CHAPTER ONE

INTRODUCTION

Technology has rapidly become part of our daily living and learning tool. In education, it is a common practice for colleges and institutes to use networked computers. The widely ranged resources and opportunities of computers and the Internet offered teachers and students miscellaneous tools and strategies in language teaching and learning (Felix, 2005; Hubbard, 2005). The need to integrate computer technology and the Internet into teaching and learning process has become a focus in higher education (Groves & Zemel, 2000). One of the more prominent and promising educational innovations among these computer technology advances is course management system (CMS) (Cappel & Hayen, 2004; Cloete, 2001; Leahy, 2004). Along with the rapid developments of computer technology and the Internet, teachers and students' attitudes toward CMS have become a rather important issue for researchers to explore (Culpan, 1995; Jones & Clarke, 1994; Lam, 2000; Selwyn, 1999).

The present study investigated Taiwanese college teacher and student attitudes toward the use of CMS in English instruction through a Three-tier Technology Use Model (3-TUM) perspective proposed by Liaw et al. (2007). The researcher also examined the thoughts and feedback from teachers and students by interviewing them. Finally, it is hoped that this study could provide suggestions on how school administrators can better offer useful computer and Internet resources to teachers and students, as well as what kind of trainings and opportunities could contribute to teachers' and students' acceptance and use of CMS in English courses.

Background of the study

In recent years, new studies have been conducted and tackled crucial issues of computer-assisted instruction due to the rapid development of computer technology and the Internet (Davies et al., 2005; Hodgson, 2002; Jameson et al., 2006). Numerous researchers devoted themselves into the newly found fields of language instruction. Within less than a few decades, various research topics and academic discussion issues

regarding Computer-Assisted Language Learning (CALL) have emerged (Felix, 2005; Hubbard, 2005).

Although the Internet has existed for quite some time, only recently has its vast emergence in mainstream popularity encouraged researchers to recognize its educational value and instructional strength. Now that capitalizing on the Internet and computer technology in language instruction has gained ample attention from academia, studies aimed at issues related to CMS are steadily growing (Chan, 2006; Liao & Lu, 2008). One of the more intriguing issues prevailing throughout the last few years of CALL research is the question of how much focus on attitude should be placed in CMS instruction (Mumtaz, 2001; Oliver, 2001). In addition, attitude-related issues have been a primary research focus in the educational field for years, including its definitions, classifications, dichotomies, and various applications of attitudes (Brock & Sulsky 1994; Herek, 2000; Palaigeorgiou, 2005; Triandis, 1971; Zimbardo & Leippe, 1991). Thus, it is necessary to conduct an investigation of attitudes and CMS into language instruction research.

The use of CMS has been particularly influential in contributing insights into language instruction, including remote access, digital data presentation, multimedia facilitation, immediate learning, and so forth (Wentling et al., 2000). CMS can function not only as an information center but also as an interactive platform for English teachers and students to share resources, discuss course content, keep track of learning history, evaluate learning outcome, and execute a variety of alternative activities. Of all the burgeoning computer programs, CMS has been identified as the best in displaying integrative, informational, and communicative features. According to a content analysis of educational studies conducted from 2001 to 2005, Shih et al. (2008) observed that a growing number of studies are now available to shed some light on the field of CMS.

The present researcher deliberated upon how to carefully sort out the best suitable approach for the present study. After thorough examination of previous works, the present researcher took several important approaches into consideration. In order to examine whether end-users accept and embrace the state-of-the-art technology, various approaches have been proposed, such as Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980), Theory of Planned Behavior (TPB) (Ajzen, 1991), Technology

Acceptance Model (TAM) (Davis, 1989), and the Three-tier Technology Use Model (3-TUM) (Liaw et al., 2007).

In fact, there is a theoretical development history from TRA, to TPB, to TAM, and finally to 3-TUM. First, Ajzen and Fishbein (1980) formulated TRA to propose that a person's behavior is determined by his intention to perform the behavior and that this intention is, in turn, a function of his attitude toward the behavior and his subjective norm. Later, Ajzen (1991) advocated TPB with the addition of perceived behavioral control in order to increase the predictability of the approach. TPB is an extension from TRA and predicts human beings' deliberate behaviors. Next, TAM, proposed by Davis (1989), is one of the most influential extensions of TRA in the information technology field. It was first developed by Fred Davis and Richard Bagozzi (Bagozzi et al., 1992; Davis et al., 1989) to explain computer-usage behavior. TAM suggests that when users are presented with new software, a number of external and internal factors influence their decisions about how and when they will use it (Davis, 1989).

Among the aforementioned approaches, TAM is one of the most cited models to test out how individual end-users finally come to accept and use the technology. Because the theme of the present study is closely connected with technology in language instruction and end-user's acceptance, TAM is selected as the conceptual ground for the present study. However, TAM only has two constructs: perceived usefulness and perceived ease of use. Since the core of the present study is language teaching and learning, efforts should be made to include an educational component. The Three-tier Technology Use Model (3-TUM), proposed by Liaw et al.(2007), not only bases its theoretical elements on TPB and TAM but also incorporates Social Cognitive Theory (SCT) (Bandura, 1977) into 3-TUM. SCT, often utilized in educational research, describes learning with respect to the interrelationship between behavioral and environmental effects. SCT's perceived self-efficacy posits that parts of an individual's belief of capability can be related to the context of social interactions, experiences, and external media impacts (Bandura, 1977). Therefore, due to the complex innate nature of human behaviors, educational factors, and social dimensions, the 3-TUM approach was chosen as the final model for the present study aiming to investigate teachers' and students' attitudes toward CMS through 3-TUM perspective.

Purpose of the study

A large number of Taiwanese English teachers in college have already had previous experiences using and integrating CALL into their lessons. Moreover, a perfect execution of CALL often depends on positive teacher and student attitudes, ultimately creating an autonomous teaching and learning atmosphere. However, the convenient availability of computer technology and Internet does not instantly render itself a widely accepted language learning tool. The urgent issue for researchers is to discover teachers' and students' feedback toward CALL-related applications in order to put the effects of those applications into perspective.

Emerging from the latest technology products that have been applied to English teaching and learning, CMS is gaining more and more attention and receiving more and more support from both teachers and students. By simple definition, CMS may incorporate synchronous or asynchronous access and may be distributed geographically with varied limits of time (Wentling et al., 2000). In addition, the CMS in the present study is used by teachers to help them develop, deliver, and manage their classes. E-learning CMSs usually could offer online storage of course documents, grading features, student participation tracking, course calendars, tools for computer-mediated communication (CMC), and online assessment tools and programs (Goertler & Winke, 2008).

Although CMS has gradually secured its position and received fair attention in the educational field, it has not been fully explored in Taiwan yet. Especially recently in Taiwan, many universities are beginning to introduce CMS to the curriculum. English courses are also often designed with the combination of a traditional face-to-face classroom as well as online CMS activities. Whether end-users, such as teachers and students, have positive attitudes toward technological innovation shapes the key to its successful implementation in higher-education settings.

Nonetheless, the acceptance and use of CMS by teachers and students appear to be limited primarily due to fear of the Internet, resistance to unfamiliar software, perceived difficulty of use, and lack of motivation in learning. Since little is known about why some

of the end-users in Taiwan manifest such phenomenon, greater attention should be paid to the core causes that result in teachers' and students' possible resistance to the use of CMS. Furthermore, only scarce prior research studies are available that attempts to investigate end-users' intention to use and the acceptance of CMS, specifically in an English as a Foreign Language (EFL) context such as Taiwan.

The present researcher noticed such trend in Taiwan, and thus would like to probe into the question of whether college teachers and students would accept CMS. This study is expected to not only yield comprehensive understanding of the possible reasons for teachers and students to accept or refuse CMS but also derive valuable information from the attitudes they hold toward CMS. The central thrust of the present study is to examine Taiwanese college teachers' and students' attitudes toward the use of CMS through a 3-TUM perspective.

Significance of the study

The significance of the study is determined by the urgent needs of Taiwanese English teachers and students. In fact, more and more English courses offered at universities in Taiwan are integrating CMS into their instructions. The success of the e-learning CMS hinges largely on teachers' and students' acceptance and use of such technological software. As a result of the widespread bandwagon effect among colleges in Taiwan, it is urgent and necessary to study teachers' and students' attitudes toward the use of CMS, and elaborately explain the results for future research reference and instruction direction.

From a holistic standpoint, the present study aimed to discover crucial facets of end-user perceptions toward CMS and develop practical guidelines for successful CMS operations in English teaching. Via in-depth analyses of the data, analyses of the results should be capable of achieving the significant implications as follows. This study should be able to:

(1) help understand how individual attitudes affect the use of CMS;

(2) provide causal and relational arguments in terms of the research variables;

(3) present valuable information to the teachers on how to make sure that students develop positive life-long learning strategies in CMS;

(4) devise steps for adopting CMS in universities and language institutions by overcoming potential hurdles and lowering the chance of failure during implementation; and

(5) offer suggestions on the initiation of CMS related studies in EFL contexts.

In any case, it is hoped that this study could not only answer the questions concerning CMS but also focus on the increasing importance of college teachers' and students' acceptance toward steadily evolving educational technology innovations such as CMS.

Research questions

From the aforementioned background and purposes, the present study intended to explore the possible reasons that might enhance or lower the acceptance of CMS as a teaching and learning educational tool for Taiwanese college teachers and students based on the perspectives of Liaw et al.'s (2007) Three-tier Technology Use Model. Figure 1 illustrates and summarizes the research questions 1 to 4.

(1) Is there any relationship between teacher and student participants' perceived quality of CMS and their perceived self-efficacy toward CMS?

(2) Is there any relationship between teacher and student participants' perceived quality of CMS and their perceived enjoyment toward CMS?

(3) Is there any relationship between teacher and student participants' perceived

quality of CMS and their perceived usefulness toward CMS?

(4) Is there any relationship between teacher and student participants' perceived self-efficacy, perceived enjoyment, and perceived usefulness toward their behavioral intention to use CMS?

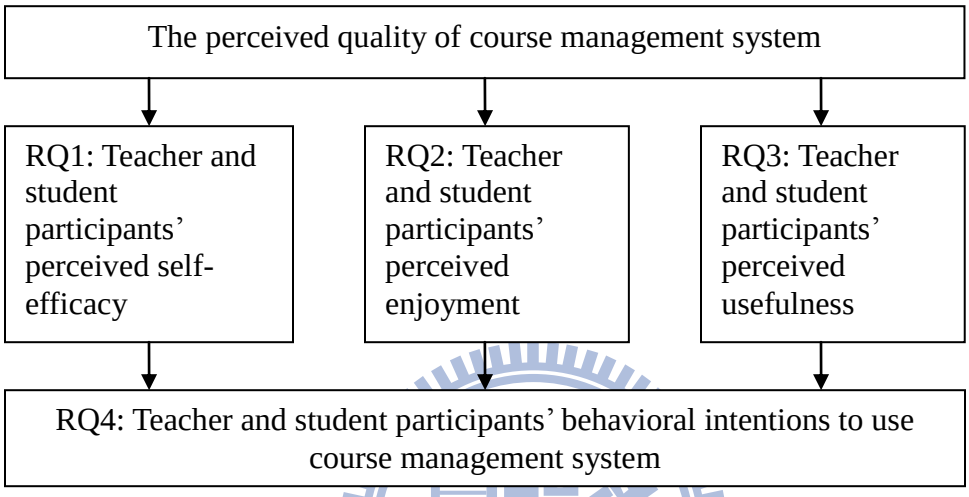


Fig. 1 Research questions of teacher and student participants' attitudes

(5) What is the teacher and student participants' qualitative feedback on the use of CMS in English courses?

Definition of terms

(1) Attitudes

Palaigeorgiou (2005) defined attitudes as "a positive or negative sentiment, or mental state, that is learned and organized through experience and that exercises a discrete influence on the affective and conative responses of an individual toward some other individual, object or event" (P.331).

(2) Computer-Assisted Language Learning (CALL)

Beatty (2003) defined Computer-Assisted Language Learning as "learning language

at the computer either as a direct activity through structured lessons or during an activity peripheral to the study of language but that, nonetheless, promotes language awareness and acquisition. In some cases, computer softwares that are used for teaching subjects other than language, such as mathematics, is included under the umbrella of CALL if the softwares' language *per se* has been simplified or otherwise adapted for use by non-native speakers" (P.231).

(3) Course management system (CMS)

Goertler and Winke (2008) defined course management system (CMS) as "Software used by instructors and teachers to help them develop, deliver, and manage their classes. The systems usually offer online storage of course documents (which students can download), dropboxes (that students can use to upload documents/assignments) and grading features, course calendars, tools for computer-mediated communication (CMC), and online assessment tools and programs. These systems also offer ways for teachers to track student participation and provide feedback. Examples are Moodle, desire2Learn, Angel, and Blackboard" (P. 292).

(4) E-learning

Wentling et al. (2000) defined e-learning as "the acquisition and use of knowledge distributed and facilitated primarily by electronic means. This form of learning currently depends on networks and computers but will likely evolve into systems consisting of a variety of channels (e.g., wireless, satellite), and technologies (e.g., cellular phones, PDA's) as they are developed and adopted. E-learning can take the form of courses as well as modules and smaller learning objects. E-learning may incorporate synchronous or asynchronous access and may be distributed geographically with varied limits of time" (P.5).

Organization of the thesis

The outline of this thesis proposal is organized as follows. Chapter One contains introduction, background, purpose, significance, and research questions of the study as

well as a brief definition of terms. Next, the structure of Chapter Two starts with a thorough literature review of previous studies related to Computer-Assisted Language Learning (CALL), CMS, attitude, and Three-tier Technology Use Model (3-TUM). Third, Chapter Three draws a detailed description of research methodology, participants, instrument, data collection procedure, and data analysis methods. Fourth, the results and discussion are summarized in Chapter Four. Lastly, a brief conclusion and suggestions are given in Chapter Five.

CHAPTER TWO
LITERATURE REVIEW

In this Chapter, literature related to this study is presented. There are four main issues included: Computer-Assisted Language Learning (CALL), course management system (CMS), teacher and student attitudes, and Three-tier Technology Use Model (3-TUM). First, definition, advantages, and limitations of CALL are described. Second, definition, relative programs, advantages, and limitations of CMS are presented. Next, since attitudes form the key topic for the present study, the present researcher will introduce the definition and crucial roles of attitude as well as teachers' and students' attitudes toward CMS. Finally, previous studies relative to 3-TUM, including its original conceptual roots such as Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), and Technology Acceptance Model (TAM), are summarized.

Computer-Assisted Language Learning (CALL)

Definitions of CALL

What exactly is Computer-Assisted Language Learning (CALL)? Some researchers have attempted to revisit the history of and give definition to CALL by dividing its processes and software packages into different categories, while others tend to define its position by the philosophy that underlies its construction. No matter what definition researchers want to give to CALL, CALL has once again proven that its impact on the educational field, especially language instruction, is ubiquitous since its origin and development in the 1960's. Admittedly, CALL has been adopted as the most popular denomination owing to its umbrella mantle of denotation and easy-to-pronounce acronym (Chinnery, 2008).

Where has CALL been, where is it now, and, most importantly, where is it going next? To begin with, Warschauer and Healey (1998) specified four CALL periods according to the historic evolution of CALL. The period during the 1960's and 70's is

classified as *behaviouristic CALL*; the period around the 1970's and 80's is named *communicative CALL*; the period around the mid 1990's is tagged as *integrative CALL*; the period from 2000 on is labeled as *intelligent CALL*.

Next, Lamy (2007) provides a clearer historic view toward CALL. Firstly, *behaviouristic CALL* advocates that the computer is a provider of drills to a learner who responds on an individual basis. Reading and writing are the main focus of *behaviouristic CALL*. During the 1980s, *communicative CALL* then begins to assume its major position in the educational field. The computer remains superior as knower of the right answer, but, with the widespread interest in communicative teaching, CALL is used for more interactive learning and greater student choice and control. Now speaking and listening becomes the targeted skill area, although machine-learner interaction is still more frequent than learner-learner computer-mediated interaction. Finally, from the 1990's to the beginning of the twenty-first century, *integrative CALL* emerges and soon receives general acceptance. Due to the arrival of multimedia products and the advancement of the Internet, a variety of media including written, visual, and spoken data can all be accessed and retrieved in an integrated fashion from a networked computer. Several linguistic skills can now be deployed at once. In addition, learning and teaching online can be group-based, indicating that modern *integrative CALL* can offer socio-cognitive and collaborative pedagogies.

Instead, analyzing from an alternative perspective that does not imply historical phases, Bax (2003) outlined three distinct approaches of CALL: *Restricted* CALL, *Open* CALL, and *Integrated* CALL. As to the future agenda for CALL, Bax (2003) contended that most educators are currently using the second approach, Open CALL, and educators should pursue the ultimate normalization of *Integrated* CALL.

CALL encompasses a wide range of educational issues from material design, technology application, pedagogical theories, instruction approaches, and decision of school policies (Felix, 2005; Hubbard, 2005). Research in CALL has shifted its core focus from finding out whether CALL is superior to non-CALL methods to how CALL can be better applied effectively in language learning. Some teachers use CALL activities based on e-mail and the World Wide Web (WWW) to supplement instruction and learning (Beatty, 2003). Zhang and Barber (2008) define CALL as an approach in language

learning in which a computer presents various materials to the learner or where the computer is used as a tool to benefit language learning. The term CALL, in this study, refers to the use of computer technology and the Internet to facilitate language learning, including, but not limited to, standard program applications, such as word-processors, email packages, and Web browsers, as well as educational software that is designed specifically for language learning or course instruction such as e-learning software.

In short, the working definition of Computer-Assisted Language Learning (CALL) in the present study will be broadly defined as any use of computer technology and the Internet that enhances or facilitates the teaching and learning of language, whether through interactions directly with the computer itself or interactions with other teachers and learners online or offline.

Advantages and limitations of CALL

In general, CALL is a mixture of pedagogy and technology both having equal importance (Ward, 2008). The number of investigations in CALL has considerably increased in the past decades, encompassing a variety of research foci, geographical areas, technological applications, educational settings, and native languages (Felix, 2005; Hubbard, 2005). Rapid improvement in computer technology and the Internet has enabled language teachers to have access to educational and instructional technology resources readily available online or offline. In recent years, computer technology and the Internet have added a great deal of value to the language teaching and learning process. Furthermore, the emergence of CALL offers researchers an ideal medium and encourages a better and more varied learning and teaching approach under different research contexts such as laboratory environment, structured observation environment, or authentic environment (Hegelheimer & Tower, 2004).

The role of computers and the Internet constitute an essential aid to language teachers eager to expand their repertoire of new approaches to language instruction (Scrimshaw, 1997). It is not surprising that language teachers need a critical understanding of the usage of CALL. With respect to physical products, language textbooks nowadays often include CDs or DVDs in them. Devices such as the iPod, PDA,

mini laptops, and a multitude of other digital devices can accomplish so much more than was ever envisioned by early progenitors who pondered over the effect that computers could have on language learning and teaching (Bush, 2008).

The use of the Internet has also become quite popular throughout the world in recent years as the World Wide Web (WWW) introduces many useful resources and applicable tools such as audio, video, text, and images that can be used for language teaching and learning purposes in a plethora of avenues. To obtain maximum benefit from these physical and virtual facilities, researchers and developers have to apply them in the most proper way, guided by effective instructional design principles implemented in their instructional environments (Colpaert, 2006).

While Teaching English to Speakers of Other Languages (TESOL) researchers and practitioners have attempted to delve into specific features within CALL which might contribute to improved English teaching and learning, scant research has been published on the effectiveness of CALL-related technological advances in the context of an English course and, in particular, on the analysis of initial attitudes of teachers and students toward the technology they are using. However, TESOL practitioners and researchers have to realize that, to successfully implement CALL, it requires specific attention to a lot of areas: software, technology, teachers' attitudes, students' attitudes, and so forth (Bax, 2003). It is of the utmost importance that feedback from the stakeholders are treated carefully because, after all, it is those stakeholders who will eventually either advocate for CALL or desert it (Coniam, 2004). For higher education, stakeholders include, but are not limited to, teachers, students, administrators, and technical staff (Awidi, 2008).

In a survey study of initial student perceptions of a college-level CALL course, Holmes (2007) reported that there was overall agreement as to the benefits of CALL in English teaching and the satisfaction of using computers to learn English.

Likewise, judging from the results of his study, Kessler (2007) concluded that language teaching professionals are generally capable and confident in their use of CALL. Nevertheless, when those language teaching professionals were demanded to devise particular teaching tasks that are integrated in technology, their attitudes and confidence significantly declined. Indeed, since high confidence or positive attitude alone does not

necessarily guarantee a successful CALL program, it may serve better for English teachers to be equipped with a moderate degree of technology confidence cultivated in educational contexts (Kessler, 2008). As such, Kessler (2007) suggested that researchers include a wider breadth of variables in future investigations regarding the prediction of attitude toward technology, thus offering more chances to account for the various elements that may be attributable to English teachers' attitudes toward technology. Ward (2008) then indicated that, although certain teachers might caution against CALL-related applications, others would try to take an adventurous stance toward it.

As an integrative application for both the Internet and cutting-edge computer technology, CMS, which currently has yet been fully researched in Taiwan in terms of how it works and how users view it, is thus chosen as the focal point of the present study.

Course management system (CMS)

Definitions of CMS

To begin with, the increased general availability of broadband Internet and personal computers has gradually driven the trend of language teaching and learning approaches to include CMS (Leahy, 2004). The vast emergence of CMS in the 20th century has introduced a brand new educational tool for teachers. In recent years, CMS has grown into an electronic educational software system widely accepted throughout the world (Cloete, 2001). As a matter of fact, CMS has evolved into a revolutionary learning fashion because of the skyrocketing development of information technology industry and the gradually broadened Internet bandwidth (Cappel & Hayen, 2004).

In a broad sense of description, Rosenberg (2001) maintains that e-learning CMS denotes the use of Internet technologies to offer a battery of solutions that enhance knowledge and performance. Rosenberg continues to explain that e-learning CMS is mainly built on three fundamental criteria: (1) It is networked, which makes it capable of instant updating, storage/retrieval, distribution and sharing of instruction or information; (2) It is delivered to the end-user via a computer using standard Internet technology; (3) It highlights the broadest view of learning: learning solutions that go beyond the traditional paradigms of training (Rosenberg, 2001).

Both synchronous and asynchronous learning accesses are often incorporated into management systems to reduce the restrictions of time and location. Such learning system, when used in academic settings, is often referred to as CMS. Typical CMS usually has administrative features, such as: online course enrollment, the monitoring of online usage, and testing and surveying tools (Chan, 2006). Most CMSs are designed to be used in an institution and can be made accessible by the internet. Both students and teachers can freely upload their word-processed documents, digital photographs, digital music files, movie files, PDF files, PowerPoint slides, or any other kind of multimedia resources. Students can download the files they need, or upload their designated assignments. CMS also has bulletin boards for all the participants to post any topic and threaded discussion through an asynchronous online communication environment. Such software has a chatroom for participants to converse in real time discussions, and for instructors to conduct synchronous online office hours. Scoring can be automatically graded through online multiple choice examinations. By the same token, survey or evaluation feedback data can also be collected automatically.

