

國防大學理工學院教師自行開發之課程管理系統與非同步線上英語課程的成效評估—從學生的觀點

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摘 要

由於數位學習早已蔚為趨勢，運用課程管理系統來整合各教師的網路教學課程也早已是國內外各大學推行有年的作法。國防大學由於許多主客觀條件與一般民間大學不同，推行課程上網自有其特殊之利弊與考量。本研究於九十四學年度下學期起針對理工學院大一、大二及專二學生開設線上非同步英語課程以配合傳統課堂教學，並於課程結束後對於各班學生的使用狀況實施問卷調查，以期了解網路教學在各教師教學上的成效與學生對於使用教學平台的喜好及評價等。研究期間各英文老師製作課程簡報檔案，利用理工學院資訊系教師自行研發的課程管理系統——數位學習館——將自己所授課程上網，並依課程需要使用全部或部份數位學習館所提供的功能。學期末的調查結果顯示在 102 份有效問卷中，94%的學生認為線上非同步課程有助於英文學習。英文課使用數位學習平台最大的優點是課程資料方便取得（75%）。最大的缺點是網路使用受到限制，無法經常使用（66%）。學生最常使用的數位學習功能是講義下載，其次是參考資料下載；而他們認為對英文課最有幫助的功能也是講義及參考資料上網。50%和 34%的學生認為英文課必須或可以使用線上非同步課程來輔助學習，16%沒意見，無人反對使用。本研究對於軍事院校進一步發展結合非同步數位學習與傳統課堂教學的混合課程應具有參考價值。

關鍵字：數位學習平台、課程管理系統、非同步線上課程

Evaluating the Effects of a Faculty-Developed CMS and Asynchronous Online English Courses at CCIT, NDU --from Students' Perceptions

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Abstract

This study evaluates and analyzes the effects of three supplementary asynchronous online courses on English teaching and learning from the perceptions of students who enrolled in one of those courses during the spring semester of 2006. The courses were built on a faculty-developed course management system—Digital Learning Lab (DLL). The findings collected from a survey questionnaire given to the students at the end of the semester show that 94% of the students agrees to the helpfulness of DLL to English learning. The greatest advantage of DLL is the convenience of retrieving course documents whereas the greatest disadvantage is the limitations of web access inside the campus. The most frequently used function is downloading course handouts, followed closely by downloading reference documents. These two functions are also recognized as the most helpful tools to students' learning in English courses. A majority of the students (84%) supports the use of DLL in English courses while nobody objects to it. The experience of adopting an asynchronous online component to supplement a traditional face-to-face English class can be used as a reference for developing other blended courses at military academies.

Keywords: course management system, asynchronous online courses

Research Background

During the past few decades, blended learning has been a widespread tendency in education around the world. The altered learning environment created by web-based technologies has been challenging our traditional notions of teaching and learning (Swan, 2007). Blended learning “can be defined or conceptualized as any combination of a wide variety of technology/media integrated into conventional, face-to-face classroom activities” (Mayadas & Picciano, 2007). It has become a frequently adopted mode of online course design. Nowadays, blending an online component, either synchronous or asynchronous, into a traditional English course has been moved from an experiment to a trend at different levels of educational institution in Taiwan (Jan, 2000, 2001 & 2002; Liou, 1999 & 2001; Yu, 2001). In the meantime, course management systems or platforms used to integrate all the synchronous/asynchronous online courses or blended courses have been designed and developed by many commercial companies and universities in and out of this country (Jafari, 1999; Janicki & Liegle, 2001; Yu, 2006). Thousands of online or blended courses have been set up on various course management platforms and evaluated by their users, especially the students (Brown, Meyers, & Roy, 2003; Lin, 2000; Lin & Hsu, 2001; Spiceland & Hawkins, 2002; Vonderwell, 2003; Wegner et al. 1999; Young & Norgard, 2006). This study tries to explore the possibility of promoting asynchronous online teaching and learning at a military university in Taiwan--Chung Cheng Institute of Technology, National Defense University (CCIT, NDU)--through students' feedback.

