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Wenli Tsou
Shin-Mei Kao
Editors

English as a Medium of Instruction in Higher Education

Implementations and Classroom Practices in Taiwan

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Foreword

One of the most significant developments in higher education in modern times has been the rise of English as a medium of instruction (EMI), as a burgeoning literature on the topic demonstrates (Macaro, Seiter, Pun, An, & Dearden, 2017). The rapid growth in EMI has been documented and commented upon elsewhere and need not be elaborated here. The qualitative aspects of EMI—its outcomes and consequences and effective means of preparing for it and delivering and assessing it—are still in need of study, and that is the undertaking of this volume.

This book gathers selected papers from the 2016 Conference on EMI Practices in Higher Education held at the National Cheng Kung University in Tainan, Taiwan. Seen individually, each paper in this volume offers an investigation of an important area of EMI practice in Taiwan, for example, the kind of interactions found in the EMI classroom (Chap. 4), assessment practices in EMI (Chap. 11), or preparing university teachers for the challenges of teaching in an EMI setting (Chap. 10). Taken as a whole, these papers underscore several themes which resonate with the literature on EMI from other geographical contexts.

One such theme is the great ambivalence toward EMI which many participants feel. On one hand, both students and teachers are often very positive about the benefits which they hope it can deliver, including richer opportunities for internationalization and improvements in their English language proficiency. On the other hand, the costs of EMI, including its time-consuming nature and the threat that academic content is taught and learned less effectively, are also felt. A number of the chapters in this volume express the widespread perception that EMI is very much a double-edged sword in Taiwan, as elsewhere (e.g., Maricic, Pecorari, & Hommerberg, 2017).

Another resonance is the great difficulty of disambiguating participants' language skills from disciplinary knowledge and pedagogy (e.g., Dimova & Kling, in preparation). No certainty exists about the extent to which good pedagogical practices can compensate for a lecturer's insecurity in English or whether students' understanding (or lack thereof) of discipline-specific terminology is a matter of vocabulary or content knowledge. But perhaps a blurred boundary between these

domains, rather than being problematic, can be positive and prompt tertiary institutions to strive to excel in both.

A third theme which this book illustrates is that geography both does and does not matter. The details (such as participants' proficiency levels, the specifics of higher educational policy, and the nature of the pressures toward internationalization) make a difference to how EMI is carried out and experienced. This volume provides detail which readers who are less familiar with the Taiwanese context will find extremely useful. At the same time, in terms of the drivers for EMI, the constraints, and the participants' responses to it, Taiwan is seen to have much in common with the rest of the globe.

In other words, one of the lessons of this book is that with EMI, *plus ça change, plus c'est la même chose*. The more EMI changes the higher education landscape, the more we will continue to need to understand how best to implement it for the benefit of all participants. This volume makes a useful contribution to addressing that need.

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Part I
Introduction

Chapter 1
Overview of EMI Development

Wenli Tsou and Shin-Mei Kao

Globalization and Higher Education

The term "globalization" was first introduced by Theodore Levitt in 1985 and later advocated by Nobel laureate Joseph Stiglitz in 2002 (Gupta, 2015). According to Hallack (1999), the driving forces of globalization can be categorized as the market, the capital (i.e., economical influence), and the leadership (i.e., political influence). Knight (2003) classified the internationalization of higher education into two broad categories. The first is to provide educational services, such as teaching, learning, and research, in an international perspective within a country. The second is to provide programs, including curricula, students, teachers, and scholars, across borders of countries.

In an increasingly competitive global educational market, universities are forced to compete with each other for the limited resources and larger market share to grow. Like the general business competitions, not only do universities compete for the domestic market, they also strive for the international market, which is assumed to be more crucial for the survival. In the recent decade, more and more European universities have been endeavoring for the international market share through their overseas units.

As a result of the globalization of higher education, EMI has become a fast-growing trend around the world that has generated a strong research interest and led to debates among educators and policy makers (Coyle, Hood, & Marsh, 2010; Dearden, 2015; Doiz, Lasagabaster, & Sierra, 2013; Kirkpatrick, 2014). In a large-scale survey, sponsored by the British Council, 27 out of the 55 countries (i.e., 49% countries) stated that there were official statements about EMI for public access, and 22 from them (i.e., 40%) indicated that there was national level EMI policy.

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Surprisingly, many of these countries, such as Hungary, Japan, and Bahrain, did not have historical links with English in their educational systems. According to the findings, EMI has a higher presence at universities than at secondary and primary education, and, at all levels, English-taught programs are allowed at more private institutions, 90.9% compared to 78.2% for the public universities (Dearden, 2015). One reason for the higher presence at the private sectors may be due to the institutions' more aggressive effort to generate awareness and to build strong profiles through pursuing international and elitist images, in addition to the needs of financial input contributed by international students.

Why is it that EMI has been gaining popularity in the world? One important reason for this paradigm shift is to do with the English language becoming a lingua franca (ELF), a common language between people who do not share the same native language (Jenkins, 2000, 2007, 2014; Mauranen 2003, 2005, 2006; Seidlhofer, 2001; Widdowson, 1994). English has become the dominant international language not only because the global business community needs a common language to carry out transactions but also because there has been a growth in academic publication in English. The English language has become a term defining our time, along with words such as globalization, networking, the global market, and the Internet (Mauranen, 2009).

Another reason for the growth of EMI lies in the universities' effort to gain competitive advantage in today's globalized higher education. The QS World University Rankings assigns scores to two indicators related to internationalization: 5% on international students and 5% on international faculties (QS Top Universities, 2012). For international faculties and students, whether certain academic fields are easily accessible is as important as if the local environment is friendly to members of different languages and cultural backgrounds. Therefore, conducting efficient EMI programs has become a primary strategy for the educational institutes to attract international faculties and students.

EMI also has the added benefit of transforming a local campus into an international one, where the faculties and students of diverse linguistic and cultural backgrounds can interact with one another. The intercultural dialogue in turn helps develop local students' language skills, intercultural awareness, international communication, and ultimately international mobility. Thus EMI is seen as a strategic decision to improve quality of education, alumni employment, publications, international academic exchange, etc., all of which contributing to the institution's international profile.

Over the past decades, many EMI models had been proposed and tried, for example, preparatory year model, pre-institutional selection model, institutional support model, and bury your head in the sand model (Macaro, 2015). In Turkey, universities require students to attend a one-year preparatory English language course and pass the end-of-year test before they are allowed to enroll in subject courses (Dearden, 2015). In Sweden, an EMI course in technical communication was jointly supervised by both language and engineering teachers, who provided support to students' project execution and reporting needs (Bergman, Eriksson, Blennow, Groot, & Hammarström, 2013).

Intuitively EMI appears to be a win-win case where the learning environment provides college students the ideal setting to capitalize on their experience of using English to acquire content knowledge and as a result also leading to students' enhanced English proficiency. The reality is that controversial issues and EMI implementation have raised debates and skepticism. Issues such as language policies and best practice on teaching and learning continue to generate research interests. On EMI teaching and learning, questions are usually examined in terms of efficiency and impacts, with specific topics ranging from ineffective lecture delivery to insufficient evidence of students' academic achievement. EMI teachers must deal with issues such as teaching students of diverse English proficiency levels, using innovative teaching techniques to overcome language barriers, collaborating with language teachers, identifying effective assessment tools and strategies, to name a few. Based on a survey of 55 countries and with nearly 400 EMI teachers, Macaro (2015) identified seven key controversy points which are summarized as follows:

1. Is EMI only for the elite? Traditionally EMI programs are more common in private universities, and now more state universities are switching to EMI due to increasing demands.
2. Who decides to introduce and promote EMI? It is worth noting that the majority of courses appear to have been "imposed" by university managers rather than "volunteered" by university teachers. That is, EMI is often an institutional response to challenges from outside the campus.
3. Which English in EMI? The options include Standard English (British/American English), Euro English, or English as a lingua franca (ELF)/World Englishes.
4. Does EMI improve English proficiency? Teacher online survey indicated 80% agreement.
5. Does EMI (at least) maintain standards in academic subjects? Teacher online survey indicated 30% agreement, 45% disagreement, and 25% to some extent.
6. Does the home language and culture suffer? So far there is no evidence that the home language and culture are negatively affected.
7. What is the role of the EFL (English as a foreign language) teachers? Collaboration between EMI and EFL teachers are taking place in different formats around the world.

It is unrealistic to expect unified answers to these controversial questions in conducting EMI programs around the world, since the educational emphases, purposes, resources, and contexts differ greatly from region to region. It is also naive to expect one single model that fits all contexts. A more feasible approach is to understand how EMI programs have been implemented in different areas of the world as the references for designing one to meet the local needs.

EMI vs. CLIL

This section tries to articulate the relationship between EMI and content and language integrated learning (CLIL), two pedagogical approaches frequently brought up along the discussion of the internationalization in higher education. EMI, as discussed so far in this chapter, refers to English-taught subject courses offered in non-English-speaking countries. On the other hand, CLIL, introduced in 1994, is an educational approach in which an additional language is used for both academic content and second/foreign language instruction (Cenoz, Genesee, & Gorter, 2014). Its context reflects Europe's needs for a single market and the common policy of multilingualism (Dafouz & Guerrini, 2009). It is also an attempt for language educators in Europe to create their own unique and different frameworks for promoting second/foreign language education, without having to borrow concepts and terms developed in North America's effort in bilingual education and content-based instruction (Coyle et al., 2010).

The driving force behind CLIL can be traced to European Union's multibillion Euro educational project, The Erasmus Programme (European Region Action Scheme for the Mobility of University Students) established in 1987 and its successor project, Erasmus+, or Erasmus Plus, launched in 2014 (European Commission Press Release Database, 2013). The project coordinates and sponsors universities and business in the EU to organize exchange programs for students to study for credits, receive training, or complete internship or apprenticeship from 3 months to 12 months (Erasmus+, 2015). Currently more than 4000 universities within the EU regions and beyond have joined the project and regularly admit international students from other partner countries. It was estimated that more than 2 million students in higher education, 650,000 vocational training students and apprentices, and 500,000 youth volunteers would go abroad with financial support from the project (European Commission Press Release Database, 2013). This ambitious educational program has directly changed the ecology of higher education in Europe and urged university authorities and faculties to take immediate actions in accommodating the needs of the massive amount of international students.

Although it is generally agreed that CLIL has the dual focus of teaching content and language, it lacks a clear definition or concrete pedagogical guidelines on how best to integrate the two purposes (Cenoz et al., 2014). CLIL is best thought of as an umbrella concept that encompasses various interpretations and practices on teaching and learning.

The relationship between CLIL and EMI can be envisioned along a continuum with language learning on the one hand and content knowledge acquisition on the other (Lyster & Ballinger, 2011). In this continuum, EMI is closer to the content side. Similarly, the continuum could also be viewed in terms of how content is integrated: from "the 'soft' language lessons with a touch of content to the 'hard' English-medium classes with subject teachers" (Adamson, 2015, n.p.).

EMI in Europe

The implementation of EMI courses or English-taught programs (ETP) has found fertile ground in continental Europe (Björkman, 2008; Brock-Utne, 2007; Cenoz et al., 2014; Coleman, 2006; Coyle et al., 2010; Dafouz & Guerrini, 2009; Wachter & Maiworm, 2014). Similarly, the creation of a European Higher Education Area (EHEA), which aims to facilitate academic exchange and partnerships, has further contributed to the growth of EMI programs in Europe (Kirkpatrick, 2014). The English language, as the lingua franca for international business activities and academic conferences, helps such exchange and cooperation among higher education institutions in the EU, which recognizes 23 official working languages and more than 60 regional languages. This is why, while the original aim of CLIL was to create a multilingual learning environment to facilitate intercultural awareness and communication, the English language has rapidly become a dominant language.

To understand prevalence of degree courses taught in English, the Academic Cooperation Association (ACA) commissioned a study to survey universities in continental Europe. The study has been conducted three times, with the most recent findings published in 2014. Comparing to 725 courses in 2001 and 2389 courses in 2007, there were 8089 in 2014, representing a 239% growth in the past 7 years (Wächter & Maiworm, 2014). The top five countries to offer EMI are the Netherlands, Germany, Sweden, France, and Denmark. In terms of geographic distribution, there is a north-south divide, with the Nordic and Central West countries being strong providers, offering far more programs than those of southern Europe and the Baltic States. In terms of study level, the majority (80%) was conducted at the postgraduate schools. The top three subject areas, ranked by program numbers, are engineering and technology, business and management, and social studies. On student profile, the ACA study found that 65% of EMI students are foreigners in their countries of study. Of the international student body, 36% are Europeans and 34% are Asians, with Chinese students representing 10% of the foreign enrollment.

The most interesting and encouraging information from the ACA report is that the language problems, perhaps the most controversial topic of debate, seem to have normalized. Respondents to the study reported sufficient or very good English proficiency for both EMI teaching staff and students. The report suggested that while EMI programs in Europe are able to recruit teachers who have a good command of English, additional training is required to help EMI teachers manage a class of students with diverse linguistic and cultural backgrounds. As more than half of the programs identified in the Wächter and Maiworm (2014) study were established in the 4 years prior to 2014, EMI in Europe is considered to be at a more mature stage on its development, and growth is expected to continue.

Though EMI has been implemented in Europe for a long time, empirical studies about the effects of taking a content course in English and in the learner's native language were scarce. A recent study by Dafouz and Camacho-Miñano (2016) compared the impact of EMI with teaching via the students' native language on their academic performance in a Spanish university. The comparison was made between

the two groups' grades on Financial Accounting I over four academic years. No statistical differences were found across groups. In other words, the use of EMI did not lower the students' final academic outcomes. The findings are of great relevant to the implementation of EMI in the context of business education.

EMI in Asia

EMI in Asia could be discussed in terms of two groups: former colonized (e.g., Hong Kong, Singapore, Malaysia, etc.) and non-colonized countries (e.g., China, Japan, Korea, etc.). While English has been a primary instructional language in postcolonial Asian countries, HEIs in the other group only started to follow the trend in the late 1990s (Hou, Morse, Chiang, & Chen, 2013). Many Asia Pacific countries were former British colonies, from countries of large territories such as India, Malaysia, to smaller countries or regions such as Brunei, Singapore, Samoa, Solomon Islands, Tonga, and Hong Kong; thus, bilingual education has prevalence, with language policies and EMI programs reflecting the country's historical influence from the colonial government.

Ruled by the British for almost 150 years, Singaporeans have always seen the value of bilingualism and been dedicated greatly to the promotion of English in the education system. According to Singapore Census of Population published in 2010, 79.9% of Singaporeans aged 15 years and over were literate in English, and 70.5% were literate in two or more languages (Singapore Department of Statistics, 2010). By 1979, English became the medium of instruction for all university education, and by 1989, all levels of schools were converted to English medium in this country (Jackson, 2013). The success of Singapore's EMI programs is evidenced by, in comparison to Hong Kong, the higher overall QS ranking of Singaporean universities and the higher score Singapore received from international students as a good destination for study (Soh & Ho, 2014).

Similarly, Hong Kong's educational policy had been focused on cultivating and balancing students' English and Chinese proficiencies until Hong Kong became a special administrative region of China in 1997. Since then, the language policy for secondary education has been changed and fine-tuned several times between compulsory mother tongue and mixed-code education (Lo & Lo, 2014). However, from 2009 onward, secondary schools in Hong Kong have been given the flexibility to adopt various EMI models according to the needs of students and qualifications of the teaching staff (Lo & Lo, 2014). In tertiary education, among the eight universities funded by the government, six are EMI universities, in which almost all courses (excluding Chinese-related subjects or foreign language courses) are taught in English (Dearden, 2015).

Since some Hong Kong students have had EMI education in high schools before entering college, it would be interesting to examine students' language and content subject achievements between EMI and CMI (Chinese-medium instruction). A meta-analysis study based on 24 studies on the Hong Kong secondary schools has

shown that EMI students performed better than their CMI counterparts in English proficiency but slightly lagged behind in core subjects such as science, history, and geography; however, no difference in academic achievement was found in mathematics between students given EMI and CMI education (Lo & Lo, 2014). Although numerous factors could affect student performance, one possible explanation for the results was likely due to the lack of qualified EMI teachers to meet the growing demand for EMI education in secondary schools and the failure of schools to provide support to students with insufficient English for content learning (Lo & Lo, 2014).

Not surprisingly, many first-year college students in Hong Kong have had problems transiting to English-medium studies; however, even the students with L2 language barriers generally supported the use of English rather than Chinese as the medium of instruction (Evans & Morrison, 2011). Studies also found that some schools may have exaggerated their claims because code-switching between English and Chinese occurs at times in EMI classrooms (Dearden, 2015; Li, 2008).

Another country with strong multilingual tradition is Malaysia, whose colonial history and multicultural profile have brought positive impacts on the percentage and quality of English usage in the secondary and higher educational contexts. Malaysia is one of the first Asian countries to create international campuses; in positioning itself as a regional education hub, the country hoped to tap into the profitable overseas student market, and created a win-win context between receiving foreign students and keeping local students at home (Gill, 2004; Kirkpatrick, 2014). Currently there are six foreign universities with branch campuses in Malaysia, including two British universities, University of Nottingham and University of Southampton (The Malaysia Higher Education System, 2015). In addition, there are EMI private institutions created through partnerships with universities of English-speaking countries or funded by the country's national companies.

In Asia, many countries without the British colonial past have also adopted western, especially the USA, education systems. Their language policies and EMI programs reflect the governments' aggressive response to globalization and intent to gain competitiveness in today's knowledge economy. China has taken aggressive measures to become more globally competitive in higher education. One strategy was to encourage "studying abroad" and brought significant outcomes. In 2007, overseas Chinese students had formed the largest overseas student population in the UK, and trend was expected to continue (Mok, 2007).

In China, the impact of globalization and the country's desire for greater economic power has led to the English language becoming the official first foreign language (Chang, 2006). In the 1990s, China underwent educational reform by offering many programs in English (Huang, 2006). In 2001, China's Ministry of Education issued the guidelines on English medium policy, indicating that certain subject courses, especially in the areas of biology, information science, new materials, international trade, and law, should be taught in English (Huang, 2006). As a result of Chinese universities' effort, China has become the biggest destination in Asia, attracting around 260,000 international students to enroll in its universities in 2012 (Hou et al., 2013).

Like China, Japan's EMI programs represent the country's effort in creating a learning environment to compete with top universities around the world. Being the second largest economic power in Asia, both Japan's public and private sectors were concerned with the below-average English proficiency performed by young Japanese and urged Japanese universities to undertake education reform (Dearden, 2015). Japanese universities aimed to help globalize the domestic student body, making them more competitive in the job market on the one hand and, on the other hand, attracting international student enrollments. The result of educational reform in Japan has led to a growth in EMI. As of 2013, approximately 194 universities (i.e., 25%) in Japan were offering English-taught courses in various forms; however, only 25 universities offered full degree programs in English (Brown & Iyobe, 2014). Japan's effort has led to a growing number of international student enrollments, reaching 138,000 in 2012 (Hou et al., 2013). In its ambition to becoming Asia's hub for international higher education, in 2008, Japan doubled its recruitment goal of international students to 300,000 (Brown, 2014).

Japan's neighbor, Korea, has also modified its educational policy from sending students abroad to keeping them at home, with an ambition of being a regional hub for international students in Asia (McNeill, 2008). From 2008 to 2012, Korean universities were urged by the government to reform the English curriculum to focus on communicative skills in the classroom, which functionally supported the promotion of EMI in content areas (Im & Kim, 2015). In 2011, 30% of all university classes in Seoul were EMI and 10% of those in other parts of Korea (Im & Kim, 2015). As of 2012, Korea's international student body has reached 78,000 (Hou et al., 2013).

However, it was found that in general Korean students tend to use Korean rather than English in EMI classes, while Korean EMI teachers, with limited English abilities, are less effective in EMI than in Korean-medium courses (Joe & Lee, 2013). A study on medical students in Korea suggested that, even for students with high English proficiency and despite having achieved post-EMI improvement in academic performance, Korea's medical and engineering students preferred having some use of Korean in EMI courses. The study indicated that using L1 helps create a friendlier learning environment where students' anxiety may be reduced (Joe & Lee, 2013).

Not all countries are enthusiastic about EMI. Indonesia is a country that has reversed the trend toward EMI in order to preserve the country's ideals of "one nation, one language" (Dearden, 2015, p. 19). In 2006, EMI was implemented in a special group of public schools for core subjects such as science and mathematics. The policy was revoked after protest from the public. However, while cancellation of EMI programs was enforced at public schools, private schools in Indonesia are allowed to offer English bilingual education.

In conclusion, what most of the Asian universities have in common is the pressure to be independently funded and to benchmark with international standards (Mok, 2007). Today's state universities, with reduced funding from the government, are required to be more innovative and market-driven.

EMI in Taiwan

The reasons behind Taiwan's EMI growth are at least twofold (Welch, 2012). Like China, Taiwan aims to showcase its language and culture to international students through its higher education system. Although Taiwan is smaller in size in comparison to China, its quality of education and living remains an attraction. The second reason is demographic. As Taiwan's population no longer grows, there will be more unfilled enrollment vacancy in the island's universities. In Taiwan, it is commonly believed that the international market share could make up for the shrinking domestic market caused by the low birth rate. Meanwhile, larger international market share is also assumed as a way to maintain the desirable educational quality and research standards of universities.

To encourage universities to open up the campuses to international students, Taiwanese government announced two major policies: to develop Taiwan as a "Center for Higher Education in Asia and Pacific Region" and to launch "Deep Plowing Southeast Asian Nations" (Hou et al., 2013). If these two national projects achieve their intended goals, Taiwan can expect to enroll up to 120,000 international students by 2020 (Welch, 2012).

To facilitate the implementation of the policies, many universities in Taiwan have provided incentives for teachers to offer EMI courses, which resulted in the escalation of the number of EMI programs offered. In the 2014 academic year, there were over 24,077 EMI courses out of 574,595 courses offered by 131 among the 161 universities in Taiwan, which was a drastic jump from 16,450 courses in the 2009 academic year (Ministry of Education, Taiwan, 2015). The rationales for this increase in offering EMI courses are to:

1. Strengthen students' competitiveness in the job market
2. Help students build up foundations for advanced studies
3. Recruit international students
4. Enhance the quality of higher education
5. Create a multicultural environment

Though teaching content courses in English has not been enforced officially by the Taiwanese government, it has been promoted and embraced by many universities. There are, however, challenges with EMI programs: First, there is the issue of whether instructors and students are equipped with adequate English language proficiency to deliver and participate in the content discussed in class. Second, debates were raised on whether the content knowledge would be covered in depth when the instructional language is students' second language, English. Finally, the students' learning attitudes and motivation were questioned when the course is delivered in English, and all learning materials are in English.

