usage and spelling, and to reformulate those errors (Li, 2007; Milton, 2006). Also, students express that they can easily correct their mistakes due to thorough explanations with examples and substitution of words suggested from the feedback of AWE; such a result corresponds to the previous researches (Hoon, 2006; Li, 2007; Milton, 2006), showing that students' writing accuracy can be greatly improved by getting feedback from the AWE with explanations and suggestions to identify their own writing defects.

CONCLUSION

To sum up, although previous investigations of writing development have shown both positive and negative effects on the usage of the AWE software (Chen & Cheng, 2008; Dikli, 2006; Ferris & Hedgcock, 2005; Griffiths & Nicolls, 2010; Milton, 2006), yet not until recently have there been fewer studies focusing on EFL learners' writing development in a Taiwanese learning context. Therefore, it is essential to realize the effect of using the AWE software on the improvement of students' writing in terms of accuracy, self-learning awareness, and interaction in a Taiwanese environment. Concerning with the research findings of the present study, students who receive the treatment of AWE significantly improve their writing accuracy by getting the thorough feedback with clear explanations and examples of grammar, word usage, and spelling; moreover, students' self-learning attitude is also apparently enhanced because students can be guided by the AWE in the whole writing process without any limitation of time and usage. Therefore, it is proved that EFL students' writing accuracy and self-learning awareness can be developed by the assistance of the AWE software (Chandler, 2003; Dikli, 2006; Griffiths & Nicolls, 2010; Hoon, 2006; Lee, 2004; Li, 2007; Milton, 2006). It is expected that the research results of the present study can provide EFL writing instructors with a strategic application in the writing

class to guide students how to use the AWE software appropriately, in order to help them produce better written texts in the writing process.

LIMTATIONS OF THE STUDY

Based on the research design of the present study, several limitations need to be ameliorated and improved in the future study. First of all, the sample size with only 27 subjects is too small to reach the generalizability. Secondly, the research results derived from the subjects who are only English-major students may not be inferred to non-English majors. Thirdly, the research results might not be valid and reliable enough because the duration of conducting the experiment for only one semester might be too short. Finally, some issues regarding gender and individual differences such as different English proficiency levels are not taken into considerations. In the future research, it is suggested to enlarge the sample size divided into experimental and control groups with the other non-English majors, and to lengthen the time of conducting the related experiment with more writing texts. Consideration of individual differences such as students' attitudes to participate in the research, gender, and how such variables may influence the use of AWE shall lead to future research design.

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Discourse Analysis of the E-Mail Project in a College Composition Class

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Abstract

A great number of benefits have been claimed in a Computer-Mediated Communication (CMC) context; however, little research has been conducted by the method of discourse analysis. The purpose of this study is to, through discourse analysis, unfold and uncover EFL learners' underlying feelings about e-mail writing and their writing styles. The participants were thirty-four Applied English-majored college students, writing e-mail to their peers for five times. Based on the data collected from the learners' e-mail and reflection discourse, the results showed that the majority (88.24%) had positive attitudes towards e-mail writing. Besides positive feelings about this writing project, the learners presented highly active participation in writing e-mail to their peers. Through the e-mail writing project, they not only had more opportunities to use the target language, but also supported each other to deal with academic and personal difficulties. Furthermore, their e-mail writing style had also been analyzed. Through the analysis, it was claimed that EFL learners also used repeated letters, punctuation marks, emoticons, and special features in the e-mail writing. Implications of these findings for future studies are proposed to be of help to those who would like to apply e-mail writing to an EFL context.

INTRODUCTION

CMC refers to communication through a computer between or among people (Herring, 1996; Levy, 1997), including synchronous and asynchronous modes. Whether in synchronous or asynchronous modes, a wealth of studies using CMC has reported the benefits of applying this medium to language learning. In a CMC context, learners are provided with a more equitable platform for discussion (Warschauer, 1996); moreover, they interact more with each other(Al-Fadda & Al-Yahya, 2010; Chun, 1994; Ducate & Lomicka, 2008; Elola, 2010; Goertler, 2009; Kern, 1995; Kuzu, 2007; Sharma, Ke, & Xie, 2010; Warschauer, 2009; Yang, 2009). E-mail communication is a text-based CMC in which participants interact with each other through written language. Moreover, it provides a high speed service to exchange information asynchronously.   Several benefits of using e-mail in language

classrooms have been noted by a great number of researchers (Belisle, 1996; Goodwin, 1995; Liao, 2002). The benefits are to promote real and natural communication, to facilitate independent learning, and to arouse learners' interest in communicating with each other (Warschauer, 1997). Furthermore, e-mail creates opportunities for teachers to interact with learners and also makes learners express their ideas more easily (Belisle, 1996). In other words, interactive communication happens not just in class, but also in the exchange of e-mail.

Speaking of e-mail communication, the style is not like that of formal communication but more of conversation. E-mail, in most situations, is not composed or edited as carefully as conventional writing. In the same vein, Baron (1998) proposed that the style of e-mail follows the style of speech, which is that there is little or no editing. The differences between spoken and written languages were identified and categorized by Halliday (1989). In spoken language, speakers use more contractions, ellipsis, and grammatical words, whereas more content word and phrases are used in written language. In order to examine e-mail, a more speech-like written communication, the method of discourse analysis was applied in the study. Through the analysis, the writing style used by EFL learners would be revealed and moreover, their feelings about e-mail writing would be unfolded as well.

RESEARCH METHODOLOGY

The data was analyzed to investigate EFL learners' attitudes towards e-mail writing, features of e-mail writing, and their social interaction through quantitative and qualitative methods. The quantitative method used in the study was descriptive statistics, describing the frequency of e-mail opening and closing styles. Besides the style frequency, learners' feelings about e-mail writing were examined and interpreted through the method of discourse analysis. The participants were thirty-four Applied English-majored college students, writing e-mail to their peers for five times during a semester. During the semester, each learner, first, found an e-mail writing partner among the students from the same class and then, he or she started writing at least 80 words per e-mail to the partner. The partner wrote back to him or her. The paired learners had to complete the writing project together and to meet the requirement, which was that they had to write no less than five times to each other. By the end of the semester, the learners printed out all the e-mail content and also filled out a personal data form, including reflection on this e-mail writing project. The e-mail content and reflection form were the target data to be analyzed.

DATA ANALYSIS

The analysis was divided into three major categories: attitudes towards e-mail writing, social interaction and mutual support, and writing style. Below was the analysis for each category.

Attitudes towards e-mail writing

Analyzed through the learners' reflection, it was found that the majority (88.24%) had positive attitudes towards the e-mail writing project. Moreover, their good feelings about it were grouped into four main categories: an interesting project, experiences to be shared, tightened friendship, and improved English writing.

An interesting project

Many learners mentioned that the e-mail writing project was fun and interesting. Because of its fun and interesting aspects, they enjoyed writing e-mail to each other, without complaining about the workload of writing.

"I think it's very interesting assignment" (Ariel)

"very happy, it's my first time to write a letter to my friend." (Angelina)

"…sometime I would forget it or have nothing special to share. But it is still quite a lot funny." (Marcy)

"This email assignment was fun and interesting." (Ashley)

"I think it's fun, Fantastic." (Martina)

"It's fun. Feel like talking to someone who I don't know, just like making new friend." (Pohan)

"I feel very fresh and interesting." (Breonna)

Experiences to be shared

Apart from opinions about the interesting and fun part of the project, the learners also claimed that they were provided with more chances to share life experiences with their peers.

"Through this project, we can know more about other's life." (Vickey)

"Also I can get some informations from my friend." (Joyce)

"I can share everything that I experience everday. Just like I have an internet friend." (Angela)

"I can more know my friend." (Kira)

"We also get the chance to communicate with classmate." (Li)

Tightened friendship

Provided with more opportunities to share experiences with each other, the learners felt closer to their e-mail writing partners, making the ties between classmates stronger and stronger.

"Increasing our friendship." (Joseph)

"And I think Ashley and I become closer." (Winston)

"It's a good assignment that can improving the relationship between classmates." (Judie)

Improved English writing

Not only did the learners feel closer to their partners, but they also thought that their English writing improved through this e-mail writing project.

"I think it did improve my writing skill." (Megan)

"It's very helpful to me learn more in English." (Joyce)

"The email is a good skill to learn English." (Zeviue)

"That can help me more improvements." (Mia)

The analysis above which was based on the answers from the reflection form revealed that the learners had fun doing this e-mail writing project and they also became closer to their classmates. Most importantly, they thought they were provided with more opportunities to practice English and their English writing improved.

Besides the analysis of the reflection form, the analysis of the e-mail content demonstrated that the learners supported each other mentally and psychologically to overcome any difficulties in the family or academic life.

Social interaction and mutual support

    Through discourse analysis, social interaction and mutual support between the learners could be revealed and interpreted.   When one learner faced a problem or difficulty, the other learner offered a helpful hand and tried to make a suggestion to help deal with it.   In the study, the interaction between learners was strengthened through the e-mail project; similarly, Warschauer (2004) mentioned that "Computer-mediated communication combines several features that together make it a powerful new medium of human interaction (p.5)."

1.

> Jasper: Li, actually I didn't sleep well last last. I've been in bad mood from these couple days becouse of some reasons.
>
> Li: You can do it if you like to find someone to talk about or take a way our of your problem, can't you? I will be happy to see that if you can take in my suggestions. The most important thing for a successful person that is taking action for your goal.

2.

> Judie: The other thing I want to share with you is what I faed now. That is I got lost in my way, is it serious? I was setting my goal and I really wanted to reach it. But now I feel that is not what I want and I can't feel anything. How can I do? Can you give me some advice?
>
> Vickey: I know sometimes we would lose our self in life, because of the age, job, and environment or without any reason. You know sometimes the dream and reality are conflict. Just follow your heart. Maybe you just confuse temporary. Don't worry too much!

3.

> Ariel: Talking about the final presentation, I bother my listening presentation too. The topic is "The different marriage between India (arranged marriage) and free love."
>
> Claire: That's a very interesting topic. Are you searching for the India Marriage already? Don't worried about the 10 mins presentation, you should practice at home serveral times before you go on the stage.