Comparing the educational environment of a military academy with other domestic civil universities, there are some similarities as well as some differences on the development and the applications of online teaching and learning. The greatest difference is that promoting online teaching and learning in military education environment has special considerations (Bonk & Wisher, 2000). An online supplementary English course built on Blackboard's CourseSite had been implemented at CCIT in 2000 and perceived by students as a successful learning experience. However, in a following-up research paper, the teacher of that online course concludes, “To enhance the traditional classroom environment with online contents, schools have to reinforce their support to teachers or course designers, and

develop their own course management system to integrate individual courses” (Jan, 2001). Hence, a research project entitled “Establishing an Online English Lab and Asynchronous Interactive Courses for Junior College Students at CCIT” was initiated and implemented by six English teachers of the General Education Center at CCIT, NDU in 2003, but the project outcomes were still individual course websites. This paper reports the second stage of the aforesaid project in which setting up an independent sever to hold and to combine individual online English course websites into one was the utmost target. However, during the research period, the original research team went through personnel alteration and lost half the manpower, which almost obstructed the implementation. Serious difficulties were then confronted in setting up and managing a system server under the circumstances that no extra manpower can be contributed to the maintenance and management of an online lab. This forced the research team to modify their research method and purpose from setting up an independent sever to hold individual English course websites to adopting a ready-made course platform.

A course management system, which had been developed by a colleague of the Department of Information Science,¹ was then introduced to this project to serve as the platform of asynchronous online English courses. After several times of discussion and revision, a tailor-made course management system—Digital Learning Lab (DLL; see Appendix A)—which was newly modified to fit the needs of English teaching and learning, was at service at the beginning of the fall semester of 2005. Since then, the teachers have been setting their own asynchronous online lessons on this platform to supplement face-to-face classroom teaching, whereas, in the meantime, they have been checking out every function and reflecting problems to the system developer for constant improvements.

The Digital Learning Lab at CCIT, NDU

Since the Digital Learning Lab used at CCIT, NDU is not a commercial product, some of its designs and functions are simple and plain, but it includes most commonly

¹ The designer and programmer of this Digital Learning Lab is Su Kuang-yu who was a lecturer of the Department of Information Science at CCIT, NDU while the course management system was developed.

required functions of a course management system, including posting announcements, uploading handouts, reference documents, and student assignments, taking online tests, and chatting or discussing online, etc. The system is set up on a server independent from the school server which is connected to Taiwan Academic Network (TANET). When it was first open to users, it was built on an Intranet, which could only be accessed inside the campus through its URL. Later it was permitted to be linked to the Internet so that all the teachers and students could log in the URL at home or at any places outside the campus. However, due to the server's limited bandwidth, whenever data transmission overflowed, the system connection was likely to break down. Besides, because of the insufficiency of manpower, the server's management and maintenance became a problem, which sometimes would impede the normal use.

Research Purpose and Research Questions

The purpose of this research is to evaluate and analyze the effects of teaching and learning English with the information received from the users of three asynchronous English courses, which were set on the course management platform—DLL. Aiming at the results of a student survey questionnaire, this study tries to answer the questions about whether students enjoy online English teaching and learning, what attitudes students have towards the adoption of this asynchronous online component, and furthermore, what suggestions and perspectives can be brought to the university authorities' attention on the issue of developing online English teaching and learning at CCIT, NDU.