There are interesting but controversial findings from the empirical studies on EMI in Taiwan. For example, students in EMI programs strongly recognized the benefits of learning content knowledge through English but reported difficulties in understanding the content of learning materials (Chang, 2010; Huang, 2011;

Wu, 2006). Interestingly, research results indicated that university instructors mainly perceived the purposes of offering EMI as accommodating international students' needs and improving or maintaining local students' English proficiency. In other words, the global status of English in academic and professional field seemed to be the main motivation for adopting EMI. Regarding the impacts of EMI on student learning, many instructors were concerned about students' inadequate English proficiency, the learning of content knowledge, and student motivation. Code-switching was, therefore, adopted as an instructional strategy to facilitate students' comprehension of the content delivered (Yeh, 2012).

These studies on EMI seemed to point out that students and teachers held an ambivalent attitude toward EMI. On one hand, EMI was considered to have double benefits in helping students acquire content knowledge and improve English language at the same time. On the other hand, the depth of class interaction and knowledge dissemination remained questionable due to the implementation of EMI.

Future Trends

In response to the global competitive higher education market, EMI education is expected to make constant growth in near future. EMI will allow universities to attain international images, attract international students, and move up in the world rankings. While the effectiveness of EMI courses in higher education remains a debatable issue, there is a growing trend in Asia to introduce English-taught classes at the elementary and secondary education. The trend suggests that being able to teach in English may become a commonly required skill for subject teachers. In Hong Kong and Singapore, private secondary schools and to some extent public schools are already offering EMI. In Taiwan, some local governments have been encouraging total English instruction for English classes first and then EMI in subject courses.

The growing trend of EMI has several implications. First, with the fast-increasing EMI courses, EMI instructors can expect classrooms with most, if not all, domestic students. The trend also points to the need for more EMI teachers in order to meet the demand. In both cases, adequate teacher training program for all levels of subject teachers is in need in order to maintain the quality of education. This also means that there will be more opportunities for English teachers to share their experience with subject teachers.

Other implications worthy of discussion, as reported by Dearden (2015), include whether EMI will replace EFL as the main English learning approach and what qualifications are desired in EMI teachers. More specifically, in what way will EMI be incorporated in language training courses, and what role do the two concepts play in the teacher training and recruitment process? On subject teachers, will there be preference for international faculty or native English-speaking academic subject teachers? On professional development, would EMI subject teachers be required to undergo training in English instruction?

Overview of the Chapters

This book contains 11 chapters, which are further divided into five parts: Introduction (Chap. 1), EMI course and program design (Chaps. 2 and 3), EMI classroom practice and teaching techniques (Chaps. 4, 5, 6 and 7), EMI materials (Chaps. 8 and 9), and teacher development and assessment (Chaps. 10 and 11). Cases across disciplines, from engineering, science, technology, business, social science, medical science, design and arts, and tourism and leisure service sectors will be used as supports to illustrate the various EMI curriculum design and classroom practice. The primary goal of this book is to present the multiple facets of EMI in higher education across various academic disciplines.

Following this introductory chapter, Part II begins with the development of an EMI program in international finance and business management by Min-Yu Li and Tsung-Che Wu (Chap. 2). The background, motivation for, and structure of this EMI program, along with challenges in implementation, are presented and elaborated. This chapter also reports on students' and faculty members' attitudes, experience, and perceptions toward the program.

Chapter 3 by Mei-Ling Tsai and Paul R. Saunders discusses the development of content and language integrated learning in medical curriculum. It has been observed that Asian students from collectivistic cultural background have found it difficult to understand the alien requirements of student-centered EMI courses derived from individualistic cultures. This chapter shows how the cultural gap in student-centered learning is filled by implementing a modified framework of 4Cs, that is, communication, content, cognition, and culture, in the classroom of integrating content and language.

Part III, focusing on classroom practice and teaching techniques, begins with a chapter on instructional language use, by Fay Chen (Chap. 4). The language used in an EMI classroom falls into two major kinds: language of the target discipline and instructional language. This chapter examines how the latter is used in EMI classroom lectures on environmental science. Informed by transcription of classroom data, this chapter recommends a framework, complete with aspects of teaching, strategies, and common language of instruction, which can be deployed by EMI teachers.

Wenli Tsou, in Chap. 5, investigated the important question of classroom interaction in engineering. EMI teachers often need to deal with a passive class, where students are unresponsive and avoid interaction with the teacher. This is in contrast to the findings from student surveys, which show that student-centered interactions promote learning and that enhanced speaking skills is a desired outcome for an EMI classroom. The chapter argues that an interactive approach not only makes learning more interesting but also allows teachers to gain insights into student learning. The chapter will suggest quick but effective activities that meet teacher's needs for quality feedbacks and students' desire for oral interaction.

In Chap. 6, Charles Jeremy Sykes and Shao-Ming Wu explored integrating higher-level thinking training in EMI. Using students of business and human

resource management as examples, this recommends strategies for integrating higher-level thinking skills into learning environments and then compares them with actual practice in a leading Taiwanese university. Ways to expand the repertoire of strategies used by EMI professors will then be proposed.

Chapter 7 in this section, by Chiou-Lan Chern and Mei-Lan Lo, will describe the curriculum design and activities that are conducive to learning in tourism. The overall context of learning, including the campus, the curriculum, and the target course, will be introduced first. Instructional activities in and out of the class, including presentations, role plays, guest lectures, service learning, and field trips will be described and analyzed for their pedagogical values. Finally, students' and teachers' perceptions about these activities will be collected to document their effects on learning.

Part IV explores issues in material design, selection, and presentation. Chapter 8, by Jason Tien Chou, discusses the use of authentic materials in law. This chapter first describes why using authentic materials is crucial in conducting EMI courses in law. Then, what kinds of authentic materials are available for EMI teaching purposes is explored. The sources of US court decisions and the ways in which they can be used as EMI teaching materials are presented. This case study of EMI law courses illustrates the use of US court decisions in real-life classroom setting. Challenges for both teachers and students are presented. Possible solutions to those issues are also recommended.

Chapter 9, by Shin-Mei Kao and Hsin-Tien Liao, focuses on the opportunities and challenges in designing and presenting course materials for EMI courses in the humanities. A primary reason for the course offering stems from a growing number of international students showing interests in interdisciplinary studies related to the culture, arts, languages, peoples, politics, and societies of the host countries. This chapter examines the program design and, more specifically, material design for two courses on regional arts and history.

Part V of this book discusses teacher training and course evaluation. Cynthia Tsui in Chap. 10 reports on the current status of EMI teacher education in Taiwan. The various EMI teacher training programs initiated in Taiwan over the past few years will be presented, followed by an evaluation of these programs. Based on the strengths and weaknesses of the existing programs, the chapter then outlines and proposes a future framework of an EMI faculty development program that could serve as a certification mechanism for teachers who need to teach EMI courses to non-native English speakers.

In the final chapter of this book, Yu-Ting Kao and Wenli Tsou will discuss assessment of EMI learning. Assessment, which can be understood both as periodic sampling and measurement, and as ongoing planning for and provision of feedback, can provide a basis for understanding the characteristics of good practices in EMI courses. This chapter examines the literature from the CLIL environment, particularly with regard to assessing students' competence of content knowledge, and suggests a model framework for EMI course assessment.

We hope the book will be of interest to both English and subject teachers in many contexts but all engaged in the scholarly pursuit and finding good practice of higher

education learning. It is envisaged that this book presents and suggests ways to manage the opportunities and challenges of EMI via the general principles of case studies. Each chapter addresses an important issue in EMI, and the book as a whole will cover a wide range of topics from teacher training, course design, classroom management, teaching techniques, material development, to assessment. The studies were conducted by entering EMI classrooms of different content areas, with data collected from observing and documenting the teaching activities, and from interviewing or surveying EMI participants. Through data analysis and synthesis, cases were compiled to address pedagogical issues in various academic disciplines. Though the cases described in this book are limited to Taiwanese institutions, this book aims to bridge the gap between planning and executing EMI programs across academic domains for policy makers, administrators, content teachers, and teacher trainers in Asia.

This book does not intend to evaluate whether a particular EMI classroom is effective or certain EMI designs outperform others, since choosing English as the medium in higher education has been a given condition for accommodating international students in Taiwan and in many other Asian countries. Neither is this book about critical theory or pedagogy, though several of its chapters address questions of pedagogy. Rather, this book showcases the various possibilities in designing and implementing EMI. As the EMI phenomenon continues, it is a critical moment for educators, administrators, and policy makers to slow down so that more time is allowed for reflection on the practice and strategies taken.

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Part II
EMI Course and Program Design

Chapter 2
Creating an EMI Program in International Finance and Business Management

Min-Yu Li and Tsung-Che Wu

Specific Area of Interest: EMI Program Development

The term "globalization" was first introduced by Theodore Levitt in 1985 and later advocated by Nobel Laureate Joseph Stiglitz in 2002 (Gupta, 2015). According to Hallack (1999), the driving forces of globalization can be categorized as market forces, capital forces (i.e., economical influence), and leadership (i.e., political influence). After World War II, a new international financial agreement was initiated at the Bretton Woods Conference in 1944. During this postwar period, various economic alliances, such as the European Union (EU), the North American Free Trade Area (NAFTA), the Association of South East Asian Nations (ASEAN), the Organization of the Petroleum Exporting Countries (OPEC), and trade institutions or agreements, such as the International Bank for Reconstruction and Development (IBRD), the World Bank, the International Monetary Fund (IMF), and the General Agreement on Tariffs and Trade (GATT), were developed in accordance with the so-called New Economic Order (Gupta, 2015). During the Uruguay Round of GATT in 1986–1994, the General Agreement on Trade in Services (GATS) was established which liberalized trade in services, including education (Gupta, 2015). Four modes of supply were introduced in GATS. Knight (2002) further classified these four modes in terms of education: Mode I, cross border supply (i.e., distance learning); Mode II: consumption abroad (i.e., studying abroad); Mode III: commercial presence (i.e., branch campuses through franchising arrangements); and Mode IV: presence of natural persons (i.e., exchanges of researchers and faculties).

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According to Knight (2003), the internationalization of higher education can be classified into two broad categories. The first is to provide educational services, such as teaching, learning, and research, within a country from an international perspective. The second is to provide programs, including curriculum, students, teachers, and scholars, across the borders of countries. Three types of cross border education were suggested by Youssef (2014): people, programs, and providers. The cross border mobility of people is realized by students choosing to study abroad for better academic experiences and increased competency in the job market (Altbach & Knight, 2006). The cross border mobility of programs refers to providing face-to-face instruction or distance learning via franchise, double degree, or joint programs in a different country (Knight, 2005). The cross border mobility of providers refers to education providers who move physically or virtually to foreign countries through branch campuses or study centers (Knight, 2005). Overall, the internationalization of higher education involves many new learning opportunities such as the establishment of innovative programs, the exchange of scholars and expertise, alliances with prestigious institutions, and the movement of graduates and professionals (Knight, 2006b). However, when international educational services are approached as an opportunity for investment or profit making (UNESCO, 2011; Varghese, 2009), and are viewed as commodities or services to be traded for profit (Knight, 2004), questions arise about the quality of the education being provided (Youssef, 2014). Thus, the demand for a quality assurance mechanism to maintain the quality of cross border education has surfaced (Youssef, 2014). For example, the Global Initiative on Quality Assurance Capacity (GIQAC) was set up to bring together recognized organizations, such as the Asia-Pacific Quality Network (APQN) and the International Network for Quality Assurance Agencies in Higher Education (INQAAHE), and to develop codes of practice to guide the practice of delivering cross border education services (Knight, 2006a; Youssef, 2014).

The ultimate objective and motivation for EMI education is to help college students acquire knowledge in specific domains while at the same time enhancing their English proficiency needed for later careers. However, the effectiveness of EMI courses has been brought into question, especially in the EFL countries, such as Korea, China, and Taiwan (Kim, Son, & Sohn, 2009). Although Kuteeva (2011) indicates that EMI has more impact on university policy-makers than teachers and students, there are some practical limitations to the general use of English in education in Asia, especially where teachers and students do not have adequate language support.

Factors affecting the effectiveness of EMI education are mostly related to how the courses and programs are implemented. The suitability of materials, the adequacy of teacher training, perceived learner needs, the English level of the learners, and the support offered by the teaching and learning environment all influence the success of EMI programs (Kim et al., 2009). Research has examined the educational performance of the universities or surveyed students' reactions to, or satisfaction with, the programs (Chang, 2010; Kim et al., 2009). These studies have shown that not as many students as expected indicated they were satisfied with their EMI programs. The reasons for these findings need to be investigated further.

Hu, Li, and Lei (2014) reported that the primary problems in Taiwanese EMI programs lay in the insufficient command of the language medium of the teachers and

students. The lack of competence in English was naturally reflected in a resistance to offering or taking EMI courses and a preference for the L1 medium of instruction. Teachers' insufficiency in English has limited their ability to interact and improvise in the classroom, has required them to spend more time in preparation, and has forced them to simplify the subject content. College students have a similar problem. Their limited academic literacy in English has hindered their ability to understand the content areas taught in English, reduced their classroom interaction in terms of asking and answering questions, made them rely on code-switching when encountering lexical gaps and eventually made them reluctant to enroll in EMI courses.

To sum up, EMI programs play a key role in the internationalization process of Asian universities, but the implementation brings challenges to both the administrators and teachers. Higher education institutions need to examine whether the curriculum design of their EMI programs are effective in promoting both students' domain knowledge and their English proficiencies. More empirical studies should be implemented, and successfully cases should be investigated in Asian contexts from both the learners' and teachers' perspectives.

Background of the Case

Affiliated with the Presbyterian Church in Taiwan (PCT), the institution in which the case study took place was founded in 1992 in Tainan with the goal of continuing the PCT's role as an educational pioneer in Taiwan. Since the arrival of the first Presbyterian missionary, James Maxwell, in Taiwan in 1865, the PCT has been strongly supporting education and literacy. This university, in a sense, is the outgrowth of a vision that began with the founding of a local high school with the same name, Taiwan's first Western-style high school, founded by Presbyterian missionaries in the city of Tainan in 1885.

Besides its unique historical affiliation with the Presbyterian Church, the university is also a member of the Association of Christian Universities and Colleges in Asia[1] (ACUCA), which includes 60 institutions. Along with the other 59 institutions in Hong Kong, India, Indonesia, Japan, Korea, the Philippines, Taiwan, and Thailand, the university is dedicated to Christian witness and service in the field of education. With these distinctive international connections, the Office of International Affairs in the university has established permanent partnerships with 38 institutions in Asia and 14 institutions in Europe, North America, and Australia.[2] The institution in which this case study takes place not only cherishes its local roots but also seeks to prepare its students to become global citizens. The authorities believe that imple-

[1] ACUCA currently consists of sixty institutions: three in Hong Kong, two in India, thirteen in Indonesia, twelve in Japan, seven in Korea, ten in the Philippines, nine in Taiwan and four in Thailand (https://en.wikipedia.org/wiki/Association_of_Christian_Universities_and_Colleges_in_Asia). Detailed information is offered in the official website of ACUCA is http://www.acuca.net/.

[2] A list of partner intuitions is offered in the official website of Office of International Affairs: http://www.cjcu.edu.tw/~intl/web/partner.php.

menting EMI programs will be an effective strategy to attract more international students and thus help the university to create an internationalized campus. Moreover, it is believed that domestic students will benefit from taking these EMI courses in terms of enhancing their overall English proficiencies and consequently improve their international mobility after they enter the job market.

The bachelor's degree program in international finance and business management (IFBM) is a 4-year EMI program founded in 2015 by the College of Management. To meet the demands of transnational business professionals, the IFBM program aims to cultivate graduates with English communication proficiency in the fields of international financial management, international business management, and English for business and management purposes. Based on the university's partnerships with 52 institutions worldwide, the university not only accepts international students from its partner schools in Europe and Asia but also sends domestic students to study abroad. Therefore, the university's EMI programs, including IFBM, share two goals: to accommodate the needs of international students and to help domestic students develop international mobility and competitiveness in the job market.

IFBM Program Curriculum Design

The IFBM program enrolls both international and domestic students. The domestic students may apply for exchange studies or pursue double degrees with the university and its partner institutions. In addition to the total EMI course design, the program also invites active business professionals to instruct some courses and arranges internship placements for the students. The design is expected to strengthen the students' connections with the industry and thus give them a competitive edge.

In order to graduate from the IFBM program with a bachelor's degree, students should complete 128 course credits, including 74 credits in obligatory courses and 54 in elective courses. The obligatory courses consist of language courses and general education courses, along with fundamental content courses in business and finance. In addition, the students are expected to elect 54 credits of courses from three categories: international financial management, international business management, and cross-cultural communication.

Support from the University

Administrative support from the university level is provided to both the students and faculty members. For the students, the university has an active program to establish new partnerships with overseas universities, so that the students can have greater opportunities to get into the exchange and dual degree programs. For the faculty members, the university has, for the first time, offered a different rate of pay for

teaching any EMI course. This policy not only promotes the development of more EMI courses but also rewards the instructors for better preparation and engagement in course design. The university views this as an opportunity for teacher development and encourages faculty to take the challenge of preparing themselves to participate in EMI programs. In addition, the university's Office of International Affairs and the Language Education Center have co-organized EMI workshops for faculty members who are interested in designing new EMI courses or in teaching content courses in English.

Faculty Recruitment for the IFBM Program

Faculty preparation is one of the greatest challenges in designing an EMI program in an EFL context. It is impossible to recruit English native-speaking teachers to teach all the content subjects, so recruiting local teachers and preparing them to teach in English has become particularly critical and urgent for the university.

In response to university inquiries seeking out faculty willing to offer EMI courses, a number of faculty members with academic degrees from overseas institutes were identified. A series of mandatory training sessions and workshops were then organized for these teachers. Three components were addressed in the training process: EMI experience sharing, EMI course video observation with reflection, and hands-on workshops. The EMI experience sharing session helped the teachers to get an idea about the situations they would likely encounter in their future classrooms. A question-and-answer session was held between the experienced teachers and new hands. In the second stage, faculty members were asked to watch a video clip of an EMI course, selected from massive open online courses (MOOCs) by prestigious universities in Taiwan. The participants were asked to write reflective reports on their observation in terms of successful and unsuccessful elements in the class. The last stage was a 4-day workshop which addressed ways to disseminate knowledge in a specific discipline in English, including EMI teaching strategies, EMI classroom interaction, English presentations, lecture sessions on EMI curriculum design in specific disciplines, EMI lesson evaluation, and EMI lesson plan writing. Finally, a 10–15-min teaching demonstration was performed by all the participants as a checkpoint on the training results.

The EMI workshop has been run twice to date: once specifically for teachers from the Colleges of Management, the College of Humanities and Social Science, and the College of Liberal Arts Education and once for teachers from the College of Information and Design and the College of Health Sciences. The workshop was conducted by experienced local trainers in EMI, especially those who had taught or organized EMI programs in the nearby national universities. It was assumed that the local trainers would have a better understanding about what Taiwanese content teachers need and lack in teaching EMI courses.

Case Study and Findings

The IFBM program started to enroll students from the fall semester in 2015. There are 42 students in the program, and the number of full-time faculty members reaches 22. To understand what the students and faculty members thought of the IFBM program, student and faculty questionnaires adopted from Tatzl (2011) were conducted at the end of the first semester with all the students and teachers enrolled in the IFBM program. Both questionnaires included nine questions about students' and faculty's perceptions and experience in the EMI program (Appendix).

The participants in this case study were the 42 students enrolled in the IFBM in the year of 2015, along with the seven teachers offering courses in the program. All together 34 student questionnaires were returned, with a response rate of 80%. These 34 students were all freshmen, among them 35% were males and 65% were females.

All faculty participants, including one female and six males, returned the survey. They were all senior teachers with more than 10 years of teaching experience, and all had expertise in different disciplines, including business and management, accounting, calculus, marketing, and human resources. The teachers reported that they possessed satisfactory English proficiencies for communicating with others academically.

The data were analyzed in the form of frequency counts and the percentage of the total number of answers per item. The open-ended nature of the survey items made the number and diversity of categories vary accordingly.

Benefits Received from the Program

Table 2.1 shows the results of the teachers' and students' attitudes toward the benefits of the EMI program. For the teachers, the primary benefit was the promotion of students' English proficiency, which was also ranked the highest by the students attending the EMI program. Other benefits, from the faculty's point of view, were mainly to strengthen the student recruitment of the university and the internationalization of the institution. For the students, in addition to the positive effects on their English learning, they also agreed that the EMI program could help develop the necessary skills for their future employment.

Participants' Best Experience in the Program

Table 2.2 presents the teachers' and students' perceptions toward their best performance and experience in the IFBM program. Half of the teachers indicated that, in the program, seeing the progress of the students' English proficiency and students' willingness to interact with their peers in English was the most satisfactory

Table 2.1 Teachers' and students' attitudes to the benefits of the EMI program

In your opinion, what are the benefits of the EMI program?		
Categorized answers from teachers	**Number in answers (*n* = 16)**	**Answers in %**
Promotion of domestic students' English proficiency	5	31
Internationalization of the university	5	31
Recruitment of domestic and international students	3	19
Promotion of faculty's teaching profession	2	13
Improvement of students' cross-cultural communication skills	1	6
Categorized answers from students	**Number in answers (*n* = 40)**	**Answers in %**
Promotion of English proficiency	20	50
Boost of English learning	6	15
Familiarization of the language	6	15
Helpfulness for future employment	5	12
Demonstration of the self	2	5
Helpfulness for the further overseas degrees	1	3

Table 2.2 Teachers' and students' best performance and experience

In your opinion, which work are you satisfied the most in the program?		
Categorized answers from teachers	**Number in answers (*n* = 8)**	**Answers in %**
Promotion of the domestic students' English proficiency and their willingness to interact with peers in English	4	50
Students' active learning and participation	2	25
Better communication between teachers and students	1	13
Promotion of teachers' self-confidence	1	13
Categorized answers from students	**Number in answers (*n* = 40)**	**Answers in %**
No answer	6	15
Promotion of English proficiency (different skills and vocabulary)	26	65
Development of appropriate learning strategies to acquire domain knowledge	3	8
Being capable of doing teamwork and attending competitions	3	8
Connection with the world	1	3
Satisfaction with teachers' instruction	1	3

experience for them. By taking the EMI courses in the IFBM program, the students had become active in learning. For the teachers, teaching the content knowledge in English enhanced their communication with the students and increased their own confidence level in their English ability.

Two thirds of the students expressed that they were satisfied the most with their progress in English. About 8% of the students indicated that they had developed appropriate and effective learning strategies in learning the content knowledge, while another 8% indicated that learning in the EMI context enabled them to team up with others to complete projects. About 6% of the students said that they were able to connect with the world through the EMI program and were satisfied with the teachers' instruction.

