行政院國家科學委員會補助專題研究計畫成果報告
期末報告

科技中介英文學習：結合數位敘事與虛擬實境應用的學習成效研究

計 畫 主 持 人 ：鍾良怡

計畫參與人員 ：大專生-兼任助理人員：陳虹佑
　　　　　　　　大專生-兼任助理人員：蘇冠華

中 華 民 國　103 年 01 月 30 日

中文摘要： 本計畫從情境認知與經驗學習的觀點出發，運用數位敘事題材與虛擬實境網路平台作為英文學習的科技媒介，從學習者主體性角度切入，探討科技中介英文學習的成效。本研究的議題包含兩個主軸，(1)觀察並分析融合數位多媒體內容的英文數位敘事題材是否可以提升科技中介學習的語言認知，(2)探究虛擬實境中所建構的語言互動環境是否可以強化科技中介英文學習的動機與態度。本研究以技職院校學生為研究對象，以經驗學習為架構採取三階段進行，分別為「網路數位敘事英文學習媒介」、「虛擬實境網路平台學習體驗」與「虛擬實作數位敘事反思」。研究方式包含問卷、訪談與網路學習平台資料紀錄，希望透過量化分析與質性探究，提供深度結果闡釋。根據研究分析結果，多媒體內容的英文數位敘事題材不僅可以增進學生的所學習語言的認知，同時也能推動學生進行高層次的學習思考。研究結果也顯示虛擬實境學習環境則有效提升學生的英語學習興趣，並且對語言學習產生正向與積極的學習態度。

中文關鍵詞： 科技中介學習、虛擬實境、數位敘事、英語教學

英文摘要：

英文關鍵詞：

行政院國家科學委員會補助專題研究計畫成果報告

（□期中進度報告/■期末報告）

科技中介英文學習:結合數位敘事與虛擬實境應用的學習成效研究

計畫類別：■個別型計畫　　□整合型計畫
計畫編號：　NSC 101-2410-H-263 -005 -
執行期間：101 年 8 月 1 日至 102 年 10 月 31 日

執行機構及系所：致理技術學院應用英語系

計畫主持人：鍾良怡
共同主持人：
計畫參與人員：

本計畫除繳交成果報告外，另含下列出國報告，共___1___份：
□執行國際合作與移地研究心得報告
■出席國際學術會議心得報告

期末報告處理方式：
1. 公開方式：
　　□非列管計畫亦不具下列情形，立即公開查詢
　　■涉及專利或其他智慧財產權，□一年■二年後可公開查詢
2.「本研究」是否已有嚴重損及公共利益之發現：■否 □是
3.「本報告」是否建議提供政府單位施政參考 ■否 □是，____（請列舉提供
　　之單位；本會不經審議，逕予轉送）

Technology-mediated English learning: a probe into the integration of digital narrative and virtual reality applications on learning effectiveness

Abstract

Computer-assisted language learning model is no longer simply integration of multimedia audio-visual materials, but a language network using information technology as a medium that combines learning with network resources to create an authentic and interactive learning environment. This present project aims to explore the learning effectiveness of technology-mediated learning from two perspectives: situational awareness and experiential learning. Digital narrative and virtual-reality online platform serve as the technology medium to be examined from two aspects: (1) to observe and analyze whether digital English narrative materials integrating multimedia content can enhance technology-mediated language awareness; (2) to probe into whether the constructed language interactive environment in virtual reality can reinforce the motivation and attitude of technology-mediated English learning. In this study, research subjects consist of students from an institute of technology. The experiment builds upon the experiential learning framework put forward by Kolb (1984) to be conducted in three phases, i.e. online digital narrative English learning medium, virtual reality online platform learning experience, and virtual digital narrative reflection. The research methods include questionnaires, interviews, and online learning platform records. It is hoped that through quantitative and qualitative analyses, in-depth interpretation of the results can shed light on the English learning effectiveness of using technology as a medium, offering evidence of a casual relationship for follow-up research on information technology and language education.

Keywords: Technology-Mediated English Learning, Digital Narrative, Virtual Reality

1. Introduction

Information technology is fast-forwarding the digital movement in higher education. A series of paradigm shifts in teaching and learning have paved way for learner-centered learning instead of the conventional teacher-centered instruction, steering the narrow context of knowledge development towards diverse situation- and skills-oriented multiple intelligences, and from conventional classroom instruction to digital learning without spatial limitations. Such learning paradigm shift has given rise to the emphasis on autonomy as well as self-directed and self-controlled skills and has accentuated the role of technology, evolving from mere supporting hardware to an important learning medium. Technology mediated learning (TML) is undoubtedly an inevitable trend in the digital era. Growing along with innovative instructional technology and network resources, TML applications have seen more diversity, e.g. online platforms for synchronous (video, instant messaging, etc.) or asynchronous (online discussion forums, e-mail, etc.) learning. The introduction of new tools has also changed the way TML is executed. For example, the use of Wiki, Plurk, YouTube, Facebook and sites allow learners to acquire knowledge via social networking. Moreover, the digital native generation practically grew up with technology, which makes the cyberspace a natural setting for TML.