In addition, there may be some bonus features included in CMS, such as activity reports, attendance managers, user activity tracking, e-portfolios, blogs, and podcasting. Table 1 sums up features that are mentioned in the definition of CMS from Goertler and Winke (2008).

Table 1

Summary of CMS (adopted from Goertler & Winke, 2008)

What e-learning course management system can offer
1. Online storage of course documents which students can download
2. Dropboxes that students can use to upload documents/assignments
3. Grading features
4. Course calendars
5. Tools for computer-mediated communication (CMC)
6. Online assessment tools and programs
7. Student participation tracking
8. Providing feedback to students

9. General class management

Programs of CMS in language learning and teaching

In language instruction, there are a number of different CMSs that are currently used by school teachers. For example, WebCT (Web Course Tools), now owned by Blackboard, is sometimes chosen as a school's e-learning platform. Some schools are in favor of Blackboard as their major system. On the other hand, Moodle is usually chosen by those teachers who prefer freeware and are more familiar with computer programming. As for the rest of the institutions, sometimes they would opt for some other specially created CMSs, which are developed and maintained by the product's company. Table 2 showcases some of the CMSs that are available and can be used as online teaching tools.

Table 2

List of CMSs

Course management systems	Website URL link
Open source	
ATutor	http://www.atutor.ca
Claroline	http://www.claroline.net
eFront	http://www.efrontlearning.net
ILIAS	http://www.ilias.de
KEWL.NextGen	http://avoir.uwc.ac.za
Moodle	http://moodle.org
OLAT	http://www.olat.org
Sakai Project	http://www.sakaiproject.org
Closed systems	
ANGEL	http://www.angellearning.com/
Blackboard	http://www.blackboard.com
Desire2Learn	http://www.desire2learn.com/
eCollege	http://www.ecollege.com
FirstClass	http://www.firstclass.com/

Gradepoint	http://www.gradepoint.net
SumTotal	http://www.sumtotalsystems.com/

End-users' perceptions of the relative advantage and usability of CMS manifest a significant relationship with their intention to adopt and subsequently use the technology (Liao & Lu, 2008), thus English teachers are responsible for selecting the CMS that can be readily geared to their courses and their students.

Advantages and limitations of CMS

CMS has been adopted by many higher education institutions thus far. Consequently, critical issues related to CMS adoption need to be explicitly assessed (Selim, 2007). Although the emergence of CMS in recent years has given teachers a brand new alternative tool to advance their teaching, the advantages and limitations of CMS should also be seriously considered before all the teachers begin to hop on the bandwagon.

To aid class development and the overall instruction process, e-learning CMSs such as Blackboard, WebCT, and Moodle have arisen. Provided that English teachers are familiarized with CMS, they can simply put a course syllabus online, along with visual supplementary materials, homework assignments, and other various digital resources, without having to learn HTML (HyperText Markup Language) or how to edit a programming language (Driscoll, 2008).

As a matter of fact, the advantages of e-learning CMSs are changing the way how teachers view, organize, and evaluate their instructions. First, with the help of CMS, teaching can be time-shifted using online resources that are readily available on the Internet, thus providing a non-stop learning environment 24 hours a day (Chan, 2006). Second, the content of teachers' instruction can be more diverse and creative with the aid of CMS. Third, supplemental teaching materials may be distributed, kept, or even modified more easily with electronic files. Fourth, CMS creates an environment for teachers and students to interact and communicate with each other. Fifth, all the evaluation sheets, transcripts of grades, and records of class participation can be saved

anytime and anywhere via CMS.

To sum up, Table 3 demonstrates the eleven benefits of e-learning CMS that are identified in Rosenberg's (2001) work.

Table 3

Benefits of e-learning CMS (adapted from Rosenberg, 2001)

Benefits of e-learning course management system
1. E-Learning course management system lowers costs
2. E-Learning course management system enhances business responsiveness
3. Messages are consistent or customized, depending on need
4. Content is more timely and dependable
5. Learning is 24 hours a day
6. No user "ramp-up" time
7. Universality
8. Builds community
9. Scalability
10. Leverages the corporate investment in the Web
11. Provides an increasingly valuable customer service

Likewise, Table 4 encapsulates the potential benefits of e-learning CMS that are identified in Lowerison et al.'s (2008) work.

Table 4

Potential benefits of e-learning CMS (adapted from Lowerison et al., 2008)

Potential benefits of e-learning course management system	References
1. Increased access to information	Bonk and Cunningham (1998)
2. Increased flexibility of learning environments	Spiro, Feltovich, Jacobson, and Coulson (1991)
3. Personalized instruction	Alonso, Lopez, Manrique, and Vines (2005)

4.	Reduced cognitive load	Salomon (1983)
5.	Increased learner control	Jonassen (2003) and Laurillard (2002)
6.	Authentic learning	Bransford, Brown, and Cocking (2000)

On the other hand, limitations of CMS may prevent some teachers or institutions from accepting such a system as well. First, students might be overwhelmed by the excessive amount of information that has been put on the CMS. Second, some teachers might develop dependence on CMS, and therefore pay much less attention to the overall instructional design, course plan, and syllabus. Third, students could easily get frustrated if they do not receive well-informed introduction and direction to the use of CMS. Fourth, some prudent institutions may be reluctant to accept and adopt the use of CMS, rendering such a great opportunity vanished in the conservative schools. In addition, Foreman and Widmayer (2000) cautioned that, even if e-learning CMS already cover all the materials that an average language course need, face-to-face interactional activities are still very crucial but often neglected. Lastly, whether college instructors can regularly maintain the overall quality of the integrated English course is called into question.

In the findings of van Olphen's (2007) study aiming at pre-service teachers, three challenges for utilizing CMS were consistently singled out: (a) lack of technical support and technical classroom management strategies, (b) equity concerns for lower income level students, and (c) lack of feedback and shortage of teacher presence. To design and create effective CMS environments, three major considerations were proposed by Liaw et al. (2007) based on fundamental criteria: autonomous learning, multimedia environments, and teacher-assisted learning. Figure 2 (from Liaw et al. (2007)) demonstrates the different facets of the environment.

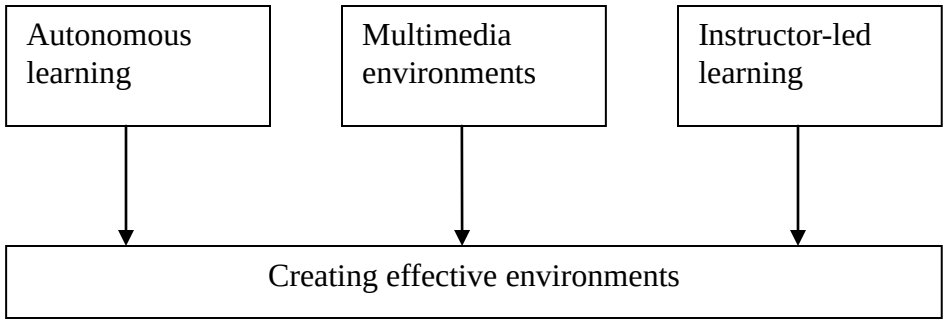


Fig. 2 Different considerations for facilitating effective environment (adapted from Liaw et al., 2007)

Alongside the above considerations suggested by Liaw et al. (2007), Chinnery (2008) suggested that CMS in general should be productive, informative, collaborative, communicative, and aggregative. Chinnery (2008) also admitted that the amalgam of these five descriptors are open to future amendment; therefore, it is the future researchers' responsibility to examine what CMS can offer, what optimal strategies teachers can apply, and what teachers' and students' attitudes are toward it.

Teacher and student attitudes

Definitions of attitude

Since attitude is one of the key terms in the present study, it is crucial to examine the definition of attitude. Although many scholars have proposed different kinds of explanations for attitude (Brock & Sulsky 1994; Triandis, 1971), these scholars remained that the term itself should be used as carefully, consistently, and appropriately as possible throughout the paper once its definition has been established.

Zimbardo and Leippe (1991) claimed that there are three main components that form attitude: affective, behavioral, and cognitive. First, the affective component resembles people's inner perceptions and mindset affected by attitude. Second, the behavioral component manifests people's attitudes toward external events. Third, the cognitive component represents people themselves and thus reflects their attitudes in a

holistic realization. To examine the functionality of attitudes, Herek (2000) proposed a dichotomy that contains instrumental and symbolic functions. From an instrumental function's perspective, attitude is viewed as solely utilitarian with practical concerns. From a symbolic function's perspective, attitude is viewed as simply a symbol that reveals deeply rooted social values and prejudices.

In a comparatively more extensive explanation of what attitude means, Palaigeorgiou (2005) defined attitude as a positive or negative emotion, or feelings in the mind, that is stimulated through personal experience and that triggers a direct impact on the affective responses of an individual toward another individual, object, or event. In a short description about attitude, Zhang and Barber (2008) maintained that attitude means a certain predisposition to react in a given way. In sum, attitude can be regarded as one's feeling and reflection of beliefs and perceptions (either positive or negative) about a certain object.

The crucial role of attitude

It is rather important for researchers to investigate attitude-related issues in that attitude plays a pivotal role in teaching and learning. As Culpan(1995) aptly pointed out, even if the technology is well-developed and fully-grown to an extent, the effective application of technology still hinges on end-users who hold a positive attitude toward it.

Selwyn (1999) also mentioned that, to conduct a successful integration of computer technology in educational environments, it largely hinges on both teachers' and students' attitudes toward computers.

Likewise, Lam (2000) confirmed that instructors' personal perceptions about technology play a major role in their final decisions on whether they intend to integrate technology into their courses or not. Therefore, it is obvious that end-users' attitudes toward computer technology hold the key to smooth participation and subsequent achievement in activities with respect to computer technology and the Internet (Jones & Clarke, 1994).

Since attitudes hold such an important role in technology acceptance, Loyd and Loyd (1985) developed a measurement for computer-related attitudes: the Computer

Attitude Scale (CAS). Four major components were included in the CAS: computer anxiety, computer confidence, computer liking, and computer usefulness. Computer anxiety means that one may tend to have fear toward computers or that one may be nervous or even reluctant to embrace current or future technology trends. Computer confidence, alternatively computer self-efficacy, refers to one's belief that he or she is able to harness or learn about computers. Computer liking, alternatively computer enjoyment, means that one likes the feeling of using the computer. Computer usefulness is the degree in which one perceives the usefulness of working with computers in the present or the future.

Hegelheimer (2006) contended that, with increased computer literacy, perception of the potential usefulness of technology in language teaching and attitudes toward computers would remain positive. In his study, innovative technology use was often employed by language instructors who demonstrated more self-confidence toward technology. Provided that students are given proper and thorough instruction of computer skills, students' attitudes toward utilizing computer technology in language learning would positively increase as well.

Teacher and student attitudes toward the use of CMS

A positive attitude can transform into a case for CMS implementation, whereas a negative attitude may often result in the stakeholders' declination that is doomed to failure (Heining-Boynton & Haitema, 2007). In specific consideration of CALL-related techniques such as CMS, teachers and students should be creatively involved in constructing critical and reflective attitudes toward technology and the Internet (Clare & Liddament, 1997).

Peters (2006) found that the teacher and student participants generally expressed positive attitudes toward the new roles of learners and teachers in a classroom where computer technology was used. With computer technology and the Internet, the pre-service teachers felt that students would be more autonomous, and the students felt that teachers would function as a guide or a company in order to facilitate learning. Although some participants noted that, in order to make such strategy capable of contributing to

English learning activities, the use of computer technology should be coupled with a specific language goal or objective, other participants perceived that computer technology and the Internet could be appropriately used to motivate students and to make the language learning process easier.

As for positive attitudes, successful integration of computers in classrooms is dependent on the teachers' attitudes toward computer technology (Lawton & Gerschner, 1982). However, Meskill et al. (2006) cautioned that, even if teachers hold positive attitudes toward technology, such positive feedback does not ensure that teachers will be able to harness technology and use it properly in their classrooms. There are also reported constraints that may obstruct teachers' wishes to correctly use computers in their teaching, along with certain students' reluctance to actively engage in activities utilizing information technology (Reffell & Whitworth, 2002).

Although Meskill et al.'s (2006) caution is not without serious consideration, Robb (2006) suggested that the instructors should still keep gaining suitable knowledge about computer technology and maintaining a positive attitude toward implementing CALL technology in their classes. Furthermore, Robb (2006) pointed out that technology is no longer an exclusive realm for specialists, but something which all teachers can share and increasingly integrate into their classes. Therefore, an urgent need is called to maximize the opportunities and acceptance for English teachers to experiment with technology and thus foster positive attitudes toward computer technology and the Internet among teachers and students.

To better understand teachers' and students' reasons of either accepting or rejecting the use of CMS, their attitudes toward CMS stand out as a pivotal factor. Probing into students' perceptions and satisfaction with the use of CMS is indispensable because students' increased expectations in the value of CMS will always provide an area of fruitful further research (Petrova & Sinclair, 2008).

Liaw (2007) reported that, when it comes to learners' autonomy in the use of CMS, Taiwanese students cared more about their perceived usefulness of CMS. On the contrary, students from the United Kingdom were more concerned with their perceived enjoyment of CMS.

Observing from a different perspective, Sun et al. (2008) conducted a study to

investigate the critical factors influencing learners' views toward CMS. They developed an integrated model with six dimensions: learners, instructors, courses, technology, design, and environment. Through the data gathered from surveying, results of their study showed that learner computer anxiety and instructor attitude toward CMS are fairly important in terms of students' perception of CMS. Not only students but teachers also play a key role in a successful learning process with CMS. From Sun et al.'s study, they suggested that it is important to offer complete computer and technology-related training to students. Besides, teacher attitudes toward using computers and the Internet may affect the teacher's effective delivery and also students' expected performance. A committed and enthusiastic teacher can have a positive influence on students' acquisition and satisfaction toward CMS.

Language teaching professionals should be aware of and have a systemic view of attitudes and attitude change (Kennedy & Kennedy, 1996). In fact, it requires a fairly positive attitude to overcome the many hurdles that may discourage English teachers from using computer technologies in their courses (Kadel, 2005). Van Olphen (2007) reported about the attitudes of foreign language pre-service teachers who tried the use of a web-based e-learning CMS. The overall results of van Olphen's (2007) study are in line with Auyeung's (2004) findings that a large proportion of the pre-service teachers expressed that their online collaborative experiences were beneficial. From their participants' point of view, academic enhancement, increased confidence, collaboration, communication and flexibility were some of the reasons why they had positive views toward online CMSs.

To present a complete review of the studies, Shih, Feng, and Tsai (2008) analyzed studies that were carried out in the field of e-learning CMS and published in five Social Sciences Citation Index (SSCI) journals from 2001 to 2005. Shih and colleagues used content analysis and citation analysis of published articles to provide insightful information of recent research trends and recognized important researchers and valuable papers in this field. In their study, motivation and attitude related topics were often investigated. They ascertained that not only students' learning attitudes but teachers' teaching attitudes are gaining more and more attention. Therefore, Shih and colleges suggested that more studies be carried out to further investigate learners' and teachers'

attitudes in this constantly changing educational environment.

Three-tier Technology Use Model (3-TUM)

To some teachers, sometimes they are unwilling to accept and use technologies that are made readily available. They tend to express less enthusiastic feedback to the latest technologies. Therefore, much effort is needed to understand why certain teachers adopt the state-of-the-art system so smoothly without having too much difficulty while others hesitate and choose to be onlookers. To better understand students' perceptions in specific contexts, Ndubisi (2006) also suggested that researchers may investigate student adoption of CMS with the application of a well established information technology adoption model. The present study will present and use 3-TUM, a conceptual approach adopting different previous established models including Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), and Technology Acceptance Model (TAM), to further investigate teachers and students' attitudes toward the use of CMS in English teaching.

Theory of Reasoned Action (TRA)

The majority of conceptualizations of computer technology acceptance have drawn on theories from social psychology. Drawing upon the social psychology field, the Theory of Reasoned Action (TRA) was formulated and proposed by Ajzen and Fishbein (1980). TRA is explicitly concerned with behaviors of human beings, but TRA also recognizes that there are factors that limit the profound influence of attitude on human behaviors.

According to TRA, an individual's behavioral intentions are created or caused by two determinants: one's attitude toward the behavior and the subjective norm (Ajzen & Fishbein, 1980). Attitude captures subjective beliefs about the outcome of performing the behavior, multiplied by his or her evaluation of the specific consequences. Subjective norm captures a combination of perceived approval or disapproval from related communities and personal intentions to comply with the perceived approval or disapproval. These two determinants measure an individual's relative motivation of

intention to execute a certain behavior. It is noteworthy that subjective norm is generated only in relation to the opinions of people who are considered to be of significance or importance.

Accordingly, the more favorable the attitude and the subjective norm, the stronger the individual's intention to perform the behavior in question will be. In basic terms, individuals' voluntary behaviors can be predicted by their attitudes toward that exact behavior and how they think other people would judge them if they performed the behavior.

The idea of Davis et al.'s (1989) Theory of Reasoned Action will be illustrated in Figure 3.

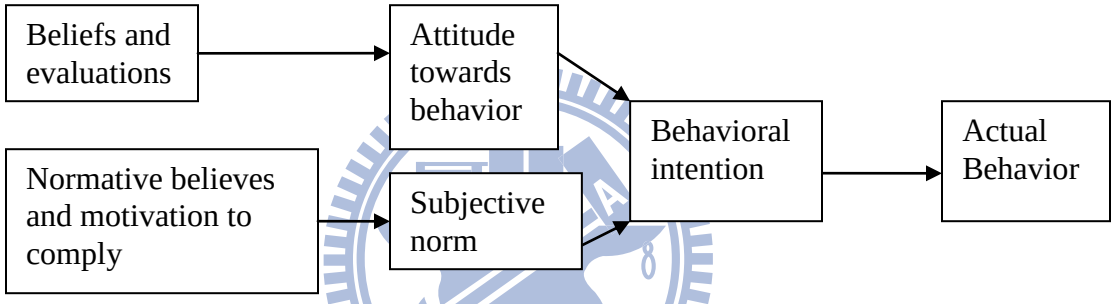


Fig. 3 Theory of Reasoned Action (TRA) (adopted from Davis et al., 1989)

However, it has been argued that the predictive power of TRA may be weak in that it was designed to predict only behaviors under voluntary control (Ajzen, 1991). One of the limitations of the theory is the inevitable weakness of self-reporting, which is used to determine a subject's attitudes. Ajzen and Fishbein (1980) asserted that, although extraneous variables might influence an intention or behavior of an individual, they are basically not considered in the framework of TRA. Hence, no direct observation but only self-reported information is used in TRA.

Obviously, self-reported data can be rather subjective at times and is not necessarily always accurate. The second limitation of the theory comes from the restriction that only behaviors that are consciously thought out beforehand can be applied to TRA. Situations other than voluntary behaviors, such as irrational decisions or habitual actions, cannot be applied to TRA.

To solve the problems that he confronted, Ajzen later proposed a new theory called Theory of Planned Behavior (TPB) (Ajzen, 1991) as discussed in the next section.

Theory of Planned Behavior (TPB)

Theory of Planned Behavior (TPB), outlined by Ajzen (1991) as an extension of TRA, takes into account that behavioral actions may occur without a person's voluntary control. TRA and TPB were formulated as generalized explanations of a vast range of individual behaviors inclusive of the use of information technology.

TPB generally follows the pattern of Theory of Reasoned Action except for the inclusion of the perceived behavioral control, which originates from Self Efficacy Theory (SET) (Bandura, 1977). Self efficacy, which came from Social Cognitive Theory (SCT), is people's expectations that they are capable of planning and taking action to attain a particular goal (Bandura, 1977). Self efficacy was also found to yield positive effects on computer usage, affect, and outcome expectations related to performance (Compeau & Higgins, 1995). As for perceived behavioral control, it comprises two specific components: control of beliefs and perceived power. These two components posit that intention, or motivation, is affected by how difficult the task in question is considered to be and whether the person expects to completely perform the behavior.

In other words, while these elements contributing to attitude, subjective norm, and behavioral control could be facilitative or obstructive depending on the individual's perception, the balance between them would vary from one situation to another. Figure 4 delineates the conceptual structure of the Theory of Planned Behavior.

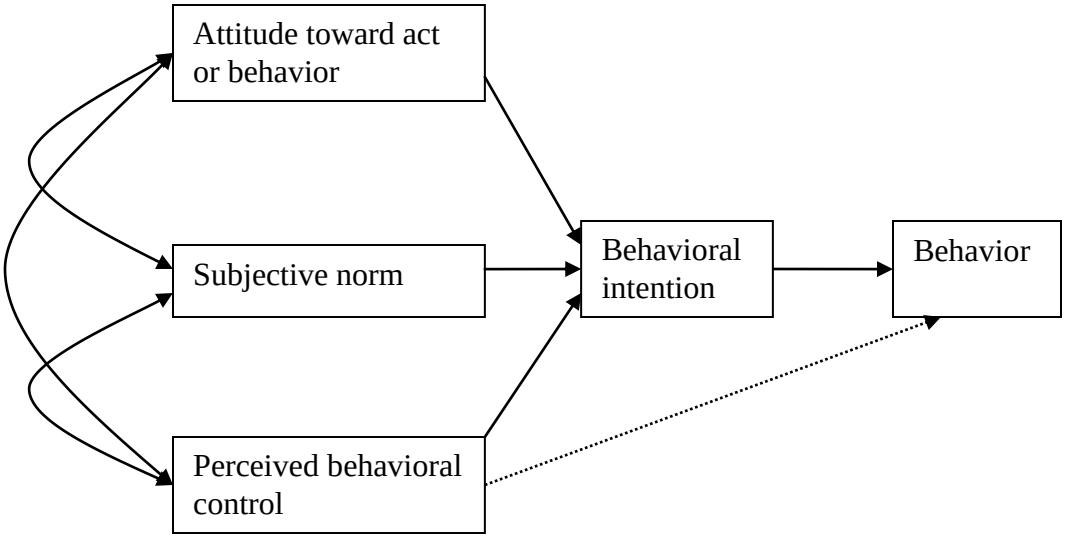


Fig. 4 Theory of Planned Behavior (TPB) (adopted from Ajzen, 1991)

Subsequent TPB studies have demonstrated that TPB can be successfully applied to a variety of situations to predict and understand intention and behavior (Taylor & Todd, 1995). One salient advantage of TPB is that, with improved predictability, it can cover people's voluntary behavior which cannot be fully explained by Theory of Reasoned Action. Nevertheless, a precarious drawback of TPB is that it overlooks variables regarding human sentiments. For instance, common feelings such as threat, fear, and excitement are scarcely treated in TPB.

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), advocated by Davis (1989), has been the most extensively adopted theoretical framework to investigate technology acceptance. It was developed and adapted from the theoretical foundations of Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980).