4.
    Joseph: Unfortunately, when I got off my duty, the money I received was less
              than they previously told me. I was pretty upset about this…Anyway, I
              was just grumbling.
    Martina: That sucks! If I were you I would fight with my right. Did you ask
              your boss about the salary? I bet you didn't do that…Duet to I am a
              person who don't like to waste time, if I didn't get the feedback As I
              pay, I will ask it directly…

In this CMC context, the learners not only have more chances to use the target
language but take part in this virtual social network, sharing their lives and
encouraging their peers.   CMC indeed strengthens the connection between learners.
Learners, therefore, on one hand, practice the target language; on the other hand, they
develop social communication skills and gain support to face personal or academic
problems.

Writing style
Besides social interaction and mutual support, writing style could be analyzed as
well through discourse analysis.   Through it, the way how the learners write e-mail
was revealed.   The language of e-mail writing is far more different from standard
writing for "it is informal" and "it is graphic" (Warschauer, 2007).   Informal and
graphic characteristics in e-mail writing were unfolded through the analysis of data.
The data was examined for discourse features in the light of the following aspects:
openings and closings (Crystal, 2001; Gains, 1999) and special language features
(Crystal, 2001; Murray, 1988).

1.   Openings and Closings
The opening styles were analyzed by the category proposed by Crystal (2001).   The
category was divided into two parts: +Dear messages and –Dear messages.   Table 1
below showed that the learners used more +Dear messages (60%) in their e-mail
writing while –Dear messages (40%) were less written.   Writing in a CMC context is
less formal, especially in the context the senders and recipients are peer classmates.
Some of them even used +Dear with intimate name to express their close relationship
with the recipients, such as Dear More Responsibility, Dear Mama-to-be, and so forth.
Table 2 indicated the styles of closing used by the EFL learners.   The most frequent
closing style is "sender's name only (25.88%)," followed by "no closing (24.71%)."
Given with the results of opening and closing styles, it is suggested that in an e-mail
environment, the language is different from the one used in face-to-face and telephone

conversations (Murray, 1988). Moreover, informal and casual ways of communication were revealed through the style of opening and closing e-mail by the learners.

Table 1 E-mail Openings

	Frequency (%)	Examples
+Dear	60	Dear Li
		Dear Joyce
-Dear	40	Hi, Kira
		Hello, Zevine

Table 2   E-mail Closings

	Frequency (%)
Sender's name only	25.88
No Closing	24.71
(All the) best (wishes/ regards)	17.65
Sincerely (yours)	7.65
Bye/ See you	5.88
Good luck	5.88
Others	5.88
Have a good (nice) day	4.71
Thank(s) (you)	1.18
(Much) Love (and respect)	0.59

2.   Special features of CMC writing

Apart from the openings and closings, special features of CMC writing were also revealed through the analysis.   The features were grouped into four parts: repeated letters, punctuation marks, emoticons, and abbreviated language.

a. Repeated letters

   "**Helooooooooo** Angelina" (Megan)

   "I have to go to bed and good **nighttttttt**." (Breonna)

   "Yeah, I haven't touch the studies **yeeeeet**!" (Mia)

   "Btw its **soooooooo** hot today!!!" (Ariel)

b. Punctuation marks

"Yup…finally**!!!!!** We are gonna finish the writing final assignment." (Ariel)

"Hi**!!!!**Nana, I am always very busy in holiday." (Stephanne)

"I can't wait to show you the film I made**!!!!** It certainly will amaze you**!!!!**" (JG)

"Why is the beautiful clothing so expensive**!!!**???" (Mimian)

c. Emoticons

"If so, why don't we go together. **:D**" (Carla)

"See you again! ☺ Hope you will have fun with the second love!" (Vickey)

"We were so happy so drink some beer ☺" (Breonna)

"The weather was really terrible, keep raining and raining. Don't forget to bring umbrella with you. **;)**" (Martina)

d. Abbreviated language

"The ture is my linguistic fail~~~~~**OMG**!!" (Angelina)

"See **u** on Monday!" (Megan)

"**Bcuz**, I ahd a so down mood…" (Mia)

""At least he has been sitting next to me and having some classes with me **b4**, right?" (Tea)

In a CMC context, senders and recipients do not see each other; however, they are still able to use special language features to express emotion. Just like what was analyzed above, the EFL learners used repeated letters, punctuation marks, emoticons, and abbreviated language in their e-mail, bridging the gap between face-to-face and online communication.

CONCLUSIONS AND IMPLICATION

The findings of this study revealed that the majority of the learners (88.24%) have positive attitudes towards e-mail writing.   Apart from their good feelings about it, they also presented highly active participation in this project.   It is acknowledged in this study and other research (Kamhi-Stein, 2000; McPherson & Nunes, 2004; Trajtemberg & Androula, 2011; Warschauer, 2009) that the learners' social interaction has improved and mutual support has also been gained through CMC contexts. Some learners reported that they would like to continue writing e-mail to their partners even after they were not required to do so.   At the beginning of the project, the learners wrote e-mail mostly out of extrinsic motivation.   However, after the project, they did it due to intrinsic motivation, driving them to have further e-mail contact with their partners.   Furthermore, special features of e-mail writing are used

by EFL learners, including repeated letters, punctuation marks and emoticons, which demonstrates that e-mail is an informal form of written communication. The analysis of e-mail writing style is in accordance with the definition of spoken language proposed by Halliday (1989) and the informal writing characteristics categorized by Crystal (2001), Gains (1999), and Murray (1988). Obviously, in this written communication, senders could still express their emotions through special language features. Special language features make the virtual world closer to the face-to-face world. It is hoped that the findings and conclusions shed some light on the application of e-mail in a composition class and it would be of help to those language teachers who would like to arouse learners' interest in writing and promote more positive interaction between or among learners.

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A Cross-Linguistic Approach to Body Part Metonymy
in English and Chinese

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Abstract

This study aims to explore whether different cultures affect the use of body parts in languages. In particular, we would like to collect the data of the body part metonymy in Chinese and English from online dictionaries/corpora (i.e., Chinese Wordnet and Cambridge English dictionary online) and to analyze what meanings of body parts are used only in Chinese or English metonymies. Since traditional Chinese Medicine is pervasive in China and East Asia and emphasizes body's functions (e.g., *qì*, *xuě*, the five *zàng* organs, the six *fǔ* organs, and the meridians), we hypothesize that the influence of Eastern culture may result in the more frequent use of internal body-part metonymies in Chinese than in English. The results of our corpus data show that Chinese has more metonymies using internal body parts than those in English, which are consistent with our hypothesis of culture influences on languages. It is hoped that our research can provide a direction for EFL instructors in designing teaching materials and understand what metonymy in English may be more difficult for students in Taiwan to acquire.

Keywords: Second Language Acquisition, body part metonymy, Chinese Wordnet, Chinese, English

INTRODUCTION

Metonymy (Barcelona 2010) is defined: "A cognitive process whereby one concept is used to mentally activate (i.e., to "make us think of") another concept with which it is closely related in experience" (Bracelona, 2010). According to Barcelona's proposal, metonymy helps us think and experience. Metonymy is frequently used in our daily conversation and it is very productive, no matter in English, Chinese or other languages. Past studies (Gibbs 1999; Panther 2005) pointed out that metonymy is ubiquitous in language, and in fact can reflect people's reasoning in general.

Kövecses (2001) defined that body parts are the most common source in the idiom. Take English and Chinese for examples, in both English and Chinese, we can use "new hand" to describe a person who just joined a team, as illustrated in this sentence: "This baseball team has a lot of new hands." （這支棒球隊有很多新手）. Because "new" can refer to "not familiar with something" and "hand" is a part of

a body, this compound "new hand" means "a person is new to a place he or she is not familiar with."

The past studies show that metonymy has great influence in our lives no matter in our thoughts or languages. Many studies focused on the first language acquisition of metonymy (Croft 1993; Kövecses and Radden 1998; Barcelona 2010, Hilpert 2007). However, there is little research discussing the second language acquisition (SLA) of metonymy (Scott 2009; Barcelona, 2010), or more precisely, the second language acquisition (SLA) of body part metonymy. The SLA of body part metonymy should be as important as first language acquisition.

In addition, Kövecses (2001) found out that metonymies are directly used in many idioms, and the most common idioms are related to human body metonymies. Because of the relationship and high frequency, Kövecses (2001) suggested that body part idioms should be taught early in ESL classes. In addition, Borcelona (2010) also gave suggestions for teaching metonymy in EFL class. For example, he suggested that instructors should raise learners' awareness of underlying mapping involved in metonymy, use adequate contexts with metonymy triggers and explain language or culture specific barriers. Furthermore, instructors can "stimulate metonymy-guided reasoning" and "exploit the metonymic motivation of certain basic metaphors" in class.

Even though Kövecses (2001) suggested that body part metonymies should be taught on early childhood, he only tested this hypothesis on idioms but not on body part metonymies. Indeed, little research investigated the relationship between languages and body part metonymies. In this study, we would like to know whether different cultures influence the use of different body-part in metonymies.

Therefore, this study focuses on the distribution of body-part metonymies in Chinese and English. We used two corpora to compare the shared and separate meanings in English and Chinese metonymies. In addition, since the concept of body's functions (including qì, xuě, the five zàng organs, the six fǔ organs, and the meridians) proposed by traditional Chinese Medicine is accepted by people in China and East Asia, we propose that the internal body parts may be frequently involved in the languages in these areas (i.e., Chinese) because of culture influence. Our research question in this study is as follows: Are more internal body-part metonymies involved in Chinese than in English? We conduct a corpus study to answer this question.

A Corpus Study

In this corpus study, we compared meanings of body part metonymies in both Chinese and English. We found out the meanings existing in both languages (i.e., Chinese and English), and the unique meanings occurring only in English or Chinese. The body-part terms are selected from Tsao's study (1991) and they were searched for

their metonymic usages in Chinese and English via using a Chinese online corpus (i.e., Chinese Wordnet) and an English online dictionary (i.e., Cambridge Dictionary Online).