Research purposes

Under the fast-changing development and progress in technology, tools derived from the technological advances are not only morphing our habits, but also transforming the teaching and learning modes. Studies have shown that technology contributes to more than collaborative learning. The advantages of TML in the Internet age can offer learners channels to break beyond the constraints of time and space, learn according to individual needs, immediately apply things learned and ultimately promote lifelong learning (Johnson, Smith , Wills, Levine & Haywood, 2011).According to Alavi and Leidner (2001), technology mediated learning consists of two levels: (1) learners acquire knowledge from the constructed information technology environment; and (2) learners learn through communication with teachers and/or peers using electronic technology. Both levels are representative of learner-centered learning. In short, TML means learners are no longer just passively observing or receiving information, but are able to control their own needs and participate in the learning process. Such learning concept is making its way in the field of language instruction, where TML allows course design to shift from focusing on instruction to the construction of a suitable learning environment presented with authenticity and interactive features (Jonasson & Land, 2000).At present, the application of TML in English learning takes on many forms, such as computer-assisted language learning (CALL), Virtual School, and a variety of language learning multimedia systems (Vickers, 2007).

Computer Assisted Language Learning (CALL) is the most typical mode of TML, where the curriculum and course materials are integrated with network resources and learning software to assist in the learning of language arts, i.e., listening, speaking, reading and writing. CALL applications have experienced different stages of development thanks to the advances in instructional technology. In the earlier years, self-learning was primarily done using computer language software, where the feature of human-computer interactions was later added to allow language learners to communicate with the computer. Then, the rise of the Internet enlarged the scope of CALL to utilizing network resources and online platforms to bring about diverse online learning modes. On another note, technology-mediated English learning is a reflection of digital media development, especially in the Web 2.0 era where online sharing of audiovisual resources is revolutionizing the way English is learned. Online platforms such as YouTube, TED, iTunes U are broadening the content of English learning, and more importantly, making the learning process more authentic. Fueled by 3D computer simulation and virtual reality technology in recent years, a virtual world capitalizing on authentic learning environment that provides a highly collaborative and immersive experience is launching technology-mediated English learning into a new territory.

Research questions

Internet has been widely used in various fields of educational learning, while the derived digital tools act as an important medium. Take English learning for example, computer-assisted language learning or CALL, as defined earlier, has been given new interpretations owing the development of Internet technology. In 2000, Kern and Warschauer incorporated network resources into language learning, and redefined "computer-assisted language learning" as "network assisted language learning." Various studies continue to explore online language learning applications, examining English learner's strategies in autonomous learning, learner's participation in online social activities, and language usage in online discussions (Liu, 2007). Previous research findings indicated that network information can effectively promote learner motivation and thus enhance language learning effectiveness (Warschaucer, 1996; Kohn, 2001; Fotos & Browne, 2004).These studies have attempted to correlate network technology and language learning, but they have overlooked

the internal conversion of learners in the learning process and the effectiveness of language cognitive learning in network technology-mediated language learning environments. Therefore, to delve into technology-mediated learning in depth and in breadth, this study employed online virtual reality as a TML environment, where digital media narratives are the medium through which the learning outcomes of technology-mediated English learning were investigated from the perspective of the learners. Research questions are presented as follows.

1. Can English language narratives integrated with digital multimedia content enhance the language cognition in TML?
2. Can an interactive language environment created with virtual reality strengthen technology-mediated English learning motivation and attitude?

2 Literature Review

Virtual-reality-enhanced learning encompasses both virtual and real-life situation interactions, bringing promising potential to education. Studies and the development of applications further facilitate the applicability of virtual reality in the field. In terms of language instruction, virtual reality generates a real-time simulated and interactive learning environment, which gives users a sense of immersion in language learning to engage their interest and motivation to learn. Another learning mode rising with the Internet is the application of network digital multimedia narratives. For instance, YouTube is an iconic video-sharing platform that provides a wide range of digital audio narratives. The construction of digital contents through digital narratives is a trend and represents an integral part of digital learning. Online digital narratives are often used in language learning, since they combine websites, videos, animations, databases and other digital resources to enable a broader content of language that is similar to real life. In addition, multimedia presentation can encourage interactive and proactive learning. The following section will analyze and summarize relevant literature as the theoretical basis for this study.

Learning mechanism of situated cognition

Situated cognition is a term first proposed by Brown, Collins & Duguid (1989), advocating that knowledge exists in contexts and authentic situations, where learners must take the initiative and interact with the situation to extract the knowledge context, and construct their own knowledge from the said context. In other words, knowledge is present in the situation context and learners must learn the significance and usefulness of knowledge through participation in the learning process and exploration of learning materials (Lave & Wenger, 1991; McLellan, 1996).Instructional design for situated cognition includes the application of learning activities and resources, with an emphasis on interactive participation and sharing so that learners are engaged in core participation rather than peripheral participation (Winn, 1993).The concept of situated cognitive learning is built upon "immersive" learning in authentic , real-life or simulated situations, and the creation of an interactive learning environment for learners to construct knowledge on their own.