TAM can be used by researchers to shed some light on user acceptance of a novel technology based on their attitudes. The most distinctive feature of TAM is that it is specific and simple. Unlike TRA, TAM does not include a subjective norm construct as a factor of individual intentions due to its ambiguous theoretical and psychometric status

(Davis et al., 1989). In lieu of the subjective norm construct, perceived ease of use (PEU) and perceived usefulness (PU) determine one's behavioral intention to accept the technology (Davis, 1989). Perceived ease of use (PEU) is defined as the degree to which an individual believes that using a particular technology will be effortless. Perceived usefulness (PU) is defined as the degree to which an individual believes that using a particular technology will enhance job performance, such as teaching and learning (Davis, 1989).

Furthermore, while perceived ease of use (PEU) is process expectancy, perceived usefulness is outcome expectancy. Notably, perceived usefulness has a strong positive influence on end-users' attitudes; it is also regarded as being directly impacted by perceived ease of use (Padilla-Meléndez et al., 2008). Davis et al. (1989) insisted that individuals who believe that a technology system is easy to interact with are more likely to increase their sense of self-efficacy. Therefore, positive attitudes about a concept such as using CMS in English teaching are likely to coexist with subsequent manifestation of the corresponding behavior of actually using the CMS in English courses.

In sum, TAM is a specification of TRA in the case of technology adoption. First, TAM assumes that the higher the perceived usefulness of the innovation is, the more likely adoption will take place. Second, TAM assumes that the easier it is to use an innovation, the more likely adoption will take place. Last, TAM assumes that the lower the control by the subject of the benefits of the innovation, the less likely adoption will take place (Bagozzi et al., 1992; Davis, 1989, Davis et al., 1989).

Since Davis's (1989) elaborate work, TAM has become a widely used model, which places more emphasis on subjective and psychological predispositions and social influences on behavioral intention to adopt a state-of-the-art technology innovation. For example, in a study investigating the perceptions of teachers in accepting and using an e-learning CMS, Yuen and Ma (2008) reported that the subjective norm was found to be an important and significant factor to perceived ease of use and, hence, intention to use. They also found that computer self-efficacy was another important and significant factor to perceived ease of use and behavioral intention to use CMS.

Among various theoretical models developed to investigate users' intention to accept and use the latest information technology systems, TAM stood out to be fairly

promising. Previous literature on TAM has demonstrated that it is a valid model for testing out acceptance toward information technology systems (Davis, 1989; Venkatesh & Davis, 2000; Venkatesh et al., 2003). For example, Taylor and Todd (1995) conducted an empirical study comparing TAM and the other two variations of TPB in order to evaluate which model outperforms others in predicting information technology usage. Results indicate that, although both TAM and the two TPB variants have similar predictive power, TAM is preferable to the other two variations of TPB. In a similar vein as Taylor and Todd's study, Szajna (1996) also found out that, for better prediction of users' intention to use information technology, TAM functions as a valuable tool among many proposed theoretical perspectives.

Figure 5, originally from Davis et al. (1989), briefly reflects how the conceptual model works for the Technology Acceptance Model (TAM).

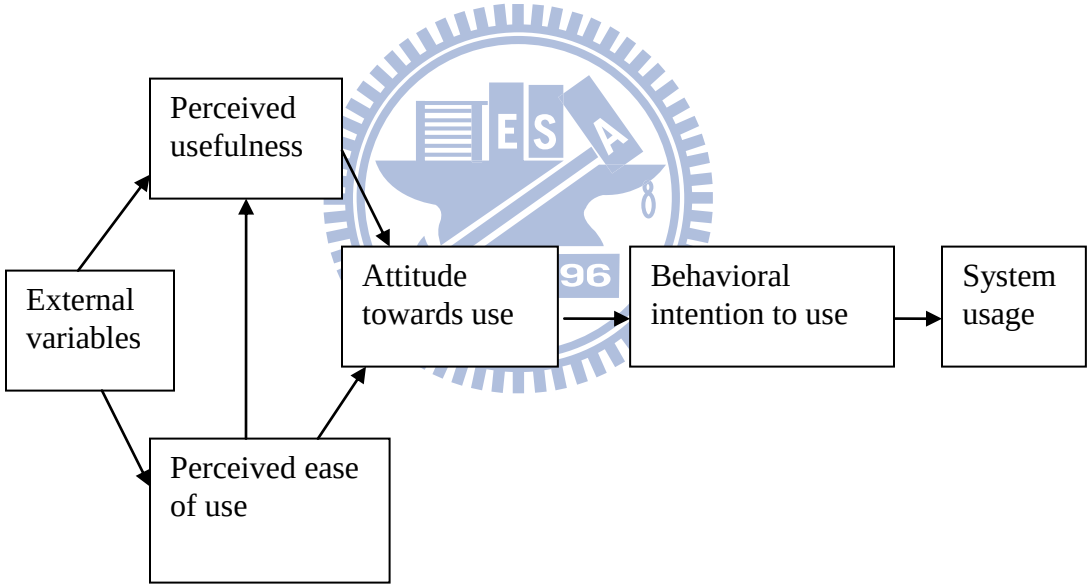


Fig. 5 Technology Acceptance Model (TAM) (adopted from Davis et al., 1989)

As Wixom and Todd (2005) pointed out, research attempts to further extend TAM are usually carried out by integrating factors from related disciplines, by introducing alternative or additional belief factors, and by carefully examining antecedents and moderators of perceived usefulness and perceived ease of use. Therefore, the present study chooses to apply Three-tier Technology Use Model (3-TUM), a TAM-based

conceptual approach, of which the next section will explain in more details.

Three-tier Technology Use Model (3-TUM)

Understanding users' attitudes toward e-learning CMS s can be rather difficult; therefore, it is necessary to apply a multidisciplinary approach to investigate individuals' attitudes toward CMS. As Legris et al. (2002) concluded, although TAM is a useful model, a broader integration which includes variables with regard to both human, educational, and social constructs is necessary for future studies.

Mainly inspired by TAM, the Three-tier Technology Use Model (3-TUM) is a conceptual approach articulated by Liaw et al. (2007) for examining user attitudes toward information technologies. Liaw et al. (2007) postulates that user attitudes toward information technologies can form three distinct tiers: the tier of individual experience and system quality, the affective and cognitive tier, and the behavioral intention tier. Figure 6 is taken from Liaw et al. (2007) and illustrates these three tiers of 3-TUM.

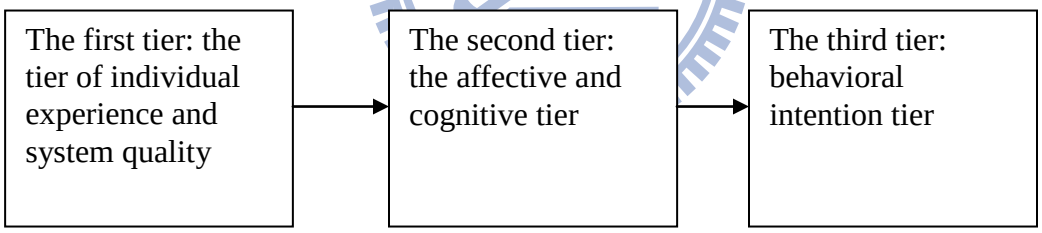


Fig. 6 The Three-tier Use Model (3-TUM) (adopted from Liaw et al., 2007)

The first tier, the tier of individual experience and system quality, evaluates how personal experience and the quality of the system have a profound impact on individual affective and cognitive components. The second tier, the affective and cognitive tier, then examines how affective and cognitive components influence individual behavioral intentions. The third tier, the behavioral intention tier, helps understand how 3-TUM predicts individual behavioral intention to use information technology systems for certain particular purposes.

Because the theme of the present study is English teaching and learning, an educational component should be included. Liaw et al.'s (2007) 3-TUM not only contains information technology elements from TPB and TAM but also integrates educational and social elements from Social Cognitive Theory (SCT) (Bandura, 1977). In educational research, SCT is often used to cope with student learning in terms of the interrelationship between behavior and environmental effects. A major principle of Bandura's (1977) SCT is perceived self-efficacy, which postulates that students' belief of capability may be associated with the context of social interactions, experiences, and external media impacts.

In 3-TUM, Liaw (2008) also highlighted three pivotal considerations in designing effective e-learning CMS environments: learners' self-efficacy, multimedia formats, and interaction environments. Figure 7 is taken from Liaw (2008) and shows considerations for developing and designing e-learning CMS.

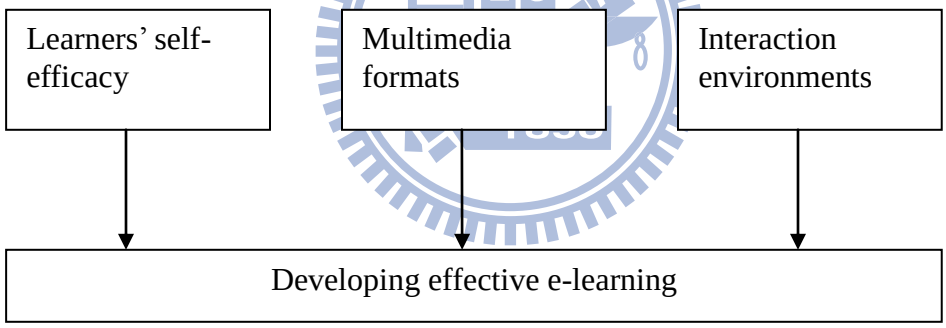


Fig. 7 Considerations for developing effective e-learning CMS (adopted from Liaw, 2008)

From an educator's perspective, how to foster an amicable research environment such that 3-TUM could be utilized to measure teachers' and students' attitudes toward CMS pitches a critical issue when facing the challenges of changing educational trends and shifting ways of course content delivery. Summarizing from the above literature review, five major variables are embedded in the method design of the present study: the perceived quality of CMS, perceived self-efficacy, perceived enjoyment, perceived usefulness, and behavioral intention.

Lastly, through the investigation of Taiwanese college teachers' and students' attitudes toward the use of CMS based on 3-TUM, it is hoped that this research could shed some light on the stakeholders' acceptance and intention to use CMS in English courses.

CHAPTER THREE

METHOD

As for the types of research method used in the studies, although descriptive research method was the major methodology in educational studies, it was found that recently researchers advocated mixed method as a new research paradigm for some of the highly cited SSCI articles. Those researchers took a mixed method approach to investigate e-learning course management system (CMS) related issues (Shih, Feng, & Tsai, 2008). Additionally, the use of questionnaires has been a useful data collection technique to researchers in the field. Due to the aforementioned trend in the e-learning CMS research, the present study applied a mixed method approach using both questionnaires and interviews to draw a qualitative and quantitative understanding of the results.

In this Chapter, mixed-method research design are presented and discussed. The first section depicts the information on the teacher and student participants and the sampling criteria. In the second section, instruments including questionnaires and interviews are provided. The third section delineates the data collection procedures. In the last second, methods of data analysis are explained.

Participants

Teacher participants

Teacher participants in this study included 53 Taiwanese college English teachers. The present researcher distributed questionnaires to current college teachers working in English-related departments. Of all the universities that are on the Ministry of Education's (MOE) list, the researcher searched and collected all the available e-mail addresses of the targeted English teacher participants provided by their department or institute. In order to secure a better return rate, hard copies of the questionnaires were also hand-delivered to teachers who would like a hard copy instead of an electronic file. Moreover, the researcher attended several conferences and workshops in order to

distribute the questionnaires to the teacher attendants in person.

A cover letter explaining the purpose of the study and the instructions to complete and return the questionnaire was attached to the questionnaire. A total of 53 college English teachers participated in the current study. Table 5 shows the demographic data of the teacher participants.

Table 5

Demographic information of the teacher participants

Category	N	%
Gender		
Male	12	22.6%
Female	41	77.4%
Age		
20-30 years old	2	3.8%
31-40 years old	15	28.3%
41-50 years old	28	52.8%
51 years old and above	8	15.1%
Location of school		
Northern Taiwan	33	62.3%
Central Taiwan	12	22.6%
Southern Taiwan	8	15.1%
Eastern Taiwan	0	0.0%
Years of teaching experience		
1-5 years	13	24.5%
6-10 years	11	20.8%
11-15 years	9	17.0%
16-20 years	11	20.8%
21 years and above	9	17.0%

The majority of the teacher participants were female. Half of the teachers were in their forties. Among the 53 teacher participants, seven teachers expressed their

willingness to have an interview with the researcher. Table 6 presents the background information of the teacher interviewees.

Table 6

Background information of the teacher interviewees

*Code	Years of teaching experience	Type of the university	Location of the school	Date of the interview
T1	6-10 years	National	Southern Taiwan	April 8th, 2009
T2	11-15 years	National	Northern Taiwan	March 30th, 2009
T3	1-5 years	National	Northern Taiwan	April 1st, 2009
T4	1-5 years	National	Northern Taiwan	April 1st, 2009
T5	6-10 years	National	Central Taiwan	April 9th, 2009
T6	6-10 years	Private	Southern Taiwan	April 10th, 2009
T7	1-5 years	National	Northern Taiwan	April 14th, 2009

*Code T = Teacher

Student participants

Due to the difficulty of surveying college students nationwide, the present researcher applied convenience sampling technique to recruit student participants from National Chiao Tung University (NCTU), which is located at Hsinchu, as well as National Pingtung University of Education (NPUE), which is located at Pingtung. Convenience sample means that, the individuals that are easiest and nearest to reach are selected, in part or in whole, by the researcher until the requisite number has been obtained (Nunan, 1992).

According to the statistical data provided by the registrar, NCTU had approximately 5300 college students during the autumn and winter semester in 2008. Most of the English courses offered in NCTU have two types of CMSs: Blackboard and E-Campus 3 (E3). The present researcher followed Fowler's (1988) argument that "a sample of 150 people will describe a population of 15,000 or 15 million with virtually the same degree of accuracy, assuming all other aspects of the sample design and sampling procedures

were the same" (p.41). Therefore, the researcher went to four English courses in NCTU and two English courses in NPUE.

The questionnaires were distributed to 184 students from NCTU and 57 students from NPUE. All the student participants were native speakers of Mandarin and came from a variety of departments. To establish students' familiarity of e-learning CMS, questionnaires were administered to students until several months after the new semester. Students were asked to complete the questionnaire that included demographic information and two different components (CALL experience and attitudes toward CMS). A cover letter explaining the purpose of the study and the instructions to complete the questionnaire was attached to the questionnaire. All student participants were asked to respond to the questionnaire and their responses were kept confidential. Table 7 shows the demographic data of the student participants.

Table 7

Demographic information of the student participants

Category	N	%
Gender		
Male	159	66.0%
Female	82	34.0%
Year of study		
Freshman	168	69.7%
Sophomore	4	1.7%
Junior	42	17.4%
Senior	27	11.2%
Graduate and above	0	0.0%
Location of school		
Northern Taiwan	184	76.4%
Southern Taiwan	57	23.6%

The majority of the student participants were male. Most of the students were freshman and from northern Taiwan.

Among the 241 student participants, seven students expressed their willingness to have an interview with the researcher. Table 8 presents the background information of the seven student interviewees.

Table 8

Background information of the student interviewees

*Code	Year of study	Major	Date of the interview
S1	Freshman	Material Science and Engineering	April 12th, 2009
S2	Senior	Civil Engineering	April 15th, 2009
S3	Senior	Foreign Languages and Literatures	April 15th, 2009
S4	Senior	Foreign Languages and Literatures	April 13th, 2009
S5	Senior	Foreign Languages and Literatures	April 14th, 2009
S6	Senior	Foreign Languages and Literatures	April 15th, 2009
S7	Sophomore	Applied Chemistry	April 15th, 2009

*Code S = Student

Instrument

Mixed-method design was implemented in this study based on the following reasons. Indeed, quantitative method may extract the anonymous participants' opinions from a comparatively larger pool of samples one at a time (Nunan, 1992). However, major drawbacks of quantitative method lie in the possible low return rate and limited space for written answers from the participants (Brown, 2001). Thus, in addition to the questionnaires, face-to-face interviews instantly serve as a complementary instrument to supplement the quantitative data. Moreover, face-to-face *post hoc* interviews could provide more flexibility and dimensions than questionnaires for more substantial and insightful information. Therefore, these two different research methods were used in the present study.

Questionnaires for teachers and students

Brown (2001) defined questionnaires as "any written instruments that present respondents with a series of questions or statements to which they are to react either by writing out their answers or selecting them among existing answers" (p.6). Furthermore, Mackey and Gass (2005) outlined several advantages of using questionnaires, which are displayed in Table 9.

Table 9

Advantages of questionnaires (adapted from Mackey & Gass, 2001)

Benefits of questionnaires
1. Questionnaires can elicit longitudinal information from participants in a short period of time.
2. Questionnaires can elicit comparable information from a number of respondents.
3. Questionnaires can be administered in many forms.
4. Questionnaires can allow the researcher a greater degree of flexibility in the data gathering process.
5. Questionnaires can provide both qualitative insights and quantifiable data.
6. Questionnaires can be flexible enough to be used in a range of research.

Adapted from Liaw et al.'s (2007) and Liaw's (2008) studies, the questionnaires in this study comprised the following three major sections: (1) demographic information, (2) CALL experience, and (3) attitudes toward CMS. The reliability of the questionnaire for teachers and students was high, Cronbach's Alpha = 0.94 and 0.91, respectively. Cronbach's Alpha is a test for a survey's internal consistency and is able to gauge how well a set of items or variables measures a one-dimensional latent construct. The high alpha reliability gave support for the questionnaire content reliability. The structure and content of the questionnaires for teachers and students were approximately parallel with each other, though the similar issues were approached from different people's perspective, namely the teachers' versus the students'.

As for the demographic information section, the teacher and student participants assessed the experience of using each variable in English courses based on a five point

Likert scale (1 = never, 2 = seldom, 3 = sometimes, 4 = often, 5 = always). As to the attitudes toward CMS section, the teacher and student participants were required to rate the agreement of each item based on a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree).

First, the demographic information section covered gender (for teachers and students), location of school (for teachers and students), age (for teachers), years of teaching experience (for teachers), and year of study (for students), whether their schools have CMS, and willingness to volunteer face-to-face *post hoc* interview.

Second, in the CALL experience section, the teacher and student participants were asked to indicate whether they had prior experience using CALL as a teaching (for teachers) or learning (for students) tool.

Third, the attitudes toward CMS section was used to elicit teachers' and students' attitudes toward the use of CMS in English courses. The third section consisted of 15 items and one open-ended question. The 15 items were embedded with five variables classified as follows: (a) perceived self-efficacy (items 1, 2, 3); (b) perceived enjoyment (items 4, 5, 6); (c) perceived usefulness (items 7, 8, 9); (d) behavioral intention (items 10, 11, 12); (e) perceived quality of CMS (items 13, 14, 15). These five major categories of the questionnaire are shown in Figure 8.

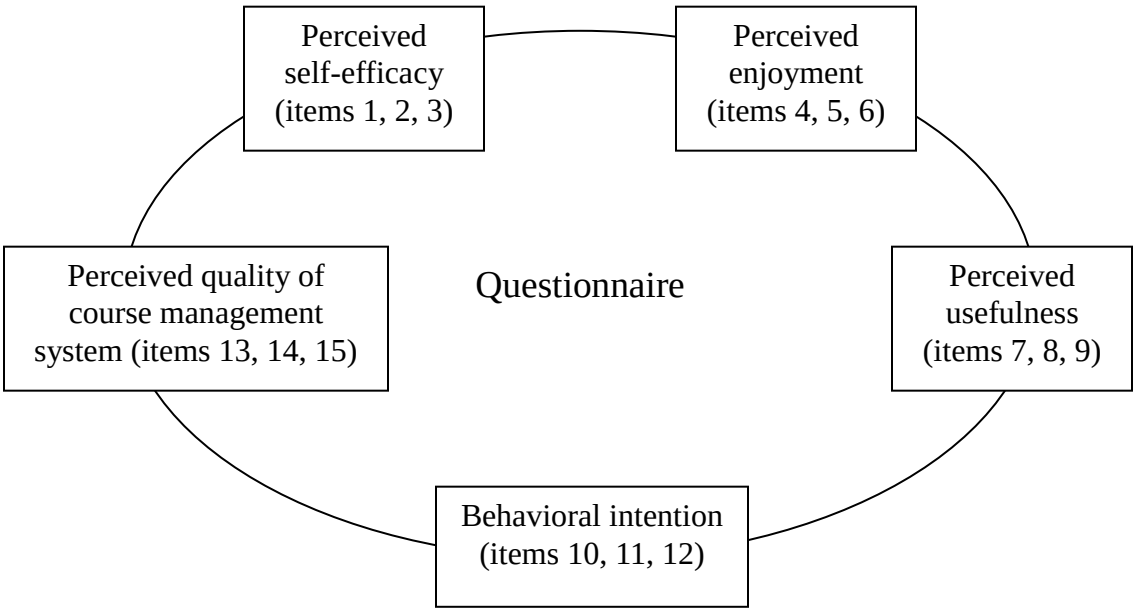


Fig. 8 The five variables embedded in the questionnaire

Last, one open-ended question was added to incorporate the teacher and student participants' opinions on CMS or anything unmentioned previously into the questionnaire. The open-ended questions, as listed in the two questionnaires (see Appendix A and B), were created to probe into a more comprehensive portrait of the use of CMS in English courses. They are briefly listed as follows:

For teachers:

(1) What timing will teachers use CMS? What activities will teachers integrate with CMS?

(2) What theoretical backgrounds or beliefs do teachers hold when using CMS?

(3) What kind of advantages can CMS provide to the field of English teaching? How can teachers capitalize on the strengths of CMS?

For students:

(1) What timing will teachers use CMS? What activities will teachers integrate with CMS?

(2) What are the reasons students like or dislike CMS?

(3) What kind of advantages can CMS provide to the field of English teaching? How can students capitalize on the strengths of CMS?

Since they were open-ended questions, the participants were allowed to be free to write down their suggestions. Although certain participants tended to ignore the open-ended question or simply leave a question blank, many had voiced a considerable number of invaluable opinions. This last part of open-ended question served as one of the sources to complement the quantitative data. For a complete copy of the questionnaires, please see Appendix A for the teachers' version, and appendix B for the students' version.

The interview guide for teachers and students

To acquire more comprehensive and realistic viewpoints of teachers and students, conducting face-to-face *post hoc* interviews was necessary as using mixed methods could add qualitative flesh to the quantitative bones of this study. Nunan (1992) classified interviews into three types in relation to the degree of formality, including unstructured, semi-structured, and structured interviews. In this study, interview protocols were semi-structured in nature, allowing the teacher and student participants and the researcher freedom to explore issues raised in one case that might not have been present in another. The interview sessions were conducted individually and recorded with a digital voice recorder, SONY ICD-UX70, for later analysis. To balance and average the time spent, each volunteer was interviewed for approximately 45 minutes. Finally, to secure confidentiality and integrity, a letter of consent was distributed to each volunteer and explained by the researcher (see Appendix C and D).

The researcher asked twelve general questions to the teacher and student participants during the interviews (see Appendix E and F), and then continued follow-up discussions according to the responses from the teacher and student participants. To extract the maximum amount of the interviewees' inner thoughts, Mandarin, the most comfortable language for the participants, was used throughout the interview. The proposed interview guides are categorized in Table 10.