Research Method

This study aims at three required English courses offered in the spring semester of 2006, and examines the effects of course implementation by means of a surveying questionnaire (see Appendices B & C), which was given at the end of the semester to students who were taking those courses. The participants of this survey included students of three different English courses—University English II, University English IV, and College English IV. These courses were taught by three different English teachers who had been using DLL as an extra online component to accompany the

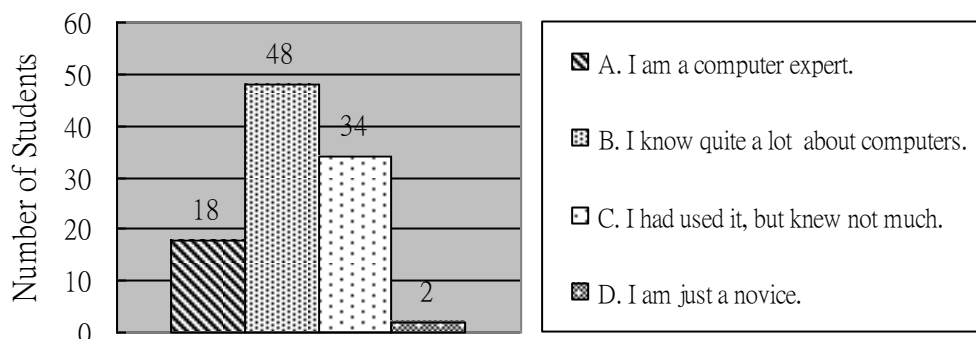
normal face-to-face English classes from January 2006 to June 2006. Except the adoption of DLL, the course materials and teaching methods used in the three English courses were different; therefore, this study would not weigh the factor of course contents. Instead, the correlations between the courses and the designs of Digital Learning Lab, including the most and the least effective and frequently used function(s), the most and the least preferred online activities, and the overall evaluation of the course and the platform, were investigated in this study. It is hoped that these English courses could be further enriched and enlivened by the addition of abundant online resources through the assistance of a well-designed platform. There were altogether 103 questionnaires received from the students. Except one incomplete questionnaire, 102 copies were valid. Forty-eight questionnaires were from students of University English II, sixteen from University English IV, and thirty-eight from College English IV. Findings and suggestions are discussed in the following sections and hopefully can be offered as references for developing other blended courses.

Findings and Analysis

The first question in the questionnaire is about students' expertise in the use of computer because the degree of familiarity with the tool might correlate with their preference for using a supplementary online component with a traditional English course. Among all the 102 valid questionnaires, 18 students considered themselves a computer expert; 48 students said they knew quite a lot about computer. About one-third of the students rated themselves as unsophisticated users or even novices (see Question 1). However, since all the students were science majors, their response might be just a modest remark. The result of the question shows a rough assumption that the students' response to the rest of the questions was unlikely to be biased by the unfamiliarity with the tool itself.

[Question 1]

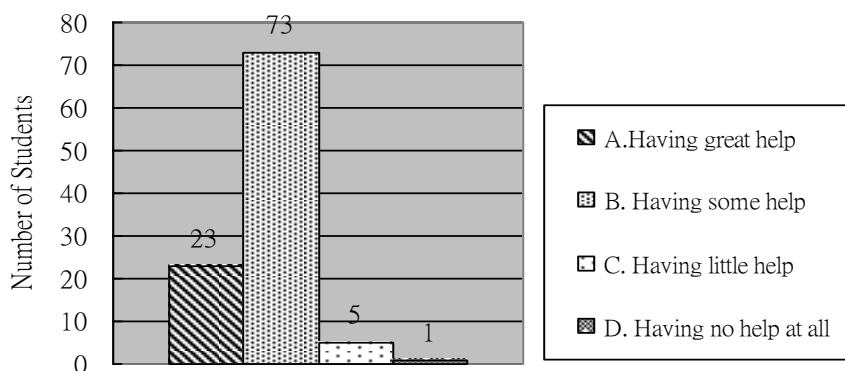
1. Which of the following can describe your experience in using computers?



The second question asked the students if DLL helped them learn in their English class. The response was very positive. Only six students claimed that DLL was of little or no help (see Question 2). Ninety-six students (94%) said DLL had had great or some help when they learned English.