With the scaling of information technology advances and development in the application of instructional media, situated learning model now has wider implications. The use of multimedia effects generated by lifelike computer simulated scenarios make possible learning environments that can be constructed to represent real or virtual situations, in which learners acquire knowledge in the context of computer-generated multimedia setting. Harley (1993) believed that an interactive online learning environment grants users more mastership which encourages learners to take initiative in the exploration and construction of knowledge.

McLellan (1994) further pointed out that virtual reality technology enables interactive virtual situations as a learning tool for immersive experience. Learners are given the power to think about the content and discuss materials with others in a virtual reality environment, from which the knowledge acquired in situated learning can be incorporated into daily lives, attaining higher levels of learning transference.

Virtual-reality learning applications

As its name implies, virtual reality (VR) is "a simulated reality" created by computer technology, a make-believe virtual world users "believe" they are in. Virtual reality is more than a hardware system (Riva, 1999), it is a dynamic environment and an interface designed with communication features to allow learners to have direct interactive experience with information and materials (Sarava & Jones, 1996).VR acts as a medium linking cyberspace, the real world and the user; it provides a unique learning environment that permits learners to proactively interact with, offering an adaptive approach for learners who prefer to learn from feeling or by doing. According to Bricken (1990), incorporating virtual reality in teaching can help students learn in the context of experience, which serves as a natural interface between the real world and abstract logic, and help students learn beyond textbook knowledge in further developing more flexible and suitable learning strategies.

There is considerable room for development for virtual reality in the construction of language learning environment, particularly in immersive and exploratory situated learning. The use of virtual reality in language learning creates life-like real-world simulations for the senses, and also integrates virtual and actual learning contexts to offer an interactive learning mode that effectively enhances learner's interest in learning and produces improved learning outcomes. In addition, the development of games integrating virtual context with network resources enables learners to interact and learn language with virtual avatars, motivating and promoting language cognition. Second Life, an online platform that offers a language learning environment rendered in 3D virtual world, is widely used nowadays, providing practical language learning virtual scenes and materials for an immersive experience. Second Life uses 3D animation technology to create a virtual-reality environment, in which avatars are personified to let users interact in virtual scenes as a simulation of real life through virtual objects. For example, English learners can use their Second Life avatars to establish authentic communication with English native speakers (Swelley, 2008), and to interactively carry on language and cultural exchange with different avatars (Hislope et al, 2008; Thompson & Garetty, 2009).In recent years, Second Life has garnered much attention in language education research, where studies have explored how the virtual reality environment can be combined with language learning. According Ritzema and Harris (2008), Second Life simulated courses can effectively help learners learn, and its dynamic and interactive characteristics can help boost learning. This present study examines the effectiveness of English learning in this technology mediated learning environment.

Digital narrative learning

Digital narrative is also known as multimedia narrative, a form of presentation in this digital age. Narrative takes the form of stories as a schema for organizing information (Polkinghorne, 1988). Traditional narratives are usually text-based or spoken, while digital narrative presents the stories in digitized content, containing the elements of texts, images, animations, videos and hyperlinks, among other digital media applications (Ohler, 1998).Digital narrative features more diversified presentation and can be accessed via

online multimedia platforms, facilitating interactions with the readers (Freidus & Hlubinka, 2002).Take for instance, the talks on TED are each on their own a story in the form of spoken narrative, but the use of digital photos and audiovisuals brings more depth and dynamic to the stories so that they resonant with the audience, getting the take-home message across. The TED website offers a number of neat tools, such as subtitles, language translation, video size options, presenting interactive hypermedia to make learning more convenient.

The integration of digital narrative with information technology and social networking learning is expanding into various fields of education (Lambert, 2007). According to Barrett (2006), course materials incorporating digital narrative can effectively consolidate learning strategies and strengthen the quality of learning. In language learning, digital narrative materials not only enhance the interest and motivation in language learners, but also provide opportunities for constructing language contexts (Dickinson, 1995; Warschauer, Turbee & Robert, 1996).Shelly & Cunter (2006) also pointed out that digital narrative can materialize abstract learning contents to help learners improve language cognition and make learning more interesting. Currently, the majority of studies on digital narrative in language instruction emphasize on the design and application of multimedia materials, while digital-narrative-mediated language learning is less discussed. Therefore, this study aims to observe cognitive learning process in language learners using online digital narratives as the materials.

3. Research Methods

Triangulation method proposed by Patton (2002) was utilized in the data collection and verification, including questionnaires, interviews, collection of learning portfolios. Both quantitative and qualitative data analyses were in place to enable in-depth exploration. Quantitative research tools included a learning motivation scale and a technology-mediated English learning satisfaction survey. The former was developed from the Strategies for Learning Questionnaire (MSLQ) from Pintrich, Smith, Garcia and McKeachi (1993) to understand the learning motivation of the test subjects in a TML environment. The latter was compiled with reference to Bolliger and Martindale (2004), in a bid to understand the satisfaction ratings of the subjects to technology-mediated English learning. Qualitative investigation involved group interviews and learning portfolio collection. After the end of each learning unit, group interviews were conducted to have in-depth understanding of the subjects' feeling of learning achievement. Learning portfolio collection included works posted by the subjects and their conversation records on the platform. Compiled and analyzed, their works and web records served as the observation basis for language cognition and learning process.