Challenges During the Course

Table 2.3 presents the challenges the teachers and students had encountered during the EMI courses. Almost one third of the teachers thought that the students' heterogeneous English proficiency level was the greatest challenge when conducting the

Table 2.3 Teachers' and students' challenges during participation in courses

In your opinion, what are the challenges for you during courses?		
Categorized answers from teachers	**Number in answers (*n* = 14)**	**Answers in %**
Mixed level of students' English proficiency	4	29
Difficulties for domestic students to involve themselves in the classroom interactions	4	29
Difficulties in designing lessons to meet individual students' needs	2	14
Not easy to assist students to take Chinese certification tests	2	14
Students' insufficient English listening ability requires teachers to code-switch to Chinese for student comprehension sometimes	1	7
No teaching assistants for consultation outside the classes	1	7
Categorized answers from students	**Number in answers (*n* = 44)**	**Answers in %**
Unable to comprehend the English lessons (listening)	18	41
Unable to comprehend the English materials (reading, technical terms)	12	27
Teachers speak too fast	4	9
Unable to use English for self-expression	3	7
No challenges	3	7
Easy to mind-wander	2	5
Difficult content knowledge	1	2
Slow pace of the lessons	1	2

courses. This also increased the difficulty in arranging class activities, especially group work. Another one third of the teachers reported that they had experienced the difficulty of involving domestic students in the classroom interactions. About 14% of the teachers indicated that planning the lesson to meet every student's need was a great challenge. About 14% of the teachers also reported that, since the students learned the content knowledge through English, it was difficult to assist the students to take any professional certificate tests in Chinese. Almost 70% of students reported that the major challenges in taking the EMI courses came from their insufficient English proficiency to comprehend the lectures and course materials. Other challenges include the teachers' speaking speed, using English to express themselves, difficult domain-area knowledge, and mind-wandering during classes when they could not follow the lectures. Only about 7% of the students reported they had encountered no challenges at all so far.

Challenges in the Preparation Phases

Table 2.4 presents the teachers' and students' opinions about their challenges in the preparation phases, including preparation for the course and for exams. For the teachers, this was a time-consuming job because they needed a lot of time revising

Table 2.4 Teachers' and students' challenges in the preparation phases

In your opinion, what are the challenges for you when you prepare for the courses and exams?		
Categorized answers from teachers	**Number in answers (*n* = 11)**	**Answers in %**
Time-consuming	5	45
Uneasy to find appropriate textbooks or materials	3	27
Uneasy about designing effective activities to boost classroom discussions	1	9
Students' insufficient capability to take English exams	1	9
Development of the course in the secondary specialty area	1	9
Categorized answers from students	**Number in answers (*n* = 44)**	**Answers in %**
Time-consuming in reading English materials	26	59
Limited vocabulary and grammar	8	18
Do not know how to prepare for exams	3	7
Unable to comprehend the exams	2	5
Pressure from exams	2	5
Do not know how to apply the learned knowledge to life situations	1	2
Easy to fall asleep	1	2
No challenge	1	2

the teaching materials, such as the PowerPoint slides provided by the textbook publishers, in order to meet Taiwanese students' needs, as well as composing additional handouts in Chinese for the domestic students. That could be the reason why 27% of the teachers indicated that it was not easy to find appropriate materials specifically for Taiwanese learners. One teacher pointed out that it was difficult to design effective activities to promote classroom discussions, and it was stressful when the course was the secondary specialty area in a teacher's profession.

As for the students, spending a tremendous time for preparation was mainly due to their insufficient English proficiency. They needed extra time looking up new vocabulary and reading English texts. About 18% of the students reported that limited vocabulary and grammar knowledge caused them difficulty when preparing for the courses and exams. About 5% of the students indicated that they had problems comprehending the exam items, and another 5% reported that preparing for the exams in English was stressful.

Challenges During the Exams

Table 2.5 presents the teachers' and students' perceptions toward their challenges during exams. Half of the teachers observed that the students could not understand the test items given in English. This was also the challenge faced by half of the students. About 25% of the teachers indicated there were no challenges for them

Table 2.5 Teachers' and students' challenges concerning exams

In your opinion, what are the challenges for you during exams?		
Categorized answers from teachers	**Number in answers (*n* = 8)**	**Answers in %**
Students do not understand the English exam items.	4	50
No challenges (open-book exams or no exams)	2	25
Students' simplified answers	1	13
Students' stress	1	13
Categorized answers from students	**Number in answers (*n* = 35)**	**Answers in %**
Unable to understand the English test items	17	49
Limited vocabulary	7	20
Unable to answer the item in good English	3	9
No challenges	3	9
Limited time left for answering the items when most of the test time is for reading the items	1	3
Stress from the exams	1	3
Uneasy to get the right answer from multiple choice items	1	3
Difficulties in acquiring the domain knowledge	1	3
Easy to fall asleep	1	3

during exams because they either did not give exams to evaluate the students' learning or they gave open-book exams (that is, allowing the students to use the textbooks during the exam). One teacher reported that the students wrote oversimplified answers in the exam.

Other than those who were unable to understand the English test items, 20% of the students indicated that limited vocabulary had brought them difficulties during exams, and 9% reported that they could not answer the items in good English. Other challenges included time limits for the exams, insufficient test-taking skills, and difficulties in the learning process.

Challenges on Producing Materials and Writing Reports

Table 2.6 reports the teachers' and students' challenges when producing English materials or writing English reports. The challenges reported by the teachers include too much time spent on preparation, uncertain usage of English, and lack of assistance to help students writing in English. About 25% of the teachers claimed that preparing the course materials in English was time-consuming. Another 25% indicated that the vocabulary used in their English materials needed to be general for easy understanding but also precise to meet academic requirements. In addition, 25% of the teachers expressed their concern that their students needed extra assistance to improve their writing in English.

Table 2.6 Teachers' and students' challenges in materials preparation and writing tasks

In your opinion, what are the challenges for you when producing written materials in English?		
Categorized answers from teachers	**Number in answers (n = 8)**	**Answers in %**
Time-consuming for writing material preparation	2	25
Usage of English: more precise yet needs to be easier	2	25
Assistance in students' English reports	2	25
No challenge	1	13
No answer	1	13
Categorized answers from students	**Number in answers (n = 41)**	**Answers in %**
Insufficient English proficiency: limited vocabulary and grammar knowledge	19	46
Dependence on tools for translation	12	29
Unable to comprehend the English materials or documents	4	10
Time-consuming	3	7
Lack of genre knowledge	2	5
No challenge	1	2

Table 2.7 Teachers' and students' demanding language skills

Which of the major language skills is most demanding for you? (Tick only one.)		
Categorized answers from teachers	**Number in answers (*n* = 6)**	**Answers in %**
English listening	0	0
English speaking (discussion)	4	67
English speaking (presentation)	1	17
English reading	0	0
English writing	1	17
Categorized answers from students	**Number in answers (*n* = 32)**	**Answers in %**
English listening	11	34
English speaking (discussion)	4	13
English speaking (presentation)	11	34
English reading	2	6
English writing	4	13

For the students, the main challenge came from their insufficient English proficiency, which led to their dependence on some translation tools or software. About 10% of the students indicated that it was not easy and time-consuming to look for references and comprehend the materials or documents in English when writing their reports or assignments. About 5% of the students expressed the idea that lacking knowledge about academic genres was the main cause of difficulty in their writing.

Demanded English Skills for the Program

Table 2.7 indicates the most demanding English skills claimed by teachers and students. For the teachers, 67% indicated that the most demanding skills were how to lead discussions in the class and give comments to the students in English. In addition, one teacher reported that English presentation skills were demanding, while another indicated that English writing skills were needed.

For the students, listening (34%) and presentation skills (34%) were the most demanding skills required. The students needed advanced English listening skills to understand the lectures and presentation skills to complete the oral presentations required in some courses.

Assistance Needed for the Program

Table 2.8 presents the teachers' and students' perceptions about their need for assistance. For the teachers, 33% indicated that they needed teaching assistants to help them prepare the handouts and to give the students consultations or tutorials after

Table 2.8 Teachers' and students' perceptions of their needs for assistance

In your opinion, what kind of assistance will you need to solve problems in your learning in the EMI program?		
Categorized answers from teachers	**Number in answers (*n* = 6)**	**Answers in %**
Teaching assistants for handout preparation and out-of-class consultation	2	33
Teaching assistant to lead the classroom discussions	1	17
Promotion of students' English proficiency	1	17
Set faculty development community	1	17
Computer lab classroom	1	17
Categorized answers from students	**Number in answers (*n* = 37)**	**Answers in %**
Bilingual (English and Chinese) instruction	14	38
Promotion of English proficiency	7	19
Adjustment of instruction (speaking speed and out-of-class consultation)	6	16
Usage of tools (translation and dictionary)	6	16
Can't think of any	2	5
No needs for assistance	1	3
Teaching assistant's help	1	3

class. Other assistance they needed included helping the students with their English, establishing professional development communities, arranging computers and Internet facilities in the classroom, and recruiting teaching assistants to lead the classroom discussions and promote students' participation.

38% of the students reported that they needed Chinese to assist their learning. In other words, they were hoping the teachers could give Chinese handouts or use Chinese to explain some technical terms during class. About 19% of the students needed help in improving their English proficiency, while 16% reported that they would like to ask the teachers to either slow down their lectures or offer tutorial sessions after class. Another 16% of the students thought they needed to learn how to make good use of tools in their studying, such as online translators or dictionaries.

Suggestions for Future Development

Table 2.9 indicates the teachers' and students' suggestions about the future development of the EMI program. About 23% of the teachers suggested that the program should screen students in the recruitment stage according to their English language proficiency. In addition, the program should recruit more international students to boost domestic students' English learning. About 15% of the teachers recommended

Table 2.9 Teachers' and students' suggestions for the future development of the program

What suggestions do you have for the future development of the EMI program?		
Categorized answers from teachers	**Number in answers (*n* = 13)**	**Answers in %**
Screening students	3	23
Recruitment of more international students	3	23
Recruitment of more teaching assistants	2	15
English environment development	2	15
Development of international school	1	8
Recruitment of foreign teachers	1	8
Fixed class time	1	8
Categorized answers from students	**Number in answers (*n* = 32)**	**Answers in %**
Curriculum design	9	28
Bilingual instruction	7	22
No suggestions	5	16
Make use of the learning platform	4	13
Practical courses	2	6
More teacher-student interactions	2	6
Screen students	2	6
Cancel the program	1	3

that more teaching assistants were needed to help them with after-class tutorials with the students, while another 15% thought the university should develop an English environment and help the students adapt to it. Other suggestions included the recruitment of more foreign teachers and the establishment of an international college to accommodate all the EMI programs.

Most of the students' recommendations related to curriculum design and bilingual instruction. About 28% of the students thought the curriculum design should focus more on improving the students' English abilities at the initial stage, and 22% of them thought the teachers should offer bilingual instruction to help their learning. About 13% of the students suggested that the teachers should make good use of an online learning platform to provide them with the handouts and materials in Chinese. Other suggestions included that the program should offer more practical courses, help students apply the content knowledge to their lives, assist them to get into the exchange program to study abroad in the future, increase teacher-student interactions in the class, and screen students when recruiting them to take EMI courses.

Highlights and Challenges

The results of the surveys provide administrators and university authorities with a deeper understanding about the teachers' and students' attitudes about, and experiences in, the university's EMI program. Concerning the overall benefits of the EMI

program, the questionnaire results show that the teachers and students share a favorable view toward the EMI program. Both the teachers and students indicated that the students had made progress in English. The teachers also agreed that the EMI program had strengthened the internationalization of the university and attracted more students to apply for admission. These findings are an encouragement to the university to continue organizing EMI programs as a way to answer the challenges of globalization.

The difficulties faced by the teachers and students revealed different concerns about how best to organize EMI programs. The students' heterogeneous English proficiency level was the major concern for the teachers in terms of finding appropriate materials and designing adequate activities to meet different students' needs. Therefore, the teachers had to spend much more time preparing and adapting materials than would be necessary if they were teaching in Chinese. They needed to offer handouts in both English and Chinese on the key concepts and technical terms to assure satisfactory learning results.

Despite the benefits of studying a content area in English, many students experienced major difficulties due to their inadequate proficiency in English. It seems many students had problems following the lectures in English; similarly, some had difficulty comprehending the texts and the technical terms in the textbooks. In addition, their inadequate English proficiency made it difficult for them to express their thoughts in either written or oral form and thus prevented them from demonstrating satisfactory performance in their exams and in their classroom presentations. These problems might be solved with additional language-oriented courses to help them improve their English in listening, writing, and presentation for academic purposes. Meanwhile, more explanations and a slower teaching pace might help students cope better with the challenges of EMI courses. In regard to the teachers, they indicated that they could benefit from workshops or training in communication skills so that they could interact with and respond better to the students in the classroom.

It is interesting that both the teachers and the students valued classroom interaction very much in the EMI program. This finding is consistent with much of the CLIL research findings in Europe and implies that, instead of the teacher-dominated lecturing approach, the teachers need to spend more time clarifying course content, encouraging student reflection on their learning, and promoting dialogue between all the participants in the classroom (Dalton-Puffer, 2008; Evnitskaya & Morton, 2011; Llinares & Pastrana, 2013).

The emphasis on presentation skills indicates that the students were expected to speak more during the courses. Although the students also reported that they needed to increase their vocabulary and improve their grammar for writing the assignments and exams, communication skills were valued higher by both the students and the teachers.

Both the teachers and students suggested that more teaching assistants could improve the efficiency of teaching and learning. The teachers expressed the need for help preparing for their courses and for additional help in providing subject matter tutorials for their students. The students could benefit from more help in English, while the teachers suggested that the university needed to screen students according

to their English proficiency level before assigning them to classes. Recruiting more international students and foreign faculty members might be of great help to lift up the efficiency of the program.

The following recommendations for implementing an EMI program are made for institutions in EFL countries based on the survey results.

First, the program curriculum should include more EAP and ESP courses for the students at the initial stage in order to better prepare them for coping with content-area learning in the program.

Second, the program should encourage and assist faculty members to form faculty development communities. Through group effort and interaction with other faculty members, the teachers could share their experience about the most effective way to incorporate more interactive approaches and strategies in handling students' needs.

Third, the institution should organize teacher training and development workshops regularly to assure teachers' professional development. Content teachers need to be equipped first with the skills to use content as the medium to teach needed English skills to the students, and later they need to be helped to develop skills in using English as the medium for content instruction.

Fourth, the institution should screen the students in terms of their English proficiency before admission. Additional language courses should be provided to the students with lower proficiency to facilitate their ability to cope with EMI courses.

Finally, it is critical to give extra resources and funds to the EMI programs in order to provide more English training and tutorial sessions for the students, more rewards for the teachers for their extra effort, more teacher training for the faculty members, and more teachers and staff for the EMI programs in general.

Although organizing EMI programs seems like an answer to today's need to develop a suitable response to the challenge of globalization in higher education, to run a successful EMI program is never easy. The IFBM program at the university where this case study took place began enrolling students in 2015, and the majority of students are still Taiwanese. It is the goal of the university to attract more international students from different regions of the world and to develop the program into a competitive brand. To achieve this, careful planning with a strong emphasis on the academic, administrative, and financial aspects of the program is critical. A system of program evaluation is needed for continuous improvement.

Summary

This chapter presents a case study of an EMI program in the field of international finance and business management in a private tertiary educational institute. The study investigated the teachers' and students' attitudes and experience in the EMI program. The findings show that the teachers and students share a favorable view of the EMI program. From the students' point of view, the greatest benefit was their progress in English, while from the teachers' point of view, the program has

strengthened the internationalization of the university and attracted more students to apply for admission. To improve the program, financial support, administrative assistance, and teacher training workshops are recommended. To improve content-area learning, adequate screening of the students in terms of their English proficiency is necessary.

Appendix

The nine open-ended questions in student and faculty questionnaires are listed below.

1. What is the greatest benefit of an EMI degree program in your opinion?
2. Which aspects of work in the program are you satisfied the most and why?
3. What are the major difficulties for you during the EMI classes?
4. What are the major difficulties for you when you prepare for the course and the exam in the EMI program?
5. What are the major difficulties for you during the exams?
6. What are the major difficulties for you when you need to produce English materials or write English reports?
7. Which of the following English skills do you need the most? (Tick one.)
   English group discussion, English oral presentation, English listening, English writing, or English reading
8. What kind of assistance do you need to solve your problems during the work in the program?
9. What recommendations do you have for the future development of the EMI program?

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Chapter 3
Vertical Integration of EMI Courses in a Medical Curriculum

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Specific Area of Interest: Vertical Integration into Program Curricula

From the institutional viewpoint, especially in countries where English is spoken as a foreign language, one primary goal of implementing EMI courses is to transform traditional universities into world-class institutes through recruitment of more international students and scholars. In such an internationalized learning environment, the global competency of local students can be enhanced through increases in their intercultural awareness and their ability to communicate professionally in English (Byun et al., 2011; Hunter, White, & Godbey, 2006). However, many local university students feel unduly burdened in EMI courses, largely because they feel that what they perceive to be their poor English proficiency, and their associated learning anxiety, seem to have been ignored (Chang, 2010; Cho, 2012; Tsui, 2004). These students feel a big gap between the education goals of the university authorities and their own experience of taking EMI courses and do not see any positive impact on their career opportunities from taking EMI courses. Therefore, simply implementing EMI courses creates a gap between the institutional goals and students' perceptions in many universities.

Interestingly, Taiwan students consider improving English proficiency to be an admirable goal, primarily because it helps students become global citizens and increases their global competitiveness (Chu, 2015). But many are not motivated to specifically partake in EMI courses. If possible, it would be better to align EMI classes with their learning goal of being globally competitive citizens (Chang, 2010). Coyle's model "Content Learning Integrated Learning (CLIL)" identifies four "C" principles to educate students to become globally competent citizens (2002):

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Content in curriculum:	focusing on subject-specific knowledge
Communication:	application of foreign language as a medium for both learning and communicating
Cognition:	development of critical thinking and learning skills
Culture:	implementation of pluricultural issues or elements in learning

In addition to the four "C" principles in CLIL, Reimers (2009) proposed a framework of global-competence education that characterized global competence into three dimensions: (1) a positive disposition, including a strong sense of an individual's own cultural self and empathy toward others; (2) the ability to speak, think in, and understand foreign languages; and (3) a "deep knowledge and understanding" of the world's history and an ability to think critically about global complexities. Both Reimers' framework and Coyle's four "C" principles provide brand-new concepts of implementing global-competence education in EMI-embedded programs.

Instillation of global-competence education into current EMI courses may highlight global competence as an important outcome in medical programs and provide a clear justification of using CLIL for pedagogical modification in EMI courses. Right now, various versions of CLIL have been proposed to address different levels of integration between language and content (Ball, 2009). Current transformation of medical education also addresses different levels of integration between basic and clinical sciences from junior to senior years in a vertical manner. The focus of medical education has been shifted from objective-based (i.e., knowledge acquisition) to outcome-based (i.e., competence) learning (Atwa & Gouda, 2014). Students in vertically integrated programs share a vision as competent medical professionals. The clear learning goals throughout the program determine their actual performance in clinical settings, empower their preparedness for general practice in hospitals, and sustain long-term attachments to discipline-specific clinical practice (Wijnen-Meijer et al., 2015). The concept of vertical integration in medical education provides a framework of implementing various versions of CLIL to a series of EMI courses in the outcome-based curricula. When global competency becomes the major outcome throughout the program, students in EMI courses are able to exercise metacognitive skills by applying their discipline knowledge of basic science to clinical medicine and thereby generate new concepts. All learning activities are designed to increase students' communication ability in English and their confidence for effective engagement with fellow professionals and the public in an international setting.

Background of the Case

Following Japanese occupation, Taiwan's medical education shifted first from a Japanese system to an American-based system and then reformed to a 7-year medical program. As part of this process, major revisions to the curricula included

changing the language of the textbooks used from Japanese to English. English became an important language to acquire medicine-related knowledge. Afterwards, the improvements to Taiwan's healthcare system instilled a great sense of pride, which dramatically influenced students' intention of learning Medicine in English and advancing their studies abroad. The improved healthcare system in the late 1960s attracted most medical students to develop their careers in Taiwan. Because of Taiwan's relatively homogeneous population, English speaking and listening skills typically are not used in local clinics. To accelerate local communication, more of the medicine-related textbooks were translated into Chinese. An increasing number of students preferred to use Chinese textbooks. Both historic changes and societal circumstances lowered the motivation of most all of medical students in the late twentieth century to learn medicine in English. The voice of connecting their medical professionals with the world had been fading out.

In order to understand how our specific EMI course in a vertically integrated curriculum was performed, along with its rationale and how it benefitted the NCKU program, first an understanding of the context with which it was implemented is required, both nationally and locally. In response to the key problem of disconnecting with the world, the Taiwan Medical Accreditation Council introduced world standards for medical education in Taiwan to align Taiwan's medical education practices with global standards. The first phase of reforms was initiated with the introduction of problem-based learning (PBL) in many medical schools. The second phase of medical education reform incorporated the idea of vertical integration within the medical education curriculum to break the barriers among the three established program blocks (originally separated into general education in the first 2 years, basic medical sciences in years 3 and 4, clinical training in years 5–7). The brand-new concept of medical professionalism was also incorporated into this second phase of medical education reform. Intercultural communication and global awareness are now included to enhance medical professionalism. This new movement of vertical integration coupled with medical professionalism has brought strong connection of Taiwan's medical education with the world.

Specifically, the NCKU medical program has evolved considerably over the years as stewards of the program have incorporated many reforms in response to the Taiwan Medical Accreditation Council recommendations as well as inspired personal ideas implemented. Of 12 medical schools in Taiwan, the National Cheng Kung University Medical College (NCKUMC) was the first to raise self-awareness of connecting Taiwan's medical education with the world in the late 1990s, even before the council's recommendations. Dr. Kun-Yen Huang (the founding dean of NCKUMC) in the 1990s had highlighted the importance of English in medical education, created a single tailor-made English course (medical English) for Years 1–2 medical students, and offered financial support to a few Year 6 medical students interested in overseas observership opportunities. After Dean Huang retired, his successors continuously endorsed the important mission of improving medical English for medical students and supported the implementation of the first EMI course (Medical Physiology). The second EMI course (PBL Pathophysiology) for Year 4 medical students was implemented in 2004. After first recruitment of international students in 2006, a new English course (Medical Terminology) for Year 2

medical students was created. Taking the opportunity of the second major medical education reform, NCKUMC incorporated the philosophies of vertical integration and global competence to coordinate the existing EMI courses in the modified medical program. This is the inception of the case study reported in this chapter. The guiding principles for the EMI implementation involved incorporating Coyle's four "C" principles and Reimers framework of global competence education. In the vertically integrated program, the courses in the early years were soft CLIL-like with a focus more on particular English language use to understand and appropriately express content concepts. As students progressed through the program, a transition to hard CLIL-like courses focused on the professional content and the cognitive skills, and English language was merely used as a communicating medium to understand this professional material. During this reform, CLIL-like courses from soft to hard forms were vertically integrated into the medical curriculum.