It is hypothesized that metonymic mappings from the source onto the target domain or sub-domain involves an interaction between universal, bodily-grounded and culture-specific knowledge (Krišković 2009). Thus, we expect that Chinese should have more internal body-part metonymies than external body-part metonymies. The reasons is that the traditional Chinese Medicine is developed in Chinese and East Asian, and the concept of body functions, including digestion, breathing, temperature maintenance, etc., are viewed to be highly associated with our heath. So, we propose that internal body parts often occur in daily language. The internal body parts are 氣 qì, 血 xuě "blood", 五臟 zàng "the five organs", 六腑 fǔ "the six organs", and the meridians. We would like to see the frequency of metonymies using internal organs in Mandarin Chinese and in English.

METHODOLOGY

Data collection: Two Corpora

We used two corpora. One is for English and the other one is for Chinese. For collecting English data, we selected "Cambridge English dictionary online" (Advanced Level, http://dictionary.cambridge.org/). The reason we used this dictionary/corpus is that the definitions given by this dictionary are very clear and it also has many examples so that we understand each definition easily. For example, when we look at the lexical item "head", the corpus can separate its lexical category and give each example for each meaning (Figure 1). In addition, this dictionary/corpus is a free system to allow one to check any English words for any purpose.

For collecting Chinese data, we selected the Chinese Wordnet (CWN, http://cwn.ling.sinica.edu.tw/). This corpus has been developed by Huang and his colleagues (黃居仁 et al. 2010) since 2003 and started to be used in 2006. This corpus is currently the most sophisticated one to provide the definitions and semantic classification (i.e., polysemy and antonymy) for words in Chinese. It also provides many examples for each word (Figure 2). The words collected in CWN are at middle frequency. There are 5600 lexical lemma (words) and 13160 senses (sub-meanings) in this Chinese corpus.

Data Analysis

Those lexical items of body parts we selected were according to the ones analyzed in the book "Body and Metonymies" (曹逢甫、蔡立中、劉秀瑩 1991).

Those body part terms include: "head" (頭), "brain" (腦), "eye" (眼), "ear" (耳), "mouth" (口), "face" (臉), "hand" (手), "back" (背), "leg" (腿) and "foot" (腳). The above items belonged to external body parts. In addition, the internal body parts are "bile" (膽), "liver" (肝), "bowels" (腸), "guts" (腸), "stomach" (胃), "spleen" (脾), "heart" (心), "kidney" (腎), "bone" (骨), "blood" (血), "spine" (脊椎), "backbone" (脊椎), "lung" (肺), "vein" (脈) and "nerve" (神經). The totals were 10 external body parts and 13 internal body parts.

Figure 1: An example "head" searched via Cambridge English dictionary online

First, we entered the body parts at a time on Cambridge English dictionary online and chose advanced learners' level. Then, we could obtain all meanings of the body parts we searched for. Second, we copied the meanings and corresponding examples one by one onto excel files. We used the same procedure to collect the Chinese data from CWN. We keyed in the body parts and then copied these senses/meanings, definitions and examples into our excel files (Figure 2).

After collecting all English and Chinese body-part expressions and examples, we started to determine what expressions are metonymies or not. Then, we classified these body-part metonymies into three groups: (1) the meanings existing in both English and Chinese, (2) the unique meanings only existing in English and (3) the unique meanings only existing in Chinese. In order to ensure the reliability level of our classification, five graduates as judges participated in our classification for dividing the body-part metonymies into three groups. If more than three judges thought that the classification is acceptable, we took this metonymy to be the expected category. If no, we would reclassify the problematic items and the evaluation procedure occurred again.

Figure 2: An example searched via Chinese Wordnet

RESULTS AND DISCUSSION

The two body parts "spleen" (脾) and "nerve" (神經) were removed from our analysis since we did not find any information for the two items on CWN. Most meanings of body parts exist in both English and Chinese. However the definition in English cannot be one-to-one mapped to one definition in Chinese, which causes the difficulties for us in classification.

Take "hand" (手) as an example, one definition in English is "body part" and can be similar to the definition in Chinese, such as "動物上肢" and "專指上肢腕骨以下，由指、掌組成的部份". The solution is that we selected the closest Chinese meaning to match English one to be the meaning that exists in both English and Chinese such as "body part" meaning "動物上肢" in Chinese.

In addition, some of the body part metonymies may have family name such as <胃>宗海 or the name of constellation in Chinese. So, we deleted those items. In the following, we present three metonymy results: (1) The meanings of body-part metonymies existing in both English and Chinese, (2) The unique meanings of body-part metonymies only existing in English, and (3) The unique meanings of body-part metonymies only exist in Chinese.

The meanings of body-part metonymy that exist in both English and Chinese: A sample example of "head" in English and 頭 in Chinese

The word "head" in English is identified to be "body part" in Cambridge

Dictionary Online. For example, the word "head" in English can be used to refer to the whole body of animate things. Table 1 shows the example "Dinner will cost £20 a/per head".

Table 1: the metonymy using "head" and 頭 refers to "the whole body", which occur both in English and Chinese

English	<u>Meaning</u>: Noun (BODY PART) <u>Example</u>: "Dinner will cost £20 a/per head (= for each person)."
Chinese	<u>Meaning</u>: 計算家畜隻數的單位。 "Measurement of farm animals" <u>Example</u>: "有個農夫覺得這<頭>牛很便宜，就把牠買回去。" "A famer thought the cattle was cheap so he bought it."

In addition, 頭 also has the meaning "body part" referring to the whole body of animate things in Chinese. The example is "有個農夫覺得這<頭>牛很便宜，就把牠買回去。" Thus, we classified the meaning of the "head" metonymy to the group involving in both English and Chinese.

The meanings of body-part metonymy that only exist in English: A sample example of "bile"

In English, the word "bile" can indicate "human's feeling or emotion". For example, the word "bile" can be used in the sentence "his article was full of loathing and bile", which shows the upset feelings of an author (Table 2). However, the corresponding word "膽" in Chinese does not have this expression or meaning. Therefore, the body-part metonymy using "bile" only occurs in English.

Table 2: The metonymy using "bile" can refer to a person's emotion, which only occur in English

Meanings	**Examples**
Noun Feel or show bitter (= angry and upset) feelings	His article was full of loathing and bile.

The meanings of body-part metonymy that only exist in Chinese: A sample example of 口 "mouth" in Chinese

In Chinese, the word 口 "mouth" can refer to "the whole body". For example, the word 口 in Chinese can be used in the sentence "一個人影響一家人，一家三＜口＞人，五百萬人就影響一千五百萬人" ("One person influences one family. When we count three mouths in a family, it means that five million people affect 15 million people.").

However, this usage "the whole body" for the word "mouth" does not occur in English based on the results of "mouth" searched via Cambridge Dictionary Online. Therefore, this metonymy using 口 in Chinese is classified into the Chinese group.

This study examined 21 body parts (since two body parts, "spleen" (脾) and "nerve" (神經), were removed) and analyzed the metonymies using these body parts. We compared the meanings of body part metonymies that exist in English and Chinese. We expect that internal body-part metonymies will be involved more frequently in Chinese than those in English because of culture influences. Our corpus results shown in Table 4 demonstrate that Chinese does have more internal body-part metonymies than English. There are 11 internal body-part metonymies involved in Chinese but only 8 ones in English. In addition, external metonymies occur more often in Chinese than in English. There are 43 external body-part metonymies occurring in Chinese but only 12 ones in English. Thus, the results on the hypothesis of the internal body-part metonymies are consistent with our expectation.

Table 3: The metonymy using 口 "mouth" can refer to "the whole body", which only occurs in Chinese

Meanings	**Examples**
計算人數的單位。 Noun: Measurement to count people or the whole body	一個人影響一家人，一家三＜口＞人，五百萬人就影響一千五百萬人。 "One person influences one family. When we count three mouths in a family, it means that five million people affect 15 million people."

Table 4: Frequencies for three body-part metonymy groups

	External Body-Part Metonymy	Internal Body-Part Metonymy	Totals
Both in Chinese and English	head (6), brain (2), eye (2), ear (1), mouth (1), face (3), hand (6), back (1), foot (2), leg (1)	bile (1), liver (1), bowels or guts (1), stomach (1), heart (4), kinder (1), bone (1), blood (2), spine or backbone (1), lung (1), vein (1)	External (25) Internal (15)
Only in English	head (1), brain (1), eye (1), ear (1), face (1), hand (2), back (2), foot (2), leg (1)	bile (1), bowels or guts (2), stomach (1), bone (1), spine or backbone (1), vein (2)	External (12) Internal (8)
Only in Chinese	head (8), brain (2), eye (4), ear (3), mouth (6), hand (3), back (8), foot (4), leg (5)	bile (2), bowels or guts (3), heart (1), bone (2), vein (3)	External (43) Internal (11)

CONCLUSION

Krišković (2009) proposed that mapping of metonymies and metaphors from the source onto the target domain involves culture-specific knowledge. In particular, we propose that traditional Chinese Medicine is culture-specific knowledge in China and East Asia and highlights the relationship between body functions and our health. Thus, it is hypothesized that metonymies using internal body parts will occur more often in Chinese than in English.

Our corpus results show that internal body-part metonymies did occur more often in Chinese than in English, which is consistent with our hypothesis. Furthermore, external body-part metonymies are involved more frequently in Chinese than in English. Hence, culture difference really influences different languages.

There are several limitations in our research. First, a few body parts are not included in this study, such as "fingers", "toes", and "blood vessels". These missing body parts could influence our finding on the hypothesis of more internal body parts usages in Chinese. For example, the "blood vessels" are an important organ discussed in traditional Chinese Medicine and may be used very frequently in metonymy. In the future, we will include more body part metonymies in our research. Second, we could not find any information for common words such as "nerve" (神經) in the Chinese Wordnet. Accordingly, we may use more than one corpus in the future.

The practical implication of this study is to provide directions for EFL teachers in designing English teaching materials. It is hoped that EFL teachers can understand

what body part metonymies and expressions are more difficult for students to acquire, and instruct the appropriate metonymies to different levels of EFL students in class.