The test subjects comprised of students at an institute of technology in Taiwan. Convenient sampling involved the selection of two classes of students from which the researcher works; a total of 100 students participated in the experiment. Since the digital narratives used in this study were set in English, and with the virtual reality online platform adopting an English user interface, the students must be equipped with basic English proficiency. After evaluation, sophomore students majoring in English taking a reading class were enlisted to be the test subjects. The experiment was divided into three phases. The first phase was an online digital narrative learning medium test, where student's acceptance of English digital narratives was examined by incorporating online digital media as learning materials; the correlation between English digital narrative and language cognition was also explored. The second phase was a virtual reality online platform learning experience test, in which the digital narratives in the first phase were constructed on Second Life, a virtual reality platform, for students to interact with other avatars in various virtual scenarios; student's learning

attitude was investigated by observing their interactions in the virtual world. The third phase was a digital narrative reflection test, where virtual reality and English digital narrative learning were probed; hands-on virtual reality experience was utilized as a way to reflect on the digital narratives, so that students would be able to authenticate their virtual learning experience into concrete understanding.

3.2 Research Design

The framework of this study was designed based on the experiential learning circle (Fig. 1) put forth by Kolb (1984). The two dimensions of the learning process, namely (1) abstract and concrete understanding and (2) conversion between proactive learning and reflection, were integrated into the three learning phases as the basis for observing technology-mediated English learning in this study Based on Kolb's learning theory, this study was designed to record the learning process of test subjects in technology-mediated learning through linking experience, feeling, cognition and behavior. The three phases are described as follows.

Phase I: Online digital narrative English learning

Online digital narrative English learning was mainly adopted to observe its assistance in students' knowledge transference. In this study, the TED website, standing for Technology, Entertainment, and Design, was chosen as the source of digital narratives; TED talks are digital contents accessible online. In addition, TED talks are delivered in English as the main narrative language, covering a variety of topics that are novel and inspirational. Invited speakers often deliver their speeches similar to narrative storytelling to convey their message, complemented with multimedia contents, e.g. audiovisuals, media reports, images and statistics, during the talk to diversify the narrative presentation and create linkages and interactions. Taking into consideration students' English proficiency and familiarity with the content, "Teach every child about food" delivered by Jamie Oliver at TED 2010 was selected as the material of online digital English learning narrative.

Jamie Oliver's TED talk was characterized by features of digital contents, including both multimedia materials and interactive narratives, and the presentation was delivered in a manner that students would have little trouble comprehending the English and would be able to produce a direct response. In the first phase of the test, all the students were required to watch Jamie Oliver's Ted speech. Students were asked to start a digital narrative search based on the Oliver's opening remark: "In the next 18 minutes when I do our chat, four Americans that are alive will be dead from the food that they eat.", since these so-called four Americans also have their own digital narrative clips to present their stories. When the students were watching these online digital video narratives, the cultural background, values, perspectives, and language expressions would all be factors that influence students' learning experience. These experiences were initially examined by the technology-mediated English learning attitude questionnaire, and interviews were arranged based on the results to glean into students' English comprehension and learning process from digital media narratives.

Phase II: Virtual reality online platform learning experience

Virtual reality online platform experience was mainly in place to explore the first dimension of the learning process, i.e., abstract and concrete understanding, through two different and corresponding experiential processes. In the second phase, students would produce an immediate feeling of learning English from the English concepts acquired in the first phase and from role-playing avatars in the virtual platform,

thereby actualizing the learning feeling. This phase involved using Second Life as the virtual reality platform and the use of previously constructed online virtual scenarios for avatars to interact with one another. Students would create their own avatars in Second Life as their virtual character, where life-like interactions can be completed in a virtual situational context, such as dialogue, scene change, or exchange of objects. In addition, to enhance the realism of the virtual world, students were given the chance to use various technical resources in Second Life, including sound recording, image capture, character role setting, image file search, scene conversion tools, all of which were done on an English interface. In other words, students began using English once they entered Second Life, which would help them master English in the virtual space and beyond. The data collection in this phase included student's interaction records as the basis for further analysis, as well as a learning motivation scale questionnaire to probe into students' attitudes in learning English.

Phase III: Outcome reflection of digital narrative

Digital narrative reflection was in place to understand the second dimension of the learning process: conversion between proactive learning and reflection. The objective of this study was to re-examine the learning process of technology-mediated learning and its effectiveness from the perspective of English learners. Therefore, besides the learning motivation questionnaire and interviews, an important objective was the exploration of the development of conscious learning, understanding, imagination and thinking during the technology-mediated learning process. For this reason, the third phase involved students presenting their virtual reality and digital narrative experiences through the means of multimedia narratives. Narrative is an organized schema of expressing inner thoughts in the form of storytelling (Polkinghorne, 1988), and digital narrative is the addition of digital multimedia content and audiovisuals into the story. Unlike the first two phases where focus was drawn to individual learning styles of learners, the third phase pooled together students in groups of ten to produce their digital narrative reflection works. Having a team of people who went through the same learning experience, students could together explore and reflect on the learning process, inspiring deeper level of cognitive learning and thinking.