The vertical integration of CLIL-like EMI courses in the NCKUMC Medical Program did not occur in one single step but was an evolutionary process that happened over several years. The effectiveness of the various course implementations along with the revisions to the curricula of those courses was determined by assessing student perceptions measured in surveys. Since 2002, NCKUMC has mandated that student perception surveys be performed at the conclusion of the overall program and later on at the conclusion of each course. This final survey is issued to students upon their graduation to allow for review and revision of program courses. These upon-graduation surveys have been collected from the graduating classes 2009–2014, which cover the overlapping period when four separate EMI courses became six vertically integrated EMI courses. There were approximately a total of 75 students per graduation year, and on average 90% of medical students completed and returned each survey, which used Likert scales of five response options (strongly disagree to strongly agree).

Case Study

Please refer to Table 3.1 for an outline of vertically integrated EMI courses within the NCKUMC's Medical Program. In this 7-year medical program, the EMI courses that are vertically integrated into Years 1–4 were designed to enhance students' use of English, thinking skills, and content knowledge. The overseas observership training, consisting of both the course and the practicum in foreign hospitals, has the specific goal of helping students acquire international learning experience in Years 5 and 6.

Both basic knowledge and skills related to global competence are continuously reinforced in the six EMI courses over a 6-year period:

Year 1: English, Medicine, and Life focuses on the English language skills of listening and speaking about globally relevant and medically related issues.

Table 3.1 The status of an EMI course in each academic year

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Course name	English, Medicine, and Life	Medical Terminology	Human Physiology	PBL Pathophysiology	English Case Study of Overseas Observership	Summer Overseas Observership Program
Credits	4	2	6	4	1	1
Course status	Required	Elective	Required	Required	Elective	Elective
Students per group	16–20	20–25	8–10	8–10	4–5	4–5

Table 3.2 Students in each graduating class received EMI courses in their 7-year study

Graduating class	English, Medicine, and Life	Medical Terminology	Human Physiology	PBL Patho-physiology	English Case Study of Overseas Observership	Summer Overseas Observership program
2009	✓		✓	✓		✓
2010	✓		✓	✓		✓
2011	✓	✓	✓	✓	✓	✓
2012	✓	✓	✓	✓	✓	✓
2013	✓	✓	✓	✓	✓	✓
2014	✓	✓	✓	✓	✓	✓

Year 2: Medical Terminology focuses on medical terms and the application of medical terms in clinically related simple cases which require guided discussion and brief answers in English.

Year 3: Human Physiology focuses on theories of physiological functions and the application of physiological theories in advanced clinical cases. In this course guided English discussion in a big class is followed by detailed Chinese discussions in small groups of 8–10 students and short presentations in English.

Year 4: PBL Pathophysiology focuses on critical thinking and clinical reasoning with respect to the pathogenesis of a chronic disease. Only 2–3 tutorial groups converse in English and the remaining 5–6 groups operate in Chinese. All groups give short presentations in English.

Year 5: English Case Study for Overseas Observership focuses on intercultural communication in patient-doctor interviews and professional presentations for morning rounds.

Year 6: Summer Overseas Observership Program focuses on hands-on practical experiences in foreign clinical settings.

Table 3.2 indicates the EMI course availability for the different graduating classes, 2009–2014, during their medical education. The graduating classes of 2009 and 2010 only had four separate EMI courses available to them and did not have a chance to participate in the two newly designed courses (Medical Terminology and English Case Study of Overseas Observership). Those in the graduating classes from 2011–2014 had the opportunity to take the six integrated EMI courses and to give short presentations in English during their 7-year study. They were clearly informed that the goals of these courses included a conscious effort to vertically integrate key ideas throughout the program in each individual course's curriculum.

Students in the graduating classes of 2009–2010 experienced both lecture and PBL with no presentations in English, but those in the classes of 2011–2014 experienced more learning activities (Johnson, Saunders, & Tsai, 2013; Tsai, 2013). Case-based and problem-based learning were followed by formal and short presentations in English.

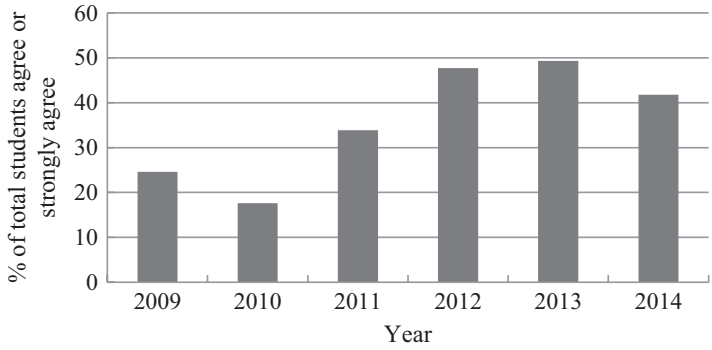

Fig. 3.1 The percentage of medical students in graduating classes from 2009 to 2014 who agree or strongly agree that EMI is an effective learning approach

From the upon-graduation survey of medical students across the graduating classes of 2009–2014, it is important to note that only 25% of students in 2009 and about 18% students in 2010 (before the structured EMI-embedded program was implemented) considered EMI to be an effective learning approach. After the six EMI courses were vertically integrated into the medical program, more self-directed learning activities (including presentations in English) were introduced. More than 30% of students in 2011 considered EMI to be an effective learning approach, and this percentage increased to more than 40% in subsequent graduating classes (Fig. 3.1).

It is of interest to note that the implementation of Medical Terminology in Year 2, and English Case Study of Overseas Observership in Year 5, along with the revision of Human Physiology in Year 3, led to dramatic improvements in the perceptions of some students in the class of 2011. Many of these students agreed that EMI Medical Terminology plays an important role in enhancing the awareness of professional English use in medical education. The implementation of different learning activities in Human Physiology allowed students to experience the beauty of self-directed learning and to practice formal presentations in English. The English Case Study of Overseas Observership highlighted the concept of global-competence education and active learning. Various learning activities in these three courses consolidated vertical integration of the six EMI courses into the existing medical program and greatly improved most students' perceptions on self-directed learning in EMI courses.

The practice of self-directed learning skills in the case-based and problem-based courses changed student perceptions about the overseas observership. Only about 40% of students in 2009 and 30% of students in 2010 considered the overseas observership to be an effective learning approach. After implementing six coordinated EMI courses in the medical program, about 50–60% of medical students in the 2011–2014 years considered the overseas observership to be an effective learning approach (Fig. 3.2), and we did see a small increase in the number of students actually participating in the overseas practicum (Fig. 3.3).

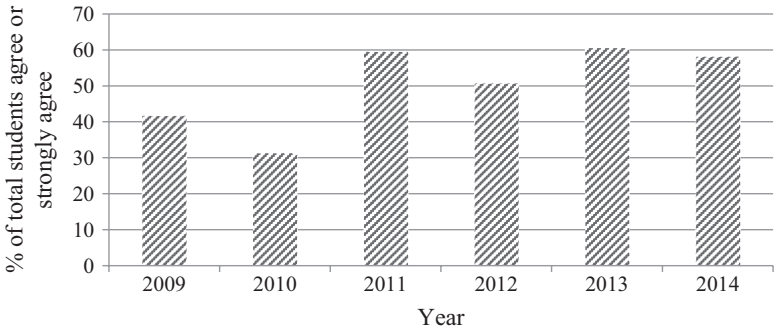

Fig. 3.2 The percentage of medical students in the graduating classes from 2009 to 2014 who agree or strongly agree that overseas observership is an effective learning approach

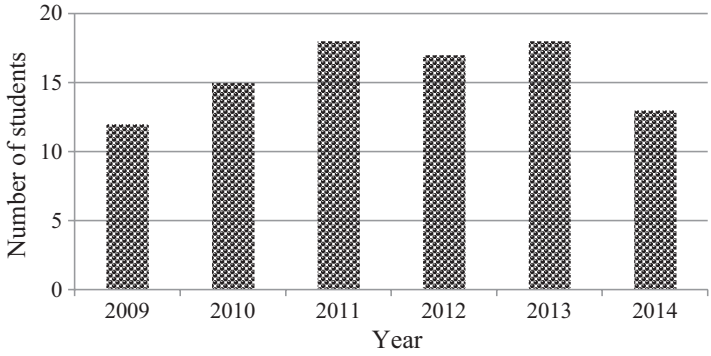

Fig. 3.3 Numbers of medical students in the graduating classes from 2009 to 2014 who received the summer overseas observership training in our international partner hospitals (Note: Three students in the class of 2014 withdrew from the program due to various personal issues)

The improvement in attitudes toward the EMI-based courses just shown is important, but it reflects opinions which are retrospective. Motivation is an important element for learning to occur (Deci, Vallerand, Pelletier, & Ryan, 1991), but it must be present at the time of learning and not afterward. For the next part of this case review, we will address changes to student perceptions within the vertically integrated program. Medical students from the graduating class of 2013 were selected to analyze their perceptions of the EMI courses that they took in their Years 2 and 3 based on excerpts from the end of year surveys for each course with a focus on the following three issues:

1. Difficulties within the EMI course
2. Attitudes regarding EMI courses
3. Attitudes regarding the pedagogical practices used in the EMI courses

As shown in Table 3.3, more than 70% of students from the graduating class of 2013 took Medical Terminology in their Year 2. Of the students who took the course

Table 3.3 The difficulties of the graduating class 2013 in EMI courses

	Strongly agree	Agree	Somewhat agree	Disagree	Strongly disagree
Year 2 – Medical Terminology percent respondents (total 58)					
Unfamiliar with English pronunciation	12	51	22	12	2
English reading	14	62	16	9	0
English listening	14	59	19	9	0
Slowing down my comprehension	10	32	29	24	3
Year 3 – Medical Physiology percent respondents (total 73)					
Unfamiliar with English pronunciation	12	41	26	18	3
English reading	3	3	42	36	16
English listening	4	24	47	19	5
Slowing down my comprehension	4	41	40	7	8

(58 students), about 60% agreed or strongly agreed that they had difficulties in medical term pronunciation, reading English textbooks, and listening to English in the course after 2 years' experience in EMI courses. In their Year 3, all students (78 students) took the required course in Human Physiology. Of these, 73 students returned the end-semester survey. About 53% of these student responses reported agreement or strong agreement regarding their difficulty in medical term pronunciation.

Surprisingly, only 6% of students indicated they experienced or strongly experienced difficulty reading English textbooks, and 28% still had difficulty in listening to English within an EMI course. It is clear that after 3 years of study in this vertically integrated medical program, students show increased confidence in their abilities in English listening and reading and moderate improvements in their ability to pronounce medical terms, but this does not extend to comprehension ability. About 42% of students in Year 2 and 45% of students in Year 3 felt a negative impact from EMI on their comprehension, while only 27% of students in Year 2 and 15% of students in Year 3 did not experience difficulties (Table 3.3). As mentioned previously, Medical Terminology focuses on medical terms and their application in clinical cases, but Human Physiology is more theoretical, covering theories of physiological functions and the application of physiological theories in various conditions. It is likely that the increased depth of the content from Years 2 to 3 may have impacted students' confidence in what they comprehended within this third year EMI course.

With respect to student acceptance of EMI-based courses, there was still an overwhelmingly negative view, with 72% of students in Year 2 and 61% of students in Year 3 not accepting EMI courses (Table 3.4). The vertical integration of courses was an evolutionary process whereby courses (content and practice) were reviewed

Table 3.4 The attitude of graduating class 2013 to EMI courses

	Strongly agree	Agree	Somewhat agree	Disagree	Strongly disagree
Year 2 – Medical Terminology percent respondents (total 58)					
Accept medicine-related EMI courses	2	5	24	50	19
Unaccept medicine-related EMI courses	17	55	22	5	0
Year 3 – Medical Physiology percent respondents (total 73)					
Accept medicine-related EMI courses	11	5	27	30	26
Unaccept medicine-related EMI courses	24	37	24	5	8

Table 3.5 Percent response Year 2 students, graduating class of 2016, to EMI courses (total 69)

	Strongly agree	Agree	Somewhat agree	Disagree	Strongly disagree
Year 2 – Medical Terminology percent respondents (total 58)					
Student English reports related to term-related scenario	12	41	38	9	0
Illustration-related homework	10	38	39	10	2
Good proportion of lectures in terminology and professional content	17	53	26	3	0
Combination with problem-based or clinical cases	20	45	26	5	3
Year 3 – Medical Physiology percent respondents (total 73)					
Case-based learning	32	47	14	8	0
Clinical case-based lecture	10	37	44	10	0
Problem-based learning	5	38	36	16	4
Lectures on content and clinical application	3	19	48	19	10
Review and discussion	12	39	24	18	5

and revised every year based on the feedback given by students. There is still considerably more work to be done, but the modifications appear to have been effective. Using the same measure for the Year 2016 graduating class as was used at the conclusion of the Year 2 Medical Terminology course, the number of students who did not accept EMI-based courses dropped by half to 36%.

The majority of the modifications made to the courses involved revising the pedagogical practices in the EMI courses from teacher-centered learning to student-centered learning. This involved transitioning students from teacher-centered lectures to student-centered PBL (Johnson, Saunders, & Tsai, 2013; Tsai, 2013). Despite the poor perception of EMI, overall student perceptions of the teaching practices and how these improved their comprehension of material were quite favorable (Table 3.5). Students from the graduating class of 2016 in their Year 2, when Medical Terminology was taught, indicated that their most favorable learning for-

Table 3.6 Percent response Year 2 students, graduating class of 2016, to EMI courses (total 69)

	Strongly agree	Agree	Somewhat agree	Disagree	Strongly disagree
My attitude to EMI courses					
I accept EMI courses	10	14	29	33	13
I do not accept EMI courses	14	22	30	25	9
I am aware of the importance of overseas obsevership programs in medical professionalism	22	45	19	7	7
Factor influences my decision to join an overseas observership program					
Future medicine in multicultural community	25	41	23	3	9
Senior's suggestions	16	43	25	12	4
Future development of international medicine	25	45	22	1	7
Cross-cultural communication in clinical practice	30	43	17	4	4
Peer pressure	14	29	41	9	7
About English Proficiency in EMI courses					
I am aware of the important impact of English on professional training in medicine	58	29	9	1	3
I will take English Proficiency Test to ensure English Proficiency	13	28	26	19	14
I wish school offer more training courses to prepare students for EMI courses	22	35	23	13	7

mat was a lecture format, which combined medical terms and professional content (70%). Their second preference were formats that combined lectures with problem-based or clinical cases (65%). At the end of Year 3, when Human Physiology was taught, the most favorable learning format, which 79% of students liked, was case-based learning. Their second best pedagogical choice was review and discussion. These responses, which showed that the least favorable choice was the pure lecture class with only 22% of the students preferring, were very different from the Year 2 responses.

Another critical aspect of this vertically integrated program is that it is biased to promote forward thinking and outcome-based learning (as opposed to the traditional passive thinking of objective-based learning). The premise is if students understand the purpose of what, why, and how they are learning, they are likely to remain motivated to keep learning as lifelong learners. Only more recently have we been able to evaluate how effectively the program is instilling this idea in the students. Now included as part of the end of Year 2 survey, the same year that the Medical Terminology course is included, are questions about whether students are thinking about future participation (three full years away) in the overseas observership program, what factors are motivating them to join the program, and how they intend to prepare themselves (Table 3.6).

A large proportion of Year 2 students from the graduating class of 2016 (67%,) was aware of the importance of overseas observership in cultivating medical professionalism. An increased acceptance of EMI courses may be partially due to students understanding that these courses could provide the chance to practice self-directed learning skills and prepare them for an overseas internship. This understanding may come from senior student advice, as 59% of these students in the class of 2016 agreed or strongly agreed with the influence of a senior's suggestion on their decision to join an overseas observership program. In addition to external motivators (such as seniors' suggestions), internal motivators were also important to change student mindsets. More than 60% of students agreed or strongly agreed with the importance of the following three factors related to global-competence education in making their decision: the future development of international medicine, the change of local communities from homogenous to multicultural, and the impact of cross-cultural communication in clinical practice. Many of these medical students indicated being interested in participating in the overseas observership program, and 87% of medical students considered English to be important in professional training. With regard to how they expected to improve their English proficiency, more than 50% of students preferred to have EMI courses in addition to self-preparation (41%). Results from this survey suggest that global-competence education is an important outcome goal of learning content knowledge in EMI courses.

Vertical Integration Framework in Program Curricula

The theoretical underpinnings of a vertically integrated program encompass five important elements: raised educational stakes, local ownership, a broad university role, longer attachments, and shared workforce vision (Rosenthal, Worley, Mugford, & Stagg, 2004). A clear educational vision increases learner ownership in vertical integration and shifts the paradigm from discovery to purpose-driven learning. The long-term practice of self-directed learning skills allows learners to feel self-empowered, engaged with the material, and to feel that their efforts contribute to their desired learning objectives (O'Donnell, Reeve, & Smith, 2012). Therefore, learners' motivation driven by autonomy, competence, and relatedness to their professional development is a critical determinant of the success in a vertically integrated curriculum (Deci et al., 1991).

The practical realization of vertically integrating EMI-embedded courses in a medical program first required the identification of global-competence in education as a learning goal. Secondly, key elements in global-competence education were identified and aligned with both content and language instruction each year. At the same time, content knowledge and language skills were coupled with self-directed learning activities, including cases or tasks each academic year in the EMI courses (guided by the notion of creating an appropriate transition in order to minimize student anxiety with regard to alien pedagogical practices). This vertical integration of various forms of CLIL in the EMI courses allowed the students to enhance their

Table 3.7 Possible vertical integration of EMI courses into a 4-year undergraduate program

		Outcome of discipline-specific content	Outcome of global competence
Year 1	Term 1 (2 credits)	EAP/ESP courses focus on professional terms and basic discipline knowledge	Application of discipline-related vocabulary and basic English communication in intercultural cases
	Term 2 (2 credits)		
Year 2	Term 1 (2 credits)	Discipline-specific course at the entry level lecture coupled with intercultural elements using case-based instruction	Initial discipline-related critical thinking and discussion in multicultural settings
	Term 2 (2 credits)		
Year 3	Term 1 (2 credits)	Case-based discipline related professional ethics	Making aware global context/ cross-cultural perspectives in speaking
	Term 2 (2 credits)	FULL problem-based learning case study – discipline related	Advanced discipline-related critical thinking on global issues in writing
Year 4	Terms 1–2 (4 credits)	International experience preparation followed by international experience: international internship/observership;	Cross-cultural negotiation skills and professional communication in presentation and writing

global competency by progressively improving the depth of discipline-relevant content with communication skills, cognitive learning, and cultural awareness. Repeated reinforcement, throughout the program, of both language and content knowledge happened by requiring students to think critically about basic and discipline-specific concepts raised in intercultural cases. All this raised their cross-cultural awareness and strengthened their confidence over time to actively participate in an overseas observership opportunity near the conclusion of the program and to cultivate their global competency through action.

The progression began in the first 2 years (Years 1–2) of the program when those courses focused on helping students integrate professional medical terms with English language usage and encouraged the use of textbooks in English – a considerable language focus through understanding how to communicate concepts via English. In the middle years (Years 3–4), as students became more fluent with their professional English, the focus moved to students acquiring a deeper understanding of advanced medical science-specific knowledge – focus on developing communication skills for medical content that uses English. This culminated in Year 5 and the summer afterwards that helped students develop newly learned clinical and professional skills as they were applied in international settings – focus on the professional content, English merely the medium to communicate this content.

We believe that the principles we adhered to can be equally effective when applied to vertically integrating EMI courses in the established curricula of typical 4-year undergraduate programs – as we propose in the framework shown in Table 3.7.

Highlights and Challenges

The overall highlight of our efforts to more effectively incorporate EMI courses into an established medical program was the vertical integration of EMI courses, which had a positive impact on most students, as can be seen in their learning attitudes about EMI and the way in which this vertical integration helped medical students enhance their global competency. More students were willing to explore the world and exercise their intercultural communication skills in our international partner hospitals. In addition to these English features, the whole medical program had a better balance in cultivating skill development instead of the direct instruction which they received in needed medical knowledge. Particularly important was the focus on critical thinking skill development early on in the medical program. The success of this effort was largely due to the progressive manner in which specific teaching practices were incorporated into the various vertically integrated EMI courses – practices which helped mitigate student anxiety about taking on the demands of a new way of learning. All this was realized by introducing only 8% of the total 217 credits as EMI-embedded medical curricula. With only 18 credits across six vertically integrated EMI courses (some being elective), in a context where the rest of the content courses were still offered in Chinese, more than 50% of the students indicated that they had a positive perception about the effectiveness of EMI courses and about the overseas observership.

Typically, challenges in this type of endeavor require the involvement of administrative authority and the enlistment of a core faculty team who can teach the EMI courses. Before the process of transformation can start, the administrative authority should develop an incentive plan to persistently raise the awareness of global-competence education and self-directed learning in all programs. During the transformation period, practical support (such as the systemic implementation of faculty development programs) should be planned ahead to effectively recruit more teachers who are willing to learn the skills necessary to convert their pedagogies from teacher-oriented lectures to student-centered learning in their EMI courses.

After the transformation is in place, the greatest challenge to this kind of EMI-embedded program is sustainability. In Taiwan's national academic institutions, term limits for key administrative positions, and the requirement that faculty assume new roles, mean a constant flux of personnel in key positions responsible for executing various aspects of any reformed program. If the next generation of faculty have not been properly inculcated about the value of the many reforms made, and the hard lessons that have been learned, and do not have the same passion as the original implementation team, then this new group may not be able to adequately advocate for maintaining the complete EMI-embedded curriculum, including the overseas observership program, and will not be able to explain the necessity of each detailed reform so as to counter the types of institutional resistance which always persist. If the program is not continually defended, then some of the gains made with the reforms will erode. Current challenges to the success of this reformed medical program accentuate the need for vigilance to maintain the benefits of the reforms

that have thus far been made and to heighten an appreciation that reform is a never ending process. Sometimes there are major changes and sometimes minor changes, but the program is always evolving.

Summary

Our past experience indicates that the simple implementation of EMI courses in a local university program may create great resistance from several fronts. The coordinated transformation of the existing program, which was primarily taught through Chinese instruction in a teacher-centered approach, now provides greater balance to the program through vertical integration, by being based on global-competence outcomes and by including a little more English instruction that incorporates modern student-centered pedagogical practices. The acceptance of the idea of the need for global-competence education coupled with self-directed learning and student feedback determined the goals and specific elements of this EMI-embedded program. The success of vertically integrating six EMI courses in a coordinated fashion across the program's curricula illustrates the value in identifying students' true needs, rather than just exchanging the instruction medium from Chinese to English. Instead, efforts were made to revise the learning paradigm from the teacher-oriented lecture mode of instruction, which is most familiar for Asian students in EFL settings, to a student-centered approach. The vertical integration of global competence into an EMI-embedded program, culminating in overseas observership opportunities, is not only an innovative curricular design, but, more importantly, is transformative for students. When we as teachers succeed in providing the learning opportunities our students need, they will be able to confidently face the challenges of a modern globalized world.