[Question 2]

2. Does the Digital Learning Lab help you learn this course?

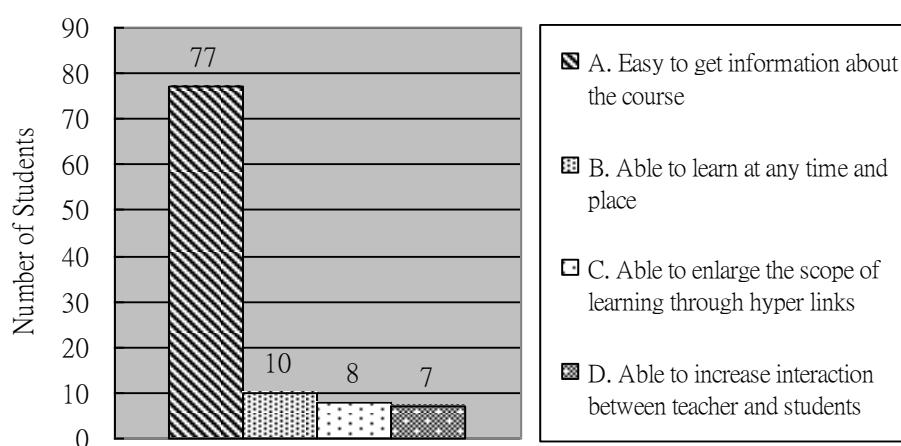


When being asked what the greatest advantage of using DLL in English course was, seventy-seven students chose “easy to get information from the course;” ten chose “able to learn at any time and place;” eight chose “able to enlarge the scope of learning through hyper links;” and seven chose “able to increase interaction between

teacher and students” (see Question 3). It seemed that convenience was the major concern of students when they used this supplementary online component.

[Question 3]

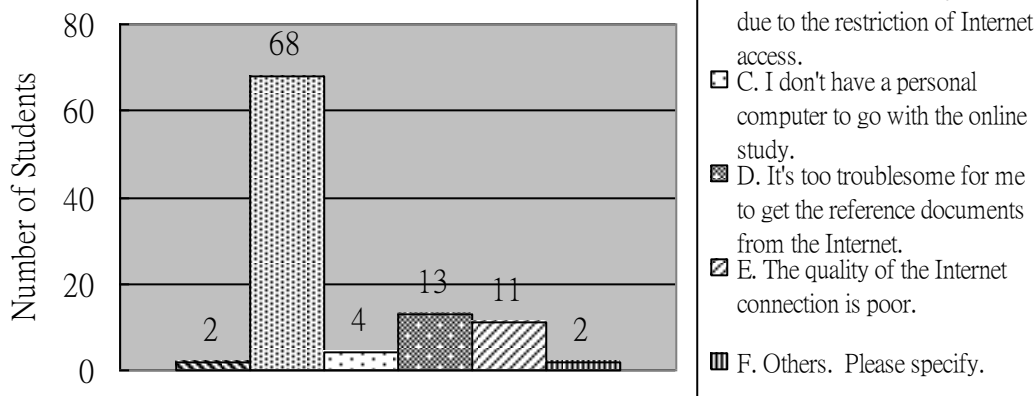
3. What is the greatest advantage of using Digital Learning Lab in English course?



The next question inquired about the greatest disadvantage or problem of using DLL. For this question, six options were offered. As expected, the second option which reads “I could not use it very often due to the restriction of Internet access” got sixty-eight ballots—almost two-thirds of the student participants. The students’ response reflected a special predicament that might only exist in military academies. Two students thought it was too complicated for them to use DLL. The result corresponds to the number of students who rated themselves a novice at computer. The other two options, poor connection quality and troublesome procedures for retrieving documents from the Internet, were selected by thirteen and eleven students, respectively. As for the last option, though it may not be utterly true or fair, two students enumerated the disadvantages of lacking remedial measures for missing passwords and lacking search engine for retrieving information inside or outside DLL.