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A Study on the Attitude of English-Majored Students toward Computer-Assisted Pronunciation Learning at a Technological University

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Abstract

Over the past decade, computer-assisted pronunciation (CAP) instruction has been widely applied in academic institutions for pronunciation learning as a result of modern breakthroughs in technology and research. Despite the importance and prevalence of CAP technology, there are still uncertainties in regards to its effectiveness, stability, and most importantly, users' perception towards CAP learning. This contradiction and the growing awareness surrounding it has thus inspired numerous researchers to explore the most effective approach to pronunciation learning via computer and digital sound machines.   In the study, the researcher aims to investigate the attitudes of English-majored undergraduate students towards a CAP training course they took at a technological university.   In addition, the study probes the satisfaction of students with the learning activities provided by the pronunciation software in the course and explores student perception regarding the usefulness and difficulty of learning major pronunciation skills with CAP software. To collect relevant data, the researcher conducted a questionnaire survey and oral interviews with two classes of junior students recruited from the two-year undergraduate program in the Department of English at National Kaohsiung First University of Science and Technology.   The results of the current study revealed that the majority of participants held highly positive attitudes towards the use of the pronunciation software in the training course.   Moreover, in general, the participants experienced moderate to high satisfaction with the learning content and activities provided by the pronunciation software.   As to the usefulness of pronunciation skills, all of the 18 pronunciation skills taught by the software were considered useful and effective by a large majority of the participants.   Interestingly, based on survey data, what students deemed the five most difficult pronunciation skills coincidentally overlapped with the five most useful skills, all of which were related to stress and intonation skills. Lastly, pedagogical implications of these results are also addressed in terms of potential improvements for foreign language education in Taiwan.

Keywords: CAP (Computer-assisted Pronunciation), Pronunciation Software, CAL computer-assisted learning, Learner Attitude, Suprasegmental Skills,

INTRODUCTION

Computer-assisted language learning (CALL) is a major breakthrough in the field of educational technology and language acquisition. Over the past decade, software designers and language specialists have jointly developed diverse technological applications for learners at all levels of language comprehension. Among them, computer-assisted pronunciation (CAP) is one important segment of CALL that places emphasis on teaching and learning of two main aspects of the English sound system: segmental and suprasegmental features of a language. Morley (1991), clearly identified suprasegmentals as the most essential guiding principle and strategy for pronunciation instruction because these skills are virtually indispensible in communicating meaning in the context of discourse. Hence, to enhance the intelligibility of learner speech in academic and social settings, many pronunciation researchers and foreign language specialists have repeatedly suggested that non-native speakers should master suprasegmental skills such as stress, intonation, and rhythm. As proposed by McNerney and Mendelsohn (1992), a pronunciation course should focus first and foremost on suprasegmentals as these skills not only affect the greatest impact on the comprehensibility of the learner's English but also alleviate frustration for students because great improvement can be achieved. The purpose of the study, therefore, was to investigate Taiwanese students' attitudes and perceptions toward a pronunciation software used to improve their pronunciation in a conversation course.

STATEMENT OF THE PROBLEM

Currently, although most universities and educational institutions in Taiwan still prefer pronunciation courses to be taught in conventional settings with an emphasis on segmental skills, which stress the enunciation of individual vowels and consonants. Consequently, language instruction that does not focus on the learning of suprasegmentals has deprived Taiwanese EFL learners of opportunities to master the main concepts underlying the English sound system, such as using stress, intonation, rhythm, and pauses to clarify and emphasize information in conversations. In the long run, conventional pronunciation instruction may handicap students' ability to communicate in real-life situations since it does not provide students with the class opportunities to diagnose and identify their deviation in stress and intonation patterns. Therefore, a possible solution for universities in Taiwan is to offer specialized pronunciation courses on suprasegmentals or to embed such a component into regular conversation classes to direct future pronunciation learning down the right path. In addition to the teaching of suprasegmenal skills, Tsai (2006) suggested in his findings that improvements on different speech rates, various speaking styles and accents, and

exposure to popular culture materials and glossaries of vocabulary and phrases would especially benefit novice learners by increasing their learning motivation and reducing their frustration.

PURPOSE OF THE STUDY

In the study, the researcher would like to probe the attitudes of local university students toward CAP instruction in a laboratory setting since the researcher believes that suggestions and feedback gathered from the users' point of view will undoubtedly help improve the design of CAP software and establish better criteria for evaluating computer-based pronunciation learning programs. By discussing the motivation underlying the current research, the researcher of the present study hopes to find tentative answers to the following research questions with regard to CAP instruction in universities in Taiwan. The researcher also hopes that this research project will assist EFL instructors in developing newer and more efficient methods of pronunciation instruction as well as contribute to the overall improvement of pronunciation pedagogy in Taiwan.

RESEARCH QUESTIONS

The study was conducted specifically to answer the following research questions.
(1) What attitudes do English-majored undergraduate students hold toward the computer-assisted pronunciation training course?
(2) Are English-majored undergraduate students satisfied with the learning content and activities provided by the pronunciation software?
(3) What do English-majored undergraduate students perceive to be the most useful pronunciation skills learned during the training course? And what are the most difficult pronunciation skills as perceived by the same group of students?

METHODOLOGY

Inspired by the promises of CAP technology, a number of universities in Taiwan, including the university where the researcher received a master degree, have begun to incorporate CAP into classroom learning and study the effectiveness of CAP instruction. As part of the research project, in the spring of 2008, the researcher co-designed a 10-week pronunciation training course with a full-time course instructor for an Advanced Listening and Conversation class required by the Department of English at National Kaohsiung First University of Science and Technology.

Participants

The participants recruited to participate in the study were two intact classes of junior students in the two-year undergraduate program from the Department of English at National Kaohsiung First University of Science and Technology (NKFUST). Of the 32 participants, 6% were males and 94% were females, and 78% of them possessed more than 8 years of English learning experience. Moreover, 94% of the participants had no experience of using software learning and never studied abroad.   In total, 32 participants - 16 students from each conversation class - were recruited to take part in the survey. Out of the 32 valid respondents, 3 participants were randomly selected from each class, making a total of 6 participants to take part in the follow-up oral interview. To ensure that the selected students had plenty of time to reflect on the interview questions, the participants were given the list of questions 1 week prior to the official interview.

Pronunciation training course

A 10-week pronunciation training course was developed specifically for the purpose of the study. The main goal of this training course was to improve junior students' pronunciation skills with up-to-date computer-based learning software.   In practice, the training program was embedded into a one-semester, or 18-week, conversation course held in the spring of 2008. The conversation class was credited with 2 academic units, meeting 3 hours per session on a weekly basis. Enrolled students were required to use the designated pronunciation software installed in the laboratory and conduct self-directed learning 1 hour per week with the supervision of the course instructor. The software system used is called ***Pronunciation in English*** (see Figure 1) and it is *c*o-branded by ETS (Educational Testing Service) and powered by AmEnglish.com in the United States. It is an interactive multimedia program that aims to improve pronunciation skills for non-native speakers of English at the intermediate level and above. This software provides a unique focus on how to identify and use the most important elements of pronunciation: stress, intonation, and rhythm. Furthermore, the software can reliably provide students with guidance and advice in the form of video teaching, recording device, practices, and application activities each time the program is used.

Figure 1

Video Teaching Section in *Pronunciation in English*
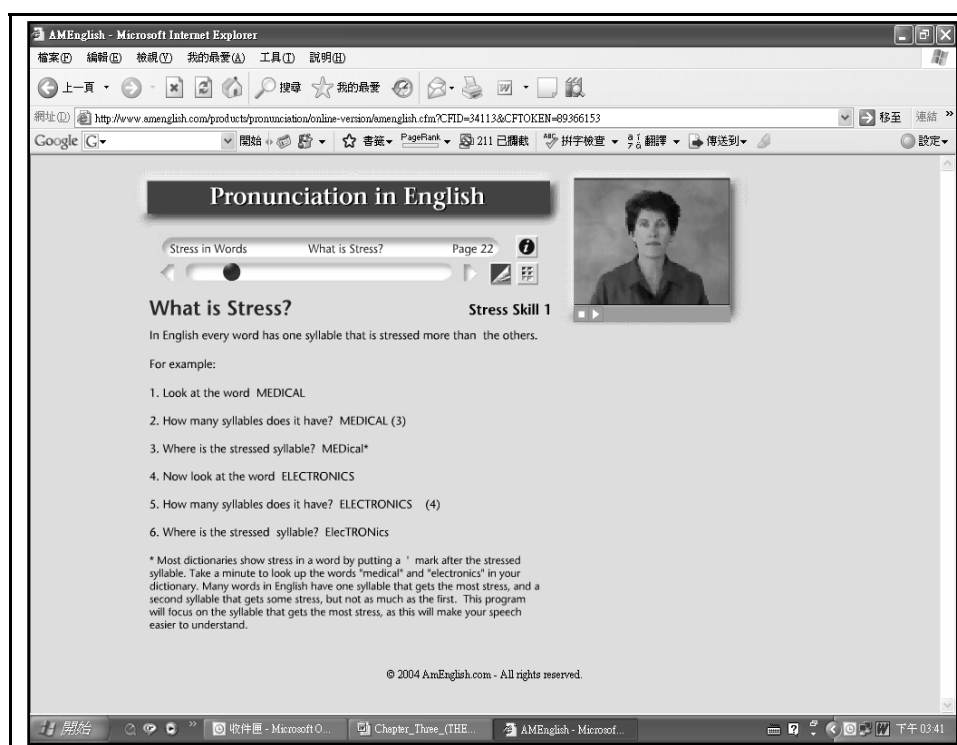
Instruments

This study employed multiple data collection methods, including a three-part questionnaire survey and follow-up oral interviews. The survey method has been widely used in second language research for its convenience and effectiveness in obtaining valuable information from participants. As Gillham (2000) has noted, conducting a survey with questionnaires would not only help lower respondents' anxiety level in answering questions because of anonymity, but also tend to be more valid and accurate because of the standardization of questions and lack of interviewer bias. As a result, the researcher designed a 3-part questionnaire with a total of 43 questions, corresponding to the 3 research topics of the study. The purpose of part 1 of the questionnaire, containing 15 questions, was to amalgamate relevant opinions from the participants regarding their attitudes toward the pronunciation software. In part 2, 10 questions were designed to probe the participants' satisfaction regarding the appropriateness of the teaching content and the adequacy of practice activities provided by the pronunciation software following the completion of the 10-hour training course in the laboratory setting. For part 1 and part 2, a five-point Likert attitude scale was used to measure the attitude of students toward the training course. In part 3, a set of 18 questions were created evaluate participants' ratings of the major

pronunciation skills taught by the software. The students were asked to mark the degree of their judgment on a 7-point scale from Useful (High, Medium, Low), Neutral, to Useless (High, Medium, Low). In addition to the questionnaire, the interview questions were developed to elicit in-depth responses from the participants. A total of six predetermined questions, as summarized in Table 1, were constructed before the interview and given to the participants so that they could prepare their responses one week in advance.