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Part III
EMI Classroom Practice and Teaching Techniques

Chapter 4
Instructional Language Use in Environmental Science Classroom

Fay Chen

Specific Area of Interest: Instructional Language Use

While the subject of instructional language has been extensively explored in English language teaching, research-based instructional strategies for EMI have yet to receive proper attention. According to Dearden (2015), nonnative English-speaking EMI teachers should not only have a sufficiently high level of English proficiency to use the language to teach but have teaching skills required of EFL teachers. This is because EMI involves more than translating course materials and presentation slides from students' native language to English. EMI, being a new teaching approach, involves authentic language learning in the classroom and often utilizes multilingual communicative strategies to perform various tasks in order to achieve learning goals. The tasks required of EMI teachers include modifying input, ensuring comprehension, and creating an atmosphere where students are not afraid to speak in English, while taking account of different language levels and, occasionally, cultural differences (Dearden, 2015).

Although it is tempting to think that instructors of EMI programs, especially those who have lived in an English-speaking country during their doctoral studies and who are fluent speakers of English, could teach in English, studies have shown that using English to teach a school subject is a specialized skill to be acquired. The language for school disciplines has been theorized as a "curriculum genre" with its own specialized register features: regulative and instructional (Bernstein, 1996; Christie, 1997). The regulative discourse refers to language used to manage the social environment of the classroom in order to achieve a certain teaching and learning goal, whereas the instructional discourse refers to the content, the knowledge that students are supposed to learn. The theory reflects the teacher's dual role as a

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subject instructor and the manager of the classroom, responsible for initiating students into the act of learning.

This is true of all school subjects, and even in mathematics, often considered an area that depends less on language, has its own discourse. The teaching of mathematics, for instance, primarily relies on teacher's spoken language to explain the meaning of the symbols and codes used in the textbook and the blackboard and to create a link between abstract ideas to students' everyday life (Veel, 1999). The language used in the mathematics classrooms is often grammatically structured differently than the everyday language and thus imposes linguistic challenges to learners (Schleppegrell, 2007).

In the domains of science classrooms, language is mainly used to describe and discuss fact, and it commonly serves purposes such as to conduct laboratory experiments, organize scientific information into taxonomies, explain phenomenon scientifically, and challenge an issue through exposition and discussion (Veel, 1997). In terms of content, it often involves telling the scientific story (concepts, technological issues, etc.), describing processes and procedures (how to do something in the laboratory), and explaining or resolving class management issues (e.g., giving instructions on homework) (Scott, Mortimer, & Aguiar, 2006).

Oyoo (2012) classified language in science classrooms into technical and nontechnical components. The former category is made up of terminology specific to a science subject. The excerpt below shows an example of these two classifications of words. The technical or science terms include *gas*, *molecules*, and *volume*. The nontechnical component includes those words that facilitate understanding of the technical terms. Examples of these nontechnical words are *random*, *predict*, *theoretical*, and *neglect*:

> Gas molecules display random motion; we may predict their behavior from theoretical considerations: the actual volume of the molecules may be neglected. (Gardner, 1972, p. 7; quoted in Oyoo, 2012)

Oyoo's study of science classrooms showed that, to explain concepts and operations clearly, effective teachers often use metaphors or physical objects to help students better understand abstract ideas and the same teachers often utilize projects and discussion to involve students (Matthews, 1998, quoted in Oyoo, 2012). In the study, Oyoo reported on a teacher who used a piece of cake as an edible stone to convey the idea of "crystal cleavage." Students were to observe the straight line at the edge of the edible stone and picture a special type of stone, similar to a crystal, which has the tendency to split along straight lines leaving very smooth surfaces. The explanation helped students to understand the word *cleave* to mean cutting in straight lines along the edge.

Specific issue related to EMI is the use of code-switching. In Hong Kong, the use of code-switching has been observed, especially when students' English proficiency is low (Poon, 2013). EMI teachers believe that in some cases the use of both languages helps clarify difficult concepts, builds rapport by reducing social distance (e.g., experience sharing), or introduces terms in which students are more familiar with the Chinese equivalents (e.g., 三聚氰胺, melamine; 金融海嘯, financial tsunami) (Li, 2008).

Background of the Case

Originally a subject in the civil engineering graduate division of a comprehensive university in southern Taiwan, the Department of Environmental Engineering that participated in the current study was established in 1976. The department is primarily responsible for courses related to the topics of water, waste water, air pollution, soil pollution, environmental toxicants, and environmental management. Courses offered in 2016 covered a range of topics in environmental science, such as atmospheric chemistry and application, environmental organic chemistry, trace chemical analysis, combustion principles and control, advanced water treatment, soil chemistry and analysis, pollution prevention and sustainable materials management, green energy technology, climate change and air, and water resource management, to name a few.

The department has 18 full-time faculty members. Most of the faculty members have earned their PhD degrees from universities in the USA (Carnegie Mellon, Georgia Tech, Northwestern University, the University of Missouri, and the University of Wisconsin, among others). In recognition of the extra preparation required, instructors who teach in English are able to reduce their required teaching load.

In recent years, the department has gradually internationalized the curriculum by introducing EMI. During the fall semester of 2015, 10 of the 16 (or 63%) graduate-level courses, excluding seminar courses, were EMI. In the spring semester, 2016, 12 of the 15 courses (or 80%), excluding seminar courses, in the graduate school program used English as the instructional language. A sample of EMI courses offered by the department is presented in Table 4.1.

The primary aim of the department's EMI program is to attract international enrollment and to strengthen domestic students' English language skills. The department chair regularly visits Southeast Asia to recruit international students. In the 2014 academic year, the department had 15 international students in the graduate program, including 4 in the master's program and 11 in the doctoral program. In

Table 4.1 Environmental science classes observed

Classes (graduate)	Class size	Total time of class data collected observation	Duration of teacher interview
Chemical Principles for Environmental Engineering (two teachers)	26 students, including 6 international students	6 h	2 h (1h/teacher)
Water Quality Management	11 students, including 8 international students	4 h	2 h
Soil Chemistry and Analysis	11 students, including 2 international students	3 h	1 h

the 2015 academic year, the department had 14 international students, including four in the master's program and ten in the doctoral program. Countries of origins for these two academic years included those located in Asia and the Oceania region (India, Indonesia, Iran, Kiribati, and Thailand), the Americas (Belize, Canada, Haiti, and the USA), and Africa (Burkina Faso, Gambia, and Kenya).

According to the students' own reports, the EMI courses allow international students to fulfill their dreams to study abroad and learn about another culture while obtaining professional training. The comments below, downloaded from the departmental website, represent a positive view of the program's success in meeting international students' needs.

> [on the overall learning environment] "From the first time I came to this department, I already feel a warm acceptance from the faculty members despite the language barrier (How they tried their best to explain everything in English makes my heart feels warm)."

> [on laboratory training and interaction with classmates] "Not only from the courses, but also from laboratory I can learn some methods and technologies that are new for me. Actually that makes me really nervous and less confident, but again a lot of people, especially my friends, help me to learn that until I am confident enough for doing many things by myself."

> [overall impression] "This department provides many things for me, not only just excellent intensive knowledge efforts by marvelous and kind professors. Many interesting comprehensive course work of environmental engineering field make my strategic vision wider. Many insight experience which I could never have from field trip of great company, factory and others, make me more understanding and help me planning what I want for my future."

While the EMI implementation received positive comments from international students, teachers have unanimously felt that Taiwanese students' acquisition of content knowledge was their top priority. In lecture delivery, teaching in a second language usually meant that less material was covered. In the meantime, the language barrier likely led to students' low comprehension because they were forced to devote more of their cognitive processing to understanding and translating lectures delivered in a second language. According to interviews with the instructors, checking understanding was a problem in class because while international students tended to be more responsive in classes, Taiwanese students were not. Thus it was difficult for teachers to assess whether Taiwanese students had sufficient English listening skills to respond and to know how much content they had comprehended in the EMI classes.

The current study collected data from classroom observations, student surveys, and teacher interviews (Appendices 1, 2, 3, 4). The classes were audio-recorded and their content transcribed for analysis. The instruments also included an observation checklist, which was developed after the researcher and her colleagues watched online engineering courses (Appendix 2). The student survey, administered after classroom observation, contains both closed- and open-ended questions about students' experience with and opinions on EMI implementation (Appendices 1 and 3). To triangulate the data, follow-up interviews, which took place after classroom observation, were conducted with the EMI instructors. The guiding questions for the interviewers are presented in Appendix 4. Data gathered from the classroom

observations, student surveys, and teacher interviews were collected to answer the following questions:

1. What were the teachers' and students' views on EMI?
2. What were the teachers' views on instructional language and lecture delivery?
3. What were the students' views on instructional language and lecture delivery?
4. What were the students' training needs?

Case Study and Findings

The study involved four teachers teaching in a graduate-level environmental science program in a comprehensive university located in southern Taiwan, as well as 48 Taiwanese students and 24 international students studying in the same program. Three classes were observed, and classroom data were collected over 2 weeks of time from March to June in 2015 (Table 4.1). The courses observed in this study were Chemical Principles for Environmental Engineering, Water Quality Management, and Soil Chemistry and Analysis. All three of these classes had international students.

The instruments of the study included classroom data collection and analyses observations, a student survey, and teacher interviews. A total of 13 h of class time were observed, audio recorded, and transcribed. The questionnaire for the Taiwanese students consisted of 26 statements using a 4-point Likert scale (Appendix 1) and six open-ended questions (Appendix 3). Students from the three observed classes and a seminar course (taught by one of the participating teachers) completed the survey during the last class session of the spring semester, 2015. The survey was administered by English teachers of the university to ensure that students would be more honest with their answers.

Four teachers were interviewed at their offices in May and June of 2015. One of the courses observed, Chemical Principles for Environmental Engineering, was taught by two teachers. All four teachers were Taiwanese. Of the four teachers, one obtained his doctoral degree in Taiwan; the other three teachers graduated from universities in the USA. The duration of the interviews was between 1 and 2 h (Table 4.1). The questions for the EMI teachers are included in Appendix 4.

Teachers' and Students' Views on EMI

While this chapter focuses on lecture delivery, a brief discussion on teachers' and students' views on EMI provides the necessary context for the lecture delivery issues to be discussed. In terms of the teachers' viewpoints, the study found that teachers supported the department's decision for EMI, with several reasons impacting this view. Firstly, all faculty members agreed to support the EMI program, and

all teachers were expected to teach in English. This is an important condition because some of the engineering departments at the university tended to require only new teachers or junior faculty members to teach in English. Secondly, all the teachers were already using textbooks, class handouts, and presentation slides in English (as is the custom of most Taiwanese universities), so for teachers and students, the reading materials were the same as before.

The teachers also raised several concerns during the interviews. The EMI teachers reported that classes taught in English required more preparation time. The EMI curriculum involved more than just translating course materials from Chinese to English; the teachers also found it necessary to carefully review and revise existing teaching materials. When the class was taught in English, teachers needed to check comprehension, which meant that teachers usually slowed the pace of course delivery. As a result, according to the teachers interviewed for this study, teaching in English meant that they covered less material than they would have had in Chinese.

A major concern for the EMI teachers had to do with content acquisition. Reasons for this phenomenon, and suggestions to address the problem, were provided by the EMI instructors.

> *Students' comprehension is the most important, so reading and listening competencies are important for EMI. If they can read and listen well, they could understand the content much better.*

> *Even in Chinese-medium class, students often find the theories difficult. Using English may worsen comprehension. So the students may give up.*

> *To enhance comprehension, some universities in other countries conduct preview/ review sessions taught by TAs. So students can be more prepared before class or know what questions to ask during the lecture.*

The interview data revealed teachers' concerns about most of the graduate students in the EMI courses (Taiwanese and nonnative English-speaking international students), who had to overcome both content and language barriers. In regard to teachers' concerns about language problems, it is important to note that most EMI teachers believed that they should not be responsible for teaching students English. However, they were more than happy to talk about their experiences and study skills related to learning the disciplinary content or English.

Generally speaking, the Taiwanese student survey (Appendix 1, N = 48) showed a negative attitude toward EMI. While 75% of students agreed that there was a need for EMI courses (Question 1), 58% of students disagreed that English should be the medium of instruction for discipline-specific courses (Question 2), 69% of students disagreed that they could acquire core discipline-specific knowledge from EMI (Question 3), and 84% of students believed that EMI would lead to poorer intake (Question 4).

However, students have indicated benefits such as improved ability to use English to communicate professional terms, definitions, and basic concepts (70% agreement; Question 5). In addition, students agreed that EMI courses could help them improve their English listening (79% agreement; Question 6) and reading skills (65% agreement; Question 7). On English-speaking skill improvement and gaining

confidence in using English, the responses were not as positive (41% agreement, Question 8 and 46% agreement, Question 9, respectively).

Major challenges for students included understanding discipline-specific terms (71% agreement; Question 10), comprehending discipline-specific content (82% agreement; Question 11), and participating in class discussion (71% agreement; Question 12). The reason for the difficulties was mainly due to the students' English proficiency. Many students felt that their English proficiency was not good enough to understand discipline-specific content delivered in English (55% agreement; Question 13) and to participate in class discussion (65% agreement; Question 14).

Students indicated that they were more motivated and obtained better grades in courses delivered in Chinese (75% agreement, Question 15; 65% agreement, Question 16). In contrast, they usually spent more time previewing and reviewing for EMI courses (58% agreement, Question 17; 73% agreement, Question 18). Thus it is not surprising that 69% of students agreed that the university should offer EMI preparatory courses (Question 19).

From students' written responses, it seems that their expectations of EMI courses varied. While many students hoped to acquire better language skills to enhance their overall professional performance, some students strongly believed that professional knowledge and technical skills are more important than language training, and thus courses conducted in Chinese should be offered as well.

Teachers' Views on Instructional Language and Lecture Delivery

When asked about instructional language, teachers indicated that they tried to use English most of the time and believed that students' listening comprehension would gradually improve. According to teachers' estimates, students could understand 70% of the lecture materials. To help students better comprehend their lectures, instructors utilized the strategies outlined in Table 4.2.

To help students overcome the language barrier, teachers would engage students' attention through visual aids (e.g., PowerPoint slides, charts and graphs, etc.) and discussion of current issues that related students' experience to theories. An example of such teaching materials was using a story inspired by the fictional detective Conan of the Japanese comic stories: "*Conan is trying to identify the murderer who used the icicle to kill a person. He needs to calculate how rapidly the ice will melt…*" The teacher explained his strategy in the following:

> *I used many interesting examples (e.g., Pikachu from the Pokémon characters, the 007 Bond movies, famous Chinese Kung Fu stories) to explain a difficult concept. I designed a problem based on Pikachu in which students had to calculate the size of the ball Pikachu could carry. Students were very motivated to solve the problem.*

To enhance listening comprehension, teachers sometimes chose to switch between English and Chinese. Code-switching was most often observed when

Table 4.2 Examples of instructional language for various tasks

Tasks	What was said
Explain lesson aim	"We are going to focus on the second equation today."
	"We are going to review what we talked last time and then discuss rigid body today."
Define terms with demonstration or concrete example	Example: (Using a 3-D picture to explain "couplings")
	"This is an example. Get a disk here. We turn the table. This big one. We turn the table counterclockwise. Then, the small disk here. Both of them are couplings."
Remind students what they should already know, or relate the lesson to prior knowledge	"You can compare this equation with the one you learned before."
	"You must have heard of this before, right?"
	"Do you know positive definite?.....You can go back to check the book"
	"You learned about Newton and the concept of gravity in high school, so it is just like it."
Highlight important information	"Can I have your attention here?"
	"This should be highlighted"
	"This is very important for your exam"
Use signpost language	"Next"
	"Then"
	"The following is…"
	"Let's move on to..."

announcing that class was about to begin, trying to relate something to students' prior knowledge, checking comprehension, asking probing questions, building rapport, and getting students' attention. When teachers used Chinese, they would reassure international students that the information would be repeated again in English. In general, while all teachers used code-switching to some extent, each teacher had their own code-switching strategies.

> *[Code-switching] might help students' comprehension, but I think it is not good. Students may expect Chinese and ignore English. They would wait for the Chinese part. However, I still use English and Chinese in class. I think the complicated content should be explained clearly for them to understand better, so I use more Chinese for it.*

> *I think the better way is to use code-switching differently as students gain more experience. For instance, the EMI class in freshman year can adopt 40–50% of Chinese. 30% of Chinese can be used in sophomore year, and 20% in junior year and no Chinese used in senior year might work better.*

> *I tended to use more English in the beginning of the course, because the content is to review what they had learned in high school. However, I would use more Chinese in the latter sessions of the course which involves new knowledge. In order to make them understand, I use Chinese now often to teach difficult concepts.*

According to classroom observations, the situations where teachers used Chinese or engaged in code-switching were as follows (Table 4.3).

Table 4.3 Contexts when code-switching was used

Context	What was said	English translation	Comment
Announcing the start of class	上課了	It's time to start class	The teacher used Chinese to announce the start of the lecture
Relating something to students' prior knowledge	台南市	Tainan City	Both English and Chinese terms were used to enhance students' understanding
	曾文水庫	Tsengwen Dam	
	三聚氰胺	melamine;	
	921 地震	Taiwan's earthquake on September 21, 1999	
Checking comprehension	有沒有問題?	Any questions?	The teacher used Chinese to check comprehension. Then the teacher continued the lecture in English
	為什麼要這樣做呢?	Why did it happen?	
	老師有講過喔!	I have explained this before	
	Is it okay? (no response) 到底有沒有問題? 可以嗎?	Are THERE any questions? (with emphasis)	In this scenario, the teacher used English first and then, where there was no response, repeated the question in Chinese (with emphasis) to solicit a response
		Is everyone okay with what was said?	
Asking critical or probing questions	"所以這樣是對的嗎?"	So, is this correct?	To get students to think, the teacher usually used Chinese
	"這樣對嗎?這位同學"	Is this correct? (pointing at a student) This student [what do you think?]	
Building rapport	很累喔?昨天做甚麼?	You all looked tired. What did you do yesterday?	When students were unresponsive, teachers often used Chinese to reduce the social distance
Getting students' attention	T: 有人睡著了:	T: Someone has fallen asleep	When students didn't pay attention, the teacher might tell a joke in Chinese or call on a student to answer a question in order to get their attention
	S: 沒有 (some students woke up.)	S: We didn't (Some students woke up.)	
	情侶不要坐在一起, 會干擾別人上課。	(jokingly) Lovers should not sit together. You are distracting the rest of the students in the class	

To reduce the burden on students related to concerns about their English language proficiency, and to encourage participation, teachers allowed students to use Chinese to ask and answer questions. As long as students were willing to speak in class, either language was acceptable. When this happened, teachers would translate the questions from Chinese to English for the international students. In regard to performance assessment, according to teacher interviews, the examination questions were always written in English, but students had the option to answer in Chinese. On assessment, teachers expressed the following:

> *It is fine with me [that students used Chinese to answer my questions], because it is not an English class. The content is the most important. When they can answer me, even in Chinese, it means that they understand it.*

> *Although the test is written in English, students don't really need to use descriptive English words in the exams. Most are formulas and equations. There are more symbols and numbers. So language is not the problem for assessment.*

Students' Views on Instructional Language and Lecture Delivery

In general, the survey results (Table 4.2) revealed that students viewed the instructional language as a barrier. With English as the primary language, the classroom environment was less conducive to learning (84% agreement; Question 20), and the classroom language lowered students' willingness to participate in class (80% agreement; Question 21). The surveys indicated that teachers should use more Chinese at the beginning of the term and then gradually increase the use of English in class (81% agreement; Question 22). Of the students surveyed, 94% indicated that it would be helpful if teachers repeated the content in Chinese (Question 23) and used charts, tables, and examples (75% agreement; Question 24). In general, students believed that teachers' instructional methods were more important than how well they spoke English (77% agreement; Question 25) and that teachers' communicative and presentation skills were more important than oral skills (82% agreement; Question 26).

Students' written responses showed that EMI teachers should have clear pronunciation and speak at a moderate speed. Regarding delivery of the lecture, the students indicated that teachers should be able to vary their tone and speed and keep the lecture lively. On content presentation, it was also important for teachers to organize information graphically and to present abstract ideas from simple, basic concepts to more complex topics. A good teacher is one who regularly checked students' levels of attention and understanding. To aid comprehension, students suggested that teachers provide examples or be able to express complex ideas with simple words, phrases, and sentences.

EMI Students' Language Training

On language training of students, the teachers believed that academic writing was important for graduate students, and thus the university should offer more writing workshops. An ideal program would involve systematic training that began in students' undergraduate years so that students would be able to produce journal papers in English when they started their graduate studies. While EMI teachers believed that students needed language training, they also indicated that training should be done through students' self-study or be provided by English teachers. The following responses were collected from the teacher interviews. Note that teachers have expressed different views regarding how English teachers could help students learn vocabulary.

> *English teachers can teach them how to listen for the key words in a lecture, how to take notes, and how to ask questions.*
>
> *[On teaching engineering vocabulary] English teachers could only teach pronunciation, but students still can't understand the meaning of the terms. As a result, it may not be helpful.*
>
> *If English teachers can also teach them the vocabulary related to the professional content, it'd be helpful. It is not necessary to explain a lot about the words, but let them get familiar with the sound and the words. When they see or hear the word in the EMI class, they could quickly pick up the words.*
>
> *"Students' listening ability is also important. If their listening is enhanced in the English class, it means they are better prepared for EMI classes. English teachers can introduce various materials for self-learning such as movies, online courses, and YouTube videos.*

The student survey showed that there is a need for language training (69%; Question 19), and their written responses indicated training needs in the areas of English listening, speaking, reading, writing, presentation skills, and disciplinary vocabulary. The students expressed a desire to be able to think and speak in English fluently without fear and without an internal voice translating from Chinese to English. Specific skills they hoped to learn from EMI courses also included the ability to quickly understand content delivered in English, how to use technical vocabulary, and how to express one's professional knowledge in English.