[Question 4]

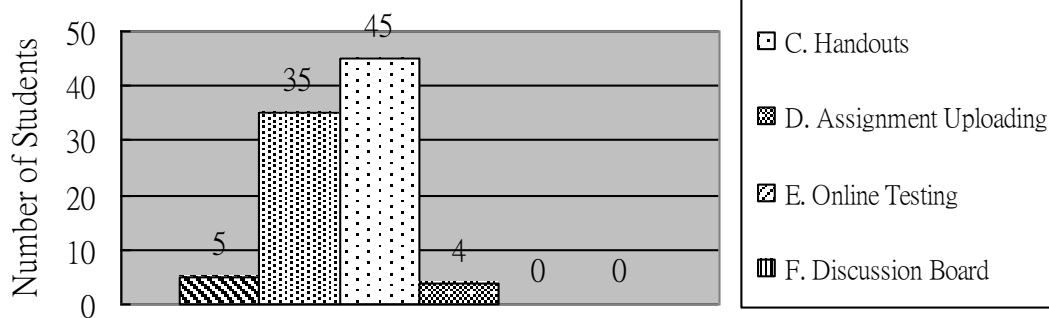
4. What's the greatest disadvantage or problem for you to use this Digital Learning Lab?



Regarding the most useful function of DLL to their study, forty-five students voted for handouts and thirty-five of them preferred reference documents. A few students thought announcements and assignment uploading were the most useful functions. No one selected online testing and discussion board at all. The result might be caused by the scarcity of use in their English classes. In fact, the students' response to the next question verified the above inference.

[Question 5]

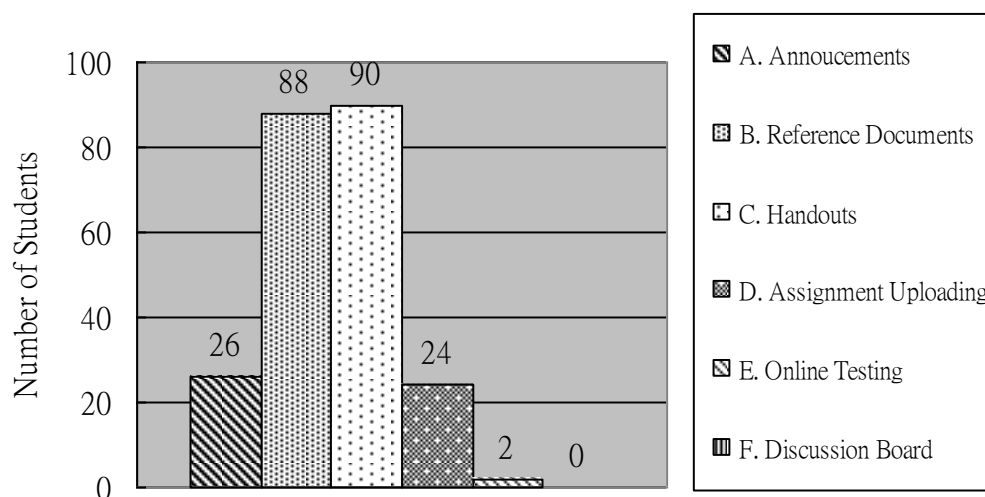
5. Which of the following is the most useful function of the Digital Learning Lab o your study?



Question 6 tried to find out the functions being used in their English course. The result perfectly corresponded to their opinions on the most useful function. This might explain why students considered handouts and reference documents were more useful than other functions, and why online testing and discussion board were considered less useful.