4. Results and Discussion

This study aims to explore the learning process and cognitive language learning effectiveness under technology-mediated learning environment. The findings and discussions are presented as follows:

1. Positive and proactive feedback

The results from the course feedback survey show an absolute majority of participating students give positive perceived satisfaction on online digital narrative for English learning. First, in terms of the use of digital narratives benefiting perceived learning, more than 80% of students indicate that they can indeed strengthen "interest in learning the topic" and "reinforce the understanding of content knowledge"; more than half of the students believe that they can enhance "language consciousness." In terms of the overall satisfaction for the learning activities on the online virtual reality platform, half of the students are satisfied with the peer-to-peer interactive "virtual role-play", over 50% of the students are satisfied with "language communication with other avatars", while over 70% show satisfaction on the instructor's language guidance and feedback in the virtual reality environment.

Over 70% of students attribute "diverse multimedia content presentation" to the beneficial effects of online digital English learning narrative, while more than 60% of students consider the enlightenment from hands-on operation, discussion, coordination and interaction with classmates to be the attribution. In addition, feedback from the students show that online digital narrative has positive impact on English learning, including language expression, syntactic comprehension and learning strategies. On the whole, more than half of the students perceive the use of digital narrative to have a positive influence on English writing. In addition, in terms of interactive virtual reality, constructed context language usage and interaction with avatars give students opportunities to carry out language communication through discussion, coordination and interaction.

2. Effectiveness of multimedia language cognition

Students in this study indicate that the integration of hands-on virtual reality in digital narrative English learning can increase their frequency in communicating in English and carry on authentic English dialogues, all the while promoting self-reflection and enlightenment. From the digital narrative reflection, most students show improvement in English syntactic cognition and language application, particularly when they are role-playing as avatars on the virtual platform, where they are actively engaged in discussions and producing feedback. This result is in line with previous literature: virtual interactions can enrich the content of language learning and enhance verbal communication skills (Xiao & Lucking, 2008); and the "interactivity" feature of online virtual reality users enables teamwork development (Coyle, 2007). The avatars in Second Life offer the element of "interactivity" for users in learning English.

Overall, more than 60% of students in the study note that the incorporation of digital narrative in virtual reality English learning activities has a positive meaning in situated learning. The fusion of multimedia and online virtual environment facilitates the development of peer cooperation and horizontal learning, promoting self-reflection and enlightenment in students. The findings of this study resonate with previous studies: peer assessment shifts the learning focus from the teacher to the students, thus enhancing autonomous learning, language cognition and higher-order thinking. As Vygotsky puts it, foreign language learning can inspire the development of higher-order thinking, but "learning" cannot be equated as "development", because only by doing learning activities that transform higher-order thinking can development be made possible (Vygotsky, 1981). Preliminary feedback evidences that language learning using digital narrative materials not only builds peer collaboration, but also improves students' language thinking ability. Virtual reality learning environment has proven to exert a positive influence on students' English learning motivation, but whether it can promote the development of language cognitive performance remains to be further explored.

國科會補助專題研究計畫出席國際學術會議心得報告

計畫編號	NSC 101-2410-H-263 -005 -
計畫名稱	科技中介英文學習:結合數位敘事與虛擬實境應用的學習成效研究

出國人員姓名	鍾良怡	服務機構及職稱	致理技術學院助理教授
會議時間	102 年 4 月 26 日至102 年 4 月 28 日	會議地點	日本大阪

會議名稱	（中文） 科技在課室教學的應用亞洲研討會 （英文） Asian Conference on Technology in the Classroom
發表題目	（中文）科技中介英文學習:結合數位敘事與虛擬實境應用的學習成效研究 （英文） Technology-Mediated Language Learning: A Study on the Effect of Digital Narrative and Virtual Reality in English Learning

一、參加會議經過

1. 會議簡介

    ACTC 國際研討會(Asian Conference on Technology in the Classroom)是由 The International Academic Forum 籌辦。The International Academic Forum 是英國與日本兩國的教育學者所創辦,成立目的主要是從國際化 (international) 、跨文化（intercultural）、與跨領域（interdisciplinary）三層面探討國際教育的發展。The International Academic Forum 於 2011 年首次在日本舉辦ＡＣＴＣ國際研討會,希望提供亞洲國家數位教學產業、研究人員及學校教師一個互動交流的機會。首次會議獲得與會之數位學習專家、業界代表及學界教師的熱烈迴響,之後每年定期在日本舉辦。