Instructional Language Framework

Based on the literature review and information collected from this case study, it is clear that lecture comprehension is a priority for both EMI teachers and students. The following information on instructional language and lecture delivery strategies is provided for the reference of instructors if they are interested in enhancing their skills in delivering lectures. Information presented in this section includes types of instructional language in school science (Table 4.4), classroom management language (Table 4.5), and context for code-switching (Table 4.6). Tables 4.4 and 4.5

Table 4.4 Types of instructional language in school science

Types	Purposes/tasks	Example of language
Doing science	Describe purpose of experiment (e.g., to test hypotheses)	*We are doing this experience to see…*
	Describe lab procedures (e.g., record observation and methods)	*I want to begin/start with; the second step is; next*
Presenting science: telling the scientific story	Describe phenomenon	*The same thing was observed with…*
	Classify scientific knowledge	*Here's the taxonomy for fault handling techniques.*
Explaining events scientifically	Give sequential explanation (explaining a sequence chronologically)	*The life cycle begins with…; After 6 days…; Four weeks later…*
	Give causal explanation	*The phenomenon is caused by…*
	Give theoretical explanation	*This can be theorized as…*
	Give factorial explanation (explaining multiple causes)	*The defect is traceable to multiple causes.*
	Give consequential explanation (explaining multiple effects)	*This phenomenon is believed to be the consequence of…*
	Conduct exploration	*What are some possible explanations for this?*
Challenging science	Present scientific argument	*One of the major problems with this is that…*
	Present an alternative	*Let us look at this in a different way…*
	Give an exposition (arguing for a point of view)	*This is more plausible because…*
	Lead a discussion (two or more points of view)	*What are some possible explanations for this…*

were compiled based on the teaching categories and various purposes discussed by Scott et al. (2006) and Veel (1997). Instructional language in the science classroom consists of four types: doing, presenting, explaining, and challenging science. The classroom management language table is divided to two parts: language used at the beginning of the course and those used in each class. The contexts for code-switching were developed based on Poon (2013), Li (2008), and findings from the classroom observations of the current study.

On code-switching, the contexts and how students' mother tongue is used are summarized in Table 4.6. The contexts include checking comprehension, asking questions, building rapport, getting students' attention, activating students' prior learning, and making announcements.

Table 4.5 Class management language

Types	Purposes/tasks	Example of language
Class management: at the beginning of the course	Introduce course goals	*You'll learn how to…*
		You'll be able to…
	Describe course context: student profile and the role of this course in the curriculum	*There are no prerequisites. This course serves as a prerequisite for X course*
		This is an elective course
		You'll need…to complete this course successfully
	Describe course content: concepts, themes, skills developed	*We'll be covering…*
		The course is divided in the following parts
	Introduce textbooks and other learning materials	*The textbook is…*
		There's also a collection of short reading texts
	Introduce the syllabus	*Let's talk about the schedule of our course*
		We'll start with…
		In week 2, we'll start talking about…
		Toward the end of the course I want to…
	Explain grading policies	*The grading policy is as follows:*
		A percentage system is used in this class
		The midterm and final examinations account for X percent
	Introduce self and TA	*My name is… I'm the instructor of this course*
		We have two teaching assistants for the course
	Provide office hour and contact information	*My office hours are…*
		Email me at…; my office is located at…
Class management: for each class	Make announcements	*The class will not be meeting this coming week. The class will resume on Monday*
	Greetings	*Welcome; it's good to see you all today*
	Review previous lesson	*We'll begin by reviewing the main points from last week*
	Start today's class	*What we'll do first is…*
		I want to start with…
	Conclude each class	*Here's what I have for today; thank you for your participation*
	Summarize today's lesson	*Before we end today's lesson, let's quickly go over the main points discussed today*
	Assign homework	*Before next class, you should finish…*
		Submit your report to Moodle
	Give quiz/exam information: coverage and format	*The questions will be multiple choice, short answer…*
		The midterm exam is open book

Table 4.6 Contexts for code-switching in lecture delivery (English + Chinese)

Contexts	Functions of Chinese
Checking comprehension	Ask "Any questions?" or "Do you understand?" in Chinese
Asking critical or probing questions	Ask "Does this sound right?" or "Why did this happen?" in Chinese
Building rapport	Ask "You all look tired. What did you do last night?" in Chinese
	Interrupt lecture by sharing teacher's own English learning experience
Getting students' attention	Used to get students' attention
Activating students' prior learning	Mention a local city or a famous event in Taiwan (e.g., the 921 Earthquake)
	Repeat some technical words or terms in Chinese because students learned the Chinese equivalents in high school
Making announcements	Announce that the lecture is about to begin
	Announce important information such as examination dates and assignment due dates
	Announce grading policies

Positive Features, Challenges, and Pedagogical Implications

The current study has identified several positive features associated with the EMI program. As mentioned throughout this chapter, both EMI teachers and students shared the same learning goal: they all considered content knowledge acquisition to be the primary goal of EMI courses. Thus, teachers and students all agreed that training in English academic reading and listening is important. The study also shows that instructors in the EMI program take their teaching very seriously and have employed different strategies to help students cope with language difficulties in order to acquire content knowledge. As a result, students have reported improvement in both their reading and listening.

The study also points to several challenges. Firstly, students have indicated limited comprehension due to the language barrier. They have problems understanding discipline-specific terms and comprehending technical content. In addition, students have indicated that teachers should use Chinese more often and gradually increase the percentage of English as the course progresses. In the EMI classrooms observed in this study, it was found that code-switching was a common strategy and different approaches were adopted by EMI teachers. For instance, some teachers believed in using more Chinese at the beginning of the course, when students were new to EMI, and then gradually using more English when students have had more exposure to English lectures. Other teachers have used more English at the beginning of the semester when the content was relatively easier and used more Chinese for later when difficult concepts were presented. While code-switching may help explain difficult concepts and reduce students' anxiety, it is overall difficult to determine how much Chinese should be used in an EMI program.

This study reveals several pedagogical implications for EMI teacher training. To be more effective in EMI classrooms, it is important for lecturers to understand the

nature of language use in university classrooms. Teachers need to be aware of the difference between written and spoken language and the use of discourse markers so that they can present textbook information more informally. EMI teachers can benefit from English presentation training materials that cover topics such as the use of voice, body language, and discourse markers.

To enhance delivery, speakers need to be aware of how to combine multiple modes of expression: speech, writing, image, and body language (Morell, Garcia & Sanchez, 2008). Effective strategies include explaining the ground rules for the class, maintaining an appropriate speed of speaking, using visual aids and guiding students' note-taking, reformulating questions and waiting longer for an answer, paying attention to feedback from the listeners (verbal and gestural), and varying the format and dynamics within a lecture.

Although EMI teachers are not language teachers, it would be helpful to understand the process of lecturing from the students' perspective and how L2 affects students' listening comprehension. In Taiwan, most EMI courses do not ask students to meet English-proficiency requirements, and thus almost all EMI instructors must work with students of mixed levels. Thus it is important for lecturers to look out for signs that their students are having problems understanding the lecture, give examples that are appropriate to students' various backgrounds, and create a relaxed atmosphere where students are not afraid to ask questions (Lynch, 2015).

EMI teachers can benefit from collaborating with language teachers who are familiar with students' listening comprehension problems and who can provide training to students. From the students' point of view, a major difficulty for students is the lack of control over the speaker's lecturing style (Lynch, 2015). If the lecturers are native speakers of English, a general consensus is that teachers often speak too fast. If the instructors are nonnative English speakers, students may need to deal with understanding different accents. In an EMI study of a Swedish university, it was found that in general students were less able to follow EMI lectures and take notes; similarly, fewer questions were asked and answered than would have been the case if the lecture was in the students' first language (Airey & Linder, 2006).

Finally, for personal development, EMI teachers can improve oral skills by joining speech clubs such as Toastmasters International or working to enhance their lecturing skills by viewing online open course lectures. Moreover, EMI teachers can share their own English learning experience with students as a way to encourage students to become independent learners of English.

Summary

This chapter reported on findings from classroom observations, teacher interviews, and student surveys in three graduate-level environmental science courses in order to understand the instructional techniques used by EMI teachers. Based on prior research and a case study, this chapter compiled a list of language issues related to EMI classes, suggested strategies to improve lecture delivery, and proposed ways in which EMI teachers can improve their own and students' English proficiency.

Appendices

Appendix 1: Results of Student Survey (N = 48)

	Question	Strongly disagree 1 (%)	Disagree 2 (%)	Agree 3 (%)	Strongly agree 4 (%)
1	I believe there is a need for EMI courses	6	19	50	25
2	I believe English should be the medium of instruction for discipline-specific courses	25	33	35	6
3	I can acquire core discipline-specific knowledge from EMI courses	23	46	27	4
4	I believe English as the medium of instruction will lead to poorer student intake	2	15	44	40
5	Through EMI courses, I learned to use English to communicate professional terms, definitions, and basic concepts	4	25	60	10
6	EMI courses can help improve my English listening abilities	6	15	56	23
7	EMI courses can help improve my English reading abilities	6	29	46	19
8	EMI courses can help improve my English-speaking abilities	17	42	31	10
9	Because of EMI, I have gained confidence in using English	21	33	38	8
10	In an EMI course, the biggest challenge for me is understanding many discipline-specific terms	6	21	46	25
11	In an EMI course, the biggest challenge for me is comprehending discipline-specific content	4	15	40	42
12	In an EMI course, the biggest challenge for me is that, due to insufficient oral and listening skills, I am unable to participate in class discussion	6	23	46	25
13	My English proficiency is not good enough to clearly understand discipline-specific content delivered in English	10	35	40	15
14	My English proficiency is not good enough to actively participate in EMI classroom discussion	6	29	40	25

(continued)

	Question	Strongly disagree 1 (%)	Disagree 2 (%)	Agree 3 (%)	Strongly agree 4 (%)
15	I am more motivated when I study in courses delivered in Chinese	2	21	23	52
16	I obtain better grades in courses delivered in Chinese than in EMI	0	33	23	42
17	I spend more time *previewing* material for my EMI classes than regular classes in Chinese	8	31	31	27
18	I spend more time *reviewing* material for my EMI classes than regular classes in Chinese	6	19	31	42
19	I agree that the university should offer EMI preparatory courses	10	19	50	19
20	If the teacher teaches in English, the classroom atmosphere would be less conducive to learning	2	13	46	38
21	I believe that EMI courses reduce students' willingness to speak out in class	2	17	38	42
22	To be more effective, EMI teachers should use Chinese as the main medium of instruction at the beginning of the semester, and then gradually increase the use of English in class	0	19	46	35
23	I think it would be very helpful if teachers repeat the content in Chinese	0	6	31	63
24	I think it would be very helpful if teachers use charts and tables, or give examples in English	4	21	42	33
25	I think a teacher's instructional methods are more important than how well they speak English	4	19	35	42
26	I think a teacher's communicative and presentation skills are more important than their English-speaking skills	2	17	44	38

Appendix 2: Classroom Observation Checklist

Faculty member evaluated: _____ Date: _____
Evaluator: _____ Course: _____

Category		Response			Comments
Opening		**Yes**	**No**	**N/A**	
1.	Open lessons/units with review and/or questions such as, "What do you know about…? Have you ever…? Remember last week we…?"				
2.	Use strategies that capture student attention and interest (e.g., jokes, fun talk)				
Classroom English		**Yes**	**No**	**N/A**	
1.	Code-switch when students don't understand				
2.	Strategy to define terms				
3.	Strategy to give comprehensive examples				
4.	Use "signpost language" (e.g., signaling cues) to guide the class through the lecture.				
5.	Apply transitions between activities/points				
6.	Use clear instruction to explain classroom process				
7.	Encourage students to ask question				
8.	Use appropriate words to end the class.				
Delivery		**Yes**	**No**	**N/A**	
1.	Speak with confidence and authority (Ex. lecturing and/or answering to students' inquiries)				
2.	Communicate a sense of enthusiasm for the subject matter				
3.	Adjust voice volume, refine the pitch, alter the rhythm and tempo, and control the timbre to emphasize key point				
4.	Consistently interact with students (e.g., Q&A, jokes…) and encourage classroom discussion				
5.	Restates questions and answers				
6.	Ask critical and probing questions				
7.	Restate questions and answers				
8.	Apply appropriate activities for thought provoking and encouragement of critical thinking				
9.	Consistently remind students the skills they are learning or using				
10.	Visual-aids are clear, legible and effective				
11.	Lecturing time is appropriate and make changes according to students' attention span				
12.	Responds to nonverbal clues of confusion boredom, and curiosity (e.g., jokes, tasks)				
13.	Key points are emphasized by using body language, eye contact, gestures, intonation, or pace control as needed				

(continued)

14.	Modify instruction, pacing, and/or materials to accommodate special needs of students (e.g., reteaching, small group pullouts, supplementary materials, cooperative learning with cross-skills grouping, individualized instruction)				
15.	Have appropriate delivery pace and allow time for note-taking				
16.	Offer authentic application				
17.	Engineer effectively pair/group discussion				
18.	Help quieter students interact with others				
19.	Intervene and monitor progress of students (e.g., asking questions or checking their understanding)				
20.	Apply a variety of and appropriate resources				
Classroom atmosphere		**Yes**	**No**	**N/A**	**Comments**
1.	Active and lively student participation				
2.	Warm, open, and accepting				
3.	Use student names				
4.	Opportunity for students to provide feedback				
5.	Treat students with respect				
6.	Positive reinforcement				
7.	Inviting and responding				
Use of technology		**Yes**	**No**	**N/A**	**Comments**
1.	[instruction] Effectively incorporating a variety of instructional technologies (e.g., PPT, blogs)				
2.	[material] Use of technology to provide relevant knowledge (e.g., Youtube, MOOCS, Open University)				
3.	[interaction] Use of email, learning platform(e.g., Moodle), or social network (e.g., Facebook, Twitter) to communicate with the class				

Appendix 3: Student Survey: Open-Ended Questions

1. After taking EMI courses, have you seen any changes in your English skills such as in listening, speaking, reading, and writing? What has caused the changes?
2. After taking EMI courses, what skills should you have gained that are different from courses delivered in Chinese?
3. Before enrolling in EMI courses, what skill training is needed for students?
4. What should be the learning outcome from an EMI course?
5. After taking EMI courses, what do you think are necessary skills or teaching techniques that will make EMI teaching more effective?
6. Other comments.

Appendix 4: Teacher Interview Questions

Part 1: Structural Questions

1. What do you think about EMI education?
2. What is the major obstacle in the promotion of EMI (e.g., too costly to operate, no comprehensive policies, different stakeholders, no qualified teachers, no guidelines, no standard level of English for EMI teachers)?
3. What is the main challenge in EMI teaching (e.g., no sufficient teaching resources, not enough qualified teachers, problems for exams and assessment)?
4. Do you expect English teachers to support EMI education at NCKU?
5. Can Chinese help you in EMI classes? When would you switch to Chinese?
6. What are your views regarding English as the medium of instruction in Taiwan?
7. What are your suggestions/alternatives regarding English as the medium of instruction at NCKU?
8. How did students in EMI classes respond to the implementation of the classroom language policy?

Part 2: The Skills a Student Should Possess in an EMI Class

The seven skills are as follows: How to ask questions? How to increase T-S and S-S interaction? How to work in group? How to be more confident in using English? How to explicitly and analytically express opinions? How to describe a scientific concept? How to read a mathematical formula or a chemical formula?

What other skills do you think students should possess in an EMI class?

Part 3: Specific Questions

Language and Interaction

1. Based on your teaching experience, how does classroom interaction change as the medium of instruction changes? Are EMI classes more interactive or less interactive?
2. Do you think making the classroom interactive is important? If yes, what skills do you utilize to make the classroom more interactive? If not, what are your reasons?
3. If you asked questions in English, and your students used Chinese to answer you, what would you think?
4. In the very first class of the semester, do you need to spend some time preparing students for classroom language?

Skills

5. What skills might help to enhance students' understanding (e.g., how to begin a sentence, how to draw a connection between one point and another, how to define technical terms, how to ask questions, how to lead a group discussion…)?
6. In classroom observation, we noticed that teachers rarely read aloud the whole formulas you have written on board. Do you think engineering students need to know how to describe a formula? Is it an important ability for them?

Assessment

7. How do you assess your students? By exams, papers, projects, or another method?
8. Do you prepare bilingual exam papers?
9. Is language choice a factor that influences students' grades?
10. Do you think the learning of academic subjects is improved by EMI? Does it lead to deeper understanding? If so, by which groups of students? (All students? Only international students? Only home students?)

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Chapter 5
Interactional Skills in Engineering Education

Wenli Tsou

Specific Area of Interest: Classroom Interaction

Within the discipline of science and engineering education, there is a gap between findings from educational research and classroom practice (Eilks, 2003). This gap reflects the need to find a balance between natural and engineering sciences (e.g., mechanical engineering) on the one hand and education as a social science (e.g., classroom interaction) on the other. Because the objectives and methods applied in the study of science/engineering and education differ, approaches to instruction vary, and this may help explain why insights gained from educational research are seldom applied in curriculum development and teaching practices in engineering education.

It is safe to assume that engineering faculty members are seldom educated in the methods of doing engineering education research. Their primary concerns are coping with everyday teaching practice and covering as much content as possible during class sessions. This may explain why the effectiveness of student-centered instructional and assessment practices are well documented in educational research, but instructors in science and engineering more often use traditional or teacher-centered approaches, such as lectures and reading assignments from textbooks (Walczyk & Ramsey, 2003).

Calls to develop engineering students' cooperative and team skills are not new (Olds, Moskal, & Miller, 2005). Recently, new accreditation standards, published by the Accreditation Board of Engineering and Technology (ABET), have called for measurement of student learning outcomes such as an ability to function in multidisciplinary teams, effective communication skills, and a commitment to engage in lifelong learning, to name a few (ABET, 2015). As a result, recent studies have

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found an increasing use of student-centered teaching practices in engineering classrooms, such as active and collaborative learning, frequent and detailed feedback to students, and assessment methods using peer and self-assessments of learning (Lattuca, Bergom, & Knight, 2014; Olds et al., 2005).

These interactional skills, also known as performance skills, are important because engineers often work in teams composed of other engineers and professionals from other fields. Engineers are also required to communicate with clients and customers. While these skills are important in the workplace, related training is often not included in engineering education (Seat & Lord, 1999). More often than not, instructors merely group engineering students into teams and expect them to be able to work together. Instead, instructors need to be aware of how important skills needed on the job can be taught in the classroom.

A topic closely related to classroom interaction is active learning, an instructional approach discussed in Prince (2004). As an alternative to traditional teaching methods, active learning tends to be more student centered and requires student participation, thus yielding higher levels of student engagement. Prince (2004) has defined four features associated with this instructional approach: active learning, collaborative learning, cooperative learning, and problem-based learning (PBL). Active learning generally refers to classroom activities that encourage students to think about what they are learning. Two core elements of this method are introducing activities into traditional lectures and engaging students in the learning process (Prince, 2004). One simple way is for instructors to stop the lecture every 15 min and ask students to perform a short activity such as working in pairs to compare notes with each other. This method considers the attention span of the students and allows students to take a break before their minds start to wander. As student engagement is an important indicator for improving conceptual understanding, the activities must engage students and the tasks should align with the lessons to be learned.

Collaborative learning refers to classroom activities that require students to work together in small groups to achieve a common goal. These group-based instructional methods emphasize teamwork and student interaction. In contrast, cooperative learning is defined as a special form of group work where students must work together but their work is assessed individually. Although both collaborative and cooperative learning center on developing interpersonal and team skills, the latter approach aims to create a learning environment where the value of cooperation, rather than competition, is promoted.

Project-based learning (PBL) provides a natural environment for students to acquire problem-solving and lifelong learning skills. It is characterized by self-directed, independent learning with minimum intervention from instructors. The benefits of PBL include more positive student attitudes, a deeper approach to learning, and retention of knowledge (Prince, 2004). It has also been found that the skills learned can be further enhanced with explicit instruction in problem-solving. While most research data on PBL come from studies of medical students, for whom PBL is commonly used, instructors of engineering classes that adopt case study curricula will find the instructional method informative in encouraging student participation through idea generation and discussion.

Seat and Lord (1999) developed an interdisciplinary program drawing upon the expertise of professionals from engineering and psychology, and it has been successful in introducing interaction skills training to engineering students. Specific skills utilized in engineering problem-solving were adapted and incorporated into the training program. These skills included interviewing for information, presenting ideas, giving feedback, exchanging ideas, and managing conflict on the team, to name a few. In one of the training sessions, students were first taught strategies for effective listening. After classroom practice, the students were asked to interview two people, an expert and a novice, to see how each of them would do the same activity (e.g., golf, soccer, playing the guitar, or speaking Spanish). The training allowed students to first develop interaction skills with simple activities before utilizing professional skills in performing engineering projects.

Teachers interested in interactive skill training can also learn from Daly, Mosyjowski, and Seifert (2014). Their study suggested several ways in which instructors can better support engineering students in their learning. For a start, learning goals must be clearly communicated in class, and these goals must be carefully aligned with learning plans and assessment to provide a more complete learning experience. It is only through these efforts that students will understand that interactive skill training is an important component of the course. According to Daly et al. (2014), although assessment of soft skills such as creativity or interaction is not straightforward, rubrics can be developed to evaluate students' competence in specific tasks such as generating ideas, reflection, or taking action. Activities to promote these skills may be as simple as assigning homework that requires students to suggest multiple ways to solve a technical problem.

In training interactive skills, instructors in the Asian context often need to deal with additional issues such as cultural factors, learning styles, and assessment approaches. Students are often viewed as passive learners and there are several reasons for this (Flowerdew, Miller, & Li, 2000). Firstly, students' unwillingness to participate can be attributed to their lack of oral skills in English. Most EFL students lack opportunities to speak in English, and most training in English speaking tends to be focused on developing basic conversation skills. Thus students come to EMI classes unprepared to ask questions. Driven by a desire not to be embarrassed in front of their peers, most students wait until the break to ask questions of the lecturer in private, using Chinese if the lecturer is a Chinese speaker.

Secondly, students' passivity could be due to their lack of training in critical thinking. Most students in Asia are conditioned by the test-oriented secondary school system where rote learning seems to be an efficient way to earn good test scores. As a result, most students expect subject lectures to be a one-way communication from teachers, and most of them do not know what constitutes a good question. In addition, the act of asking questions may even be perceived as an interruption of the lecture. Finally, the lack of interaction in the EMI classroom may also be due to students' lack of understanding of the target concepts, and thus they are unable to formulate any questions.

The above review invites a reevaluation of the various instructional approaches to be deployed in engineering classrooms. The findings challenge the traditional

belief held by most engineering faculty that their job is to transmit domain-specific knowledge and covers as much content knowledge as possible in a given session. Having said that, as teaching cannot be reduced to some formulaic method and classroom interaction is not the answer to all educational problems, engineering instructors can benefit from research findings related to different instructional approaches.

Background of the Case

In an effort to attract international students while enhancing the global competence of local students, the Mechanical Engineering Department in this study began offering EMI classes in the graduate program in 2008 and the undergraduate program in 2012. In the undergraduate program, all mandatory courses are offered in both Chinese and English, and students are allowed to choose the language of instruction.

In the spring semester of 2015, four undergraduate courses were observed: applied mechanics, engineering mathematics, heat transfer, and advanced mechanics. The instructors for these classes included one native English speaker and three Taiwanese professors. All of the professors had obtained their PhD degrees in the United States and had between 3 and 8 years of experience teaching EMI courses.