Table 10

The interview guide for teachers and students (see Appendix E and F)

	Theme	Interview questions
1.	Definitions and attitudes toward CMS	1, 2, and 3.
2.	Underlying theoretical approaches and personal beliefs	6, 7, and 8.
3.	Strengths and weaknesses of the use of CMS in English courses	4, 5, and 9.
4.	Creative ideas and useful suggestions for CMS	10, 11, and 12.

It should be emphasized that, since research data amassed in this study were solely from teachers and students in two universities, the research findings may not apply to the

entire English teachers and students in Taiwan.

Data analysis

In this study, quantitative analysis and qualitative analysis were conducted to tackle the proposed research questions. The quantitative and qualitative data were analyzed separately in the following two sections.

Quantitative analysis

All the numerical responses from the questionnaires were entered into computer files for quantitative analysis. The Statistical Package for the Social Sciences (SPSS) was employed to analyze the quantitative data.

First, descriptive statistics for the totals, means, frequencies, percentages, and standard deviations were computed to summarize participants' overall responses to the questionnaires.

Next, the Pearson product-moment correlation coefficients among the variables were performed to understand the relationships in between the variables. The purpose of computing Pearson product-moment correlation coefficient was to identify a linear relationship between two measurement variables.

Last, stepwise multiple regression analyses were performed since it is an appropriate multivariate analytical method for empirically assessing the predictive models. To examine research questions 1, 2, and 3, six regression analyses were performed to explore the effects of predicted variables (the perceived quality of CMS) on teachers' and students' perceived self-efficacy, perceived enjoyment, and perceived usefulness toward CMS. To examine research questions 4, two stepwise multiple regression analyses were performed to explore the effects of predicted variables (perceived self-efficacy, perceived enjoyment, and perceived usefulness) on teachers' and students' behavioral intentions to use CMS.

Qualitative analysis

The open-ended questions and interview data served as an additional source of information to support, supplement, and validate the questionnaires.

The questionnaires contained one open-ended question for the teacher and student participants to report additional information that was not included or discussed in the questionnaires. The responses to the open-ended questions from the teacher and student participants were collected and assorted by means of content analysis.

To gain more insights into teacher and student participants' minds about the use of CMS in English courses, the researcher recorded all the face-to-face *post hoc* interviews, transcribed the content, and then identified those excerpts that were illustrative of the teacher and student interviewees' feedback. Through content analysis, salient information was used as authentic examples of teachers' and students' inner and reflective attitudes toward CMS.

CHAPTER FOUR
RESULTS & DISCUSSION

Quantitative results of the teacher and student participants

The teacher and student participants' CMS experience and CALL experience

To begin with, the teacher and student participants' course management system (CMS) experience and CALL experience were analyzed in order to better understand the context and results of this study. Table 11 presents teacher and student participants' CMS experience.

Table 11

Teacher and student participants' CMS experience

Commonly used functions	Teachers			Students		
	N	%	Rank	N	%	Rank
Class materials and documents						
Announce news	34	64.2%	3	216	89.6%	1
Upload/download document files	34	64.2%	3	200	83.0%	2
Upload homework assignments	22	41.5%	5	132	54.8%	4
Discuss on the forum	21	39.6%	6	142	58.9%	3
Subtotal	111			690		
Grading and tracking						
Keep attendance records	16	69.6%	1	23	9.5%	16
Manage grades	15	65.2%	2	45	18.7%	9
Assign group works	12	22.6%	7	60	24.9%	6
Correct/comment on assignments	12	22.6%	7	42	17.4%	10
Give grades	12	22.6%	7	53	22.0%	7
Subtotal	67			223		
General class management						
Import/export course design	11	20.8%	10	25	10.4%	14

Edit/design personal courses	5	9.4%	11	19	7.9%	19
Group students online	5	9.4%	11	16	6.6%	20
Administer questionnaires/survey	5	9.4%	11	34	14.1%	11
Give quizzes/examination	5	9.4%	11	53	22.0%	7
Subtotal	31			147		
Tools for CMC						
Chat with instant message	3	5.7%	15	11	4.6%	22
Leave comment on message board	3	5.7%	15	71	29.5%	5
Write blog	1	1.9%	18	25	10.4%	14
Chat in the text chat room	1	1.9%	18	33	13.7%	12
Hold online conference	0	0.0%	23	5	2.1%	25
Subtotal	8			145		
Alternative interaction						
Change user interface	3	5.7%	15	7	2.9%	23
Track learning progress	1	1.9%	18	21	8.7%	17
Search for keyword	1	1.9%	18	7	2.9%	23
Use calendar	1	1.9%	18	33	13.7%	12
Make interview appointments	0	0.0%	23	20	8.3%	18
Vote for issues/topics	0	0.0%	23	14	5.8%	21
Subtotal	6			102		

As presented in Table 11, functions related to *class materials and documents* ranked top four in teachers' and students' responses. As for functions of *grading and tracking*, rankings remained generally the same except for attendance records in students' responses. As to functions of *general class management*, rankings differed drastically in students' responses. As for *tools for CMC*, rankings were similar except for message board in students' responses. As to *alternative interaction*, rankings were similar in both teachers' and students' responses.

In short, from the subtotals of each category, functions related to *class materials and documents* (111 from teachers and 690 from students) are the commonly used functions in English courses, followed by *grading and tracking* (67 from teachers and

223 from students), *general class management* (31 from teachers and 147 from students), *tools for CMC* (8 from teachers and 145 from students), and *alternative interaction* (6 from teachers and 102 from students).

Next, Table 12 presents the teacher and student participants' CALL experience

Table 12

Teacher and student participants' CALL experience

Items		Never	Seldom	Sometimes	Often	Always
Experience of using PowerPoint in English courses	Teachers	5.7%	13.2%	18.9%	30.2%	32.1%
	Students	18.7%	29.0%	32.4%	18.7%	1.2%
Experience of using instant messenger in English courses	Teachers	58.5%	22.6%	13.2%	1.9%	3.8%
	Students	68.5%	20.3%	7.9%	2.9%	0.0%
Experience of using blog in English courses	Teachers	54.7%	18.9%	17.0%	5.7%	3.8%
	Students	60.6%	27.0%	11.2%	1.2%	0.0%
Experience of using YouTube in English courses	Teachers	34.0%	18.9%	30.2%	9.4%	7.5%
	Students	9.5%	20.3%	44.0%	20.7%	5.3%
Experience of using online dictionary in English courses	Teachers	35.8%	28.3%	22.6%	5.7%	7.5%
	Students	7.9%	11.2%	27.8%	40.2%	12.9%
Experience of using learning website in English courses	Teachers	22.6%	20.8%	22.6%	28.3%	7.5%
	Students	9.5%	28.2%	36.1%	20.7%	5.4%

Of the teacher participants' CALL experience , *experience of using PowerPoint in English courses* received the highest score (M = 3.51, SD = 1.22), followed by *learning website* (M = 2.81, SD = 1.27), *YouTube* (M = 2.38, SD = 1.26), *online dictionary* (M = 2.21, SD = 1.21), *blog* (M = 1.85, SD = 1.13), and *instant messenger* (M = 1.70, SD =

1.03). However, of the student participants' CALL experience, *experience of using online dictionary in English courses* received the highest score (M = 3.39, SD = 1.09), followed by *YouTube* (M = 2.92, SD = 1.00), *learning website* (M = 2.84, SD = 1.03), *PowerPoint* (M = 2.55, SD = 1.04), *blog* (M = 1.53, SD = 0.74), and *instant messenger* (M = 1.46, SD = 0.80).

Two variables ranked the same in teachers' and students' responses. For the lowest and the second lowest means of the variables, more than 50% of the teacher and student participants stated that they had never integrated *blog* and *instant messenger* in English courses before. In other words, *blog* or *instant messenger* was seldom an option in teacher and student participants' English courses. Although one possibility could be their unfamiliarity with these technologies, another more probable reason might be that teachers and students just simply chose not to use *blog* or *instant messenger* for the sake of convenience and efficiency. Some teachers or students probably would not use *blog* or *instant messenger* simply out of incongruence with their theoretical and personal beliefs.

However, differences were found in teacher and student participants' *experience of using PowerPoint*, *learning website*, *YouTube*, and *online dictionary*. As for *PowerPoint*, teachers might be more familiar with *PowerPoint* in that they needed to instruct with the help of *PowerPoint*, whereas the students had lesser chance to use *PowerPoint* to learn English in every class. As to *learning website*, the second high score from teacher participants reflected that teachers collected and introduced various outside English learning resources to students, whereas students only viewed *learning websites* as additional class materials without actually using them consistently. As for *YouTube*, student participants had more experience using it probably because many of them already had prior experience in learning English by watching *YouTube*, whereas some teachers were still not yet ready to implement *YouTube* into their English lesson plans. As to *online dictionary*, it received the highest mean score from students because they needed to learn English with the help of *online dictionary* for explanations and examples, whereas teachers only offered *online dictionary* as English references for students.

Research question 1: Is there any relationship between the teacher and student

participants' perceived quality of CMS and their perceived self-efficacy toward the use of CMS in English courses?

In answering research questions 1 to 4, the results and discussions are presented as follows: (1) responses, (2) correlation, and (3) regression analysis.

First, Table 13 presents the participants' responses to questions about the perceived quality of CMS toward the use of CMS in English courses.

Table 13

Teacher and student participants' responses to the perceived quality of CMS (based on survey question 13, 14, and 15 in Appendix A and B)

Perceived quality of CMS		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I am satisfied with the functions in CMS that I currently use	Teachers	1.9%	24.5%	32.1%	32.1%	9.4%
	Students	0.4%	6.6%	43.2%	44.8%	5.0%
I am satisfied with the contents in CMS that I currently use	Teachers	1.9%	24.5%	32.1%	30.2%	11.3%
	Students	0.4%	5.4%	42.3%	47.3%	4.6%
I am satisfied with the activities in CMS that I currently use	Teachers	3.8%	24.5%	30.2%	28.3%	13.2%
	Students	0.8%	5.4%	40.7%	49.0%	4.1%

Of the perceived quality of CMS, *I am satisfied with the contents in CMS that I currently use* received the highest score from both teacher and student participants (M = 3.25, SD = 1.02 in teachers' responses, M = 3.50, SD = 0.69 in students' responses), followed by *I am satisfied with the activities in CMS that I currently use* (M = 3.23, SD = 1.09 in teachers' responses, M = 3.50, SD = 0.70 in students' responses), and *I am satisfied with the functions in CMS that I currently use* (M = 3.23, SD = 0.99 in teachers'

responses, M = 3.47, SD = 0.71 in students' responses). For the scores of contents, activities, and functions in CMS, the overall results from the teachers' responses were mixed for they might confront frustration or dissatisfaction when integrating CMS in face-to-face classrooms.

Table 14 shows the participants' responses to questions about their perceived self-efficacy toward the use of CMS in English courses.

Table 14

Teacher and student participants' responses to perceived self-efficacy (based on survey question 1, 2, and 3 in Appendix A and B)

Perceived self-efficacy		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I feel confident for teachers to use CMS in English courses	Teachers	0.0%	17.0%	9.4%	50.9%	22.6%
	Students	0.4%	4.1%	30.7%	57.7%	7.1%
I feel confident for students to use CMS in English courses	Teachers	0.0%	17.0%	22.6%	49.1%	11.3%
	Students	0.8%	10.0%	46.1%	39.4%	3.7%
I feel confident to use all the functions in CMS	Teachers	0.0%	22.6%	11.3%	49.1%	17.0%
	Students	0.4%	10.0%	41.9%	42.7%	5.0%

Of the perceived self-efficacy toward the use of CMS in English courses, *I feel confident for teachers to use CMS in English courses* received the highest score from both teacher and student participants (M = 3.79, SD= 0.99 in teachers' responses, M = 3.67, SD= 0.69 in students' responses), followed by *I feel confident to use all the functions in CMS* (M = 3.60, SD= 1.03 in teachers' responses, M = 3.42, SD= 0.75 in students' responses), and *I feel confident for students to use CMS in English courses* (M =

3.55, SD= 0.91 in teachers' responses, M = 3.35, SD= 0.74 in students' responses). As for *I feel confident for teachers to use CMS in English courses*, although not too many students strongly agreed (7.1%), surprisingly 22.6% of the teachers strongly agreed with it. Teachers were believed to be equipped with computer skills and professional knowledge, hence the highest ranking. As to *I feel confident to use all the functions in CMS*, unlike students who gave mostly neutral or agree responses with only 10.0% disagree, 22.6% of the teachers disagreed. That is, students are generally confident in or at least not afraid of learning and using functions of new technologies, whereas some teachers still resist or possess fear of getting in touch with the computer technologies. As for *I feel confident for students to use CMS in English courses*, almost half of the students (46.1%) gave neutral responses. Compared to the confidence in teachers, both teacher and student participants expressed less confidence in students using CMS.

Second, to reveal the degree of relationships, Pearson product-moment correlation coefficients among the five variables were computed. Table 15 and 16 summarize the results of the correlation analyses.

Table 15

Correlation analyses of the five embedded variables in the questionnaire for teachers

Variables	1	2	3	4	5
Perceived self-efficacy	1	.53**	.55**	.43**	.46**
Perceived self-enjoyment		1	.72**	.60**	.52**
Perceived self-usefulness			1	.57**	.50**
Behavioral intention				1	.58**
Perceived quality of CMS					1

** Correlation is significant at the $p < 0.01$ (2-tailed).

Table 16

Correlation analysis of the five embedded variables in the questionnaire for students

Variables	1	2	3	4	5
Perceived self-efficacy	1	.49**	.50**	.55**	.49**
Perceived self-enjoyment		1	.41**	.54**	.40**

Perceived self-usefulness	1	.65**	.45**
Behavioral intention		1	.52**
Perceived quality of CMS			1

** Correlation is significant at the $p < 0.01$ (2-tailed).

As presented in Table 15 and 16, all the five embedded variables in the questionnaire for teachers and students were significantly correlated. The results also showed strong correlation among all five variables.

Now that the results showed strong correlation among the five variables embedded in questionnaire for teachers and students, follow-up regression analyses were performed to empirically assess research question 1 and examine sets of relationships in the form of linear causal models.

Third, for examining research question 1, two regression analyses were performed to check the effect of predicted variable (perceived quality of CMS) on teachers' and students' perceived self-efficacy toward the use of CMS in English courses. The findings are shown in Table 17.

Table 17

Results of regression analyses for research question 1

RQ*	Dependent variable	Independent variable	β	R^2 change	p
RQ1	Perceived self-efficacy (teachers)	Perceived quality of CMS	0.46	0.21	0.001
RQ1	Perceived self-efficacy (students)	Perceived quality of CMS	0.49	0.24	0.000

RQ* - Research question

As shown in Table 17, the independent variable (perceived quality of CMS) could predict teachers' perceived self-efficacy ($F(1,51) = 13.36$, $p < 0.001$, $\mathbf{R^2} = 0.21$) and students' perceived self-efficacy ($F(1,239) = 76.77$, $p < 0.001$, $\mathbf{R^2} = 0.24$). Part of the teacher and student participants' perceived self-efficacy were likely to be predicted by the

perceived quality of CMS.

In other words, whether teachers and students have confidence in trying and using CMS depends on the essential quality of CMS. If the perceived quality of CMS cannot meet with teachers' and students' expectation, their assurance and self-confidence in using CMS will be negatively influenced. On the other hand, if the perceived quality of CMS is beyond expectation, teachers and students might have more assurance and self-confidence in integrating CMS into English courses.

Research question 2: Is there any relationship between the teacher and student participants' perceived quality of CMS and their perceived enjoyment toward the use of CMS in English courses?

First, Table 18 shows the participants' responses to questions about their perceived enjoyment toward the use of CMS in English courses.

Table 18

Teacher and student participants' responses to perceived enjoyment (based on survey question 4, 5, and 6 in Appendix A and B)

Perceived enjoyment		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I enjoy encouraging teachers to use CMS in English courses	Teachers	3.8%	20.8%	30.2%	26.4%	18.9%
	Students	2.5%	10.0%	51.0%	31.1%	5.4%
I enjoy encouraging students to use CMS in English courses	Teachers	3.8%	15.1%	34.0%	26.4%	20.8%
	Students	2.5%	16.6%	56.8%	22.0%	2.1%
I enjoy using all the functions in CMS	Teachers	3.8%	17.0%	34.0%	22.6%	22.6%
	Students	2.1%	14.5%	62.2%	17.4%	3.7%

Of the perceived enjoyment toward the use of CMS in English courses, *I enjoy encouraging students to use CMS in English courses* received the highest score from teacher participants but not from student participants (M = 3.45, SD = 1.10 in teachers' responses, M = 3.05, SD = 0.75 in students' responses). Next, although *I enjoy encouraging teachers to use CMS in English courses* is not the highest from teacher participants, student participants gave the highest score on this item (M = 3.36, SD = 1.13 in teachers' responses, M = 3.27, SD = 0.81 in students' responses). Last, *I enjoy using all the functions in CMS* received similar scores to those of *I enjoy encouraging students to use CMS in English courses*, (M = 3.43, SD = 1.14 in teachers' responses, M = 3.06, SD = 0.74 in students' responses). As for *I enjoy encouraging students to use CMS in English courses*, even though not many students were in strong favor of the item (2.1%), 20.8% of the teachers showed strong agreement. In other words, students were neutral or slightly agreed on encouraging students themselves to use CMS, while teachers advocated the idea more eagerly. As to *I enjoy using all the functions in CMS*, the results were generally the same as *I enjoy encouraging students to use CMS in English courses*, with up to 62.2% of the students simply stated neutral. As for *I enjoy encouraging teachers to use CMS in English courses*, the highest score from students showed that students have an urgent need for their teachers to use CMS in English courses. Rather, from an instructor's point of view, teachers were more likely to encourage students to use CMS than teachers themselves.

Second, as presented in Table 15 and 16, all the five embedded variables in the questionnaire for teachers and students were significantly correlated. Now that the results showed strong correlation among the five variables embedded in questionnaire for teachers and students, follow-up regression analyses were performed to empirically assess research question 2 and examine sets of relationships in the form of linear causal models.

Third, for examining research question 2, two regression analyses were performed to check the effect of predicted variable (perceived quality of CMS) on teachers' and students' perceived enjoyment toward the use of CMS in English courses. The findings are presented in Table 19.

Table 19

Results of regression analyses for research question 2

RQ*	Dependent variable	Independent variable	β	R^2 change	p
RQ2	Perceived enjoyment (teachers)	Perceived quality of CMS	0.52	0.27	0.000
RQ2	Perceived enjoyment (students)	Perceived quality of CMS	0.40	0.16	0.000

RQ* - Research question

As presented in Table 19, the independent variable (perceived quality of CMS) could predict teachers' perceived enjoyment ($F(1,51) = 18.46$, $p < 0.000$, $\mathbf{R^2} = 0.27$) and students' perceived enjoyment ($F(1,239) = 46.57$, $p < 0.000$, $\mathbf{R^2} = 0.16$). Parts of the teacher and student participants' perceived enjoyment were likely to be predicted by the perceived quality of CMS. However, compared to students' perceived enjoyment, teachers' perceived enjoyment was more likely to be affected by the perceived quality of CMS. That is, if the perceived quality of CMS is below average, teachers are more likely to find displeasure or discontentment with the integration of CMS into English courses. In contrast, if the perceived quality of CMS meets with expectation, teachers tend to have more fun than students in using CMS.

Research question 3: Is there any relationship between the teacher and student participants' perceived quality of CMS and their perceived usefulness toward the use of CMS in English courses?

First, Table 20 presents the participants' responses to questions about their perceived usefulness toward the use of CMS in English courses.

Table 20

Teacher and student participants' responses to perceived usefulness (based on survey

question 7, 8, and 9 in Appendix A and B)

Perceived usefulness		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I believe using CMS in English courses is helpful for teaching	Teachers	0.0%	0.0%	15.1%	50.9%	34.0%
	Students	0.0%	3.7%	23.7%	57.3%	15.4%
I believe using CMS in English courses is helpful for learning	Teachers	0.0%	3.8%	15.1%	47.2%	34.0%
	Students	0.0%	3.7%	23.7%	58.9%	13.7%
I believe using all the functions in CMS is helpful for me	Teachers	0.0%	1.9%	13.2%	56.6%	28.3%
	Students	0.0%	4.6%	29.9%	54.4%	11.2%

Of the perceived usefulness toward the use of CMS in English courses, *I believe using CMS in English courses is helpful for teaching* received the highest score from both teacher and student participants (M = 4.19, SD = 0.68 in teachers' responses, M = 3.84, SD = 0.72 in students' responses), followed by *I believe using CMS in English courses is helpful for learning* (M = 4.11, SD = 0.80 in teachers' responses, M = 3.83, SD = 0.70 in students' responses), and *I believe using all the functions in CMS is helpful for me* (M = 4.11, SD = 0.69 in teachers' responses, M = 3.72, SD = 0.72 in students' responses). As for *I believe using CMS in English courses is helpful for teaching*, this item received the highest score from teachers and students with a total of 84.9% of teachers noted agreement or strong agreement and no teacher disagreed. That is, the majority of the teachers thought CMS is indeed helpful for English teaching, along with many students' concurrence. As to *I believe using CMS in English courses is helpful for learning*, a total of 73.6% of the students agreed or strongly agreed, as well as 81.2% of the teachers. In other words, teachers and students recognized that using CMS in the classroom can surely help develop better English abilities. As for *I believe using all the functions in*

CMS is helpful for me, unlike the high scores from the teachers, the responses from students were mixed with 29.9% neutrals and 4.6% disagreements. That is, teachers were aware of the benefits CMS can bring for them, whereas students were still trying to explore the advantages of CMS.

Second, as presented in Table 15 and 16, all the five embedded variables in the questionnaire for teachers and students were significantly correlated. Now that the results showed strong correlation among the five variables embedded in questionnaire for teachers and students, follow-up regression analyses were performed to empirically assess research question 3 and examine sets of relationships in the form of linear causal models.

Third, for examining research question 3, two regression analyses were performed to check the effect of predicted variable (perceived quality of CMS) on teachers' and students' perceived usefulness toward the use of CMS in English courses. The findings are shown in Table 21.

Table 21

Results of regression analyses for research question 3

RQ*	Dependent variable	Independent variable	β	R^2 change	p
RQ3	Perceived usefulness (teachers)	Perceived quality of CMS	0.45	0.25	0.000
RQ3	Perceived usefulness (students)	Perceived quality of CMS	0.45	0.20	0.000

RQ* - Research question

As shown in Table 21, the independent variable (perceived quality of CMS) could predict teachers' perceived usefulness ($F(1,51) = 16.61$, $p < 0.000$, $\mathbf{R^2} = 0.25$) and students' perceived usefulness ($F(1,239) = 59.02$, $p < 0.000$, $\mathbf{R^2} = 0.20$). A certain portion of the teacher and student participants' perceived usefulness were likely to be predicted by the perceived quality of CMS. In other words, whether teachers and students regard the CMS as a helpful assisting tool hinges on the fundamental quality of CMS. If the

perceived quality of CMS fails to reach a satisfactory rating, teachers and students may find the CMS impractical or inefficient. On the other hand, if the perceived quality of CMS maintains above average, teachers and students probably would feel that the CMS can indeed help assist teaching and learning in English courses.