Table 1 Predetermined Questions for the Interview

1.) Which parts of the pronunciation skills that you have learned from this software do you think are most difficult for most Taiwanese students and yourself to learn?
2.) Could you describe an ideal pronunciation class that you have on your mind?
3.) What strengths and weaknesses do you think the pronunciation software has based on your learning experience in this training course?
4.) After using this software, what improvements do you suggest to make this pronunciation software better?
5.) What advantages or disadvantages do you think this pronunciation software has over traditional pronunciation teaching?
6.) After this 10-hour course of computer-based pronunciation training, how have your viewpoints been changed about the importance of pronunciation skills?

Data analysis

The researcher adopted descriptive statistics to tabulate and analyze the data gathered from the questionnaires. All the numbers and percentages of the collected data were analyzed item by item to present student responses. In addition, certain items in the questionnaires (in which participants were asked to rank their choices) were assigned points as a means to weigh their importance. For instance, for Item 14, the participants were asked to choose three adjectives from a predetermined list to describe their experience with the pronunciation learning software. Each selection of an adjective was then assigned one point and on the basis of all participant responses, the total points for each adjective were summed up and ranked in order. In addition to the responses to the questionnaires, the researcher examined

the transcription of the interview data and searched for repeating patterns of ideas, responses, and insights with regard to participants' views of CAP software. Furthermore, as a supplement to the statistical findings, the researcher carefully extracted simulating examples and insightful comments to provide a more complete analysis of student attitudes toward the computer-based training course.

RESULTS

The results of the study revealed that the majority of participants held highly positive attitudes towards the use of the pronunciation software in the training course. The statistical analysis showed that as many as 90.7% of the participants responded they now possessed a better understanding of the concepts of syllables, stress, intonation, and rhythm.   Moreover, in general, the participants experienced moderate to high satisfaction with the learning content and activities provided by the pronunciation software.   As to the learning of segmentals and suprasegmentals, all of the 18 pronunciation skills taught by the software were considered useful and effective by a large majority of the participants.   Interestingly, based on survey data, what students deemed the five most difficult pronunciation skills coincidentally overlapped with the five most useful skills, all of which were related to stress and intonation skills.   This particular finding implies the indispensability of acquiring suprasegmental skills for enhancing communication in connected speech.   Besides, the five most difficult pronunciation skills suggested that a portion of the students in the participant group, possibly those with lower linguistic abilities, were still unfamiliar with suprasegmental skills and more practice was required to improve their learning of stress and intonation skills.

Analysis of research question 1

What attitudes do English-majored undergraduate students hold toward the computer-assisted pronunciation training course?

The statistical analyses pertaining to the the first research question proposed in this study revealed that the participants hold a highly positive attitude towards the computer-based pronunciation training course. Specifically, the results of the first research question (shown in Table 2) serve as evidence for favorable attitudes toward CAP instruction as the majority of the participants (90.7%) reported that they now enjoy a better understanding of the concepts of syllables, stress, intonation, and rhythm. In addition, as many as 87.5% of the participants responded that the software offered an enjoyable and informative learning experience, and 90.6% of them have an inclination to take similar software learning courses in the future. This increase of

learning motivation was also found in Tsai's study (2006) when the students considered MYET to be useful software that boosted their motivation for learning.

Table 2
The Attitudes of College English Majors toward Computer-Based
Pronunciation Software

Item	AGREE		U	DISAGREE	
	SA*	A*		D*	SD*
I think this pronunciation software is easy to operate	84.4%		12.5.%	3.1%	
	6.3%	78.1%		3.1%	0.0%
After the training course, I think I have improved my pronunciation skills.	56.3%		37.5%	6.3%	
	9.4%	46.9%		6.3%	0.0%
I think the trainings from this course are practical and can be applied to my future conversation.	68.8%		21.9%	9.4%	
	21.9%	46.9%		9.4%	0.0%
I think the 10-hour training course is too short to cover all the learning activities.	81.3%%		3.1%	15.6%	
	56.3%	25.0%		12.5%	3.1%
If circumstances allow, I would like to take more of this kind of classes.	90.6%		6.3%	3.1%	
	65.6%	25.0%		3.1%	0.0%
I think I would recommend this learning software to my acquaintances.	79.2%		15.6%	6.2%	
	31.3%	46.9%		3.1%	3.1%
I think this learning experience have been enjoyable and informative.	87.5%		6.3%	6.3%	
	21.9%	65.6%		6.3%	0.0%
I think I am in good control of my own learning process when using this software.	62.5%		18.8%	18.8%	
	9.4%	53.1%		18.8%	0.0%
I think I still need to have an instructor to facilitate my learning when using this software.	46.9%		18.8%	34.4%	
	18.8%	28.1%		34.4%	0.0%
I think I am strongly	56.3%		28.1%	15.6%	

motivated by this software to enhance my pronunciation skills.	6.3%	50.0%		15.6%	0.0%
I think I now have a better understanding	90.7%		6.3%	3.1%	
of the concepts of syllables, stress, intonation, and rhythm in this software.	18.8%	71.9%		3.1%	0.0%

In addition, participants were asked to select three adjectives from a predetermined list to indicate their perception of the pronunciation software and teaching.   Each selection of an adjective by a participant was assigned one point and then the total points for each adjective were added up and ranked in order.   Table 3 lists the number of points assigned to each adjective.   In order of popularity, results revealed that the top three adjectives picked by the participants were *INFORMATIVE* (24 points), *CHALLENGING* (18 points), and *MOVTIVATING* (16 points).

Table 3

Ranking of Adjectives the Participants Chose to Show How They Feel about the Pronunciation Software

Ranking	Selected Adjective	Points
1	INFORMATIVE	24
2	CHALLENGING	18
3	MOTIVATING	16
4	SELF-RELIANT	13
5	INNOVATIVE	7
6	FACINATING	5
7	DULL	4
8	OTHERS	3
9	UNPRACTICAL	2
10	EXHAUSTING	2
11	DIFFICULT	1
12	FRIGHTENING	1

Analysis of research question 2

   Are English-majored undergraduate students satisfied with the learning content and activities provided by the pronunciation software?

Addressing the second research question, the statistical findings (in Table 4) showed a moderate to high level of satisfaction with the pronunciation software.   To be specific, the results revealed that 90% of the participants found the software easy-to-operate and user-friendly and 91% of them believed the video teachings to be meaningful, clear, and easily understandable.   Though most of the students appeared to be satisfied with the pronunciation software, only one-third of the students (34%) believed that they had enough practice for each and every pronunciation skill as shown in Table 4.   The current findings largely corresponded to those found in previous studies.   For example, Abuseileek's (2008) suggested most Saudi students under CAP-based instruction held a positive attitude towards the course.   In addition, in Tsai's study (2006), the majority of the participants found the recording and replaying functions of MYET useful and enjoyable.   They reported that they benefited from monitoring their own pronunciation and measuring their progress by using these two features.

Table 4

Student Satisfaction with the Pronunciation Software

Item	AGREE		U	DISAGREE	
	SA*	A*		D*	SD*
1. Overall, I think this pronunciation software is well-designed to meet the needs of EFL learners.	65%		22%	13%	
	6%	59%		13%	0%
2. I think the video teachings are meaningful, clear and easily understood.	91%		6%	3%	
	50%	41%		3%	0%
3. I think the practice activities are practical, easy to follow and effective.	44%		34%	22%	
	16%	28%		22%	0%
4. I think I have enough practice for each and every pronunciation skill.	34%		28%	37%	
	3%	31%		31%	6%
5. I think the application activities provide additional practice for strengthening my pronunciation skills	56%		19%	25%	
	6%	50%		19%	6%
6. I think the recording function is effective and	28%		28%	44%	

Statement					
can enhance my pronunciation.	6%	22%		31%	13%
7. I think the contents of the exercises are too easy for English major university students.	53%		22%	25%	
	9%	44%		25%	0%
9. I think the software should provide answer keys for application activities.	100%		0%	0%	
	50%	50%		0%	0%
10 I think the software can improve by adding situational conversations in the exercises.	94%		6%	0%	
	66%	28%		0%	0%

Analysis of research question 3

What do English-majored undergraduate students perceive to be the most useful pronunciation skills learned during the training course? And what are the most difficult pronunciation skills as perceived by the same group of students?

As for the third research question, the researcher discovered that a large number of participants (ranging from 76% to 98%) found the pronunciation skills taught in this software useful to their learning (shown in Table 5).   Moreover, approximately a half to three-fourths of the participants (44% to 78%) considered the pronunciation skills fairly easy to acquire.   The researcher also investigated the top five most useful pronunciation skills (Table 6) and the top five most difficult pronunciation skills (Table 7) as identified by students to master in this software.   For the most part, the five most difficult skills overlapped with the five most useful skills and all belonged to the category of *suprasegmental* such as stress, intonation, and rhythm.   Seferoglu (2005) pointed out that CAP-based instruction tends to focus more on such abilities - stress, pitch contour, intonation, and rhythm - in contrast to conventional teaching, which usually emphasizes individual vowels and consonants.   Therefore, on the basis of our findings, it could be concluded that the majority of the participants considered the suprasegmental skills taught by the CAP software to be highly useful and important in their learning process.