The instruments applied in this study included classroom observations, surveys, and teacher interviews (Table 5.1). The classroom observations were audio-recorded and their content transcribed. An observation checklist was developed to document important observation data and to note the communicative strategies and body language deployed by the instructors. The survey was a self-designed questionnaire containing both closed- (Appendix 1) and open-ended (Appendix 2) questions about students' experience with, and perceptions and reflections on, EMI courses. The survey was administered to students by their EMI instructors after the classroom

Table 5.1 Classes observed and time spent on interviews

Mechanical engineering classes (undergraduate)	Class size	Total time on class observation (h)	Duration of teacher interview
Heat transfer (juniors)	60 students, including 10 exchange students from Singapore	4	1 h
Applied mechanics (freshmen)	60 students, including 2 Malaysian students	3	1 h
Advanced mechanics (juniors)	35 students (no international students)	3	40 min
Engineering mathematics 2 (sophomores)	60 students (no international students)	4	n/a

observations had been completed. To triangulate the data, the instructors for the EMI courses were interviewed after the classroom observations. The guiding questions for the interviewers are presented in Appendix 3. Data gathered from the classroom observations, student surveys, and teacher interviews were designed to address the following questions:

1. What were the teachers' views on classroom interaction?
2. What were the students' views on classroom interaction?
3. What did the framework for classroom interaction look like?

Case Study

Four mechanical engineering courses were observed and classroom data were collected over 2 weeks of time during the middle of the spring semester in 2015 (Table 5.1). Two classes had international students from Southeast Asia. The instruments of the study included class observations, student surveys, and teacher interviews. Although four classes were observed, only the three Taiwanese teachers participated in the interviews. The fourth teacher, a native speaker of English, did not participate in the interviews. A total of 14 h of class time were observed, audio-recorded, and transcribed. The survey was administered in 2015 and completed by 95 students from the observed classes. The questionnaire consisted of 15 questions using a 4-point Likert scale (Appendix 1) and six open-ended questions (Appendix 2). The students completed the survey in June 2015, and the teachers were interviewed in the same period. The duration of the interviews was between 40 min to 1 h (Table 5.1). The questions asked of the EMI teachers are included in Appendix 3.

Overall Findings

Generally speaking, the student survey (Appendix 1) showed that most students were positive about EMI courses (Q1, Q2, and Q3; 80%, 93%, and 62%, respectively). Although 65% of students were concerned that EMI courses would lead to knowledge acquisition (Q4), 85% of the students believed that through EMI classes they could improve their overall English communication skills (Q5). The survey showed that 71% of students have learned to communicate professional terms (Q6), and 53% of students have gained confidence in using English (Q7).

Classroom observations showed little to no interaction, with most students tending to be quiet and passive. Few students answered or asked questions in the classes. The teachers appeared to be used to the lack of interaction because most of the time they answered their own questions without waiting for a response from a student.

Teachers' Views on Classroom Interaction

During the interviews, instructors were asked questions related to classroom interaction (Appendix 3). When asked about whether EMI classes should be more interactive (Part 3, Q1), content teachers said it would depend on the nature of the course. For instance, interaction was not important, the teachers reported, for the classes observed in this study because they were mostly about knowledge-based principles (Part 3, Q2). To the teachers, it was more important that students could understand and acquire content knowledge. In addition, the instructors indicated that the students could use either Chinese or English to demonstrate their understanding of the content (Part 3, Q3).

> I don't mind if students use Chinese to answer me, because the most important thing for me is comprehension. When they could explain or answer my questions, whether in Chinese or English, I know they have got it.

However, the teachers added that academic speaking skills are important to graduate students who have seminar courses and courses that require discussion.

> I think speaking skills are important, but I think they are required for graduate students. For undergraduates, in my opinion, they need to receive a great amount of content knowledge through lectures. Later, as graduate students, they should learn to use English to demonstrate their knowledge.

To illustrate the students' passivity, the teachers reported that interaction was limited even in seminar courses, where discussion is expected. In fact, in seminar courses, it was usually the teachers who were interested in the topics and who interacted with speakers. The EMI teachers believed that students' lack of responses was not entirely caused by limited language proficiency; the tendency to be quiet also had to do with culture, attitudes, and Taiwan's education system, which is mostly test-driven and rewards memorization rather than questioning.

Students' Views on Classroom Interaction

The results of the student survey (Appendix 1) and interviews revealed the following about EMI classroom interaction and participation. Firstly, 60% of the students indicated that their English was good enough to actively participate in EMI discussion (Q8). It is possible to conclude that the lack of participation was mainly due to issues such as students' learning styles or lack of content knowledge, rather than insufficient speaking skills (Flowerdew et al., 2000). The data suggesting that speaking was not a major challenge could also be interpreted as a consequence of the nonexistence of interaction in these classrooms or the lack of opportunities to speak in English.

Interestingly, while students felt that their English was good enough for EMI discussion, they also expressed the desire to improve their speaking skills and felt

that EMI courses provided only limited help. In the open-ended questions, students reported a need to improve their speaking skills, especially their ability to communicate professional content and/or daily conversation.

> I need to learn how to clearly describe content knowledge in English.
> I hope I can understand the English terms, so I can explain the professional content better.
> My ability to discuss professional knowledge has improved, but my conversation skills are still limited.

However, less than half of the students indicated that EMI courses could help improve their English speaking skills (Q9, 46%), which means that more than half of the students surveyed felt that EMI courses have not helped their speaking. Similarly, most students felt the EMI courses had affected their willingness to speak out in class (Q10, 62%).

The student data seem to suggest that their general English speaking proficiency is good enough to interact in class, but they lack the skills necessary to take part in academic communication. They have sufficient general English ability but not academic skills, and EMI classes are not helping them develop those skills. Therefore, students need training in both academic skills such as presenting discipline-specific terms and content, as well as classroom interaction skills including how to communicate in class, how to ask and answer questions, and how to interrupt (Q11, 78% and Q12, 82%).

Finally, as expected, almost all the students agreed that it would be helpful if teachers could demonstrate how to interpret charts and tables or gave examples in English (Q13, 99%). Regarding instructional skills, 85% of the students agreed that a teacher's instructional methods were more important than how well they spoke English, and 84% of the students indicated that a teacher's communicative and presentation skills were more important than their English speaking skills (Q14, Q15%, respectively).

Classroom Interaction Framework in Engineering Classroom

Based on the literature review and information collected from observing the engineering classrooms, a framework was recommended for developing interaction skills and implementing classroom interaction in EMI engineering classes (Table 5.2). The framework consists of three stages: pre-EMI, during EMI, and post-EMI. Before the EMI course, two interventions are recommended: language skill training for students and workshops for teachers. To prepare students, the four language skills (listening, speaking, reading, and writing) for academic study should be taught, as well as classroom interaction skills such as how to carry on a discussion and asking and answering questions. If needed, students can take diagnostic tests to identify proficiency and target skills for training. Similarly, EMI teachers can benefit from training on designing and implementing classroom activities.

In the second stage, while EMI courses are in progress, three steps are recommended: regular interactive activities to engage students and to check understanding,

Table 5.2 Framework for classroom interaction

Stages	Tasks	Steps	Interventions
Pre-EMI EAP training	Conduct Ss language diagnostic test, Ss academic speaking, and interactive skill training		Courses or workshops conducted by EAP teachers
	Conduct Ts interactive skill and interactive activity design training		Workshops conducted by the university to meet the needs of EMI teachers
During EMI	Introduce interactive activities regularly in class	To ensure understanding	In-class activities that involve pair or group work
		Ss answer questions	
		Ss brainstorm and give examples	
		Ss describe processes	
	Assess learning outcomes once or twice a term	Ss answer questions	Assessment is more formal than classroom activities. It can be conducted with midterm and final exams
		Ss describe processes	
	Conduct at least one group project that simulates industry problems	Ss identify problems	The final project helps students develop career skills in engineering
		Ss explore different options	
		Ss recommend solutions	
Post-EMI	Conduct teacher interviews and student surveys for course evaluation purposes		Discuss and redefine EAP training needs
	Conduct Ss language proficiency test		Collect teacher input, student feedback, and classroom observations; inform future curriculum designs
	Collaboration between EMI and EAP teachers		

interaction for assessment purposes, and project-based interaction so that classroom learning can be applied to real world problems, and as a result, career skills can be developed.

In the third stage, teacher input and student surveys can be collected to evaluate the course and identify areas for improvement. If needed, students can take proficiency tests to assess improvement and identify weaknesses in academic language skills.

Types of Classroom Interactions

In general, classroom interaction can be between the teacher and students, students and students, and students and others such as the community or industry (Table 5.3). In teacher-student interactions, it is common for the teacher to ask a question for

students to answer. The purpose of a teacher's question will vary—to prepare students before the target lesson, check understanding, solicit opinions, or deepen understanding (Table 5.4). Occasionally, students may ask questions, and then the teacher may answer them or try to begin a discussion by involving other students. Questioning skills are important for teachers; they need to know how to ask appropriate questions so that students are encouraged to speak in class and to engage in deeper learning.

To encourage interaction, teachers could use strategies such as small talk to entertain students and to create a more stimulating environment. Teachers could also demonstrate various academic speaking skills in their lectures such as introducing, defining, and giving examples. After modeling these techniques, students should be encouraged to utilize them in class. If students fail to provide any response or feedback to the instructor, teachers could consider accommodation strategies such as repeating, giving examples, eliciting with different expressions, and paraphrasing using simple words or sentences (Tsai & Tsou, 2015).

To encourage student-student interaction, teachers can assign pair work or group work. Pair work can be as simple as having students compare lecture notes or having them discuss a quick question with an adjacent classmate. Pair work can be used strategically in the classroom when students need to refocus their attention or when teachers would like to check understanding. Group work usually requires a team to

Table 5.3 Types of interaction

Types	Tasks	Target skills for students
Teacher-student	Teacher asks questions for students to respond to, using textbook content or audiovisual resources	Understanding the question (listening)
		Answering the question (speaking, critical thinking)
	Student asks questions, and teacher answers or starts a discussion by involving other students	Knowing what to ask (critical thinking)
		Knowing how to ask questions (speaking)
		Participating in discussion (speaking)
	Teacher tries to engage students' attention (e.g., entertains, shares own experience)	–
	Teacher demonstrates academic speaking techniques and accommodation strategies	Various academic speaking skills such as introducing, defining, giving examples, etc. and accommodation skills such as repeating, rephrasing, etc.
Student-student	Students engage in pair work (can be undertaken quickly in class)	Discussing (e.g., think of an example)
		Comparing notes
		Reporting back answers to teachers
	Students engage in group work (project-based)	Presenting information
Student-others	Students interview informants or perform tasks in the community or industry, through projects or internships	Interviewing (speaking)
		Presenting information (presenting)
		Presenting a proposal (presenting)
		Solving problems (critical thinking)

Table 5.4 Types of questions from teachers

Types	Tasks	Students' target speaking skills
Prepare for target lesson	Ask students to talk about prior knowledge or experience	Describing
Introduce target concept (check understanding)	Ask students to define a term, give an example, summarize a key point, or describe a process	Describing
		Summarizing
Elicit interpretations and opinions (reflect on learning)	Ask students to compare viewpoints	Identifying similarities and differences
		Analyzing pros and cons
	Ask students to express opinions	Expressing opinions (agree vs. disagree)
Deepen understanding	Ask students to explore and discuss possible applications of concept	Predicting future trends

undertake a project in order to present findings or propose solutions. Occasionally, teachers may ask students to conduct a field study or perform a task in the community or in an industrial setting. These projects require more effort but are helpful in deepening understanding.

Highlights, Challenges, and Pedagogical Implications

The current study highlights several opportunities. Firstly, both engineering teachers and students agree that it is important for students to acquire interactive skills, and that these skills will benefit students in their learning and in their professional development. Moreover, although engineering teachers are under pressure to cover a great deal of content, prior research has also shown various methods instructors have adopted in order to create a more interactive environment and enhance student learning and satisfaction.

In terms of challenges, the current study has found that, generally speaking, teaching practices in the engineering EMI courses were not interactional. Engineering teachers believe that most undergraduate classes are lecture based, and thus interaction is less important. In addition, lecturing in English tends to be more time consuming, which means no time for interactive activities. Not surprisingly, most EMI teachers think it is not their responsibility to teach these skills. Interactive skills should be taught by language teachers. In the meantime, engineering students, despite their desire to improve their academic speaking skills, remained passive most of the time. Based on the above analysis, pedagogical implications of this study are discussed in terms of EMI instruction and EAP training for students. Although this study has shown the benefits of classroom interaction, it may not be feasible for all EMI courses to implement activities. EMI teachers may wish to first consider if classroom interaction benefits students' learning and whether there is time for activities given the time constraints. On activity design, EMI teachers need

to first identify target skills (e.g., listening, speaking, critical thinking) and find resources such as texts and online videos. Before implementation, EMI teachers, possibly working along with language teachers, need to anticipate issues, such as language proficiency, learning styles, and course content, and provide training to students.

On activity design, prior research has shown that classroom interaction does not always require a full-scale project. Instead, an instructor can focus on one or more activities that are not too time consuming. If EMI teachers agree that interaction is beneficial and can set aside time for interaction, they can begin with quick and simple activities that involve pair work. Some of these activities include working with a classmate to summarize the main points of the lecture or brainstorming examples that help illustrate a point made by the teacher. To prepare for the activity, it is important that teachers provide several expressions that students can use during the task. This type of scaffolding will be helpful for students as they begin the discussion.

On collaboration, engineering EMI teachers can benefit from collaborating with a language teacher (Macaro, 2015). The collaboration can take place using different approaches. The two groups of teachers can work together in curriculum planning, alternate in teaching, or co-teaching some of the sessions. If content teachers prefer being the only teacher, language training for students can take place before students start the EMI courses.

On language training for engineering students, fundamental skills for participation and discussion in English include oral expressions for different classroom purposes such as asking questions and answering teachers' questions. Students will also need training to perform speaking tasks such as defining, explaining, and giving opinions. If group work is involved, they will need to learn expressions for group discussion. The skills will include asking for clarification, stating their opinions, continuing a discussion, and introducing a new topic. The language training can be conducted in an intensive workshop during summer or as a regular course during the semester.

Summary

This chapter briefly reviews engineering education literature on classroom interaction and establishes the need for engineering graduates to have interactive skills. Research has shown that these skills are important to engineers, but related training is lacking in most engineering curriculums. This chapter first reports how engineering instructors created an interactive classroom environment by adopting various strategies such as adding project elements to lecture-based courses and teaching creativity in engineering courses. The present study then incorporated findings from literature and data from four EMI engineering courses to propose a framework for classroom interaction. Finally, opportunities, challenges, and pedagogical implications are discussed.

Appendices

Appendix 1: Results of Student Survey (N = 95)

	Question (%)	Strongly disagree 1 (%)	Disagree 2 (%)	Agree 3 (%)	Strongly agree 4 (%)
1.	I believe English should be the medium of instruction for discipline-specific courses	2	18	69	11
2.	I believe there is a need for EMI courses	1	6	75	18
3.	I can acquire core discipline-specific knowledge from EMI courses	4	34	57	5
4.	I believe English as the medium of instruction will lead to lower knowledge acquisition	4	31	59	6
5.	One of the reasons for enrolling in EMI courses is so I can improve my overall English ability	1	11	66	19
6.	Through EMI courses, I learned to use English to communicate professional terms, definitions, and basic concepts	2	27	59	12
7.	Because of EMI, I have gained confidence in using English	2	45	47	6
8.	My English proficiency is not good enough to actively participate in EMI classroom discussion	7	53	31	9
9.	EMI courses can help improve my English speaking abilities	4	50	37	9
10.	I believe that EMI courses reduce students' willingness to speak out in class	3	35	49	13
11.	I agree that the university should offer EMI preparatory courses	3	19	62	16
12.	In an EMI course, the biggest challenge for me is understanding many discipline-specific terms	3	15	62	20
13.	I think it would be very helpful if teachers use charts and tables or give examples in English	0	1	77	22
14.	I think a teacher's instructional methods are more important than how well they speak English	4	11	47	38
15.	I think a teacher's communicative and presentation skills are more important than their English speaking skills	1	15	47	37

Appendix 2: Student Survey: Open-Ended Questions

1. After taking EMI courses, have you seen any changes in your English skills such as in listening, speaking, reading, and writing? What has caused the changes?
2. After taking EMI courses, what skills should you have gained that are different from courses delivered in Chinese?
3. Before enrolling in EMI courses, what skill training is needed for students?
4. What should be the learning outcome from an EMI course?
5. After taking EMI courses, what do you think are necessary skills or teaching techniques that will make EMI teaching more effective?
6. Do you have any other comments?

Appendix 3: Teacher Interview Questions

Part 1: Structural Questions

1. What do you think about EMI education?
2. What is the major obstacle in the promotion of EMI (e.g., too costly to operate, no comprehensive policies, different stakeholders, no qualified teachers, no guidelines, no standard level of English for EMI teachers)?
3. What is the main challenge in EMI teaching (e.g., no sufficient teaching resources, not enough qualified teachers, problems for exams and assessment)?
4. In what ways do you expect English teachers to support EMI education at NCKU?
5. Can Chinese help you in EMI classes? When would you switch to Chinese?
6. What are your views regarding English as the medium of instruction in Taiwan?
7. What are your suggestions or alternatives regarding English as the medium of instruction at NCKU?
8. How did students in EMI classes respond to the implementation of the classroom language policy?

Part 2: The Skills a Student Should Possess in an EMI Class

The seven skills are as follows: How to ask questions? How to increase T-S and S-S interactions? How to work in a group? How to be more confident in using English? How to explicitly and analytically express opinions? How to describe a scientific concept? How to read a mathematical formula or a chemical formula?

What other skills do you think students should possess in an EMI class?

Part 3: Specific Questions

Language and Interaction

1. Based on your teaching experience, how does classroom interaction change as the medium of instruction changes? Are EMI courses more interactive or less interactive?
2. Do you think making the classroom interactive is important? If yes, what skills do you use to make the classroom more interactive? If not, what are your reasons?
3. If you asked questions in English, and your students used Chinese to answer you, what would you think?
4. In the very first class of the semester, do you need to spend some time preparing students for the classroom language?

Skills

5. What skills might help to enhance students' understanding (e.g., how to begin a sentence, how to draw a connection between one point and another, how to define technical terms, how to ask questions, how to lead a group discussion, etc.)?
6. In classroom observation, we noticed that teachers rarely read aloud the whole formulas you have written on board. Do you think engineering students need to know how to describe a formula? Is it an important ability for them?

Assessment

7. How do you assess your students? By exams, papers, projects, or another method?
8. Do you prepare bilingual exam papers?
9. Is language choice a factor that influences students' grades?
10. Do you think the learning of academic subjects is improved by EMI? Does it lead to deeper understanding? If so, by which groups of students? (All students? Only international students? Only home students?)

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Chapter 6
Promoting Higher-Level Thinking Skills in University Business and Human Resource Courses

Charles Jeremy Sykes and Shao-Ming Wu

Specific Area of Interest: Higher-Level Thinking Skills

It has been proposed that by consistently incorporating learning activities which encourage higher-level thinking skills, it is possible to improve students' English communication skills even though English is not explicitly taught and improve the degree to which students are able to learn and act on the content which they have assimilated in class (Hill & Miller, 2013).

The awareness that our thought processes have varying degrees of complexity has probably been with us for a very long time. In 1956, however, the educator Benjamin Bloom worked with a group of educational psychologists in an attempt to distinguish certain ways of thinking from one another and to classify these ways of thinking by their degree of cognitive complexity. The result was what the group called a "cognitive taxonomy": a classification of different kinds of thinking in a hierarchical order of complexity. Originally, this taxonomy described six different levels of thinking: knowledge, comprehension, application, analysis, synthesis, and evaluation. Over time, this has been modified and revised so that the levels are now described as remembering, understanding, applying, analyzing, evaluating, and creating.

For almost 60 years, "Bloom's taxonomy," as it is called, has been used by many educators and curriculum developers as an underlying structure in their teaching.

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The reason for this is summarized well by Wendy Conklin (2012) in her book *Higher-Order Thinking Skills to Develop 21st Century Learners*:

> Make no mistake—the ultimate objective in classrooms is to use higher-order thinking not because it is superior to facts, but because higher-order thinking encompasses lower-order thinking. The value of higher-order thinking is immense, because all levels of thinking are utilized. To be able to analyse, students need to understand and comprehend the facts. Higher-order thinking trains students for real-world application outside the classroom. It involves a series of related problems that contain important facts to solve instead of just a series of related facts to memorize. These activities will support students as they grow into adults and make decisions (in their lives). Students must be able to acquire the facts to make a good decision, while accessing higher-order thinking skills. The goal is building educated learners, and that happens by using higher-order thinking (p. 72).

There is a considerable body of research to suggest that higher-order thinking skills contribute to academic achievement (Pogrow, 2005). When students are required to use higher-level thinking skills, their degree of engagement with the subject matter increases. This increased level of engagement is shown to have a positive effect on student learning (Skinner & Belmont, 1993) and in itself is "a robust predictor of student achievement and behaviour in school" (Klem & Connell, 2004, p. 5). Other research shows that by infusing instruction with higher-order thinking skills, it is possible to improve students' English communication skills even though English is not explicitly taught, in addition to improving the degree to which students are able to learn and act on the content which they have assimilated in class (Hill & Miller, 2013).

New studies in neuroscience show that involving the mind in complex thinking processes stimulates brain growth. In one important study, neuroscientist Bob Jacobs and his colleagues (Jacobs, Schall, & Scheibel, 1993, as cited in Conklin, 2012, p. 41) found that the brains of graduate students who were challenged to use higher-level thinking skills grew 25% more than graduate students who were not challenged to think at a higher level.

As part of this study, the researcher conducted an extensive interview with a senior human resources manager in a major Taiwanese electronics company which has a large international footprint. The discussion focused on the qualities which she looks for in applicants during the hiring process. She said that an applicant must possess a substantial amount of content knowledge and show that they have been able to build up a superior academic record. But this is not what really matters most to her. What she is looking for, and has difficulty finding, are applicants who can "think on their feet." "We don't have the time to shadow new employees, or to give them a lot of support. They have to jump into their jobs and work things out for themselves quickly. They can't wait around to be told what to do all the time. They need to show that they can think "outside of the box" and demonstrate that they have good independent judgement." What she said is what Conklin (2012) expressed so well: "The goal is building educated learners, and that happens by using higher-order thinking."

The perspective of this experienced human resources officer suggests that there is value to emphasizing higher-order thinking skills in the English medium

classroom when teaching academic content areas. On the one hand, the research suggests that students' ability to acquire an understanding of, and demonstrate their acquisition of, academic content will improve. On the other hand, research suggests that students learn a foreign language better when they are challenged to use it in a context where they have to think in more complex ways (Hill & Miller, 2013). Many research studies show that many classrooms do not challenge students to use higher-level thinking skills when they are taught academic content. The US Department of Education Ramirez Report, for instance, has shown that, in general, lecturers tend to ask low-level questions, and students do not produce much beyond simple recall (Ramirez, Yuen, Ramey, & Pasta, 1991). The findings in the Ramirez Report are supported by prominent researchers (Goodlad, 1984; Sirotnik, 1983). This is particularly true in classrooms where the lecture approach to teaching is predominant. As Crowl, Kaminsky, & Podell, (1997) note (as cited in King, F.L., Goodson, L., 1997, p. 43):

> A major factor in the growth of higher-order thinking capability is a student-centered classroom. It supports the open expression of ideas, provides active modelling of thinking processes, develops thinking skills, and motivates students to learn. Without it, students will not persist in higher order thinking processes.