In sum, congruent with Liaw et al.'s (2007) findings, the results of research questions 1, 2, and 3 indicated that the perceived quality of CMS is of importance and could predict individuals' perceived self-efficacy, perceived enjoyment, and perceived usefulness. The results also confirmed DeLone and McLean's (1992) and Seddon's (1997) argument that the quality of the system is a crucial variable relative to the success of that particular system.

Research question 4: Is there any relationship between the teacher and student participants' perceived self-efficacy, perceived enjoyment, and perceived usefulness toward the use of CMS in English courses and their behavioral intentions to use CMS in English courses?

First, Table 22 shows the participants' responses to questions about their behavioral intention toward the use of CMS in English courses.

Table 22

Teacher and student participants' responses to behavioral intention (based on survey question 10, 11, and 12 in Appendix A and B)

Behavioral intention		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I intend to use CMS to assist English teaching	Teachers	0.0%	9.4%	9.4%	54.7%	26.4%
	Students	0.8%	5.0%	30.7%	53.5%	10.0%
I intend to use CMS to assist English learning	Teachers	0.0%	11.3%	7.5%	58.5%	22.6%
	Students	0.8%	5.4%	34.9%	50.2%	8.7%

I intend to use all the functions in CMS to assist me	Teachers	0.0%	18.9%	15.1%	52.8%	13.2%
	Students	0.0%	5.4%	40.2%	47.3%	7.1%

Of the behavioral intention toward the use of CMS in English courses, *I intend to use CMS to assist English teaching* received the highest score from both teacher and student participants (M = 3.98, SD = 0.87 in teachers' responses, M = 3.67, SD = 0.76 in students' responses), followed by *I intend to use CMS to assist English learning* (M = 3.92, SD = 0.87 in teachers' responses, M = 3.61, SD = 0.76 in students' responses), and *I intend to use all the functions in CMS to assist me* (M = 3.60, SD = 0.95 in teachers' responses, M = 3.56, SD = 0.71 in students' responses). As for *I intend to use CMS to assist English teaching*, compared to 10.0% of the students' strong agreement, 22.6% of the teachers strongly agreed. That is, many teachers would consider and even actually use CMS in English courses. As to *I intend to use CMS to assist English learning*, teachers still showed strong agreement (22.6%) over students' (8.7%). In other words, even though teachers and students were generally willing to try and use CMS, teachers revealed stronger behavioral intention than students. As for *I intend to use all the functions in CMS to assist me*, though the scores from teachers and students were similar, 18.9% of the teachers disagreed on this item. Unlike students who probably would want to explore and experience more functions in the CMS, teachers tended to simply stick to those CMS functions that they were already used to or familiar with.

Second, as presented in Table 15 and 16, all the five embedded variables in the questionnaire for teachers and students were significantly correlated. Now that the results showed strong correlation among the five variables embedded in questionnaire for teachers and students, follow-up regression analyses were performed to empirically assess research question 4 and examine sets of relationships in the form of linear causal models.

For examining research question 4, two stepwise multiple regression analyses were performed to check the effect of predicted variable (perceived self-efficacy, perceived enjoyment, and perceived usefulness) on teachers' and students' behavioral intention to use CMS in English courses. The findings are presented in Table 23.

Table 23

Results of stepwise multiple regression analyses for research question 4

RQ*	Dependent variable	Independent variable	β	R^2 change	p
RQ4	Behavioral intention (teachers)	Perceived enjoyment	0.60	0.36	0.000
RQ4	Behavioral intention (students)	Perceived usefulness	0.45	0.42	0.000
		Perceived enjoyment	0.26	0.09	0.000
		Perceived self-efficacy	0.19	0.02	0.001

RQ* - Research question

As presented in Table 23, only one independent variable (perceived enjoyment) could predict teachers' behavioral intention to use CMS in English courses ($F(1,51) = 28.94$, $p < 0.000$, $\mathbf{R^2} = 0.36$). Although perceived self-efficacy and perceived usefulness were excluded, perceived enjoyment accounted for 36% of teachers' behavioral intention. Therefore, when teachers consider themselves having a great time and a lot of fun, they intend to integrate CMS into English courses more.

The results of research question 4, however, did not match with Liaw et al.'s (2007) findings that perceived self-efficacy and perceived usefulness were the greatest contributors of teachers' behavioral intention. The reason why the results of research question 4 did not support Liaw et al.'s (2007) findings is probably because, in Liaw et al.'s study, they only conducted their survey at a single school. The feedbacks from their teacher participants and the environment of the English courses might be monotonous. This study, however, recruited teacher participants from different universities all over Taiwan. Therefore, direct comparisons between two studies should be treated with caution as the diversity of the teacher participants was different in nature.

In contrast, all three independent variables (perceived self-efficacy, perceived enjoyment, and perceived usefulness) could predict students' behavioral intention to use CMS in English courses ($F(3,237) = 231$, $p < 0.0005$, $\mathbf{R^2} = 0.53$). Altogether, the results

of three predicted variables yielded a good 53% contribution to students' behavioral intention. That is, whether students would actually try and use CMS relies on their assurance, confidence, satisfaction, preference, expected practicality, and predicted advantage toward the use of CMS in English courses.

As shown in Table 23, perceived usefulness could explain up to 42% of students' behavioral intention. Among the various theoretical models designed to investigate students' behavioral intention to use computer technology, perceived usefulness is a key to determine behavioral intention (Liaw & Huang, 2003; Moon & Kim, 2001; Szajna, 1996; Taylor & Todd, 1995; Vankatesh & Davis, 2000; Vankatesh, 1999). Next, students' perceived enjoyment, as well as teachers' perceived enjoyment, were found capable of predicting behavioral intention. Last, students' perceived self-efficacy was a predictor of their behavioral intention. In a similar vein, Compeau et al. (1999) maintained that when end-users hold higher self-efficacy toward the computer technology that they are using, they would intend to use it more. Therefore, the results of the students echoed with the findings of previous studies.

Finally, Table 24 shows the group means of the five variables embedded in the questionnaires.

Table 24

Group means of the five variables embedded in the questionnaires

Variables		Group mean
Perceived self-efficacy	Teachers	3.65
	Students	3.48
Perceived enjoyment	Teachers	3.41
	Students	3.13
Perceived usefulness	Teachers	4.14
	Students	3.80
Behavioral intention	Teachers	3.83
	Students	3.61
Perceived quality of CMS	Teachers	3.24

	Students	3.49

Overall, the group means of the teachers are averagely higher than that of the students. Perceived usefulness and behavioral intention received fairly high scores, while perceived enjoyment and perceived quality of CMS got comparatively lower scores from the teacher and student participants.

Put differently, according to the group means in Table 24, teachers and students thought that CMS is useful and would like to try to use it. However, they did not praise the perceived quality of CMS much, and did not find much enjoyment in using CMS. Such phenomenon explained that, although they knew the value of CMS and had actually integrated it into English courses, teachers and students were not fully satisfied and content with the functions they had used so far. Therefore, a gap between the assumed effectiveness and actual use experience was found from the results.

Summarizing the findings of research question 1 to 4, two new conceptual causal relationship models could be proposed to describe the relationships of the underlying factors affecting teachers' and students' attitudes toward CMS. Stemmed from the present study, Figure 9 illustrates the conceptual causal relationship model for the teachers.

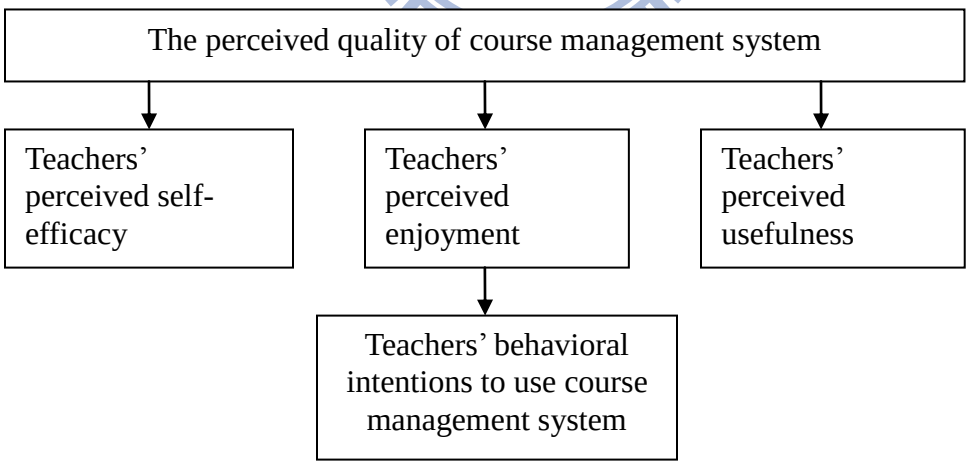


Fig. 9 Conceptual causal relationship model for the teachers

Also stemmed from this study, Figure 10 demonstrates the conceptual causal relationship model for the students.

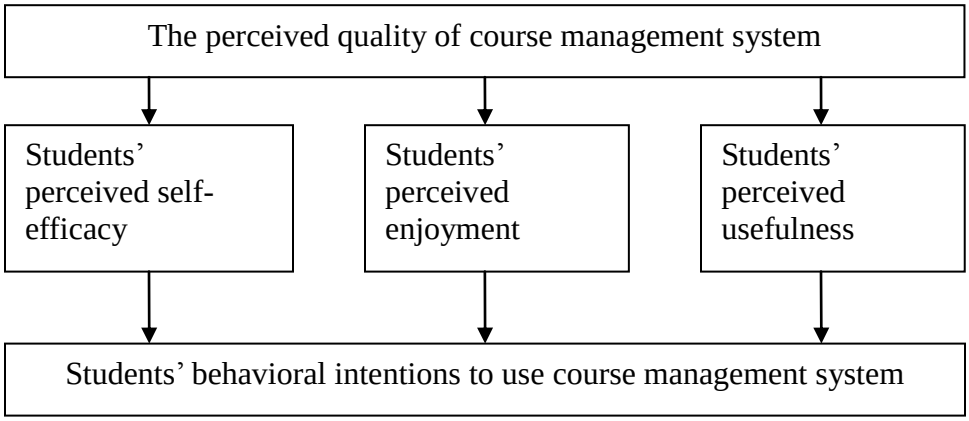


Fig. 10 Conceptual causal relationship model for the students

Qualitative results of the teacher and student participants

Research question 5: What is the teacher and student participants' qualitative feedback on the use of CMS in English courses?

Jones and Issroff (2005) argued that when researchers try to understand individuals' attitudes toward computer technologies, it is important to consider affective, cognitive, behavioral, and social components. Overall, the results from the fourteen interviews were in accordance with the data from the open-ended questions. In this section, the elicited insights from the interviewees are classified into the following four themes: (1) definitions and attitudes toward CMS, (2) underlying theoretical approaches and personal beliefs, (3) strengths and weaknesses of CMS, and (4) creative ideas and useful suggestions for CMS. These four themes that characterize the teacher and student participants' attitudes and feedback toward the use of CMS in English courses are illustrated in the following paragraphs.

Theme 1: Definitions of and attitudes toward CMS

Each interviewee offered their definition of CMS. Interestingly, the idea of CMS as a communication tool was mentioned by many (6 teachers and 5 students). The following excerpts illustrate the teacher and student interviewees' perceptions of CMS as

communication tools:

(1) *Course management system changes all the time. It's constantly changing. It was used only for content management before. However, it is now used as CMS for communication between students and teachers. I think that CMS is both a communication tool and a collaboration platform (T7).*

(2) *To me, course management system is a platform that is convenient for English teaching. Students can hand in their assignments anytime and anywhere. Teachers can add or revise the resources instantly. In addition, I can view the homework uploaded by other classmates and comment on those homework. Therefore, this platform allows me to communicate with others at ease (S6).*

Similar to Collis and Moonen's (2001) description, most of the teacher and student interviewees regarded CMS as a system that supports some or all aspects of course preparation, delivery and interaction, and allows these aspects to be accessible via the Internet. Although each interviewee's own definition of CMS varied, they generally held positive attitudes and showed high motivation toward the use of CMS in English courses (6 teachers and 6 students). The following excerpts show the teacher and student interviewees' attitudes of CMS:

(3) *I am rather enthusiastic in integrating course management system into English courses. I have a strongly high motivation. At first, I was encouraged by the lesson plan competitions in school and encouragements from the chair of e-learning center. Since then, I became one of the CMS's staunch supporters (T3).*

(4) *At the very beginning, I was not used to course management system because I had never experienced it before. I realized that I have to ask my classmates for tips because nobody teaches us how to use it. However, once I knew how to execute the functions, I felt that this CMS is very helpful for English learning. After getting used to the functions, I had rather positive perceptions of CMS (S1).*

The teacher and student participants expressed mixed feelings about the use of CMS in English courses. As indicated in excerpts 3 and 4, the majority of the teachers

and students remained positive toward the use of CMS in English courses. Nonetheless, few teacher and student interviewees stated that they sometimes felt low motivation with only moderate attitude because teachers are not using the CMS with thoughtful teaching plans (1 teacher and 1 student).

(5) *In fact, I am not a highly motivated teacher. I think my motivation and attitude toward course management system depends on the degree of integration. Sometimes I still have difficulty in designing a well-organized lesson plan with the use of CMS (T1).*

(6) *My motivation depends on the way teachers integrate course management system into the English courses. If teachers use it very often with proper amount of tasks and appropriate timing, I will have a strong motivation. However, if teachers simply force students to use it everyday with overburdening tasks, I will feel immense pressure and develop negative attitudes toward CMS (S4).*

The excerpts 5 and 6 support Chan's (2003) conclusion that only CMS itself does not lead English courses to success. Instead, careful and thoughtful teaching plans can help teachers to intrigue and bring students to a motivated English learning environment with technologies.

Theme 2: Underlying theoretical approaches and personal beliefs

As to the questionnaire for teachers, several theoretical approaches were mentioned in the teachers' answers to open-ended questions. Table 25 illustrates the theoretical approaches mentioned in the open-ended responses from teachers.

Table 25

Responses of theoretical approaches from the teacher participants (based on the open-ended questions in Appendix A)

Theoretical backgrounds and personal beliefs	N	%	Rank
1. Communicative language learning	10	18%	1
2. Collaborative learning	8	15%	2

3.	Cognitive approach	5	10%	3
4.	Constructivism	5	10%	3
5.	Learner autonomy	4	8%	5
6.	Learner-centered approach	3	6%	6
7.	Task-based approach	3	6%	6

First, the results showed that communicative language learning was the most cited theoretical approach from the teachers. The reason that teachers mentioned communicative language learning the most is probably because such theory has been reckoned and applied in the English teaching field for a long time.

Second, certain teachers thought of collaborative learning when they used CMS. This is understandable since CMS can be best capitalized on when it is used in a large class where students would have to experience the spirit of cooperative learning.

Third, cognitive approach and constructivism were also advocated by some teachers. These two theoretical approaches can help build students' knowledge and promote mutual learning.

Fourth, several teachers noted the importance of learner autonomy. These teachers thought that teachers should stimulate the students and make them autonomous learners when using CMS in English courses.

Last, learner-centered approach and task-based approach had a comparatively small number of followers. However, the two approaches did not conflict with the central beliefs most teachers possessed toward the use of CMS in English courses. Instead, these two approaches added significant elements to the theoretical approaches that average teachers might have in common.

As for *post-hoc* interviews, the teacher and student interviewees explained why they use CMS, how they use it according to their faiths, and what the underlying theoretical standpoints and personal principles are. Excerpts 7, 8, and 9 depict the philosophies that most teachers would exercise when they used CMS.

(7) *Youngsters nowadays grow up in the digital world. They are born as digital natives. Instead, the teachers belong to digital immigrants. We have to try to communicate with students in their digital language. I know that, if I do not keep up with the trend, I will fall far behind. Therefore,*

if you keep in touch with the latest computer technology, you can share the same communication platform with the students (T3).

(8) In a constructivist sense, I think that learning is situated with collaboration in that all the tasks and activities are executed in English. These English tasks are not only for sole practicing purposes but for targeted authentic texts. Therefore, students can acquire English through reading, understanding, writing, and completing the tasks (T4).

(9) I hope my students can become autonomous learners. I hope to cultivate them into self-directed learners. However, at times some students may lack interest in English because English is not their major. That is why we have to give guidelines or even impose certain classroom rules on them. The ultimate goal of my instruction would be to skillfully foster learner autonomy through CMS (T7).

As presented in excerpt 7, communications with the students were regarded as an important issue among the teacher interviewees (6 teachers). In accordance with Jonassen's (2003) perspective, excerpt 8 points out that the constructivist approach was favored by many as well (5 teachers). Excerpt 9 shows that some teachers also emphasized on the importance of autonomous learning (2 teachers). Such constructivist learner-centered belief was in line with Bonk and Cunningham's (1998) notion.

For students, excerpt 10 presents their common personal beliefs when using CMS (5 students).

(10) I love the idea that learning is anywhere and anytime. In addition, learning English requires large communication and interaction with the teacher and the classmates. Especially when I log onto the system, I will have more courage to interact with others. The point is that I will have a lot more chances to interact with people who I may never have a chance to interact with in real-life classroom. I think this can increase the diversity of English learning (S5).

Similar to the responses from teacher interviewees, student interviewees stressed the significance of interaction and communication when using CMS in English courses. From the excerpts 8 and 10, the ideas of teachers and students confirmed that most students think that interaction with others is indispensable. The findings supported Hossler's (2002) discussion that the quality and frequency of interaction between teachers

and students have a strong effect on students' learning persistence. The results were also consistent with Palloff and Pratt's (1999) report that learning processes mainly include interactions among students and also interactions between teachers and students for collaboration in effective learning.

Theme 3: Strengths and weaknesses of CMS

From the answers to the open-ended questions, students expressed mixed feelings about the strengths and weaknesses of CMS.

The results showed that convenience was one of the main strengths of CMS. Many students pointed out that, with the help of CMS, they can have access to all sorts of files, review class materials, explore extra learning resources, check class news, hand in homework, record learning progress, and preview class information with ease.

In addition to the benefits above, students also gave credit to CMS for they may use it anytime and anywhere as long as they have access to the Internet. All of the course materials had been digitalized in electronic form so that both students and teachers can effortlessly restore, manage, and retrieve their resources within one click.

Furthermore, due to recently heated environmental issues, some students articulated their concerns for the globe. Those students proposed that the teachers use CMS s more often as this could largely reduce the extravagantly heavy use of paper, as well as the money spent for printing them out.

With regard to the weaknesses of CMS, students' voices were heard as well. One major failure of CMS is that it is prone to system breakdown. Moreover, some students were not familiar with the functions because of the lack of prior instruction, thus leading to learning distress. To some passive students, they tended to intentionally ignore the system mails sent by CMS, or occasionally forget to log in and check on class news. Yet some other negative feedback included the discomfort of directly watching the screen for a long time, troublesome log-in procedure, and the insecurity without a teacher's presence.

From the results of the *post-hoc* interviews, both the teacher and student interviewees shared their opinions on the strengths and weaknesses of CMS.

With the strengths of CMS, the teacher interviewees shared a variety of ways to use it in English courses. Teacher interviewees explained how they would capitalize on the benefits of CMS with carefully designed lesson plans. Some teacher mainly focused on the useful functions of CMS with the help of other software for developing tests (3 teachers). Excerpts 11 and 12 illustrate how those teachers capitalized on the strengths of CMS.

(11) *I would announce class news, upload my PowerPoint files after class, post links of English learning games, provide links of online dictionaries, let students do online examination, do a questionnaire survey in the end of the semester, and require students to write feedback and post them to the online discussion forum. In addition, I use AuthorPlus to create my examination questions. I have a Wretch photo album on the Internet to make and share my teaching portfolios. I also use MimicBuilder to record my presentations and my handouts (T2).*

(12) *I can keep track of students' learning progresses, let students do peer evaluation, grade students, constantly evaluate and re-evaluate the quality of my instruction throughout the semester. As for making the questions for the online examination, I use ExamView because ExamView can be converted to Blackboard-adaptable format, and then I can put the quizzes on Blackboard without worrying format inconsistency or incompatibility (T6).*

Excerpts 11 and 12 parallel Perkins and Pfaffman's (2006) conclusion that CMS provides teachers and students access to announcements, presentations and assignments at their convenience. Other teachers discussed about how teachers can connect the CMS with a variety of other applications (3 teachers). Excerpts 13 and 14 demonstrate how those teachers combined the strengths of CMS with other programs.

(13) *If a course management system is equipped with sufficient peripheral facilities, it will contribute greatly to the field of English teaching. For example, Blackboard has an assisting program called Wimba, which allows users to record and play audio files in Blackboard. Not only can teachers record oral class announcements instead of text ones, but students can hand in audio homework or oral report via Wimba as well (T5).*

(14) *The biggest potential contribution of course management system is the communicative tool and collaborative functions such as wikis, journals, and blogs. Language teaching and learning is*

essentially communicative. The modules of CMS can enable the students to use the language to solve a problem with another people (T7).

Similar to excerpt 13 and 14, Perkins and Pfaffman (2006) concluded that CMS offers teachers a simple way to edit, update, and organize a course. The richness of teacher interviewees' integrating techniques have manifested that, as long as teachers can combine the technology at hand with the needs of the students, students are more likely to grow interest and acquire English knowledge through the use of CMS.

However, CMS is not without weaknesses. Both teacher and student interviewees commented on the drawbacks of CMS. Certain teachers complained about the quality of the system (3 teachers). Excerpts 15 and 16 show those teachers' frustration over the quality of CMS.

(15) *Sometimes the students just tend to ignore class announcements. Sometimes technical problems cannot be avoided. The internet connection can be slow at times. The unfamiliarity of the system may lead to frustration (T1).*

(16) *I cannot copy announcements and then paste to another course directly. I cannot upload the same file to different courses simultaneously. I cannot jump from class A directly to class B, so I will have to leave class A first and then enter class B. It takes effort and time to make your courses informational and useful. If you want to harness such technology, you have to sacrifice your time for a well-organized course management system (T3).*

According to excerpts 15 and 16, technical problems were a critical issue when the teachers tried to use CMS. Excerpts 15 and 16 confirm van Olphen's (2007) findings that the lack of technical support may result in one of the challenges for utilizing CMS.

The student interviewees also shared their remarks on the technical difficulties of course management (3 students). Excerpts 17, 18, and 19 present their thoughts.