[Question 6]

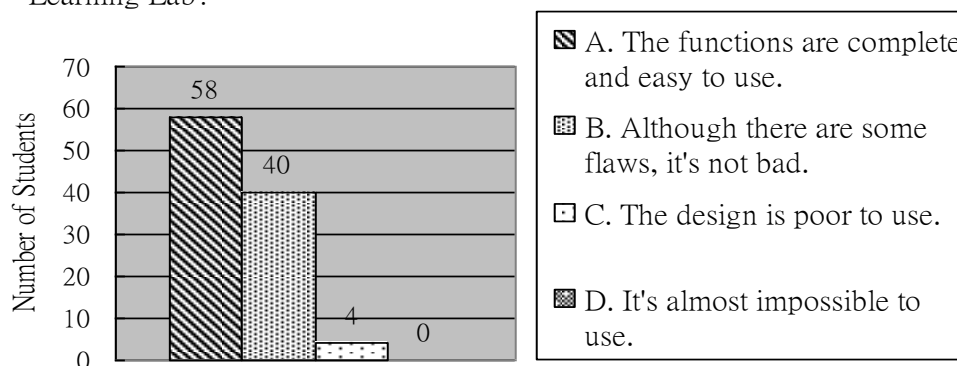
6. Which of the following functions has been used in this English course? (Choose all the functions being used.)



Next question was about students' opinions on the design of DLL. Fifty-eight students (57%) thought the functions were complete and easy to use. Forty students (39%) felt the design was not bad though there were still some flaws for improvements. Only four students (3%) thought the design was poor, but nobody thought the design was too poor to use.

[Question 7]

7. What do you think about the design of the Digital Learning Lab?



Then the students who chose the options b, c, or d were asked to specify the defects. The answers to Question 8 are summarized as follows:

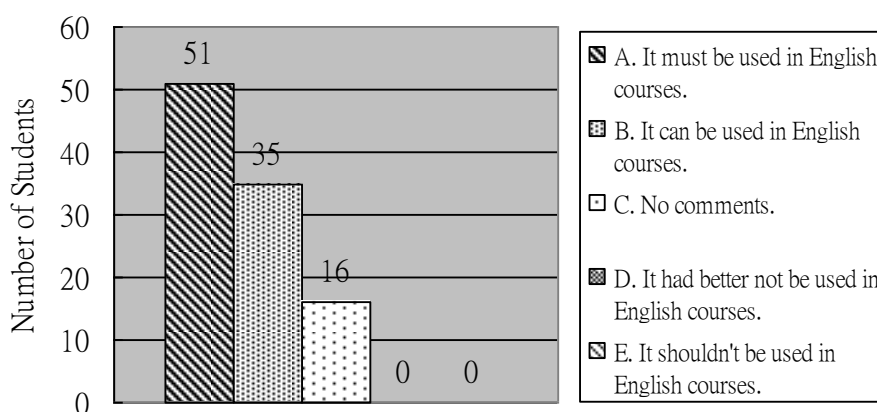
1. There wasn't a hyperlink to this website from the homepage of CCIT, NDU.
2. The content was not rich enough. Related links could be more copious.
3. This Digital Learning Lab could only be used inside the campus.
4. There was not a return notice to tell the students whether they had successfully uploaded their assignments or not.
5. Sometimes the attached files could not be displayed or downloaded.
6. To make new information clearly presented, the sorting of the uploaded documents should follow the time order, not the alphabetic order.
7. The design of the discussion board could be more interactive. Except the discussion board embedded in the webpage of each course, a public forum would offer all the students a place to share their ideas and opinions about learning English.
8. Microsoft MSN could be adopted as a tool of interaction.
9. The functions of chatroom should be improved so that students would like to use it.
10. The design of the web pages could be more exquisite and alluring.

To understand students' intention to keep using such a tool in English courses, the last question asked them whether they thought their teachers should continue to use online asynchronous component in English courses. Most students showed positive attitude towards this question. Fifty-one students (50%) chose "It must be

used in English courses.” Thirty-five students (34%) chose “It can be used in English courses.” Sixteen students (16%) chose “No comments.” No one objected to the use of online asynchronous teaching and learning. The results of this question correspond to that of Question 2. Obviously, most students preferred to keep using such a tool because it was of great or some help to their study.