Table 5

Perceived Usefulness in Learning the Major Pronunciation Skills

Pronunciation Skill	Useless			Neutral	Useful		
	High	Medium	Low		Low	Medium	High
1. Identifying syllables in words is		9%		16%		76%	
	0%	0%	9%		13%	38%	25%
2. Identifying stress in words is		0%		3%		98%	
	0%	0%	0%		19%	16%	63%
3. Identifying stress in sentences is		0%		19%		82%	
	0%	0%	0%		6%	13%	63%
4. Identifying stress in compound nouns is		3%		9%		88%	
	0%	0%	3%		16%	28%	44%
5. Identifying stress in two-word verbs is		3%		6%		91%	
	0%	0%	3%		16%	19%	56%
6. Identifying stress with acronyms is		9%		9%		81%	
	0%	3%	6%		19%	28%	34%
7. Identifying intonation with numbers is		3%		6%		91%	
	0%	0%	3%		22%	28%	41%
8. Identifying intonation in Yes/No questions is		6%		9%		84%	
	0%	6%	0%		16%	9%	59%
9. Identifying intonation in information questions is		6%		3%		91%	
	0%	6%	0%		22%	13%	56%
10. Identifying intonation with choices is		6%		6%		88%	
	0%	3%	3%		16%	13%	59%
11. Identifying intonation and stress shift is		3%		3%		94%	
	0%	3%	0%		16%	22%	56%
12. Identifying what the speaker expects in intonation pattern is		3%		6%		91%	
	3%	0%	0%		19%	6%	66%
13. Learning about rhythm is		3%		0%		97%	
	0%	0%	3%		22%	28%	47%
14. Learning linking with vowels is		3%		9%		88%	
	0%	0%	3%		13%	16%	59%
15. Learning linking with the same consonants is		6%		13%		82%	
	0%	0%	6%		13%	19%	50%

Statement							
16. Learning about reduction is	3%			9%	87%		
	0%	3%	0%		9%	19%	59%
17. Learning about schwa is	9%			13%	79%		
	0%	3%	6%		16%	22%	41%
18. Producing and using the IPA sound in English is	3%			9%	88%		
	0%	0%	3%		19%	19%	50%

Table 6

Top 5 Useful Pronunciation Skills Perceived by the Students

Ranking	Pronunciation Skill	Percentage
1	Identifying stress in words	98%
2	Learning about rhythm	97%
3	Identifying intonation and stress shift	94%
4	Identifying what the speaker expects in intonation pattern	91%
5	Identifying stress in two-word verbs	91%
5	Identifying intonation with numbers	91%
5	Identifying intonation in information questions	91%

Table 7

Top 5 Difficult Pronunciation Skills Perceived by the Students

Ranking	Pronunciation Skill	Percentage
1	Identifying stress in sentences	32%
2	Identifying stress in words	31%
3	Learning about rhythm	31%
4	Identifying syllables in words	25%
5	Identifying intonation with numbers	25%

A number of significant findings were also found in the oral interviews. Participating oral interviewees reported that the software learning provided a much more interesting and motivating experience than traditional teaching methods and that their knowledge of pronunciation skills has improved significantly.

Furthermore, the participants also felt that the video teaching clips were effective and easy to comprehend. Finally, the participants pointed out that this pronunciation software not only provided effective teaching on suprasegmental skills, but also reinforced major concepts through meaningful learning activities.

In short, the data analyses in our study suggest that CAP instruction can play an important role for young adult learners in modern language education. The majority of the participants enjoyed interacting with this software and regarded it as an effective and well-designed means of acquiring pronunciation skills. Furthermore, identifying the most useful and difficult pronunciation skills perceived by English-majored undergraduate students will contribute to the ongoing development of pronunciation pedagogy in Taiwan.

PEDAGOGICAL IMPLICATIONS

As discussed above, the data I have analyzed strongly supported the observation that young adult learners, or the Net-generation learners, regard CAP as an effective and motivating approach to pronunciation learning. Based on the results of my study, I proposed practical implications for language program providers and English teachers if their goal is to maximize pronunciation learning at universities in Taiwan.

First, universities in Taiwan should offer more CAP courses to enhance students' pronunciation skills. The results of my study revealed that the designated software *Pronunciation in English* provided an enjoyable learning experience and furthered the skill development of a majority of the participants. One possible explanation is that CAP software, equipped with a digital sound machine, can allow users to effectively compare their performance with a native's speaking model speech and hence greatly enhance pronunciation learning for EFL students (Rostron & Kinsell, 1995). Second, relevant feedback and answer key must be provided in CAP learning to users for a better understanding of their learning outcomes. Without proper feedback, EFL learners, especially those with lower proficiency levels, are bound to encounter great difficulty in interacting with the software and in acquiring the basic concepts of stress, intonation, and rhythm. Just as Anderson-Hsieh (1994) argued, the researcher believes the most effective and beneficial method for suprasegmental teaching is real-time visual representation along with auditory or written feedback as an essential guide to self-learning. Third, CAP software designers should consider incorporating interactive activities into the software to increase learning motivation from users. Adding situational learning activities would greatly enhance the effectiveness and teaching power of CAP software. Egbert (2004) argued that a lack of interactive conversations in the CAP software would certainly pose an obstacle to acquiring real communication

competence for learners. In addition, Tsai (2006) claimed that learners' use of language and motivation can be improved if CAP designers could develop an interactive program in which learners could participate in back-and-forth dialogue with the software. Lastly, it is essential for EFL instructors to place more emphasis on the mastery of suprasegmental skills. Seferoglu (2005) pointed out that the weakness of conventional teaching methods was an emphasis on the individual vowels and consonants, unlike CAP instruction. Based on the data, it was evident that a high percentage of the participants felt that suprasegmental aspects of speech were more useful and difficult to learn in the training course. Bott (2005) stressed that pronunciation instructors ought to focus on the needs of communicative competence for non-native speakers of English and that early mastery of suprasegmental skills would be conducive to intermediate and advanced learners. Furthermore, according to the interview responses, instead of mimicking a teacher's prosodic patterns in conventional classrooms, most participants preferred CAP learning because it reinforced the major pronunciation concepts, especially on suprasegmentals, through meaningful learning activities provided by the software.

LIMITATIONS OF THE STUDY

It is worth noting that though I have meticulously planned the research steps and procedures with regard to the CAP training course, my study appeared to have several limitations that need to be taken into account when designing future studies. First and foremost, the participants in the study were required to take only a 10-week training course to enhance their pronunciation skills due to the instructor's lesson plans. Such a short course made it difficult for me to judge whether the participants' preference and satisfaction toward the software were perpetual or impermanent. Thus, to avoid similar circumstance from reoccurring in my future study, I will, should circumstances permit, extend the course to at least one year to allow for more observation time and to ensure better validity of the study results. Another constraint of this study is that a pre-test and a post-test were not included to measure the participants' learning progress because of the small scope of the study. Though most of the participants in this study self-reported that they had a better understanding of syllable, stress, intonation, and rhythm, doubts still exist as to whether there was real improvement after using the software. Hence, to compensate for such inadequacy, I should expand observation time to at least one year and implement a pre-test/post-test design into future studies for the purpose of achieving a more accurate assessment.

SUGGESTIONS FOR FUTURE STUDY

On the basis of current findings, the researcher proposes the following suggestions for future research on CAP learning. Firstly, the researcher has analyzed the importance of learning suprasegmental skills from questionnaires as well as the interview data. ─Consequently, the researcher strongly suggests that future research should focus more on the acquisition of these suprasegmental skills, especially in the areas of stress, intonation, and rhythm, to help software designers develop a better system that can assist users in mastering the English sound system and achieving communicative competence in social settings. Additionally, in order to compensate for the lack of interactive activities in most computer-assisted pronunciation software, future research studies should explore ways that can help increase interaction, conversation, and participation in CAP instruction, perhaps through Web 2.0 tools such as wikis, podcasts, blogs and video sharing services. Furthermore, since the present study primarily focused on student attitudes toward CAP learning, it is recommended that future researchers investigate similar issues from the instructor's perspective. By eventually integrating the ideas of both learners and instructors, researchers will be able to establish effective criteria and guidelines for software designers and academic scholars. Moreover, by so doing, software providers and language specialists will gain more confidence in providing quality CAP instruction that can deliver effective pronunciation skills to students of various proficiency levels in non-English speaking communities. Lastly, the participants of the present study only represented the viewpoints of English-majored undergraduate students at a technological university in southern Taiwan. Only 32 students participated in the study, which is a relatively small cohort of participants for a questionnaire-based survey. Thus, the researcher proposes that future CAP studies be implemented on a broader scale - in non-technological universities as well as technological and/or with users of different academic majors and specializations to achieve a more comprehensive and detailed overview of Taiwanese university students' attitudes toward CAP software and instruction.

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Using a Spoken Passage with all English Phonemes as a Tool to Detect Pronunciation Errors and Guide Self Practice in College English Pronunciation Classes

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Abstract

This paper describes a teaching experiment about English pronunciation, conducted at two technical universities in central Taiwan in the fall semester of 2011. The researchers devised a single English paragraph that contains every phoneme in the KK phonetic alphabet; this paragraph was given to all the members of the two speaking/listening classes involved, one large class of Design majors at National Yunlin University of Science and Technology (Yuntech) and a smaller class of English majors at TransWorld University.

INTRODUCTION

Speaking English is one of the core competencies of using English, and, in informal inquiries taken by the researchers, it is the one competency that is most frequently given by incoming freshman college students as their self-assessed weakest skill. It is also the one skill which is most frequently mentioned by incoming freshmen as the one that they were given the least training in during high school English classes. As Chuang cites, oral ability is relatively seldom tested in schools, in general because it is harder to evaluate and more time-consuming to conduct for instructors (56).