(17) *If teachers did not systemize the names of the files, students will have a hard time finding the targeted files. Moreover, sometimes I am afraid of not reading or forgetting to read every announcement. I hope there is a check box for me to see which news I have read and which I have not (S1).*

(18) *I wish the technical staff can extend the preservation time for the data in course management system. I don't want them to delete the data for each semester. I hope that the data in CMS can be saved for at least three to four years so that I can keep those files for self learning while I am still at school (S2).*

(19) *At first, I was not familiar with this system and nobody had taught me before. Even if teachers taught us, provided that teachers only demonstrate on the computer themselves without letting students practice together, I would still be left confused, wondering how to use those fancy functions. Of course, if I later get used to the functions of course management system, there will be no problem at all (S7).*

Excerpts 17, 18, and 19 support Dutton, Cheong, and Park's (2004) findings that early stability problems may negate technological benefits and impede adoption of CMS, resulting in complaints of critical breakdowns. In addition, several students contended that the traditional face-to-face teaching method should be maintained (3 students). Excerpt 20 demonstrates their consideration for traditional classrooms.

(20) *Although you will not feel too much pressure in that teachers talk to you through this system rather than face-to-face, I still prefer traditional teaching method more. Also, because all the class materials will be uploaded right after class, this makes me want to cut class more often (S6).*

In general, the teacher and student interviewees enjoyed certain advantages of integrating CMS into English courses. Nevertheless, shortcomings and difficulties of CMS appeared simultaneously. Both the teacher and student participants maintained that CMS can only serve as an assisting tool and should not completely replace traditional face-to-face instructions. As Clark (1994) contended, the question of whether computer technology will affect students' learning remains open to public discussion. Therefore, a fine line between judiciously appropriate amount of practices and the excessively overburdening drills is critically needed for teachers and students.

Theme 4: Creative ideas and useful suggestions for CMS

The teacher and student interviewees generously contributed their creativities to the future development of CMS (7 teachers and 7 students). Excerpts 21, 22, and 23 illustrate their creative ideas.

(21) *The teachers can combine the system with other software companies and turn the course management system into a multi-functional learning platform. For example, the teachers can embed examination programs such as AuthorPlus into the system, making it easier for teachers to distribute questions and students to do tests. The teachers can also embed interesting English learning games into the system. We can even embed websites such as blogs, YouTube, facebook, myspace, and twitter into the system to make a full combination with authentic English websites (T1).*

(22) *The teachers can do a cross-cultural course collaboration project, though we have to take time differences into consideration. The teachers can ask students to use webcam, instant chat room, or asynchronous discussion forum to trigger debates between two countries. Through the use of course management system, this can enhance students' motivation to use English and help students gain extensive input and output (T2).*

(23) *Probably the students can choose to post openly with their account or anonymously with public account. Next, all the other students can help correct or comment on the articles posted openly or anonymously. Teachers can also create a discussion thread for everyone in the class to share English learning websites, English learning tips, English learning experiences and so forth. By this mean, course management system should help greatly (T4).*

As suggested by excerpt 21, the teachers can try to introduce extensive outside learning websites to the students in order to provide them with ample extra curriculum knowledge. In agreement with Bransford et al.'s (2000) notion, excerpt 21 demonstrates that English teachers can utilize CMS to promote and cultivate authentic learning.

As recommended by excerpt 22 and 23, there are a variety of tasks and activities that teachers can opt for when they use CMS in the English courses. Teachers should make use of creative teaching strategies that can enhance the interactions and collaboration in students' learning processes, leading to effective English learning performance. The findings of this study paralleled Webb and Palincsar's (1996) statement

that structuring, guiding, and mediating collaborative learning tasks can facilitate student and group performance.

Next, suggestions for the revision of CMS were drawn in order to better the current status of CMS (7 teachers and 7 students). Excerpts 24 and 25 present the suggestions from the teachers.

(24) *I hope that the interface can be bilingual. Teachers can force students to use all English interface. Functions such as recording and playing audiovisual media can be added in the system. The teachers can also work on instant video conferencing or webcam chat rooms. Regarding the authority to view course content, teachers should be given the right to decide whether guests are allowed to view or even participate (T3).*

(25) *Sometimes the uploading and downloading area are not that stable in Blackboard system. The synchronous chat room is poorly designed as well, including drawbacks such as small window frame, small font, crowded messages, small public message area, and lack of vivid visual design (T5).*

Slightly different from the teacher's concerns, excerpts 26 and 27 show the points of view from the students.

(26) *Blackboard is too ugly. Blackboard needs to be revised for its appearance. I feel that Blackboard is like a reserved person. After all, color is very important to students (S3).*

(27) *The data in the course management system should be extended to at least four years. Furthermore, for the interface of online writing system, it needs improvement for it is not quite user-friendly. I often have difficulty in editing and posting articles with changed colors, fonts, and emoticons (S4).*

As shown in excerpts 24, 25, 26, and 27, the current technical problems of CMS were still in dire need of modification. In accordance with Papastergiou's (2007) suggestion, it is hoped that the system designers could cater to the teachers' and students' practical needs and provide flexible mechanisms.

Finally, the teacher interviewees proposed that the schools assist and promote the use of CMS (4 teachers). Excerpts 28 and 29 delineate the proposals from the teachers.

(28) *In terms of school policies, I hope that the school can invite well-experienced English teachers to give talks at the workshop. The school can invite creative teachers to demonstrate how they would integrate course management system into English courses. The school can also hold panel discussion focusing on the use of CMS in English courses, welcoming all teachers and even students to join the discussion and brainstorm together (T1).*

(29) *The most important thing for the school is to grant English teachers more funds and to provide more useful softwares. Lesson plan competition is a good idea. In addition, the school should strengthen the basic training courses to English teachers. All the teaching demonstrations and workshops should be fully videotaped and stored in the school's video-on-demand section for everyone to review (T7).*

From excerpts 28 and 29, the teachers called for professional teacher training and facility maintenance from the school. As Awidi (2008) suggested, it is important to involve all the stakeholders at every stage of the decision-making and training process because the success or failure of CMS depends on them. The teacher interviewees' voices also echoed with Bennett and Bennett's (2003) findings that training would improve the likelihood of teacher adoption of CMS, since the biggest obstacle to the adoption of the system in teaching could be largely due to the teachers' reluctance to use it.

Likewise, student interviewees offered their proposals for schools to increase the use of CMS in English courses (4 students). Excerpts 30 and 31 describe the ideas from the students.

(30) *The school can prepare prizes for the leading users of course management system in designated categories. For example, the school can encourage students to log in, view content, post articles, or text chat more often. Then, the school can draw random lots to distribute rewarding prizes to the students. The school can also set up a chart showing the ranking of different uses in CMS. Then, the school can give prize to the leading three students in each category at the end of the semester (S2).*

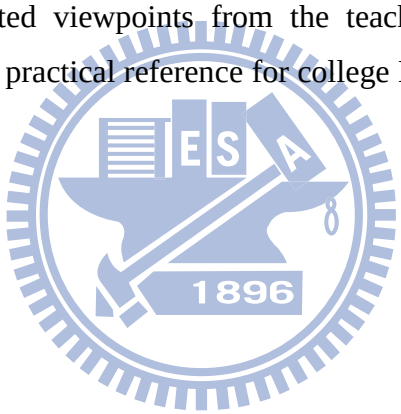
(31) *It would be better for the school, library, or computer network center to present workshops to newly entered students at the beginning of the semester. In addition to regular teaching feedback questionnaires administered at the end of the semester, the school can also survey on*

the students' overall satisfaction about how English teachers integrate course management system into English courses in order to improve and keep track of user acceptance (S5).

As revealed in excerpt 30 and 31, students needed more workshops and prior instructions about CMS as well. Setting up prizes, lesson plan competitions, and user competitions might also help promote and increase the use of CMS among English courses.

Clearly, the results of the present study indicated that the conventional practice of using CMS as an alternative source only for course materials does not lead to superior learning or effective outcomes. However, the question remains as to the potential advantages to be derived from using CMS to accomplish English teaching and learning tasks that go beyond those conducted in traditional face-to-face classroom settings.

In sum, the accumulated viewpoints from the teacher and student participants should serve as a helpful and practical reference for college English teachers and students in Taiwan.



CHAPTER FIVE

CONCLUSIONS

Given the exploratory nature of the present study, conclusions based on the preliminary findings should be treated with caution. Findings of this study gave rise to several implications for English teachers, students, school administrators. In the following sections, the first section presents theoretical and pedagogical implications, as well as suggestions for the teachers, students, school administrators. Next, limitations of the study are summarized in the second section. Last, the third section provides recommendations for future research.

Implications and suggestions

Theoretical implications

Combined with the high reliability of Cronbach's Alpha in the questionnaires for teachers and students, the results of this study showed certain differences from Liaw et al.'s (2007) assumed relationship model. The present researcher thus proposed two new conceptual causal relationship models for the teachers and the students (see Figure 9 and 10). As for the teachers in this study, although the perceived quality of CMS had relationship and could predict individuals' perceived self-efficacy, perceived enjoyment, and perceived usefulness, the teachers' behavioral intention could only be predicted by their perceived enjoyment (see Figure 9). Therefore, with regard to the teachers, the findings from the present study only partially corroborated with Liaw et al.'s (2007) model.

As to the students in this study, not only the perceived quality of CMS had relationship and could predict individuals' perceived self-efficacy, perceived enjoyment, and perceived usefulness, but the students' behavioral intention could be predicted by their perceived self-efficacy, perceived enjoyment, and perceived usefulness (see Figure 10). Therefore, with regard to the students, the findings from this study supported Liaw et al.'s (2007) model.

Suggestions for teachers

In this study, the majority of Taiwanese English teachers seemed to hold positive attitudes toward the use of CMS in English courses. Nevertheless, from the qualitative results, the teachers also mentioned that they need further technical assistance and pedagogical guidance. As a consequence, helping teachers to make the best use of CMS should be considered as an urgent issue in future teacher development and teacher education.

As suggested by certain teachers in this study, CMS cannot fully replace traditional teaching. CMS can only be regarded as a supplementary and additional tool in the traditional classroom.

Even though technology cannot replace the face-to-face approach, teachers should still encourage themselves to teach students with CMS so that the students could benefit from the teachers' positive attitudes. English teachers should still bear in mind that, with an open-minded attitude, they can renew and enrich their profession by carefully integrating CMS into English courses.

However, realizing the technology trend does not imply that every teacher has to adopt CMS to an excessive amount. As certain teacher interviewees indicated, without explicit teaching objectives and appropriate lessen plan design, the blind use of CMS might result in negative impact on the teaching quality. Since those English courses are still based on a face-to-face environment, course materials have to be organized to balance and support classroom tasks without overwhelming the students. No matter how convenient CMS might be, teachers still need to realize that it is the teachers themselves that can contribute the most to their students.

Moreover, discussion, cooperation, workshop, and brainstorming with colleagues were also recommended by teacher interviewees in order to make English courses more successful. The support from within the English teaching community needs to be highly valued and encouraged.

Suggestions for students

The findings confirmed that there are relationships between students' perceived self-efficacy, perceived enjoyment, and perceived usefulness toward CMS and their behavioral intention to use it in English courses. The results, then, seemed to lend some support to the notion that perceived usefulness, perceived enjoyment, and perceived self-efficacy are the keys to determine end-users' behavioral intentions (Compeau et al., 1999; Liaw & Huang, 2003; Moon & Kim, 2001; Szajna, 1996; Taylor & Todd, 1995; Vankatesh & Davis, 2000; Vankatesh, 1999).

It remains clear that prior instruction on how to use CMS is of importance in gaining students' confidence and developing positive attitudes. In response to the student participants' needs, it is suggested that universities increase the quality of CMS, as well as the orientation and student training.

In addition to enhancing the quality of CMS, students' perceptions of CMS should also be taken into consideration since using it requires a great deal of advanced planning and attention in detail. Most importantly, CMS has enhanced an already effective traditional classroom approach to yield a measurable and significant improvement in students' English learning.

Suggestions for school administrators

The results of this study indicated that school administration played a significant role in teachers' and students' attitudes toward CMS, as well as its adoption rate.

Teacher interviewees pointed out that school administrators cannot expect English teachers to move higher in the technology-integration level without additional time, professional training, and technical assistance. Therefore, school administrators can conduct a needs analysis of English teachers and students in order to better the CMS experience among end-users. Besides, regular orientations, professional workshops, training sessions, panel discussions, and teaching demonstrations may be of interest. In this way, the better communication and interaction between stakeholders and school administrators could be mutually achieved.

In selecting a CMS, both teacher and student participants suggested that school

administrators examine all costs to ensure that the stakeholders agree that the system chosen satisfies their basic and critical requirements. In addition, if the school administrators could allow teachers and students to have the opportunity to try out most of the functions at the beginning of implementing CMS, they would more possibly develop positive attitudes and adopt CMS.

Finally, since the quality of the system is a crucial factor in terms of the success of that particular system (DeLone & McLean, 1992; Seddon, 1997), the budget for maintaining and updating CMS is another important issue for school administration. Collaboration with neighboring universities and colleges could be one possible solution to the inadequate resources encountered by the school administration. Otherwise, some teacher and student participants tended to reduce or stop using CMS due to the disappointment and frustration on the technical problems (Curtin & Shinall, 1987; Decoo & Colpaert, 1999).

Limitations of the study

This study is a preliminary investigation served as an attempt for further research. Even though this study shed some new light on the current situation of Taiwanese teachers' and students' attitudes toward the use of CMS in English courses, it is not without flaws and future research is called for in a number of directions.

First, the reliability of this study might be lowered because the researcher did not specify a single definition and a single type of CMS during the *post-hoc* interviews. Therefore, teacher and student interviewees were interviewed based on their personal definition and their familiar type of CMS.

Second, such research should define CMS into a more explicit and definite term or narrow down the selections to one particular system. Although this study has tried to limit the definition and types of CMS, these selections and varied functions still seemed to be too broad for the teacher and student participants.

Third, due to the unbalanced numbers of male and female participants, this study did not allow for a more accurate investigation of gender differences on attitudes toward CMS. Although the majority of the teachers in the present study were females and the

majority of the student participants were males, it may be of interest for future research to view gender as a potential variable.

Fourth, the teacher and student participants in this study were mainly from two specific geographic areas, Hsinchu and Pingtung; therefore, the findings may not be able to be generalized to the entire island without caution.

Fifth, another realm of future research that should be taken into consideration is the distinction of the use of CMS between national and private schools. The main concern of the present study is to underline the current situation of CMS in universities in Taiwan. However, the relationship between school types and the stakeholders' attitudes toward CMS may need further examinations.

Last, another problem revealed from data collection has to do with the fact that this study was based on a survey. That is, the data were gathered through questionnaires, interviews, and so forth. Since the researcher has no definite answer to the total number of the target population in college English teachers in Taiwan, it seemed rather difficult to estimate the actual return rate in this study. Thus, the present study may be at the risk of only deriving viewpoints from those teachers who are interested in CMS or CALL-oriented fields.

Recommendations for future research

While the present study has its limitations, it is hoped that it can point to several new possibilities and serve as a basis for future research.

Firstly, the types of CMS could be narrowed down to simply concentrate on a single system. By centering on one type of CMS at a time, the researcher is hopeful that future research will provide more detailed results for each type of CMS.

In this study, although the majority of English teachers were females and the majority of the students were males, it may be of interest for future research to regard gender as a researchable topic. It would be worthy of comparing the differences between males and females attitudes toward the use of CMS in English courses. Besides, it is also important to study the pressure that the teachers and the students face when using CMS.

To provide a clearer picture of this study's generalizability in higher education

settings, it would be beneficial to replicate the present study on larger populations and different geographical areas in Taiwan. Moreover, this study could also be repeated at the participating university to track the progression and gain a longitudinal perspective instead of one point-in-time snapshot.

This study has already found correlations and proposed two new conceptual causal relationship models for the teachers and the students. It may call for further inquiry to verify and confirm the causal relationship between the five major variables and end-users' attitudes.

In conclusion, it is hoped that this necessarily simplified study and the follow-up research in the future could explore a more comprehensive understanding of the use of CMS in EFL courses in Taiwan.

REFERENCES

Ajzen, I., & Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behavior*. Englewood Cliffs, NJ: Prentice Hall.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179-211.

Alonso, F., Lopez, G., Manrique, D., & Vines, J. M. (2005). An instructional model for web-based e-learning education with a blended learning process approach. *British Journal of Educational Technology, 36*(2), 217-235.

Auyeung, L. H. (2004). Building a collaborative online learning community: A case study in Hong Kong. *Journal of Educational Computing Research, 31*(2), 119-136.

Awidi, I. T. (2008). Critical factors in selecting a course management system for higher education in Ghana. *EDUCAUSE Quarterly, 31*(1), 24-32.

Bagozzi, R. P., Davis, F. D., & Warshaw, P. R. (1992). Development and test of a theory of technological learning and usage. *Human Relations, 45*(7), 660-686.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191-215.

Bax, S. (2003). CALL--Past, Present, and Future. *System, 31*(1), 13-28.

Beatty, K. (2003). *Teaching and researching computer-assisted language learning* (1st ed.). New York: Pearson ESL.

Bennett, J., & Bennett, L. (2003). A review of factors that influence the diffusion of innovation when structuring a faculty training program. *The Internet and Higher Education, 6*(1), 53-63.

Bonk, C., & Cunningham, D. (1998). Searching for learner-centered, constructivist, and sociocultural components of collaborative educational learning tools. In C. Bonk & K. King (Eds.), *Electronic collaborators: Learner-centered technologies for literacy, apprenticeship, and discourse* (pp.25-50). Mahwah, NJ: Lawrence Erlbaum Associates.

Bransford, J. D., Brown, A. L., & Cocking, R. R. (Eds.). (2000). *How people learn: Brain, mind, experience, and school*. Washington, DC: National Academy Press.

Brock, D. B., & Sulsky, L. M. (1994). Attitudes toward computers: Construct validation and relations to computer use. *Journal of Organizational Behavior, 15*(1), 17-35.

Brown, J. D. (2001). *Using surveys in language programs*. Cambridge: Cambridge University Press.

Bush, M. D. (2008). Computer-assisted language learning: From vision to reality? *CALICO Journal, 25*(3), 443-470.

Cappel, J. J., & Hayen, R. L. (2004). Evaluating E-Learning: A Case Study. *Journal of Computer Information Systems, 44*(4), 49-56.

Chan, C. H., & Robbins, L. I. (2006). E-Learning Systems: Promises and Pitfalls. *Academic Psychiatry, 30*(6), 491-497.

Chinnery, G. M. (2008). Biting the hand that feeds me: The case for e-language learning and teaching. *CALICO Journal, 25*(3), 471-481.

Clare, D., & Liddament, T. (1997). Pupils' perception of technology. *Proceedings of the Fourteenth International Conference on Technology and Education.* Oslo, Norway.

Clark, R. E. (1994). Media will never influence learning. *Educational Technology Research and Development, 42*(2), 21-29.

Cloete, E. (2001). Electronic education system model. *Computers & Education, 36*(2), 171-182.

Collis, B., & Moonen, J. (2001). *Flexible learning in a digital world: Experiences and expectations*. London: Kogan Page.

Colpaert, J. (2006). Pedagogy-driven design for online language teaching and learning. *CALICO Journal, 23*(3), 477-497.

Compeau, D. R., & Higgins, C. A. (1995). Application of social cognitive theory to training for computer skills. *Information Systems Research, 6*(2), 118-143.

Compeau, D. R., Higgins, C. A., & Huff, S. (1999). Social cognitive theory and individual reactions to computing technology: a longitudinal study. *MIS Quarterly, 23*(2), 145-158.

Coniam, D. (2004). Using Language Engineering Programs to Raise Awareness of Future CALL Potential. *Computer Assisted Language Learning, 17*(2), 149.

Culpan, O. (1995). Attitudes of end-users towards information technology in manufacturing and service industries. *Information & Management, 28*(3), 167-176.

Curtin, C. O., & Shinall, S. L. (1987). Teacher training for CALL and its implications. In W. F. Smith (Ed.), *Modern technology in foreign language education: Applications and projects* (pp. 255-285). Lincolnwood: National Textbook Company.

Davies, J., & Graff, M. (2005). Performance in e-learning: online participation and student grades. *British Journal of Educational Technology, 36*(4), 657-663.

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease Of Use, And User Acceptance Of Information Technology. *MIS Quarterly, 13*(3), 319-340.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science, 35*(8), 982-1003.

Decoo, W., & Colpaert, J. (1999). User-driven development and content-driven research. In K. Cameron (Ed.), *Computer assisted language learning (CALL): Media, design and applications* (pp. 165-181). Lisse: Swets & Zeitlinger Publishers.

DeLone, W., & McLean, E. (1992). Information systems success: The quest for the dependent variable. *Information Systems Research, 3*, 60-95.

Driscoll, M. (2008). Hype versus reality in the boardroom: Why e-learning hasn't lived up to its initial projections for penetrating the corporate environment. In S. Carliner & P. Shank (Eds.), *The e-learning handbook: Past promises, present challenges* (pp. 29-54). San Francisco, CA: Pfeiffer.

Dutton, W. H., Cheong, P. H., & Park, N. (2004). The social shaping of a virtual learning environment: The case of a university-wide course management system. *Electronic Journal of Learning, 2*(2), 69-80.

Felix, U. (2005). Analysing recent CALL effectiveness research--Towards a common agenda. *Computer Assisted Language Learning, 18*(1-2), 1-32.

Fowler, F. J. (1988). *Survey research methods*. Newbury Park, CA: SAGE Publications.

Goertler, S., & Winke, P. (Eds.). (2008). *Opening doors through distance language education: Principles, perspectives, and practices*. San Marcos, TX: CALICO.

Groves, M. M., & Zemel, P. C. (2000). Instructional technology adoption in higher education: An action research case study. *International Journal of Instructional Media, 27*(1), 57-65.

Hanson-Smith, E. (Ed.). (2000). *Technology-enhanced learning environments*. Alexandria, VA: Teachers of English to Speakers of Other Languages (TESOL).

Hegelheimer, V., & Tower, D. (2004). Using CALL in the classroom: Analyzing student interactions in an authentic classroom. *System, 32*(2), 185-205.

Hegelheimer, V. (2006). When the technology course is required. In P. Hubbard & M. Levy (Eds.), *Teacher Education in CALL* (pp. 117-133). Philadelphia, PA: John Benjamins.

Heining-Boynton, A. L., & Haitema, T. (2007). A ten-year chronicle of student attitudes toward foreign language in the elementary school. *Modern Language Journal, 91*(2), 149-168.

Herek, G. M. (2000). The social construction of attitudes: Functional consensus and divergence in the US public's reactions to AIDS. In G. R. Maio & J. M. Olson (Eds.), *Why we evaluate: Functions of attitudes* (pp. 325-364). Mahwah, NJ: Lawrence Erlbaum.

Hodgson, V. E. (2002). The European Union and e-learning: an examination of rhetoric, theory and practice. *Journal of Computer Assisted Learning, 18*(3), 240-252.

Holmes, B. (1998). Initial perception of CALL by Japanese university students. *Computer Assisted Language Learning, 11*(4), 397-409.

Hossler, D. (2002). Enrollment management. In J. Forest & K. Kinser (Eds.), *Higher education in the United States: An encyclopedia* (Vol. 1, pp. 192). Santa Barbara, CA: ABC-CLIO.