[Question 9]

9. Do you think the online asynchronous teaching and learning should be used in future English courses?



From the results of the survey, students' expertise in using computer applications and their intention of learning English through the assistance of an asynchronous online course management platform were very high. Although about half of them thought the design of DLL needed to be further modified or improved, almost all the students agreed that DLL was very helpful to their English learning. It is believed that the greatest advantage and disadvantage of using DLL in an English course are the convenience of retrieving course documents and the restrictions of Internet access, respectively. For students, the most useful information retrieved from DLL was “handouts” and “reference documents” because these were the most frequently used functions in their English courses.

Among the problems pointed out by the students, the first one was about the lack of a hyperlink on the university homepage. According to the designer of the course management system, DLL was originally set up on an intranet with an independent

server; however, since web security has recently become more and more a critical issue in military academies, the maintenance engineer at the computer center was somewhat conservative about creating a hyperlink of DLL on the university homepage. Hence, users of this system had to link to the site by searching its URL address (<http://140.132.32.4>). The students' request for an easy-accessed hyperlink might not be accepted by the network management personnel of NDU due to the increasingly severe threats of Internet hacking. Being a military academy, the concern about information security was considerably higher than other civilian universities.

The second problem mentioned by the students can be taken as a reference for future improvement. Because DLL is a course management system, it only provides a platform for teachers to set up their own lessons. Therefore, course related links should be provided by each teacher and can be seen by students only after they enroll and sign in the specific course. Currently the homepage of DLL only provides several general tools to users.

The third problem was mainly attributed to students' misunderstanding or unfamiliarity with the system. In fact, DLL can be accessed from outside the campus. The connection was sometimes failed due to occasionally server shutdowns required by information security examinations. This gave the students an impression that the connection to DLL is unstable.

The fourth through the sixth defects were technical problems which should be able to be settled when the system supervisor has more time to work on them. This includes returning a message to each student when he or she successfully uploads an assignment, modifying the sorting program to arrange the documents in time order, and resetting the paths for file storing, etc.

Problems seven through nine were about the interaction among users or among students and teachers. Some students suggested the discussion board be replaced by a public forum. Others recommended Microsoft MSN as a tool of communication. All of these were good references for the programmer of DLL. One student suggested the function of chatroom should be improved; otherwise, it would fail to attract users. In fact, DLL did provide a chatroom to students, but few people had used it. As a result, this function was almost completely neglected by students while filling out the survey questionnaire. However, a good chatroom should be able to act as a public forum if the design could be further improved.

The last defect was about the outlook of the web pages, which might be re-designed later depending on the system developer's availability of time. All in all, the suggestions brought up by students would be taken into consideration when the system is modified in the future.

Conclusion

In summary, the use of DLL in English courses was welcomed by students of CCIT, NDU although some of the functions it provided still needed to be improved. Almost all the students agreed that DLL assisted their English language learning, and it should be continuously adopted in English course in the future. The findings of this study encourage the English teachers of CCIT, NDU to keep on using asynchronous online components to supplement the courses they are going to teach. However, some problems about the use of DLL have to be overcome, including limitations to the Internet access and constant server disconnection under the consideration of information security. In addition, the current function of online testing can be further developed into a major testing tool if all the language labs at the university are equipped with personal computers. Of course, more time and more manpower will be and need to be invested in the development and maintenance of a course management system like DLL. However, before then, an asynchronous online English course in company with traditional face-to-face classroom teaching and learning has been proved to be a successful model considering the results of the survey questionnaire. This experience can also be served as a reference for developing other blended courses at military academies.