    第三屆 ACTC 國際研討會於 2013 年 4 月 26 日至 28 日舉行,會議地點為日本大阪 Ramada Hotel 會議中心,研討會為期三天,邀請學界專家與傑出的產業人士進行論文發表及交流。本研討會的主軸為教育科技在課室教學的應用,研討議題包含數位學習的科技發展與教育科技理論實務現況透過 Interdisciplinary、Learning Strategies、Innovative Language Teaching and Learning Methodologies、Bilingualism、Individual Differences、Language Education 與 Multimedia 等七個 symposium 進行論文研討,而參與的學界專家與產業人士來自 40 多個國家,論文發表件數約 400 篇。
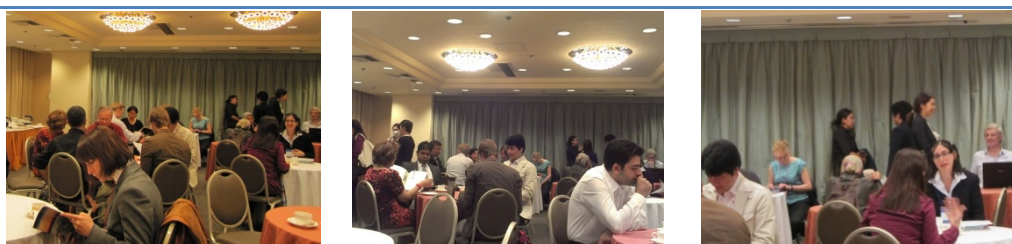
2. 會議經過概述

    (1) 第一天會議議程(2013/4/26)-報到領取會議手冊與歡迎餐會:
        由於本次會議參與者眾多,主辦單位在會議正式開始之日,特別舉辦歡迎餐會,讓來自不同國家的學界專家與產業人士藉由用餐的機會進行交流,增進彼次的聯繫與認

識。同時，也利用餐會的時間讓各議程主席分別致歡迎詞，並簡單的描述各主題議程的籌辦經過與論文收稿審閱的情況。歡迎餐會進行約 2 小時，結束前主辦單位安排表揚本次會議遴選出具有卓越貢獻的論文，讓歡迎會更加有意義。

(2) 第二天會議議程(2013/4/27)-參與會議各項主題之論文發表：
本次的會議論文發表篇書眾多，大會以七個 symposium (Interdisciplinary、Learning Strategies、Innovative Language Teaching and Learning Methodologies、Bilingualism、Individual Differences、Language Education 與 Multimedia) 分別進行論文研討，每個 symposium 安排 6 至 9 個場次的口頭發表，分為兩天在不同時段與會議室舉行，而同時間另有其他議程一起進行。本人的論文歸屬 Innovative Language Teaching and Learning Methodologies，被安排在 4 月 28 日上午 12:00 場次發表。因此，利用 4 月 17 日的時間，聆聽其他專家學者的論文發表並參與學術座談交流會。

圖一：筆者參與學術交流座談會

(3) 第三天會議議程(2013/4/28)-論文發表並進行學術研討交流：
本人的論文被安排於本日的首場，進行口頭報告論文研究分享。本場次共有 3 篇論文發表，論文內容主要以科技融入語言教學的創新教材研究。報告的時段是在上午 9 點鐘時段，與會的人數約 25 人。本人的論文主要探討結合數位敘事與虛擬實境的英語教學之應用及其成效研究，報告內容引起會場許多從事語言教學研究的學者之興趣，紛紛提出相關的論點進行學術交流。

圖 2. 筆者參與會議與論文報告

二、與會心得

ACTC 國際研討會(Asian Conference on Technology in the Classroom)至今已舉辦三屆，每一屆都將當前教育科技的發展趨勢融入在教學研究與產業實務的議題中，讓參與者可以透過論文分享與學術交流，增進相關的學理知識與實務體認。本次的研討會，本人全程參與 Innovative Language Teaching and Learning Methodologies 領域的論文發表，藉由來自不同國家發表者的口頭報告，深刻的體認到數位科技與創新教學的結合儼然已成為各國教育革新潮流，不管是教學單位或是產業機構都投入相當的心力與資源在數位學習環境的開發與數位教材製作上，而培養學生數位媒體創意及工具應用的能力也成為當前數位教學的主要目標。此外，這次 Innovative Language Teaching and

Learning Methodologies 特別將部分技術層面的研究納入,許多有關創新教育科技的報告也讓人印象深刻。身處在數位學習的時代,運用科技融入教學已成為教師上課必備的技能,同時也是教學過程中不可或缺的輔具。

三、考察參觀活動(無是項活動者略)
　　此次會議並無任何參觀活動

四、建議
　　近年來國內在數位學習環境的建構與數位教材的研究上不斷地提升與突破,不管是在實務面的產業開發或是學術面的研究成果,都深受國際肯定。補助學者參與國際會議,不僅促進我國產學界與國際間學術交流與學習,同時也能激發國內相關研究的靈感與視野。感謝國科會提供研究學者出席國際會議的補助機會,相信對於國內研究風氣的提升及國際合作交流的媒合,會有相當程的助益。