Hubbard, P. (2005). A review of subject characteristics in CALL research. *Computer Assisted Language Learning, 18*(5), 351-368.

Jameson, J., Ferrell, G., Kelly, J., Walker, S., & Ryan, M. (2006). Building trust and shared knowledge in communities of e-learning practice: collaborative leadership in the JISC eLISA and CAMEL lifelong learning projects. *British Journal of Educational Technology, 37*(6), 949-967.

Jonassen, D. H. (2003). *Learning to solve problems with technology: A constructivist perspective*. Upper Saddle River, NJ: Merrill.

Jones, A., & Issroff, K. (2005). Learning technologies: affective and social issues in computer-supported collaborative learning. *Computers & Education, 44*, 395-408.

Jones, T., & Clarke, V. (1994). A computer scale for secondary students. *Computers & Education, 22*(4), 315-318.

Kadel, R. (2005). How teacher attitudes affect technology integration. *Learning and Leading with Technology, 32*(5), 34-35.

Kennedy, C., & Kennedy, J. (1996). Teacher attitudes and change implementation. *System, 24*(3), 351-360.

Kessler, G. (2007). Formal and informal CALL preparation and teacher attitude toward technology. *Computer Assisted Language Learning, 20*(2), 173-188.

Kessler, G., & Plakans, L. (2008). Does teachers' confidence with CALL equal innovative and integrated use? *Computer Assisted Language Learning, 21*(3), 269-282.

Lam, Y. (2000). Technophilia vs. technophobia: A preliminary look at why second-language teachers do or do not use technology in their classrooms. *Canadian Modern Language Review, 56*(3), 390-420.

Lamy, M.-N., & Hampel, R. (2007). *Online Communication in Language Learning and Teaching*. New York: Palgrave Macmillan.

Laurillard, D. (2002). *Rethinking university teaching: A framework for the effective use of learning technologies* (2nd ed.). London: Routledge.

Lawton, J., & Gerschner, V. T. (1982). A review of the literature on attitudes towards computers and computerized Instruction. *Journal of Research and Development in Education, 16*(1), 50-55.

Leahy, C. (2004). Researching language learning processes in open CALL settings for advanced learners. *Computer Assisted Language Learning, 17*(3-4), 289-313.

Legris, P., Ingham, J., & Collerette, P. (2003). Why do people use information technology?: a critical review of the technology acceptance model. *Information and Management, 40*(3), 191-204

Liao, H.-L., & Lu, H.-P. (2008). The role of experience and innovation characteristics in the adoption and continued use of e-learning websites. *Computers & Education, 51*(4), 1405-1416.

Liaw, S. S., & Huang, H. M. (2003). An investigation of users attitudes toward search engines as an information retrieval tool. *Computers in Human Behavior, 19*(6), 751-765.

Liaw, S.-S., Huang, H.-M., & Chen, G.-D. (2007). Surveying instructor and learner attitudes toward e-learning. *Computers & Education, 49*(4), 1066-1080.

Liaw, S.-S. (2007). Sex differences and learners' autonomy toward e-learning based on surveys in U. K. and Taiwan. *Psychological Reports, 100*(3), 949-954

Liaw, S.-S. (2008). Investigating students' perceived satisfaction, behavioral intention, and effectiveness of e-learning: A case study of the Blackboard system. *Computers & Education, 51*(2), 864-873.

Lin, J. C.-C., & Lu, H. (2000). Towards an understanding of the behavioural intention to use a web site. *International Journal of Information Management, 20*(3), 197-208.

Lowerison, G., Cote, Roger., Abrami, P. C., & Lavoie, M.-C. (2008). Revisiting learning theory for e-learning. In S. Carliner & P. Shank (Eds.), *The e-learning handbook: Past promises, present challenges* (pp. 423-458). San Francisco, CA: Pfeiffer.

Loyd, B. H., & Loyd, D. E. (1985). The reliability and validity of an instrument for the assessment of computer attitudes. *Educational and Psychological Measurement, 45*(4), 903-908.

Mackey, A., & Gass, S. M. (2005). *Second language research: Methodology and design*. Mahwah, NJ: Lawrence Erlbaum Associates.

Meskill C., Anthony, N., Hilliker-VanStrander, S., Tseng, C.-H., & You, J. (2006). Expert-novice teacher mentoring in language learning technology. In P. Hubbard & M. Levy (Eds.), *Teacher Education in CALL* (pp. 283-297). Philadelphia, PA: John Benjamins.

Moon, J. W., & Kim, Y. G. (2001). Extending the TAM for a World-Wide-Web context. *Information & Management, 38*, 217-230.

Mumtaz, S. (2001). Children's enjoyment and perception of computer use in the home and the school. *Computers & Education, 36*(4), 347-362

Ndubisi, N. O. (2006). Factors of online learning adoption: A comparative juxtaposition of the theory of planned behaviour and the technology acceptance model. *International Journal on E-Learning, 5*(4), 571-591.

Nunan, D. (1992). *Research methods in language learning*. Cambridge: Cambridge University Press.

Padilla-Meléndez, A., Garrido-Moreno, A., & Aguila-Obra, A. R. D. (2008). Factors affecting e-collaboration technology use among management students. *Computers & Education, 51*(2), 609-623.

Palaigeorgiou, G. E., Siozos, P. D., Konstantakis, N. I., & Tsoukalas, I. A. (2005). A computer attitude scale for computer science freshmen and its educational implications. *Journal of Computer Assisted Learning, 21*(5), 330-342.

Palloff, R. M., & Pratt, K. (1999). *Building learning communities in cyberspace: Effective strategies for the online classroom*. San Francisco, CA: Jossey-Bass.

Papastergiou, M. (2007). Use of a course management system based on Claroline to support a social constructivist inspired course: A Greek case study. *Educational Media International, 44*(1), 43-59.

Perkins, M., & Pfaffman, J. (2006). Using a course management system to improve classroom communication. *Science Teacher, 73*(7), 33-37.

Peters, M. (2006). Developing computer competencies for pre-service language teachers. In P. Hubbard & M. Levy (Eds.), *Teacher Education in CALL* (pp. 153-165). Philadelphia, PA: John Benjamins.

Petrova, K., & Sinclair, R. (2008). E-learning value and student experiences: A case study. In F. J. García-Peñalvo (Ed.), *Advances in e-learning: Experiences and methodologies* (pp. 112-131*)*. Hershey, PA: Information Science Reference.

Reffell, P., & Whitworth, A. (2002). Information fluency: critically examining IT education. *New Library World, 103*(11-12), 427-435.

Robb, T. N. (2006). Helping teachers to help themselves. In P. Hubbard & M. Levy (Eds.), *Teacher Education in CALL* (pp. 335-347). Philadelphia, PA: John Benjamins.

Rosenberg, M. J. (2001). *E-learning: Strategies for delivering knowledge in the digital age*. New York: McGraw-Hill.

Salomon, G. (1983). The differential investment of mental effort in learning from different sources. *Educational Psychologist, 18*(1), 42-50.

Scrimshaw, P. (1997). Computers and the teacher's role. In B. Davis (Ed.), *Using Information Technology Effectively in Teaching and Learning*. London: Routledge.

Seddon, P. (1997). A respecification and extension of the DeLone and McLean model of IS success. *Information Systems Research, 8*(3), 240-253.

Selim, H. M. (2007). Critical success factors for e-learning acceptance: Confirmatory factor models. *Computers & Education, 49*(2), 396-413.

Selwyn, N. (1997). Students' attitudes towards computers in sixteen to nineteen education. *Education and Information Technologies, 4*(2), 129-141.

Shih, M., Feng, J., & Tsai, C.-C. (2008). Research and trends in the field of e-learning from 2001 to 2005: A content analysis of cognitive studies in selected journals. *Computers & Education, 51*(2), 955-967.

Spiro, R. J., Feltovich, P. J., Jacobson, M. J., & Coulson, R. L. (1991). Knowledge representation, content specification, and the development of skill in situation-specific knowledge assembly: some constructivist issues as they relate to cognitive flexibility theory and hypertext. *Educational Technology, 31*(9), 22-25.

Sun, P.-C., Tsai, R. J., Finger, G., Chen, Y.-Y., & Yeh, D. (2008). What drives a successful e-Learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers & Education, 50*(4), 1183-1202

Szajna, B. (1996). Empirical evaluation of the revised Technology Acceptance Model. *Management Science, 42*(1), 85-92.

Taylor, S., & Todd, P. A. (1995). Understanding information technology usage: A test of competing models. *Information Systems Research, 6*(2), 144-176.

Thorne, S. L. (2003). Artifacts and cultures-of-use in intercultural communication. *Language Learning & Technology, 7*(2), 38-67.

Triandis, H. C. (1971). *Attitude and Attitude Change*. New York: John Wiley.

Van Olphen, M. (2007). Perspectives of foreign language preservice teachers on the use of a web-based instructional environment in a methods course. *CALICO Journal, 25*(1), 91-109.

Venkatesh, V., & Davis, F. D. (2000). A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies. *Management Science, 46*(2), 186-204.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: toward a unified view. *MIS Quarterly, 27*(3), 425-478.

Vankatesh, V. (1999). Creation of favorable user perceptions: exploring the role of intrinsic motivation. *MIS Quarterly, 23*(2), 239-260.

Ward, M. (2006). Using software design methods in CALL. *Computer Assisted Language Learning, 19*(2-3), 129-147.

Warschauer, M., & Healey, D. (1998). Computers and language learning: An overview. *Language Teaching, 31*, 57-71.

Webb, N., & Palincsar, A. (1996). Group processes in the classroom. In D. Berlmer & R. Calfee (Eds.), *Handbook of educational psychology* (pp. 841-873). New York: Simon & Schuster, Macmillan.

Wentling, T. L., Waight, C., Gallaher, J., Fleur, J. L., Wang, C., & Kanfer, A. (2000). *E-learning - A Review of Literature*. Retrieved October 09, 2008, from http://learning.ncsa.uiuc.edu/papers/elearnlit.pdf

Wixom, B. H., & Todd, P. A. (2005). A theoretical integration of user satisfaction and technology acceptance. *Information Systems Research, 16*(1), 85-102

Yates, D. S., Moore, D. S., & Starnes, D. S. (2007). *The practice of statistics* (3rd ed.). New York: W.H. Freeman.

Yuen, A. H. K., & Ma, W. W. K. (2008). Exploring teacher acceptance of e-learning technology. *Asia-Pacific Journal of Teacher Education, 36*(3), 229-243.

Zhang, F., & Barber, B. (Eds.). (2008). *Handbook of research on computer-enhanced language acquisition and learning*. Hershey, PA: Information Science Reference.

Zimbardo, P. G., & Leippe, M. R. (1991). *The psychology of attitude change and social influence*. New York: McGraw-Hill

APPENDICES

Appendix A

Questionnaire for teachers (Original Mandarin version)

台灣大專院校英語教師在英語教學中使用數位課程管理系統之問卷

各位師長您好，我是**國立交通大學英語教學研究所**的研究生于文凱，本問卷為學生的碩士論文研究問卷，主要目的是想要了解**台灣大專英語教師在英語教學上對於結合使用數位課程管理系統（Course management system，以下皆稱為數位課程管理系統）的看法**。若是您**未曾有過使用經驗亦可參與本研究**，本問卷共分為兩部分，第一部份是您的基本個人背景資訊；第二部分為單選問題以及一題開放式問題。煩請您撥冗填寫以下個人資料及問卷，**並在適當選項上予以勾選**。請**依照您個人實際使用經驗及對於數位課程管理系統的態度直接回答問題**即可。本問卷採匿名方式，所得資料僅供學術研究參考之用，敬請安心作答。非常感謝您的熱心協助，特此致上學生最誠摯的謝意。

您可以回覆 e-mail 並附上回答完畢的 word 檔，或點選 My3Q 的連結 http://www.my3q.com/go.php?url=revolutiontmr/64983 進行線上填寫問卷，或者是寄回紙本問卷。若您想要填寫問卷紙本的話，煩請回 e-mail 簡單告知，我會盡快把問卷紙本寄給您，並且附上已貼好郵資且寫好回信地址的回郵信封。

恭請

教祺。

國立交通大學英語教學研究所
研究生：　于文凱
e-mail：revolutiontmr@yahoo.com.tw
行動電話：0925665789
指導教授：　孫于智　副教授

I. 個人背景資訊：

1. 請問您的性別為？

a. ☐ 男　　；　　b. ☐ 女

2. 請問您的年齡為？

a. ☐ 20-30 歲 ； b. ☐ 31-40 歲 ； c. ☐ 41-50 歲 ； d. ☐ 51 歲以上

3. 請問您居住的區域在台灣的？

a. ☐ 北部 ； b. ☐ 中部 ； c. ☐ 南部 ； d. ☐ 東部

4. 請問您從事英語教學的年資為？

a. ☐ 1-5 年 ； b. ☐ 6-10 年 ； c. ☐ 11-15 年 ； d. ☐ 16-20 年 e. ☐ 21 年以上

5. 請問您目前任職的學校中，是否有提供數位課程管理系統（Course Management System，以下皆稱為數位課程管理系統）？

a. ☐ 有 ； b. ☐ 沒有

若有，請寫出是哪個或哪些數位課程管理系統系統（例如 Blackboard, e-Campus (E3), WebCT, Moodle 等）

_____

_____

6. 若您第 5 題的答案是有，請問您的教學課程中是否有運用到數位課程管理系統的功能？

a. ☐ 有 ； b. ☐ 沒有

7. 若您第 6 題的答案是有運用到數位課程管理系統的功能，請問是哪些功能？（可複選）

a. ☐ 公佈課程消息資訊 ； b. ☐ 上傳文件檔案 ； c. ☐ 開闢討論區

d. ☐ 開闢聊天室 ； e. ☐ 系統內搜尋關鍵字 ； f. ☐ 分配小組作業

g. ☐ 學生出缺席或上線紀錄 ； h. ☐ 測驗考試 ； i. ☐ 即時通訊聊天

j. ☐ 月曆備忘錄 ； k. ☐ 製作個人化課程 ； l. ☐ 學生繳交作業

m. ☐ 匯入匯出課程設計 ； n. ☐ 線上學生分組 ； o. ☐ 問卷調查

p. ☐ 教師批改作業 ； q. ☐ 評量學生成績 ； r. ☐ 管理學生成績

s. ☐ 更改介面樣板 ； t. ☐ 線上即時會議 ； u. ☐ 課程留言板

v. ☐ 追蹤學生學期學習進度 ； w. ☐ 線上預約師生面談時間

x. ☐ 針對議題投票 ； y. ☐ 在數位課程管理系統中撰寫 Blog ；

z. 其他上述未提及之功能

_____

_____

_____

8. 請問您運用到第 7 題所列數位課程管理系統功能的時機為何，多跟哪些教學活動結合？

a. 使用時機 _____

_____

_____

b. 教學活動 _____

_____

_____

9. 請問您在第 8 題所回答之使用時機與教學活動，是基於何種語言教學理論或理念？

a. 教學理論 _____

_____

_____

b. 個人理念 _____

_____

_____

II. 電腦輔助語言學習經驗以及對於在英語課程中使用數位課程管理系統的態度之問卷

填寫說明：使用電子檔回傳問卷的老師請把各選項您要勾選的數字刪除（delete）掉即可。						
A：語言教師之電腦輔助語言學習經驗		**不曾使用**	**很少使用**	**有時使用**	**時常使用**	**總是使用**
1.	我有把 PowerPoint 運用在英語教學課程中的經驗	1	2	3	4	5
2.	我有使用即時通訊軟體（Windows Live Messenger (MSN),	1	2	3	4	5

	Yahoo 即時通）與學生進行英語教學的經驗					
3.	我有在自己或者是學生的部落格（blog）與學生進行英語教學互動的經驗	1	2	3	4	5
4.	我有在課程中結合 YouTube 進行英語教學的經驗	1	2	3	4	5
5.	我有在課程中結合線上字典工具進行英語教學的經驗	1	2	3	4	5
6.	我有在課程中結合英語學習網站進行英語教學的經驗	1	2	3	4	5
填寫說明：使用電子檔回傳問卷的老師請把各選項您要勾選的數字刪除（delete）掉即可。						
B：英語教師對於數位課程管理系統的態度		**強烈不同意**	**不同意**	**無意見**	**同意**	**強烈同意**
1.	我對於教師使用數位課程管理系統進行英語教學有信心	1	2	3	4	5
2.	我對於學生使用數位課程管理系統進行英語學習有信心	1	2	3	4	5
3.	我對於使用數位課程管理系統的各項功能有信心	1	2	3	4	5
4.	鼓勵老師使用數位課程管理系統進行英語教學是我的樂趣	1	2	3	4	5
5.	鼓勵學生使用數位課程管理系統進行英語學習是我的樂趣	1	2	3	4	5
6.	使用數位課程管理系統的各項功能是我的樂趣	1	2	3	4	5
7.	我認為結合數位課程管理系統對老師英語教學是有幫助的	1	2	3	4	5
8.	我認為結合數位課程管理系統對學生英語學習是有幫助的	1	2	3	4	5
9.	我認為數位課程管理系統的各項功能對我自己是有幫助的	1	2	3	4	5
10.	我有打算使用數位課程管理系統來輔助英語教學	1	2	3	4	5
11.	我有打算使用數位課程管理系統來輔助英語學習	1	2	3	4	5
12.	我有打算使用數位課程管理系統提供的各項功能來輔助自己	1	2	3	4	5
13.	我對目前使用的數位課程管理系統能提供之功能感到很滿意	1	2	3	4	5
14.	我對目前使用的數位課程管理系統所包含之內容感到很滿意	1	2	3	4	5
15.	我對目前使用的數位課程管理系統可進行之活動感到很滿意	1	2	3	4	5

16.

開放式問題：

對於將數位課程管理系統融入在英語教學中，您認為數位課程管理系統對於英語教學而言可以提供怎樣的幫助？身為一個老師，又該如何將數位課程管理系統的優點充分利用在英語教學之中？您的意見對本研究將有寶貴貢獻，謝謝 ！

最後請問，如果有機會的話，您是否有意願協助本研究進行後續面對面的訪談？(我將會配合您方便的時間及地點)

1. ☐ 有意願　　；　　2. ☐ 沒有意願

聯絡方式：姓名 _____

電話 _____

E-mail _____

再次誠摯感謝您的填寫！

Questionnaire for teachers (Translated English version)

Section One. Demographic information：

1. Your sex?

a. ☐ male ； b. ☐ female

2. Your age?

a. ☐ 20-30 years old ； b. ☐ 31-40 years old ； c. ☐ 41-50 years old ；

d. ☐ 51 years old or above

3. Your residing area?

a. ☐ North ； b. ☐ Central ； c. ☐ South ； d. ☐ East

4. Your years of English teaching experience?

a. ☐ 1-5 years ； b. ☐ 6-10 years ； c. ☐ 11-15 years ； d. ☐ 16-20 years

e. ☐ 21 years or above

5. Does your school offer course management system (CMS)?

a. ☐ Yes ； b. ☐ No

If the answer is yes, please specify which CMS you are using（for example: Blackboard, e-Campus (E3), WebCT, Moodle）

_____

_____

_____

_____

6. If you answered yes in question 5, have you used any of the functions of CMS in your courses?

a. ☐ Yes ； b. ☐ No

7. If you answered yes in question 6, which functions are they?（multiple answers）

a. ☐ Announcing course information ; b. ☐ Uploading document ;

c. ☐ Opening discussion forum ; d. ☐ Opening chat room ;

e. ☐ Search keyword ; f. ☐ Allocating group work ;

g. ☐ Recording student attendance ; h. ☐ Giving examination ;

i. ☐ Instant messaging ; j. ☐ Making calendar note ;

k. ☐ Making personalized course ; l. ☐ Students handing in homework ;

m. ☐ Importing and exporting course design ; n. ☐ Grouping students online ;

o. ☐ Surveying questionnaire ; p. ☐ Correcting assignment ;

q. ☐ Assessing student grades ; r. ☐ Managing student grades ;

s. ☐ Changing user interface ; t. ☐ Instant online conferencing ;

u. ☐ Commenting on course message board ; v. ☐ Tracking student learning progress ;

w. ☐ Making meeting appointment online ; x. ☐ Voting on issues ;

y. ☐ Keeping blog ; z. ☐ Other functions not mentioned above

_____

_____

_____

8. What are the timings for using the functions you listed above? What activities do you usually combine those functions with?

a. Timing _____

_____

b. Activities _____

_____

9. What theoretical approaches and personal beliefs do you hold when conducting the activities at the timing you mentioned in question 8?

a. Theoretical approaches _____

_____

b. Personal beliefs _____

Section Two. CALL and attitudes questionnaire

A: (1 = never, 2 = seldom, 3 = sometimes, 4 = often, 5 = always)

B: (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree)

A：English teachers' CALL experience						
1.	Experience of using PowerPoint in English courses	1	2	3	4	5
2.	Experience of using instant messenger in English courses	1	2	3	4	5
3.	Experience of using blog in English courses	1	2	3	4	5
4.	Experience of using YouTube in English courses	1	2	3	4	5
5.	Experience of using online dictionary in English courses	1	2	3	4	5
6.	Experience of using learning website in English courses	1	2	3	4	5
B：English teachers' attitudes toward the use of CMS in English courses						
1.	I feel confident for teachers to use CMS in English courses	1	2	3	4	5
2.	I feel confident for students to use CMS in English courses	1	2	3	4	5
3.	I feel confident to use all the functions in CMS	1	2	3	4	5
4.	I enjoy encouraging teachers to use CMS in English courses	1	2	3	4	5
5.	I enjoy encouraging students to use CMS in English courses	1	2	3	4	5
6.	I enjoy using all the functions in CMS	1	2	3	4	5
7.	I believe using CMS in English courses is helpful for teaching	1	2	3	4	5
8.	I believe using CMS in English courses is helpful for learning	1	2	3	4	5
9.	I believe using all the functions in CMS is helpful for me	1	2	3	4	5
10.	I intend to use CMS to assist English teaching	1	2	3	4	5
11.	I intend to use CMS to assist English learning	1	2	3	4	5
12.	I intend to use all the functions in CMS to assist me	1	2	3	4	5
13.	I am satisfied with the functions in CMS that I currently use	1	2	3	4	5
14.	I am satisfied with all the contents in CMS that I currently use	1	2	3	4	5
15.	I am satisfied with the activities in CMS that I currently use	1	2	3	4	5
16.						

Open-ended question：

Concerning the integration of CMS into English teaching, what kind of help do you think it can offer to English teaching? As a teacher, how can you make full use of the advantages of CMS in English teaching? Your response is highly appreciated, thank you!

_____

_____

_____

_____

_____

_____

_____

_____

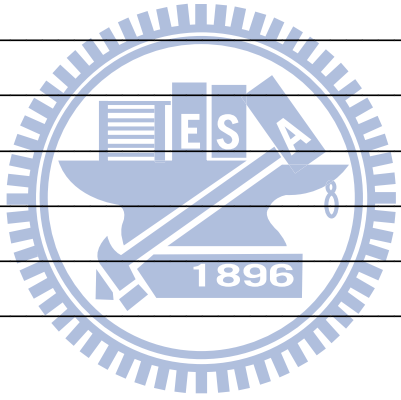
_____

_____

_____

_____

_____



Last, are you willing to assist the present study and participate in the *post-hoc* interview?

