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跨領域整合型研究計畫之前置規劃案成果報告

**大學專業課程英語授課工程領域語料庫之建立及應用**

**Compilation and Application of English-medium Instruction**

**Corpus in Engineering Fields**

9

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## 大學專業課程英語授課工程領域語料庫之建立及應用

### 摘要

隨著高等教育國際化和英語為世界通用語的盛行，快速成長的專業科目英語授課(English as a Medium of Instruction, EMI)課程已然成為全球非英語系國家大學教育的新趨勢。事實上，高等教育之 EMI 課程的開課比例已經逐漸成為公認的重要國際化指標 (Piller & Cho, 2013)。相對於通常由語言教師授課之專業英語課程(English for Specific Purposes, ESP)，EMI 課程意指由學術專業教師以英語為媒介，教授專業領域之知識，例如理工、醫學、商學、人文等學科。EMI 教師通常是擁有博士學位的大學教授，擁有其授課科目之專業訓練，他們不是語言教師，於授課過程中也不會進行語言教學，其教學目的仍以知識的傳授為主。英國文化協會(British Council)在 2015 年針對全球 EMI 課程的研究報告中也指出，以歐洲及亞洲為主的非英語系國家的教育決策者認為 EMI 有助於一個國家的國際化，讓學生有更多的機會加入全球學術及專業社群，提升學生在國際職場的移動力，進而增進國家現代化、促進經濟繁榮 (Dearden, 2015)。台灣的高等學府也希望藉由 EMI 課程的推廣吸引國際學生，這類英語授課課程同時提供台灣學生全方位的語言使用及學習環境，提昇學生的全球競爭力(Chang, 2010; Yeh, 2012; Wu, 2006)。教育部資料顯示，於 2015 年全台灣共有 45 所大學提供全英語授課學程，合計提供 180 個全英語授課學程。其中包括 36 個博士學位學程，106 個碩士學位學程，以及 38 個大學學位學程(2015 年台灣獎學金計畫,n.d.)。然而，雖然 EMI 課程快速成長，相關配套措施及 EMI 教師能獲得的教學資源卻很有限，如何讓 EMI 課程發揮應有的效能，又不影響原本的學科知識的學習為目前全英語授課教師及學生關切的議題。本案為跨語言及理工領域研究計畫之前置規劃案，本案研究對象為綜合型大學工程學科教師及學生。研究人員將蒐集台灣一所綜合型大學大學部工程學科專業英語授課課程的授課內容，逐步建立專業課程英語授課的語料庫，並透過語料庫計算、分類、加註等功能，使用客觀資料觀察、描述、分析教師在 EMI 授課常見的語言現象。本前置規劃案將包括三個子計畫:(1)工程領域教師如何使用路標語輔助教學策略、(2)工程領域教師如何使用問問題的方式輔助教學策略、(3)工程領域教師如何使用中文輔助教學策略。本前置案將分析大學部 EMI 課程語料，以了解教師常用的授課語言及教學策略。之後，以這個語料庫為基礎，研究人員擬於本規劃案結束後提出跨領域研究計畫，邀請理工領域學者共同建立綜合及科技大學理工學科 EMI 課程語料。學生專業知識及英文程度的差異會影響教師專業英語授課的策略及內容，這兩類型學校 EMI 課程的比較將幫助學者及教師了解如何因應不同程度的學習者，提升學生的學習動機及成效。本研究計畫之中長期目標希望能將本次理工學科語料庫建置的經驗應用於其他學科或是其他教育階段的英語授課學習。本研究的觀察結果將有助於 EMI

教學架構的建立、強化教師的授課語言使用、分析各項教學策略的試用性、增進英語授課策略的應用、彙整 EMI 教師資源手冊或培訓教材。除了提供 EMI 教師教學資源，本研究的結果也有助於學生的英文學術聽力的訓練。大學授課的專業內容及英文授課語言對英語為非母語學生的挑戰性高。語料庫的分析讓學者了解台灣 EMI 教師的授課語言特色，將 EMI 教師常用的授課語彙編成教材，可以做為學生學術英文訓練的授課內容，EMI 教師常使用的問問題型式也可以設計為教學活動，同時訓練學生思考、回答問題的能力，提早為學生做好 EMI 上課的準備。

關鍵詞：專業課程英語授課 (English-medium instruction, EMI), 高等教育、工程教育(engineering education), 授課語言、教學策略、語碼轉換 (code-switching)

## **Compilation and Application of English-medium Instruction Corpus in Engineering Fields**

### **Abstract**

Along with globalization and the phenomenon of English as a lingua franca, English-medium instruction (EMI) has become an important trend in higher education of non-native English speaking countries. In fact, the number of EMI courses has become a key index in assessing a university's internationalization (Piller & Cho, 2013). Whereas English for specific purposes (ESP) refers to English courses that use professional content for teaching the English language or English skills, EMI courses are content classes (e.g. engineering, management, medicine, etc.) that use English as the instructional and classroom language. The primary aim of EMI courses is to teach professional knowledge, not English skills or language. Similarly, EMI instructors are university professors who have received professional training in specific disciplines. They are not English teachers and do not teach English in EMI classes. In 2015, British Council found that educational policy makers of non-native English speaking countries, especially those in Europe and Asia, believe that EMI helps promote internationalization of a country, while allowing students to joining international academic and professional communities, raising students' mobility in the international job market, and in turn leading to economic growth and modernization (Dearden, 2015). In Taiwan, universities have also launched EMI in the hope of attracting international enrolment, while also providing a learning environment for local students to use English (Chang, 2010; Yeh, 2012; Wu, 2006). According to Taiwan's Ministry of Education (MOE), as of 2015, there were 45 universities that have EMI courses, including 180 programs, 36 doctoral programs, 106 masters' programs, and 38 college degree programs (2015 Taiwan Scholarship Program, n.d.). However, because of the rapid growth in EMI programs, related research has not been conducted (kept up in speed) and teaching resources have remained limited. How to make EMI courses achieve their desired outcomes and not affect students' acquisition of professional knowledge is a main concern. The current project studied engineering professors and students of a comprehensive university in Taiwan. Recordings of classroom instructions were made and an EMI corpus was built. Findings on the following three subprojects are reported: (1) the use of discursive markers and signaling language, (2) the use of questions in scaffolding, and (3) the use of code-switching strategies in EMI classrooms. After this pilot study, the research team will propose a cross-disciplinary project, inviting professors from both comprehensive and technical universities to co-create an engineering lecture corpus that contain

instructional language from both types of schools. The mid- and long-term goals of this project is to expand the corpus to include other disciplinary areas (e.g. medicine, management, humanities, social sciences, etc.) and other educational levels (e.g. K-12). The results of this project will provide valuable information in many aspects of EMI such as on creating an EMI teaching framework, empowering teachers' delivery and instructional language use, analyzing the effectiveness of teaching strategies, and compiling teaching resource handbook and training materials. It is also the hope of the researchers that the study will help improve Taiwanese students' academic listening. The corpus data will enable researchers to understand the linguistic features commonly deployed by EMI instructors in Taiwan. The information can be used to training students' listening comprehension. The compilation of questioning strategies by EMI instructors can be used as teaching materials to develop students' critical thinking and communicative skills.

Keywords: English-medium instruction (EMI), higher education, engineering education, instructional language, teaching strategies, code-switching