五、攜回資料名稱及內容
　　會議攜回 2013 ACTC 國際研討會會議議程冊一本。

國科會補助專題研究計畫出席國際學術會議心得報告

<div align="right">日期：<u>103</u> 年 <u>1</u> 月 <u>31</u> 日</div>

計畫編號	NSC 101-2410-H-263 -005 -
計畫名稱	科技中介英文學習:結合數位敘事與虛擬實境應用的學習成效研究

出國人員 姓名	鍾良怡	服務機構 及職稱	致理技術學院助理教授
會議時間	102 年 4 月 26 日至 102 年 4 月 28 日	會議地點	日本大阪

會議名稱	（中文）　科技在課室教學的應用亞洲研討會 （英文）　Asian Conference on Technology in the Classroom
發表題目	（中文）科技中介英文學習:結合數位敘事與虛擬實境應用的學習成效研究 （英文）　Technology-Mediated Language Learning: A Study on the Effect of Digital Narrative and Virtual Reality in English Learning

一、參加會議經過

1. 會議簡介

　　ACTC 國際研討會(Asian Conference on Technology in the Classroom)是由 The International Academic Forum 籌辦。The International Academic Forum 是英國與日本兩國的教育學者所創辦,成立目的主要是從國際化 (international) 、跨文化（intercultural）、與跨領域（interdisciplinary）三層面探討國際教育的發展。The International Academic Forum 於 2011 年首次在日本舉辦ＡＣＴＣ國際研討會,希望提供亞洲國家數位教學產業、研究人員及學校教師一個互動交流的機會。首次會議獲得與會之數位學習專家、業界代表及學界教師的熱烈迴響,之後每年定期在日本舉辦。

　　第三屆 ACTC 國際研討會於 2013 年 4 月 26 日至 28 日舉行,會議地點為日本大阪 Ramada Hotel 會議中心,研討會為期三天,邀請學界專家與傑出的產業人士進行論文發表及交流。本研討會的主軸為教育科技在課室教學的應用,研討議題包含數位學習的科技發展與教育科技理論實務現況透過 Interdisciplinary、Learning Strategies、Innovative Language Teaching and Learning Methodologies、Bilingualism、Individual Differences、Language Education 與 Multimedia 等七個 symposium 進行論文研討,而參與的學界專家與產業人士來自 40 多個國家,論文發表件數約 400 篇。
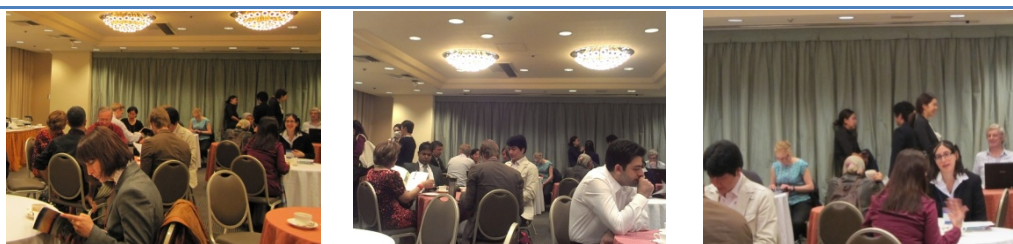
2. 會議經過概述

(1) 第一天會議議程(2013/4/26)-報到領取會議手冊與歡迎餐會:

　　由於本次會議參與者眾多,主辦單位在會議正式開始之日,特別舉辦歡迎餐會,讓來自不同國家的學界專家與產業人士藉由用餐的機會進行交流,增進彼次的聯繫與

認識。同時，也利用餐會的時間讓各議程主席分別致歡迎詞，並簡單的描述各主題議程的籌辦經過與論文收稿審閱的情況。歡迎餐會進行約 2 小時，結束前主辦單位安排表揚本次會議遴選出具有卓越貢獻的論文，讓歡迎會更加有意義。

(2) 第二天會議議程(2013/4/27)-參與會議各項主題之論文發表：

本次的會議論文發表篇書眾多，大會以七個 symposium (Interdisciplinary、Learning Strategies、Innovative Language Teaching and Learning Methodologies、Bilingualism、Individual Differences、Language Education 與 Multimedia) 分別進行論文研討，每個 symposium 安排 6 至 9 個場次的口頭發表，分為兩天在不同時段與會議室舉行，而同時間另有其他議程一起進行。本人的論文歸屬 Innovative Language Teaching and Learning Methodologies，被安排在 4 月 28 日上午 12:00 場次發表。因此，利用 4 月 17 日的時間，聆聽其他專家學者的論文發表並參與學術座談交流會。

圖一：筆者參與學術交流座談會

(3) 第三天會議議程(2013/4/28)-論文發表並進行學術研討交流：

本人的論文被安排於本日的首場，進行口頭報告論文研究分享。本場次共有 3 篇論文發表，論文內容主要以科技融入語言教學的創新教材研究。報告的時段是在上午 9 點鐘時段，與會的人數約 25 人。本人的論文主要探討結合數位敘事與虛擬實境的英語教學之應用及其成效研究，報告內容引起會場許多從事語言教學研究的學者之興趣，紛紛提出相關的論點進行學術交流。