1. ☐ Yes ； 2. ☐ No

Contact： Name _____

Mobile _____

E-mail _____

Thank you very much!

Appendix B

Questionnaire for students (Original Mandarin version)

台灣大專院校學生在英語學習中使用數位課程管理系統之問卷

各位同學您好，我是**國立交通大學英語教學研究所**的研究生于文凱，本問卷為學生的碩士論文研究問卷，主要目的是想要了解**台灣大專院校學生在英語學習上對於結合使用數位課程管理系統（Course management system，以下皆稱為數位課程管理系統）的看法**。若是您**未曾有過使用經驗亦可參與本研究**，本問卷共分為兩部分，第一部份是您的基本個人背景資訊；第二部分為單選問題以及一題開放式問題。煩請您撥冗填寫以下個人資料及問卷，**並在適當選項上予以勾選**。請**依照您個人實際使用經驗及對於數位課程管理系統的態度直接回答問題**即可。本問卷採匿名方式，所得資料僅供學術研究參考之用，敬請安心作答。非常感謝您的熱心協助，特此致上學生最誠摯的謝意。

本研究徵求後續的面對面訪談，若您願意的話請在問卷最後填上資料，我會再行與您聯絡。只要是有參與後續訪談的同學，我將贈送一百元現金以及一杯飲料以茲答謝。

敬頌

學祺。

國立交通大學英語教學研究所
研究生：　于文凱
e-mail：revolutiontmr@yahoo.com.tw
行動電話：0925665789
指導教授：　孫于智　副教授

I. 個人背景資訊：

1. 請問您性別為？

a. ☐ 男　　；　　b. ☐ 女

2. 請問您目前是大學幾年級？

a. ☐ 大一 ； b. ☐ 大二 ； c. ☐ 大三 ； d. ☐ 大四 ； e. ☐ 研究所以上

3. 在寫這份問卷之前，你有任何使用數位課程管理系統（Course Management System，以下皆稱為數位課程管理系統）的經驗嗎？

a. ☐ 有　　；　　b. ☐ 沒有

若有，請寫出是哪個或哪些數位課程管理系統（例如 Blackboard, e-Campus (E3), WebCT, Moodle 等）

_____

_____

4. 請問您目前英語學習課程中，課程教師是否有運用到數位課程管理系統的功能？

a. ☐ 有　　；　　b. ☐ 沒有

5. 若您第 4 題的答案是有，請問該課程的教師運用到了哪些功能呢？（可複選）

a. ☐ 公佈課程消息資訊 ； b. ☐ 上傳文件檔案 ； c. ☐ 開闢討論區

d. ☐ 開闢聊天室 ； e. ☐ 系統內搜尋關鍵字 ； f. ☐ 分配小組作業

g. ☐ 學生出缺席或上線紀錄 ； h. ☐ 測驗考試 ； i. ☐ 即時通訊聊天

j. ☐ 月曆備忘錄 ； k. ☐ 製作個人化課程 ； l. ☐ 學生繳交作業

m. ☐ 匯入匯出課程設計 ； n. ☐ 線上學生分組 ；o. ☐ 問卷調查

p. ☐ 教師批改作業 ； q. ☐ 評量學生成績 ；r. ☐ 管理學生成績

s. ☐ 更改介面樣板 ； t. ☐ 線上即時會議 ； u. ☐ 課程留言板

v. ☐ 追蹤學生學期學習進度 ； w. ☐ 線上預約師生面談時間

x. ☐ 針對議題投票 ； y. ☐ 在數位課程管理系統中撰寫 Blog ；

z. 其他上述未提及之功能

_____

_____

_____

6. 請問該教師運用到第 5 題所列功能的主要時機為何，多跟哪些教學活動結合？

a. 使用時機 _____

_____

_____

b. 教學活動 _____

_____

_____

7. 請問該教師在第 6 題的使用時機與教學活動，你喜歡或不喜歡的原因為何？

1. 喜歡原因 _____

_____

_____

2. 不喜歡原因 _____

_____

_____

II. 電腦輔助語言學習經驗以及對於在英語課程中使用數位課程管理系統的態度之問卷

A：英語學習者之電腦輔助語言學習經驗		**不曾使用**	**很少使用**	**有時使用**	**時常使用**	**總是使用**
1.	我有把 PowerPoint 運用在英語學習課程中的經驗	1	2	3	4	5
2.	我有使用即時通訊軟體（Windows Live Messenger (MSN), Yahoo 即時通）與老師進行英語學習的經驗	1	2	3	4	5
3.	我有在自己或者是老師的部落格（blog）與老師進行英語學習互動的經驗	1	2	3	4	5
4.	我有在課程中結合 YouTube 進行英語學習的經驗	1	2	3	4	5
5.	我有在課程中結合線上字典工具進行英語學習的經驗	1	2	3	4	5
6.	我有在課程中結合英文學習網站進行英語學習的經驗	1	2	3	4	5
B：英語學習者對於數位課程管理系統的態度		**強烈不同意**	**不同意**	**無意見**	**同意**	**強烈同意**

1.	我對於教師使用數位課程管理系統進行英語教學有信心	1	2	3	4	5
2.	我對於學生使用數位課程管理系統進行英語學習有信心	1	2	3	4	5
3.	我對於使用數位課程管理系統的各項功能有信心	1	2	3	4	5
4.	鼓勵老師使用數位課程管理系統進行英語教學是我的樂趣	1	2	3	4	5
5.	鼓勵學生使用數位課程管理系統進行英語學習是我的樂趣	1	2	3	4	5
6.	使用數位課程管理系統的各項功能是我的樂趣	1	2	3	4	5
7.	我認為結合數位課程管理系統對老師英語教學是有幫助的	1	2	3	4	5
8.	我認為結合數位課程管理系統對學生英語學習是有幫助的	1	2	3	4	5
9.	我認為數位課程管理系統的各項功能對我自己是有幫助的	1	2	3	4	5
10.	我有打算使用數位課程管理系統來輔助英語教學	1	2	3	4	5
11.	我有打算使用數位課程管理系統來輔助英語學習	1	2	3	4	5
12.	我有打算使用數位課程管理系統提供的各項功能來輔助自己	1	2	3	4	5
13.	我對目前使用的數位課程管理系統能提供之功能感到很滿意	1	2	3	4	5
14.	我對目前使用的數位課程管理系統所包含之內容感到很滿意	1	2	3	4	5
15.	我對目前使用的數位課程管理系統可進行之活動感到很滿意	1	2	3	4	5

16.

開放式問題：

對於將數位課程管理系統融入在英語學習中，您認為數位課程管理系統對於英語學習而言可以提供怎樣的幫助？身為一位學生，又該如何將數位課程管理系統的優點充分利用在英語學習之中？您的意見對本研究將有寶貴貢獻，謝謝！

最後請問，如果有機會的話，您是否有意願協助本研究進行後續面對面的訪談？(我將會配合您方便的時間及地點)

1. ☐ 有意願　　；　　2. ☐ 沒有意願

聯絡方式：姓名 _____

電話 _____

E-mail _____

再次誠摯感謝您的填寫！

Questionnaire for students (Translated English version)

Section One. Demographic information：

1. Your sex?

a. ☐ male ； b. ☐ female

2. Your year of study?

a. ☐ Freshman ； b. ☐ Sophomore ； c. ☐ Junior ； d. ☐ senior； e. ☐ graduate or above

3. Prior to responding to this questionnaire, do you have any experience using course management system (CMS)?

a. ☐ Yes ； b. ☐ No

If the answer is yes, please specify which CMS you are using（for example: Blackboard, e-Campus (E3), WebCT, Moodle）

_____

_____

4. If you answered yes in question 3, have your English teacher used any of the functions of CMS in English courses?

a. ☐ Yes ； b. ☐ No

5. If you answered yes in question 4, which functions are they?（multiple answers）

a. ☐ Announcing course information ； b. ☐ Uploading document ；

c. ☐ Opening discussion forum ； d. ☐ Opening chat room ；

e. ☐ Search keyword ； f. ☐ Allocating group work ；

g. ☐ Recording student attendance ； h. ☐ Giving examination ；

i. ☐ Instant messaging ； j. ☐ Making calendar note ；

k. ☐ Making personalized course ； l. ☐ Students handing in homework ；

m. ☐ Importing and exporting course design ； n. ☐ Grouping students online ；

o. ☐ Surveying questionnaire ; p. ☐ Correcting assignment ;

q. ☐ Assessing student grades ; r. ☐ Managing student grades ;

s. ☐ Changing user interface ; t. ☐ Instant online conferencing ;

u. ☐ Commenting on course message board ; v. ☐ Tracking student learning progress ;

w. ☐ Making meeting appointment online ; x. ☐ Voting on issues ;

y. ☐ Keeping blog ; z. ☐ Other functions not mentioned above

_____

_____

_____

_____

6. What are the timings for teachers to use the functions listed above? What activities do they usually combine those functions with?

a. Timing _____

_____

b. Activities _____

_____

7. For those timings and activities mentioned in question 6, what are the reasons you like or dislike them?

a. Reasons for _____

_____

b. Reasons against _____

_____

Section Two. CALL and attitudes questionnaire

A: (1 = never, 2 = seldom, 3 = sometimes, 4 = often, 5 = always)

B: (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree)

A：English learners' CALL experience	

1.	Experience of using PowerPoint in English courses	1	2	3	4	5
2.	Experience of using instant messenger in English courses	1	2	3	4	5
3.	Experience of using blog in English courses	1	2	3	4	5
4.	Experience of using YouTube in English courses	1	2	3	4	5
5.	Experience of using online dictionary in English courses	1	2	3	4	5
6.	Experience of using learning website in English courses	1	2	3	4	5
B：English learners' attitudes toward the use of CMS in English courses						
1.	I feel confident for teachers to use CMS in English courses	1	2	3	4	5
2.	I feel confident for students to use CMS in English courses	1	2	3	4	5
3.	I feel confident to use all the functions in CMS	1	2	3	4	5
4.	I enjoy encouraging teachers to use CMS in English courses	1	2	3	4	5
5.	I enjoy encouraging students to use CMS in English courses	1	2	3	4	5
6.	I enjoy using all the functions in CMS	1	2	3	4	5
7.	I believe using CMS in English courses is helpful for teaching	1	2	3	4	5
8.	I believe using CMS in English courses is helpful for learning	1	2	3	4	5
9.	I believe using all the functions in CMS is helpful for me	1	2	3	4	5
10.	I intend to use CMS to assist English teaching	1	2	3	4	5
11.	I intend to use CMS to assist English learning	1	2	3	4	5
12.	I intend to use all the functions in CMS to assist me	1	2	3	4	5
13.	I am satisfied with the functions in CMS that I currently use	1	2	3	4	5
14.	I am satisfied with all the contents in CMS that I currently use	1	2	3	4	5
15.	I am satisfied with the activities in CMS that I currently use	1	2	3	4	5
16.	**Open-ended question：** Concerning the integration of CMS into English learning, what kind of help do you think it can offer to English learning? As a student, how can you make full use of the advantages of CMS in English learning? Your response is highly appreciated, thank you! _____					

Last, are you willing to assist the present study and participate in the *post-hoc* interview?

1. ☐ Yes ; 2. ☐ No

Contact： Name _____

Mobile _____

E-mail _____

Thank you very much!

Appendix C Interview consent form for teachers

訪談同意書 (Original Mandarin version)

台灣大專院校英語教師在英語教學中結合使用數位課程管理系統之態度

老師您好，首先非常感謝您參與本研究，一同探討**台灣大專英語教師在英語教學上對於使用數位課程管理系統（Course management system，以下皆簡稱為CMS）的看法**。我是**國立交通大學英語教學研究所**的研究生于文凱，本研究是我的碩士論文，我希望能夠藉由**面對面訪談**的方式來更加了解您對於 CMS 的態度看法，以及您在語言教學中運用 CMS 的情形。我將會與您進行**約 45 分鐘左右的全程錄音訪談**。本訪談保證沒有任何私人資料流出的風險，所有錄音檔都會以代碼或假名註記，並且妥善地保存。只有研究者本人在進行相關分析時才可讀取錄音檔，所有的錄音內容在研究結果謄寫完畢後都會予以清除。所有有關您的**個人資料都會嚴格保密**，任何私人資料都不會對外透露。

如果現在您有任何問題，煩請直接問我；若是之後您有任何問題，您可以透過手機：0925665789 或 e-mail： revolutiontmr@yahoo.com.tw 與我聯繫。如果您需要的話，您在任何時間都可以要求一份同意書的影本供您保留。

請您現在決定是否參加本研究的後續訪談，您**在以下欄位簽名**就表示您已讀過以上的說明並且同意參與。假如您之後不想參與，只要跟我聯繫告知，您就可以隨時退出本研究。再次由衷地感謝您的熱心協助，特此致上學生最誠摯的謝意。

參加者簽名：_____ 日期：_____

研究者簽名：_____ 日期：_____

國立交通大學英語教學研究所　　指導教授：　孫于智　副教授

研究生：　　于文凱

敬啟　民國九十八年二月

Interview consent form for teachers (Translated English version)

Exploring the use of course management system in EFL courses in Taiwan

Dear Professor, firstly I would like to thank you for participating in the present study and discussing Taiwanese college English teachers' attitudes toward the use of course management system (CMS) in English courses. I am Wen-Kai Yu, a graduate student from the Institute of Teaching English to Speakers of Other Languages, National Chiao Tung University. The current study is my master thesis research. I hope to better understand your attitude toward CMS and how you would use it. I will conduct and record an approximately 45 minute interview. There is no risk of leaking personal information. All the recorded files will be kept intact and tagged with pseudonyms or codes. Only the present researcher can have access to the files and conduct further analyses. All the recorded contents will be completely erased upon thesis completion. All your personal information will be strictly protected without revealing any data.

If you have any question at the moment, please feel free to ask me. If you have any question after the interview, please do not hesitate to contact me at e-mail: revolutiontmr@yahoo.com.tw or mobile: 0925665789. If you desire one hard copy of this consent form, you may ask for a hard copy anytime.

At the moment, please decide whether to participate in the post-hoc interview of this study. Once you have signed, this entails that you have carefully read the instruction above and would like to participate. If you do not wish to participate later, you may contact me and quit this study anytime. Again, thank you very much for your interest in participating in the present study.

Signature of the participant：_____ Date：_____

Signature of the researcher：_____ Date：_____

Institute of TESOL, National Chiao Tung University

Advisor： Dr. Yu-Chih Sun, Associate Professor

Graduate： Wen-Kai Yu

February, 2009

Appendix D Interview consent form for students

訪談同意書

台灣大專院校學生在英語學習中結合使用數位課程管理系統之態度

同學您好，首先非常感謝您參與本研究，一同探討**台灣大專院校學生在英語學習上對於結合使用數位課程管理系統（Course management system，以下皆簡稱為 CMS）的看法**。我是**國立交通大學英語教學研究所**的研究生于文凱，本研究是我的碩士論文，我希望能夠藉由**面對面訪談**的方式來更加了解您對於 CMS 的態度看法，以及您在語言學習中運用 CMS 的情形。我將會與您進行**約 45 分鐘左右的全程錄音訪談**。本訪談保證沒有任何資料流出的風險，所有錄音檔都會以代碼或假名註記，並且妥善地保存。只有研究者本人在進行分析時才可讀取錄音檔，所有的錄音內容在研究結果謄寫完畢後都會予以清除。所有有關您的**個人資料都會嚴格保密**，任何私人資料都不會對外透露。

如果現在您有任何問題，煩請直接問我。若是之後您有任何問題，您可以透過手機：0925665789 或 e-mail： revolutiontmr@yahoo.com.tw 與我聯繫。如果您需要的話，您在任何時間都可以要求一份同意書的影本供您保留。

請您現在決定是否參加本研究的後續訪談，您**在以下欄位簽名**就表示您已讀過以上的說明並且同意參與。假如您之後決定不想參與，只要跟我聯繫，您就可以隨時退出本研究。再次由衷地感謝您的熱心協助，特此致上學生最誠摯的謝意。

參加者簽名：_____ 日期：_____

研究者簽名：_____ 日期：_____

國立交通大學英語教學研究所　　指導教授：　孫于智　副教授

研究生：　　于文凱

敬啟　民國九十八年二月

Interview consent form for students (Translated English version)

Exploring the use of course management system in EFL courses in Taiwan

Dear student, firstly I would like to thank you for participating in the present study and discussing Taiwanese college English learners' attitudes toward the use of course management system (CMS) in English courses. I am Wen-Kai Yu, a graduate student from the Institute of Teaching English to Speakers of Other Languages, National Chiao Tung University. The current study is my master thesis research. I hope to better understand your attitude toward CMS and how you would use it. I will conduct and record an approximately 45 minute interview. There is no risk of leaking personal information. All the recorded files will be kept intact and tagged with pseudonyms or codes. Only the present researcher can have access to the files and conduct further analyses. All the recorded contents will be completely erased upon thesis completion. All your personal information will be strictly protected without revealing any data.

If you have any question at the moment, please feel free to ask me. If you have any question after the interview, please do not hesitate to contact me at e-mail: revolutiontmr@yahoo.com.tw or mobile: 0925665789. If you desire one hard copy of this consent form, you may ask for a hard copy anytime.

At the moment, please decide whether to participate in the *post-hoc* interview of this study. Once you have signed, this entails that you have carefully read the instruction above and would like to participate. If you do not wish to participate later, you may contact me and quit this study anytime. Again, thank you very much for your interest in participating in the present study.

Signature of the participant：_____ Date：_____

Signature of the researcher：_____ Date：_____

Institute of TESOL, National Chiao Tung University

Advisor： Dr. Yu-Chih Sun, Associate Professor

Graduate： Wen-Kai Yu

February, 2009

Appendix E Interview guide for teachers

英語教師訪談問題導引 (Original Mandarin version)

編號	訪談問題
1.	請問您會如何定義數位課程管理系統？
2.	請問您對於在英語教學的課程中使用數位課程管理系統，抱持著怎樣的態度？
3.	請問您在英語教學的課程中使用數位課程管理系統的動機為何？高或低動機？
4.	請問您會如何在英語教學的課程中使用數位課程管理系統？
5.	請問您認為，對英語教學而言，數位課程管理系統有何存在的優點和缺點？
6.	請問您是從哪些教學理念為出發點，將數位課程管理系統融入英語教學當中？
7.	請問您認為，英語教師在本質上的特性跟其他學科領域的教師有何不同？英語教師的獨特性為何？
8.	請問您認為，英語教師在英語課程中使用數位課程管理系統，是否有跟其他學科相比本質性相同或是不同的融入方式，所利用到的功能，或是其背後的教學理念等？
9.	請問，以一個並沒有幫英語教學量身訂作的數位課程管理系統而言，它可以提供給英教這塊領域什麼幫助？英語教師最需要哪些功能？
10.	請問您是否有自己想過或是聽過，任何極具創意的融合數位課程管理系統到英語教學的方式？
11.	請問您認為，就系統而言，數位課程管理系統還可以如何改正，來輔助英語教學？
12.	請問您認為，就學校而言，數位課程管理系統還可以如何推廣流傳，來輔助英語教師？
13.	請問您是否還有任何對於把數位課程管理系統融入至英語教學的建議或想法？

Interview questions for teachers (Translated English version)

Number	Interview question
1.	How would you define course management system (CMS)?
2.	What kind of attitude do you hold when using CMS in English courses?
3.	What is your motivation to use CMS in English courses? Is it high or low?
4.	How would you use CMS in English courses?
5.	As to English teaching, what are the advantages and disadvantages of using CMS?
6.	What theoretical approaches do you hold when using CMS in English courses?
7.	Is there any difference between English teachers and teachers of other disciplines? What is the uniqueness of English teachers?
8.	Is there any difference between functions, personal beliefs, or the way English teachers use CMS and those of teachers of other disciplines?
9.	As for a system that is not tailored to English teaching, what can course management offer to the field of English teaching? What functions do English teachers need the most?
10.	Have you ever thought of or heard about any creative way to integrate course management into English teaching?
11.	As to the system itself, how can we further develop and improve CMS in order to assist English teaching?
12.	As for school administration, how can school administrators promote and advocate for CMS in order to assist English teachers?
13.	Do you have any recommendation or idea regarding the integration of CMS into English teaching?

Appendix F Interview guide for students

英語學習者訪談問題導引 (Original Mandarin version)

編號	訪談問題
1.	請問您會如何定義數位課程管理系統？
2.	請問您對於在英語學習的課程中老師使用數位課程管理系統，抱持著怎樣的態度？
3.	請問您在英語學習的課程中使用數位課程管理系統的動機為何？高或低動機？
4.	請問您會如何在英語學習的課程中使用數位課程管理系統？
5.	請問您認為，對英語學習而言，數位課程管理系統有何存在的優點和缺點？
6.	請問您是從哪些學習理念為出發點，將數位課程管理系統融入英語學習當中？
7.	請問您認為，英語學習者在本質上的特性跟其他學科領域的學生有何不同？英語學習者的獨特性為何？
8.	請問您認為，英語學習者在英語課程中使用數位課程管理系統，是否有跟其他學科相比本質性相同或是不同的使用方式，所利用到的功能，或是其背後的學習理念等？
9.	請問，以一個並沒有幫英語學習量身訂作的數位課程管理系統而言，它可以提供給英語學習者什麼幫助？英語學習者最需要哪些功能？
10.	請問您是否有自己想過或是聽過，任何極具創意的融合數位課程管理系統到英語學習的方式？
11.	請問您認為，就系統而言，數位課程管理系統還可以如何改正，來輔助英語學習？
12.	請問您認為，就學校而言，數位課程管理系統還可以如何推廣流傳，來輔助英語學習？
13.	請問您是否還有任何對於把數位課程管理系統融入至英語學習的建議或想法？

Interview questions for students (Translated English version)

Number	Interview question
1.	How would you define course management system (CMS)?
2.	What kind of attitude do you hold when teachers use CMS in English courses?
3.	What is your motivation to use CMS in English courses? Is it high or low?
4.	How would you use CMS in English courses?
5.	As to English learning, what are the advantages and disadvantages of using CMS?
6.	What theoretical approaches do you hold when using CMS in English courses?
7.	Is there any difference between English learners and learners of other disciplines? What is the uniqueness of English learners?
8.	Is there any difference between functions, personal beliefs, or the way English learners use CMS and those of learners of other disciplines?
9.	As for a system that is not tailored to English learning, what can course management offer to the field of English learning? What functions do English learners need the most?
10.	Have you ever thought of or heard about any creative way to integrate course management into English learning?
11.	As to the system itself, how can we further develop and improve CMS in order to assist English learning?
12.	As for school administration, how can school administrators promote and advocate for CMS in order to assist English learners?
13.	Do you have any recommendation or idea regarding the integration of CMS into English learning?