All high school students in Taiwan are taught about the KK phonetic alphabet, but ironically they are not given careful training in how to pronounce the 37 phonemes of this alphabet; evidence suggests that during high school, a small fraction of these students get a clear idea of the differences between the sounds of English and the sounds of Mandarin Chinese, and as Wu attests, students tend to default to their L1 sounds, and have not built up a habit of using L2 sounds (79). In addition, based on teaching experience, it appears that students are not well aware of their own fidelity of the pronunciation of their spoken English to any model of standard spoken English, and have not been given personalized training or even feedback on it. It is likely that students' self-awareness of their own pronunciation ability is vague and based on their own ideas, rather than on specific instruction or on applied

self-evaluation. In short, most students have neither any clear, detailed idea of how clear their pronunciation of English is, nor how to identify their shortcomings or fix them.

The researchers hypothesized that without individualized training or feedback, students would be unable to correct this situation, and therefore would have trouble attaining better pronunciation. However, this had not been verified with experimental teaching. A paragraph that featured all 37 KK phonemes was already being used in Dr. O'Brien's classes, and it was determined that this could be used to pinpoint students' pronunciation mistakes, and therefore would be a suitable tool for such a teaching experiment. The researchers decided that the teaching should take place at the very beginning of the students' freshman year so as to get an accurate measurement of the students' basic speaking ability directly out of high school, and that the second part of the evaluation would show up the difference between this initial level and the later one that had been enhanced in pronunciation classes, and would therefore be an accurate way to measure how helpful this training is. The assumption was made that without individualized commentary, students would be unable to improve their pronunciation much, because they could neither identify their own errors by themselves, nor tell what the difference was between their own pronunciation and standard English, because they had no precise awareness of what to listen for or what they themselves sounded like.

The researchers decided that all students would be trained in standard English pronunciation following their initial evaluation and recording, but that the experimental groups would receive personalized feedback and on-demand, face-to-face training on the phonemes that were spoken less accurately. They further decided that students would keep records of their out-of-class pronunciation practice.

The main purpose of this experimental teaching was to try to establish clearly whether individualized feedback and training is an effective way for pronunciation teachers to help their students to improve their pronunciation of problematic KK phonemes, when combined with focused pronunciation practice on these phonemes. A secondary purpose was to discover whether or not there was a significant correlation between the amount of personal practice students had out of class and the amount of improvement that was remarkable in their second recordings. It was expected that personalized feedback and training would be a key factor in pronunciation improvement, and that the more students practiced these specific sounds, the more accurate they would become.

All the students involved in this experimental teaching had previously received basic English training in middle school and high school classes, as required by Taiwan's Ministry of Education; many had also taken supplementary classes from an

earlier age or during the same period for various amounts of times. In general, there was no significant difference between the design majors' and the English majors' amount of supplementary English training discovered, though there was no formal gathering of records as a part of this experimental teaching project (feedback was gathered in a general way by asking classes as a whole and asking for shows of hands); later studies will feature more detailed gathering of such data.

METHODOLOGY

The students were divided into three groups, with one designated a control group and the other two as experimental groups. To form the control group and one of the two experimental groups, the smaller TransWorld class was named one of the experimental groups, called group C, and the larger Yuntech class was divided in half by random drawing, with one named the control group A and the other named experimental group B. Each member of each group was given a copy of the Paragraph, as well as access to two recordings of Dr. O'Brien reading it, once in a formal way and the other with more natural pronunciation. On the first class week, the same day that the students first saw the paragraph, the instructors modeled the paragraph's pronunciation and discussed the most common pronunciation problems that students typically have with the sounds of English, and the instructors drew attention to where these sounds appear in the paragraph (See Table A).

In college, you can learn very much about life. What can you learn? There are many things, each important. By studying, those who are intelligence will learn how to concentrate and save time in revision. And if you're a lonely person, don't worry! You'll probably be able to make many lifelong friends. In four years, when your college time is finished, you'll be able to look back on all the good times you've had, the classes you've attended, the games you've played. And you'll have gained companions to share your triumphs and sadness. Now, I hope, we will all be ready to begin our wonderful college careers cheerfully. Thank you for your attention.

Table A: The Paragraph, featuring all 37 KK Phonemes

As a pretest, all three groups were asked to record their voices reading the paragraph; this would establish the initial level of competence in pronouncing spoken English. The students' recordings were submitted to the instructors via email and automatically posted to the class blog at posterous.com for convenience to all involved. The instructors both listened to all the students' recordings and made independent notes on the readings, indicating specific instances of mispronunciation

and commenting on other aspects of the students' sound, such as pacing and intonation.

It is at this point that the instructors' methods diverged: the control group and the experimental groups were treated differently. For the control group at Yuntech, the instructor there, Dr. O'Brien, gave general comments on the class's readings and the most common actual errors that were noticed by both instructors. The control group got no individualized feedback; they were only coached in a general way and informed of the most common errors that were noted in the initial recordings, and told that they would be recording the paragraph again in three weeks' time. The two experimental groups, on the other hand, were given personalized feedback from both teachers' notes, in written form. Students were encouraged to meet with the instructors for even more individualized coaching, though none of the students in any group took the instructors up on this offer. In addition, the two experimental groups reviewed the paragraph once a week until the final week when the new recordings were due, with the entire group reciting the paragraph *en masse*.

The three groups also had homework assigned to them, in the form of a practice log. The students were required to practice the paragraph three times a week for at least ten minutes each session, and to record their times and also what specific sounds they were working on during each session. In addition, every group was told that they would be graded on their practice logs, and on how much improvement they showed in their second recording; the first recording was not to be graded aside from a pass/fail grade, depending on whether or not they submitted the first recording at all. The two experimental groups were told further that the instructors would pay special attention to the two pronunciation errors that were highlighted in the notes given them about their first recordings.

The practice logs and second recordings were all due for the third class week of the experimental teaching, with warnings that no late assignments would be accepted. In fact, there were a few people who handed these in late, but all of them had been collected by the end of the week, so that this did not affect the results of the experiment.

EVALUATION

The second recordings were evaluated and commented on in the same manner as the first batch. A grade was assigned to each student to indicate the number of phonemes that were pronounced better the second time; to achieve better accuracy, the first recordings were listened to back to back with the second ones, and the scores reviewed and adjusted if need be. Some students received a negative score or a score of zero, if the second recording had more mispronunciations. In some cases, the

number of mispronunciations was the same, but different phonemes were mispronounced. These were considered anomalous or random errors and were notated.

The surveys and logs were also summarized one by one, and each class was averaged for a group-by-group comparison. The data gathered revealed how much time was claimed to be spent in practice by each student; disparity between time practiced and improvement score of the two recordings might indicate that at least some of the records were inaccurately recorded.

RESULTS

As might be expected with any heterogeneous group, our findings suggest that the members of each group varied in their diligence, as evidenced both by disparities among group members' pronunciation improvement scores, and their practice logs. Further, there was no clear advantage or marked superiority of the English majors' pronunciation in initial ability (as evidenced in their first recordings), although there was a slightly better level of improvement shown in the second recordings.

	Total Number of Group Members	Recording 1 Number of Notable Pronunciation errors		Recording 2 Number of Notable Pronunciation Errors		Average Difference Between Recordings 1 and 2
		Lowest Score	Highest Score	Lowest Score	Highest Score	
Group A (Control Group— Design Majors)	32	Average: 6.65		Average: 6.21		+0.44
		2 (2 Ss)	14 (1 S)	1 (2 Ss)	12 (1 S)	
Group B (Experi mental Group— Design Majors)	31	Average: 7.16		Average: 6.43		+0.73
		3 (4 Ss)	12 (1 S)	2 (2 Ss)	11 (2 Ss)	
Group C (Experi mental Group— English Majors)	34	Average: 6.48		Average: 5.24		+1.24
		2 (3 Ss)	13 (1 S)	0 (3 Ss)	8 (1 Ss)	

Table B: Evaluation and Results of the Two Recordings by all Three Groups

Table B shows how both the experimental groups surpassed the control group in terms of overall improvement, although none of the groups' improvement is very dramatic. It also shows that the English majors' improvement is the greatest, and that

their overall basic pronunciation was marginally better to begin with. The findings so far suggest that a detailed commentary on the students' initial recordings may have been of some help overall, giving the students in the experimental a marginal advantage over the students in the control group. However, the advantage is not very pronounced.

	Total Number of Group Members	Average Practice Hours Per Week Logged	
		Most Hours	Least Hours
Group A (Control Group—Design Majors)	32	Average: 4.37	
		6.5 (1 Ss)	1.25 (2 S)
Group B (Experimental Group—Design Majors)	31	Average: 3.83	
		7.25 (1 Ss)	2.0 (1 S)
Group C (Experimental Group—English Majors)	34	Average: 5.70	
		8.25 (2 Ss (practiced together))	2.75 (1 S)

Table C: Practice Hours Logged

Table C shows that according to the logs, it was the group of English majors, the experimental Group C, that overall practiced their pronunciation the most during the experimental period, with the control group coming in second. Because the actual recordings show more improvement in Group B than Group A, these records do not suggest a correlation between amount of practice time and improvement of phoneme pronunciation.

We believe, however, that there is reason to suspect that the students' records were to some extent falsified, and more specifically, exaggerated. Indeed, in personal communications, two students from Group B and one from Group A stated that they had hardly practiced, but wanted to look more industrious, and so marked more hours than they had really practiced. One other student also indicated this anonymously using Dr. O'Brien's guest book online. Of course, such a log is easy to fill out with false information, and it is likely that more students than these exaggerated how much time they spent practicing, even though they had been informed that the experimental teaching and their logs would not factor into their semester grades. Without more precise means of monitoring actual practice time, for example by recording the sessions and verifying each one individually, we cannot ascertain the degree of fidelity of the logs.

LIMITATIONS OF THE STUDY

As indicated above, one major limitation is that the reliability of the logs of practice time is questionable, so the logs are of only very limited help in determining the real benefit of longer hours of practice. Also, this study did not account for vagaries of intonation, which are in some regards just as important as pronunciation to convey meaning; therefore, our study does not guarantee that better phoneme pronunciation indicates better comprehensibility. The study further did not take into account how carefully the students considered the instructors' individualized comments on the first recordings of the two experimental groups, or indeed whether or not they were listened to or read at all, something which would be corrected in later versions of this experiment in teaching. Nevertheless, there was enough of an improvement to indicate that the personalized comments were likely to have been of some slight help, at least for some participants in the study.