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Appendix A Digital Learning Lab



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Appendix B Survey Questionnaire (Chinese Version)

課程設計與實施問卷

(以下各項問題之答案僅供任課老師參考，請據實圈選。)

- ____ 1.你使用電腦的經驗是
- a. 使用多年，已是老手 b. 已使用過一段時間，還算熟練
- c. 雖用過，但所知不多 d. 入學後才開始學
- ____ 2.你覺得本課程所使用之數位學習館對於學習
- a. 有很大的幫助 b. 有一些幫助
- c. 幫助不大 d. 一點幫助都沒有
- ____ 3.你覺得使用數位學習館最大的優點是
- a. 容易取得課程相關訊息 b. 可以隨時隨地的學習
- c. 可以透過連結擴大學習範圍 d. 能夠經由網站增加互動
- ____ 4.你覺得使用數位學習館最大的缺點或問題是
- a. 使用程序複雜難懂
- b. 使用電腦受到限制，無法經常上線學習
- c. 沒有個人電腦，難以配合學習
- d. 必須自行上網取得參考資料，十分麻煩
- e. 連線品質不佳，經常斷線
- f. 其他(請說明_____)
- ____ 5.你覺得數位學習館中哪一項功能對你的學習最有幫助？
- a. 公告欄 b. 參考資料 c. 講義
- d. 作業上傳 e. 線上測驗 f. 討論區
- ____ 6.數位學習館中哪些功能在本課程內有被使用(可複選)？
- a. 公告欄 b. 參考資料 c. 講義
- d. 作業上傳 e. 線上測驗 f. 討論區
- ____ 7.你覺得目前數位學習館的設計
- a. 功能完整好用 b. 雖有些缺點，但尚算好用
- c. 設計不甚好用 d. 十分難以使用
- (選 b, c, d 者，請繼續作答；選 a 者，請跳至第 9 題)
- ____ 8.請列舉數位學習館設計上的缺點：
- _____
- ____ 9.你希望未來的課程繼續配合網路教學嗎？
- a. 非常希望 b. 還算希望 c. 沒意見 d. 不太希望 e. 不希望

Appendix C Survey Questionnaire (English Version)

[Your response to the following questions will only be provided to your teacher as a reference, not for any other purposes.]

- _____ 1. Which of the following can describe your experience in using computer?
- A. I am a computer expert.
 - B. I know quite a lot about computer.
 - C. I had used it, but knew not much.
 - D. I am just a novice.
- _____ 2. Does the Digital Learning Lab help you learn this course?
- A. Having great help.
 - B. Having some help.
 - C. Having little help.
 - D. Having no help at all.
- _____ 3. What is the greatest advantage of using Digital learning Lab in English course?
- A. Easy to get information about the course.
 - B. Able to learn at any time and place.
 - C. Able to enlarge the scope of learning through hyper links.
 - D. Able to increase interaction between teacher and students.
- _____ 4. What's the greatest disadvantage or problem for you to use this Digital Learning Lab?
- A. It's too complicated for me to use.
 - B. I couldn't use it very often due to the restriction of Internet access.
 - C. I don't have a personal computer to go with the online study.
 - D. It's too troublesome for me to get the reference documents from the Internet.
 - E. The quality of the Internet connection is poor.
 - F. Others. Please specify.
- _____ 5. Which of the following is the most useful function of the Digital Learning Lab to your study?
- A. Announcements
 - B. Reference Documents

- C. Handouts
- D. Assignment Uploading
- E. Online Testing
- F. Discussion Board

_____ 6. Which of the following functions has been used in this English course?
(Choose all the functions being used.)

- A. Announcements
- B. Reference documents
- C. Handouts
- D. Assignment Uploading
- E. Online Testing
- F. Discussion Board

_____ 7. What do you think about the design of the Digital Learning Lab?

- A. The functions are complete and easy to use.
- B. Although there are some flaws, it's not bad.
- C. The design is poor to use.
- D. It's almost impossible to use.

_____ 8. If your answer to the above question is B, C, or D, please enumerate the defects of the Digital Learning Lab.

_____ 9. Do you think the online asynchronous teaching and learning should be used in future English courses?

- A. It must be used in English courses.
- B. I can be used in English courses.
- C. No comments.
- D. It had better not be used in English courses.
- E. It shouldn't be used in English courses.

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