圖 2. 筆者參與會議與論文報告

二、與會心得

ACTC 國際研討會(Asian Conference on Technology in the Classroom)至今已舉辦三屆，每一屆都將當前教育科技的發展趨勢融入在教學研究與產業實務的議題中，讓參與者可以透過論文分享與學術交流，增進相關的學理知識與實務體認。本次的研討會，本人全程參與 Innovative Language Teaching and Learning Methodologies 領域的論文發表，藉由來自不同國家發表者的口頭報告，深刻的體認到數位科技與創新教學的結合儼然已成為各國教育革新潮流，不管是教學單位或是產業機構都投入相當的心力與資源在數位學習環境的開發與數位教材製作上，而培養學生數位媒體創意及工具應用的能力也成為當前數位教學的主要目標。此外，這次 Innovative Language Teaching

and Learning Methodologies 特別將部分技術層面的研究納入，許多有關創新教育科技的報告也讓人印象深刻。身處在數位學習的時代，運用科技融入教學已成為教師上課必備的技能，同時也是教學過程中不可或缺的輔具。

三、考察參觀活動（無是項活動者略）
　　此次會議並無任何參觀活動

四、建議
　　近年來國內在數位學習環境的建構與數位教材的研究上不斷地提升與突破，不管是在實務面的產業開發或是學術面的研究成果，都深受國際肯定。補助學者參與國際會議，不僅促進我國產學界與國際間學術交流與學習，同時也能激發國內相關研究的靈感與視野。感謝國科會提供研究學者出席國際會議的補助機會，相信對於國內研究風氣的提升及國際合作交流的媒合，會有相當程的助益。

五、攜回資料名稱及內容
　　會議攜回 2013 ACTC 國際研討會會議議程冊一本。

國科會補助計畫衍生研發成果推廣資料表

國科會補助計畫	計畫名稱: 科技中介英文學習: 結合數位敘事與虛擬實境應用的學習成效研究
	計畫主持人: 鍾良怡
	計畫編號: 101-2410-H-263-005-　　　　學門領域: 英語教學應用

無研發成果推廣資料

101 年度專題研究計畫研究成果彙整表

計畫主持人：鍾良怡　　　計畫編號：101-2410-H-263-005-

計畫名稱：科技中介英文學習：結合數位敘事與虛擬實境應用的學習成效研究

成果項目			量化			單位	備註（質化說明：如數個計畫共同成果、成果列為該期刊之封面故事...等）
			實際已達成數（被接受或已發表）	預期總達成數(含實際已達成數)	本計畫實際貢獻百分比		
國內	論文著作	期刊論文	0	0	100%	篇	
		研究報告/技術報告	0	0	100%		
		研討會論文	0	0	100%		
		專書	0	0	100%		
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力（本國籍）	碩士生	0	0	100%	人次	
		博士生	0	0	100%		
		博士後研究員	0	0	100%		
		專任助理	0	0	100%		
國外	論文著作	期刊論文	0	1	100%	篇	已將研究成果投稿至國際期刊，目前審稿中。
		研究報告/技術報告	0	0	100%		
		研討會論文	0	0	100%		
		專書	0	0	100%	章/本	
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力（外國籍）	碩士生	0	0	100%	人次	
		博士生	0	0	100%		
		博士後研究員	0	0	100%		
		專任助理	0	0	100%		

	其他成果 (無法以量化表達之成果如辦理學術活動、獲得獎項、重要國際合作、研究成果國際影響力及其他協助產業技術發展之具體效益事項等,請以文字敘述填列。)	無		

	成果項目	量化	名稱或內容性質簡述
科教處計畫加填項目	測驗工具(含質性與量性)	0	
	課程/模組	0	
	電腦及網路系統或工具	0	
	教材	0	
	舉辦之活動/競賽	0	
	研討會/工作坊	0	
	電子報、網站	0	
	計畫成果推廣之參與（閱聽）人數	0	

國科會補助專題研究計畫成果報告自評表

請就研究內容與原計畫相符程度、達成預期目標情況、研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）、是否適合在學術期刊發表或申請專利、主要發現或其他有關價值等，作一綜合評估。

1. 請就研究內容與原計畫相符程度、達成預期目標情況作一綜合評估 ■達成目標 □未達成目標（請說明，以 100 字為限） 　　　□實驗失敗 　　　□因故實驗中斷 　　　□其他原因 　說明：
2. 研究成果在學術期刊發表或申請專利等情形： 論文：□已發表 □未發表之文稿 ■撰寫中 □無 專利：□已獲得 □申請中 ■無 技轉：□已技轉 □洽談中 ■無 其他：（以 100 字為限） 論文已經投至國際期刊目前審稿中
3. 請依學術成就、技術創新、社會影響等方面，評估研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）（以 500 字為限） 本研究計畫的執行，探究以科技為學習媒介的英文學習成效議題，研究結果將可以作為未來驗證資訊科技與語言教學成效的因果關係建立。