SUGGESTIONS FOR FUTURE STUDY

In later iterations of this study, more care would be taken to make sure that the experimental groups' students actually had the chance to consider the individualized commentary, possibly by doing this on a one on one basis with one or two students at a time. A better way of recording practice time would also be devised that would still attempt to minimize the instructors' manhours. Notes would be taken, and class hours passed, in recording and instructing about natural English intonation patterns, and overall comprehensibility would be scored. Additionally, a longer period of instruction and practice would be advisable; a better degree of improvement is likely to happen, even if it is only due to more class hours. Also, commentary from students about how useful the model recordings of the Paragraph were to them would be good to gather. Students from both control and experimental groups should also be asked, at the time of both recordings, which KK phonemes they personally felt were harder for them to pronounce at the time, which would help researchers to evaluate how aware the students are of their own abilities; possibly, the students believe that practice makes perfect, even if their practice is, objectively, less than perfect. Further, in later studies, students' background in English training, especially related to cram schools, should be gathered (in terms of years spent studying) as well as what their grades in high school English classes were, so as to understand the relationship between the students' background and their pronunciation proficiency. One more factor will be considered: the students' reticence about speaking English before their peers. As Jenkins makes clear (2008), various cultural factors are very likely to have an effect on Taiwanese students' spoken English, including fear of being laughed at by their

peers, Confucian "maxims of modesty" related to a fear of being seen as a show-off (64), and also general lack of self-confidence or fear of embarrassment. Though students were not asked about this at the time, it is probable that students felt that having their voices posted to a blog for all to hear in connection with their own names (the general public could view the blog, even though they were unlikely to do so; all students in their own class were likely to visit the blog and were therefore able to compare peers' recordings to their own) is tantamount to reciting the paragraph in public, which may interfere with their performances; therefore, in future studies, the recordings will be not be made available to anyone but the instructors, and the students will further be made aware of this. This will, the instructors hope, help students to record their voices with more confidence and less self-consciousness, resulting in a truer picture of their pronunciation capability.

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Using Constructivism as the Philosophical Framework for SLA Research

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Abstract

The purpose of establishing a philosophical framework is to formulate a theory to guide a study as well as to support the method upon which a study will be based. This framework will be explained why it is recommended for Second Language Acquisition (SLA) research. In addition, a philosophical framework will significantly influence the interpretation of the findings. Research topic which is related to SLA could employ constructivist world view to explore uncertain knowledge realm. The main reasons are as bellows. Firstly, within the constructivism paradigm, the researcher seeks to co-construct the knowledge with the participants. Secondly, the constructivist paradigm upholds the intimate relationship to Second Language Acquisition because all languages happen when a communication take place. People learn second language skills by associating their first language knowledge. Learners usually translate the words from their first language to their second language. The knowledge of language is then constructed by learners as they engage with the new language. Therefore, constructivism worldview is very suitable as a philosophical framework for conducting a research in the SLA field. This paper will further elaborate the five embedded assumptions in constructivists, which are epistemology, ontology, axiology, rhetoric, and methodology.

Keywords: SLA (Second Language Acquisition), Research Methods, Methodologies, Paradigms, Constructivist

PHILOSOPHICAL FRAMEWORK

Constructivism is the philosophical paradigm used in the development for many studies in Second Language Acquisition papers. The philosophical framework is very important because it will influence the researcher to employ the methodology and method. Furthermore, it effects the interpretation of the results by the researcher. The role of the philosophical framework is to articulate a philosophical stance in the research study.

CONSTRUCTIVISM

A paradigm is a set of basic beliefs that deals with ultimates or first principles. It represents a worldview (Denzin & Lincoln, 1998). Slife & Williams (1995) defined that a paradigm is an "implicit view of the world that scientists hold, that communities of scientists share, and that influences the way science is done" (p. 238). The paradigm, which is generalized, is used in contemporary scientific activity. Most people agree with certain principles, laws, and theories as scientists to find the solutions of natural phenomena (Kuhn, 1970).

Constructivism is "the view that all knowledge and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context. In the constructivist point of view, the meaning is not discovered but constructed" (Crotty, 2003, p. 42). The constructivism is neither a pure subjectivism nor a pure objectivism; rather it includes both of them. Constructivists believe that meaning is interpreted as well as constructed by humans. People construct the meaning of objects by engaging previous knowledge. Crotty (2003) believes that we do not create the meaning but we construct the meaning.

The users of the constructivist paradigm are lead to the production of reconstructed understanding of the social world. In addition, constructivists value transactional knowledge (Denzin & Lincoln, 2005). Constructivists view their realities as multiple and constructed. Within this paradigm, the researcher can co-construct the knowledge with the participants. The researcher will use the case study as a method to collect the data in qualitative research. The constructivist paradigm will explain and enhance the language learners' narratives and experiences.

In addition, because the constructivist philosophical stance is very suitable in the research of language learning, researchers will interpret the results based on constructivist philosophical stances. Constructivism will influence the interpretation by its assumptions. Constructivists study the multiple realities constructed by people and the implications of those constructions for their lives and interactions with others (Patton, 2002). After the researcher chooses constructivism as a paradigm, the five assumptions which are epistemology, ontology, axiology, rhetoric, and methodology will be embedded in the study as well. The content of the five assumptions within constructivism will be addressed later. These five assumptions will be rooted in the study where all knowledge is constructed by humans.

PARADIGM ASSUMPTIONS

There are five assumptions in a paradigm. The five assumptions are embedded in the paradigm. Once a researcher chooses constructivism as the paradigm then he/she accepts the five assumptions simultaneously. These five assumptions are crucial because the researcher can understand if the chosen paradigm is appropriate for the study by looking at the five assumptions. These assumptions will lead the researcher to employ a particular methodology. They also lead the researcher's perspective to interpret the findings.

Epistemological Assumption.

The definition of epistemology is that the theory of knowledge is embedded in the theoretical perspective and thereby in the methodology. It is also "a way of understanding and explaining how we know what we know" (Crotty, 2003, p.3). Slife and Williams (1995) defined that epistemology concerns the nature, origins, and limits of knowledge. The constructivist's epistemological position is transactional and subjectivist. The constructivists also advocate that reality is constructed by humans (Denzin & Lincoln, 2005). Guba (1990) asserted that "inquirer and inquired into are fused into a single entity. Findings are literally the creation of the process of interaction between the two" (p. 27). The epistemological assumption is the relationship of the researcher to participants being researched. Constructivist researchers interact with those they study, whether this interaction assumes the form of living with or observing informants over a prolonged period of time or actual collaboration (Creswell, 1998). The constructivist paradigm assumes a subjectivist epistemology in which the knower and respondent cocreate understandings (Denzin & Lincoln, 2003).

Ontological Assumption.

Ontology is the study of being. It is concerned with what is, with the nature of existence, with the structure of reality as such (Crotty, 2003). Ontology is concerned with the form and nature of reality and what can be known about that reality. The ontological issue addresses the nature of reality for the qualitative researcher; reality is constructed by individuals involved in the research situation (Creswell, 1998). Guba (1990) stated that "realities exist in the form of multiple mental constructions, socially and experientially based, local and specific, dependent for their form and content on the persons who hold them" (p. 27). The constructivism paradigm assumes that there are multiple and constructed realities rather than a single true reality (Denzin & Lincoln, 2003). Constructivists hold that the reality is subjective and influenced by the context of the situation, personal experience, perspectives, and environments.

Axiological Assumption.

Axiology is what the role of value is and is concerned with the role of what the researcher values in the scientific process (Creswell, 1998). Constructivism maintains that the researcher's value and experience can not be separated from the research process. The researcher should describe, admit and bracket his or her values, but not eliminate them. A constructivist position requires close, prolonged interpersonal contact with the participant in order to facilitate their construction and expression of the lived experience being studied. It is hard to think that that one could eliminate value biases in such an interdependent researcher-participant interaction (Ponterotto, 2005). Creswel (1998) addressed that the investigator admits the value-laden nature of the study and actively reports his or her values and biases as well as the value-laden nature of information gathered from the field.

Rhetorical Assumption.

Rhetoric refers to the language used to present the procedures and results of the study to the audience. The rhetorical assumption means that the qualitative investigator uses specific terms and a personal and literary narrative in the study (Creswell, 1998).

In the constructivism perspective, the research report is in the first person and is usually personalized. The researcher's own experiences, expectations, values, and biases are interpreted comprehensively. Also, the impact of the research process on the emotional and intellectual life of the researcher is reflected upon and discussed openly (Ponterotto, 2005). Creswell (1998) said that words such as understanding, discover, and meaning form the glossary of emerging qualitative terms and are important rhetorical markers in writing purpose statements and research questions to be discussed later.

Methodological Assumption.

This qualitative research will use a case study within the constructivist paradigm. Methodology is the technique or procedures used to gather and analyze data related to some research question or hypothesis (Crotty, 2003). Denzin & Lincoln (1998) said that the methodological assumption in constructivism is hermeneutical and dialectical. Knowledge is socially constructed and the meanings are understood through interactions among researcher and respondents. Guba (1990) declared that "individual constructions are elicited and refined hermeneutically, and compared and contrasted dialectically, with the aim of generating one (or a few) constructions on which there is substantial consensus" (p. 27). Denzin & Lincoln (2003) stated that the researcher requires the interaction and immersion in the participants' society in order to interpret the phenomenon. Constructivists assume a naturalistic set of methodological

procedures. Creswell (1998) articulated that the methodological assumption is how one conceptualizes the entire research process.

CONCLUSION

The researcher will be benefitted by using constructivism to guide studies in Second Language Acquisition research because the researcher can co-construct the knowledge with participants. The constructivist's philosophical framework supports many methodologies, which are critical research methods in many research studies. Also, constructivist's worldview facilitates researcher interpreting SLA research results. The constructivists hold that knowledge is constructed by humans and people can find multiple realities in the world. Furthermore, the five assumptions, epistemology, ontology, axiology, rhetoric, and methodology, are embedded in the study. They enable the researcher to consider the realities and the findings within the constructivist paradigm. Hence, SLA theories can be commensurate with constructivist's paradigm.

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