A number of studies of EFL textbooks show that these books tend to focus more on the lower levels of Bloom's taxonomy than on the high levels of thinking. A study of Iranian high school and pre-university English textbooks, for instance, conducted by A. Mehdi Riazi of Macquarie University in Australia (2010), states "The overall findings of this study demonstrated that the most frequent learning objectives pursued…were lower-order cognitive skills, that is, knowledge, comprehension and application" (Riazi & Mosalanejad, 2010, p. 23).

If student textbooks and the lecture approach to teaching tend to emphasize lower-level thinking skills, the challenge for the EMI lecturer is how to ensure that higher-level thinking skills are built into his or her instruction and into the overall learning environment. How may this be done?

Background of the Case

This study investigated two graduate-level EMI courses offered by a prestigious national university in Taiwan. One course focused on compensation management and is offered by the university's graduate program in human resources development. The other course is on branding, which is one of the MBA courses offered by the university's graduate business management program. The aims of the investigation were several:

To examine how these courses were established
To learn about the training and academic background of their lecturers
To determine what language prerequisites are required of the students

To examine the degree to which higher-level thinking skills are emphasized in the learning activities which take place in each course
To learn about the students' responses to studying content in an English-medium environment
To learn if the students felt that using higher-order thinking in the course helped them with their content learning and helped improve their communicative English skills

Data collection was carried out by triangulation of several data sources: classroom observation, two individual interviews with the courses' lecturers, and focus group interviews with students—all of which were audio-recorded—and a student survey questionnaire.

Compensation Management

Altogether the program which offers this course has around 25 first-year students, 25 second-year students, and 5 full-time lecturers. All courses are taught in English. When the program was first created, the lecturers who joined the program from the existing university faculty were all volunteers who felt capable of teaching their subject matter in English. From then on, the program only recruited faculty who could demonstrate that they were capable of teaching their subject matter in English. This was a primary requirement for being considered for a position in this program. The lecturer of the course in compensation had completed her Ph.D. in Taiwan and had also completed a master's degree in curriculum design in the USA.

The course which was observed had 23 first- and second-year graduate students. Seventeen were Taiwan nationals, and six came from other countries. Five of the six foreign students were nonnative speakers from Thailand, Nicaragua, and Honduras. One foreign student, who was a native English speaker, came from Hawaii. The goal of the course is to help students understand how companies design their compensation systems, how they pay their employees, and how their payrolls are set up, their incentive systems, compensation issues for special groups, and their overall human resource policies.

The compensation management course was designed in a way which intertwined content lectures with a three-stage live case study. In this course, over a period of 14 weeks, students study each chapter in George T. Milkovich, Jerry M. Newman, and Barry A. Gerhart's 2014 textbook (11th ed.) *Compensation*, published by McGraw-Hill/Irwin. At the same time, they work in teams of five through the live case study. As the lecturer's syllabus explains:

> The live case studies involve developing compensation systems or programs for real organizations. Students will form small groups for this project. Each group will select an organization they are familiar with and work with the organization to develop/improve its compensation system for a selected group/department of employees. Project tasks include interviews, job analysis, job evaluation, salary survey and pay design. Each group will present their progress in class at three checkpoints using PowerPoint presentation, and turn in a

draft progress report in Word document at the same time. The three draft progress reports shall accumulate into a final report due at the end of the semester. The final project report shall incorporate all feedback provided at each of the progress report presentations.

Expected contents of the three progress reports and presentations:

Report 1. Live case study presentation I: Case company intro, current compensation strategy and practice, job evaluation scheme of the selected employees.
Report 2. Live case study presentation II: Job evaluation result, salary survey result, pay level and pay grade of selected employees.
Report 3. Live case study presentation III: Pay structure of the selected employees, recommended pay-for-performance plans and benefits.

The goal of this live case study is to examine how compensation principles are applied to achieve organizational objectives; the strategic use of compensation systems for attracting, motivating, and retaining employees; and the managerial aspects of paying employees at all organizational levels. Students are also expected to examine the current state of compensation decision making and how recent theoretical and research developments inform compensation decisions.

Branding

The course on branding had 23 students, nine of whom were Taiwanese. This course is a three-credit elective which can be used to fulfil the requirements for a 36-credit MBA degree from the university's graduate program in management. This MBA program is primarily taught in Chinese.

The goal of the course is to build a basic knowledge of branding. The course focuses on case studies, using a different case every week, and is designed to help students to think rather than to just remember facts. The branding course is one of several MBA courses which are taught in English. These courses were created for two reasons: They enable the university to recruit students from overseas universities which are partners in a dual degree program with this university, and these courses make it easier for Taiwanese students to find employment in businesses which are international in scope.

No English language test score is required to enroll in the branding elective. While the lecturer, a Taiwanese, earned a B.A. from National Taiwan University, he received a doctorate in psychology from Columbia University in the USA and speaks English with a high level of fluency. The course meets the needs of the international students at the university who are accustomed to studying in an English-medium environment, and the Taiwanese students who choose the course know that the text and instruction are all in English.

The lecturer of this course does not have any particular training in curriculum design. The lecturer reported that since this is a graduate-level course, he does not give paper-and-pencil tests. "Branding is more about planning for marketing a brand." He has the students work on a project that requires them to create a brand for a product of their choice. This needs to be a new product. Thus, they have to prepare a proposal, do field research, present that proposal as their midterm, and

present their final product as their final exam. In short, they have to create a new concept around a product, using the concepts and techniques which they have learned in the class lectures and from their textbook, *Strategic Brand Management: Building, Measure, and Managing Brand Equity*, by K.L. Keller (2012, 4th global ed., Pearson).

When asked where he had learned the pedagogical principles which he used to design this class, the lecturer responded:

> This came from self-teaching. There was no real training. At my prior university, when they requested that I begin including English in my content courses, I began using half Mandarin and half English. I had to assemble the materials myself. My Power Points were in English, and the textbook was in English. Now I am using EMI in this graduate course, which is a case study course, which is very different. Very little Chinese is spoken in this class. In a case study course I have to design a path of discussion. When you use study cases, in each individual case there is usually a purpose for applying certain theories or models or frameworks for analysing the case in order to come up with a certain solution. The only way to get to those solutions is through discussion and by responding to questions. From the answers which the students give, you have to lead them to new ideas. Basically it is a process of shaping human thinking, leading them to consider what kinds of perspectives they can take on the case which they are studying. In a chain of questions and answers you get to a final conclusion. It is a very dynamic process where the teacher has to moderate the discussion, ask questions, challenge answers that don't make sense, and lead students to new insights. One particular challenge for me is that overseas students who are native English speakers can tend to dominate the discussion, so I have to use different devices to get the Taiwanese and other non-native speakers to participate more fully in our class discussions.

The students in this course are told first to decide on a product. Then they must conduct an environmental analysis in the field, describe the products, and produce a financial plan. It is the students' responsibility to devise their own timeline to complete these steps. The lecturer reported that he spends about half of his time in each 3-h class lecturing in relation to the text and half the time on the cases that the class is studying. The cases used are Harvard cases, chosen to compliment the topic being studied in each chapter of the textbook.

With regard to the questions which he asks the students in class, the lecturer reported that some are prepared beforehand, but most are spontaneous in response to whatever is happening in the class discussion. The prepared questions are those which help set the context for the class discussion and help students focus on a set of concepts they will need to use in thinking about the case they are studying. The spontaneous questions are designed to help students begin to see and understand the dynamics taking place in the case they are studying. The lecturer reported that he does not give the teams any particular guidance on how to work well together. "Sometimes they have a black sheep in the group," he said. "Sometimes they tell me, but otherwise they handle things on their own."

Regarding the in-class discussion, the lecturer discussed his challenge in overcoming the tendency of the overseas students to dominate. He said that he tries whenever he can to use those students to spark discussion and encourage others to interact with them. In the observation of this class, it was noted that the Taiwanese students all sat together, and few ventured to engage in active discussion. Some of

the nonnative English students from other countries did speak up, but there did not appear to be any lecturer-organized classroom management structures designed to get students to discuss issues together or to report out or defend their thinking. The presentation groups, however, all contained a mix of Taiwanese and overseas students.

Case Study

Students' attitudes toward the two courses examined in this case study were collected through a questionnaire, as well as through written responses and a 1-h focus group with the students in each class. Additionally, each lecturer was interviewed twice, once before the observations, and once after the observations had been completed.

Student Questionnaire Responses

The questionnaire included both open and closed questions, making it possible for students to provide short written responses in addition to filling out Likert scale questions. The questionnaire focused on how students responded in general to each of the courses: how they felt about their experience learning the course content in English, whether they felt it was worthwhile taking on the challenge of learning the content and English at the same time, whether they found it difficult to understand the lecturer's lectures in English, whether they felt they had successfully learned the course content, and whether they thought that having to learn the content in English would adversely affect their grade. They were also asked if they thought that studying the content in English improved their communication skills and increased their confidence in speaking English. The focus groups concentrated more on how the students responded to those parts of the course which were project based, and which required them to use higher-level thinking skills.

Student Questionnaire Responses to the Course in Compensation Management

In response to the questions itemized in Part 1 of Table 6.1, which ask whether their English language skills had improved, both the foreign and the Taiwanese students in the *Compensation Management* course responded that they felt their communication skills in English had improved, that they felt more confident using English, and that they believed it was worth the effort to combine studying the subject matter

Table 6.1 Student responses in the compensation management course

Student group				
Part one	**Yes: a lot**	**Yes: a little**	**Not much**	**No change**
Communication skills in English have improved?	Foreign S: 50% Taiwan S: 33%	Foreign S: 33% Taiwan S: 67%		Foreign S: 17%
Do you feel more confident using English?	Foreign S: 50% Taiwan S: 39%	Foreign S: 33% Taiwan S: 61%		Foreign S: 17%
Is it worth the effort to combine studying the subject matter and learn English?	Foreign S: 100% Taiwan S: 78%	Taiwan S: 22%		
Part two	**No**	**A little**	**Quite a lot**	**Big effect**
Harder to get a good grade?	Foreign S: 83% Taiwan S: 22%	Foreign S: 17% Taiwan S: 61%	Taiwan S: 6%	Taiwan S: 11%
Harder to understand the lecturer's lectures?	Foreign S: 67% Taiwan S: 17%	Foreign S: 33% Taiwan S: 67%	Taiwan S: 11%	Taiwan S: 5%
	No. I learn the content just as well and improve my English	Almost as well, and improve my English	I don't learn the content as well, but I do improve my English	I don't learn the content very well
Harder to learn the content in the course?	Foreign S: 83% Taiwan S: 22%	Foreign S: 17% Taiwan S: 67%	Taiwan S: 11%	

while also learning English. One of the concerns which educators interested in establishing EMI courses have is that students will worry that they will not be able to get a good grade in an English-mediated instruction course as they would in a course taught in their own language. It is interesting that in their responses to the student survey in the compensation course, the Taiwanese students expressed considerably more concern about this issue than did the foreign students.

Responses to the questions itemized in Part Two of Table 6.2, which ask students about their reactions to studying the subject matter in English, show that the foreign students in the compensation course didn't seem to have much difficulty understanding the lecturer's lectures in English or learning the content in English. They also felt that studying the subject in English would not affect their academic performance to any great degree.

The Taiwanese students, however, were more concerned about how their academic performance might be affected because they were studying the content in English rather than in Chinese. Many of them experienced a certain degree of difficulty understanding the lecturer's lectures, and 11% of them felt that they weren't able to learn the content as well in this EMI context as they would if the subject were taught in Chinese.

Table 6.2 Student responses in the branding course

Student group				
Part one	**Yes: a lot**	**Yes: a little**	**Not much**	**No change**
Communication skills in English have improved?	Foreign S: 30% Taiwan S: 33%	Foreign S: 50% Taiwan S: 67%	Foreign S: 20%	
Do you feel more confident using English?	Foreign S: 20% Taiwan S: 29%	Foreign S: 30% Taiwan S: 57%	Foreign S: 20%	Foreign S: 30%
Is it worth the effort to combine studying the subject matter and learn English?	Foreign S: 60% Taiwan S: 43%	Foreign S: 30% Taiwan S: 57%		Foreign S: 10%
Part two	**No**	**A little**	**Quite a lot**	**Big effect**
Harder to get a good grade?	Foreign S: 50% Taiwan S: 29%	Foreign S: 40% Taiwan S: 43%	Taiwan S: 14%	Foreign S: 10% Taiwan S: 14%
Harder to understand the lecturer's lectures?	Foreign S: 60% Taiwan S: 29%	Foreign S: 40% Taiwan S: 71%		
	No. I learn the content just as well and improve my English	Almost as well, and improve my English	I don't learn the content as well, but I do improve my English	I don't learn the content very well
Harder to learn the content in the course?	Foreign S: 40% Taiwan S: 14%	Foreign S: 50% Taiwan S: 86%		Foreign S: 10%

Student Questionnaire Responses to the Course in Branding

In response to the questions itemized in Part One of Table 6.3, which ask whether their English language skills had improved, most of the foreign and Taiwanese students in the *Branding* course responded that they felt that their communication skills in English had improved, that they were more confident using English, and that they believed it was worth the effort to combine studying the subject matter while also learning English. In the focus groups, some foreign students explained that when they filled out the questionnaire, they indicated they did not feel that their communicative skills in English, or their confidence in using English, had changed or improved much in this particular course because they already had strong skills in these areas. The one negative response to the question, "Is it worth the effort to combine studying the subject matter and learn English?," came from a student from China who wanted to study branding but discovered that it was only offered as an English elective, so he was forced to study the subject in English. He said that if the branding course had been offered in Chinese, he would have preferred that option.

Table 6.3 Bloom's taxonomy

Revised Bloom's taxonomy
Remembering (formerly Knowledge)
Retrieving previously learned material by recall.
Verbs: tell, recall, what, who, when, where, which, list, match, label
Products: worksheet, quiz, reproduction, list
Understanding (formerly Comprehension)
Constructing meaning from oral, written, and graphic messages through interpreting, exemplifying, classifying, summarizing, inferring, comparing and explaining
Verbs: compare, contrast, demonstrate, outline, classify, explain, summarize
Products: story problem, summary, collection, outline, report, diagram
Applying (formerly Apply)
Carrying out or using a procedure through executing or implementing
Verbs: organize, solve, identify, interview, experiment, build, construct, plan, model
Products: scrapbook, puzzle, illustration, experiment, interview, journal, map, advertisement, recipe
Analyzing (formerly Analyze)
Breaking material into constituent parts, determining how the parts relate to one another and to an overall structure or purpose through differentiating, organizing, attributing
Verbs: dissect, inspect, infer, categorize, discover, classify, survey, examine
Products: questionnaire, spreadsheet, survey, chart, categorize, investigation
Evaluating (formerly Synthesis)
Making judgments based on criteria and standards through checking and critiquing
Verbs: award, criticize, justify, dispute, decide, recommend, measure, assess, value, appraise
Products: editorial, debate, film, recommendation, review
Creating (formerly Evaluate)
Putting elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure through generating, planning, or producing
Verbs: elaborate, create, improve, design, modify, maximize, propose, change, adapt, originate
Products: invention, newspaper, song, collage, solution, play, creative story

Responses to the questions itemized in Part Two of Table 6.2, which ask students about their reactions to studying the subject matter in English, show that like the foreign students in the compensation course, the foreign students in the branding course didn't seem to have much difficulty understanding the lecturer's lectures in English or learning the content in English. Other than the student from China, they also felt that studying the subject in English would not affect their academic performance to any great degree.

A quarter of the Taiwanese students in the branding course expressed some degree of concern about whether their academic performance might be affected because they were studying the content in English rather than in Chinese, even though they seemed to understand the lecturer's lectures, and felt that they had learned the content almost as well as if they had studied the content in Chinese.

Higher-Level Thinking Skills in Both Courses

Neither of the courses included in this case study specified that they purposefully required students to use higher-level thinking skills. However, through the interviews with the lecturers and by examining the project requirements in each course, it could be determined that students did need to use higher-level thinking skills in order to complete their projects.

This case study took from Wendy Conklin's book "*Higher-Order Thinking Skills to Develop 21st Century Learners*" (2012) three suggestions for how lecturers can introduce higher-order thinking skills into their lessons and examined the degree to which the lecturers of the compensation and branding classes had actually included these practices in their courses. These practices involve (1) including activities which stimulate student thinking at each level of Bloom's taxonomy, (2) involving students in problem-based learning, and (3) using Socratic questioning techniques in class.

The first practice is to create activities in the course which stimulate thinking at each level of Bloom's taxonomy. These levels of thinking, as summarized in Wendy Conklin's book, are shown below (Table 6.3).

The second practice is to introduce problem-based learning in the course. Conklin summarizes this practice in this way:

A typical problem-based learning lesson has several cycles. The steps are the following: first students need to locate a real-world problem; then they need to determine some facts about the problem and find a way to enter the problem; after the problem has been defined, students should discuss what they know about the facts associated with the problem; students then brainstorm ideas about the problem and create a problem statement which serves as a hypothesis. In order to answer the hypothesis, students need to identify further information necessary to understand the problem and to identify resources where that information can be found. These sources could include interviewing, data collection, and conducting other forms of research. Students then develop proposed solutions to the problem and consider the consequences of applying their proposed solutions. As a final step, students prepare a presentation in which they explain, apply, and justify their solution to the problem. Their information should take the form of some sort of publication which can be shared with others.

A third practice is to use Socratic questioning techniques in class. These would include:

Questions that clarify
Questions that probe assumptions
Questions that look for reasons and evidence
Question about perspectives and viewpoints
Questions that look at consequences
Questions about the question

Higher- Level Thinking Skills in the Compensation Course

An analysis of the research data showed that, to a considerable degree, the design of the compensation course does incorporate all three practices recommended by Wendy Conklin for introducing higher-level thinking skills into the curriculum.

Practice One creating activities in the course which stimulate levels of thinking at each level of Bloom's taxonomy:

Through her lectures and midterm and final exams, the lecturer ensures that students are tested on *Remembering* the key content and concepts of the subject area which they are studying. In the preparation of the first and second steps of their live case study, students have to classify and summarize the case company information which they have collected, including the current compensation strategy and practice, the job evaluation scheme for the selected employees, job evaluation results, salary survey results, pay levels, and pay grades of selected employees. Students must compare, contrast, demonstrate, outline, classify, explain, and summarize: all functions of the *Understanding* level in the revised Bloom's taxonomy. In the third step of their live case studies, students have to describe the pay structure of the selected employees, compare this pay structure with the pay structures of competitor businesses, and recommend new pay-for-performance plans and benefits. This final step, which involves combining all the information collected in the first two steps, requires students to employ the four higher-level thinking skills in the revised Bloom's taxonomy: *Applying* (interviewing, constructing a model, illustrating), *Analyzing* (categorizing, classifying, surveying, creating questionnaires, constructing charts), *Evaluating* (making judgements based on criteria, criticizing, justifying, recommending), and *Creating* (putting elements together to form a coherent and functional whole; reorganizing elements into a new pattern or structure through generating, planning, or producing).

Practice Two creating activities which introduce problem-based learning in the course.

In their live case studies, students are involved in all the stages which Conklin describes as being part of problem-based learning: In their case study they have to locate a real-world problem, determine the facts, and find a way to enter the problem, discuss what they know to be the facts of the problem, analyze the problem, brainstorm ideas about the problem, and create an exact statement of the problem. In their class reports, they need to identify information necessary to understand the problem and identify resources to be used to gather information. They must find and share information by interviewing, collecting data, and conducting other forms of research. And finally they must develop solutions by studying the information, finding a solution that fits best, and considering the consequences for their solution and present this information to the class.

Practice Three using Socratic questioning techniques in class.

In her interview, the lecturer of the compensation course indicated that she used many of these Socratic questioning techniques in her classroom. She reported

asking clarification questions, in which she asked students how they would explain a concept in their own words in Chinese. (This was the only occasion when she used Chinese with her class.) She said that she frequently asked students to give examples and to explain their thoughts more clearly. She said that she asked questions which attempted to probe students' assumptions such as, "Why do you think this way about…?" and "What are your assumptions?" She said that she looked for students to give reasons and evidence to back up the claims which they made in their live case studies: "How do we know this is true?"and "What else do we need to know?" She reported asking questions about perspectives and viewpoints when challenging students to think about issues from the employers' point of view, not just from the point of view of the employees, and challenging students to identify the point of view or perspective underlying certain compensation policies and practices. She said that she focused intensely on questions which examined consequences, requiring students to identify the effect that the compensation strategies they recommended would have on employees, management, and the company they had studied. And quite often she said that she asked students rhetorically, "Why are we discussing this?" Some of these questioning approaches were observed during the researcher's visit to her classroom but not all. It is interesting that no student mentioned being asked stimulating questions when submitting their responses to the course.

Nevertheless, as we can see, the design of this course in the study of compensation included many features which required students to employ higher-level thinking skills as they sought to complete their project assignment. At the same time, these processes required students to employ English in increasingly complicated ways.

Higher-Level Thinking Skills in the Branding Course

In the interview with the lecturer of this course, as well as in discussions with the students and through classroom observation, an effort was made to determine the degree to which the three practices recommended by Wendy Conklin were used in the class to stimulate higher-level thinking skills.

Practice One creating activities in the course which stimulate levels of thinking at each level of Bloom's taxonomy.

The branding course has three main objectives. The first is to have students learn fundamental concepts about branding, such as brand management, equity, and positioning. The second is to study real-world cases in brand management and to see how equity is built, measured, and managed. The third objective is for the students to put everything that they have learned into practice, by developing a brand of their own, while at the same time preparing a presentation where they need to explain how this brand relates to other brands and how its equity might be measured and managed.

The lecturer in this course does not give midterm or final exams. All activities focus on the project, in which they must create a brand for a new product. Consequently, the emphasis on *Remembering* occurs mainly in the way in which students need to use information from the class lectures and textbook in the development of their products and in their presentations. In their effort to fulfil the requirements of the second objective, students must classify, explain, and summarize, which are functions of the *Understanding* level in the revised Bloom's taxonomy (assembling consumer data about other brands and explaining their rationale for the choice of brand they have made). In order to complete the third objective, students must employ all four higher-level thinking skills in the revised Bloom's taxonomy: *Applying* (collecting and organizing information about their own brand, interviewing potential consumers in the field, building a model, and developing prototype brand logos); Analyzing (using the information which they have collected in the field, plus the information they have picked up in the class lectures and in the textbook, to construct a prototype new brand), *Evaluating* (at the end of the semester, the students vote for the brand which they think is most successful and defend the decisions they make about which brand they would support as venture capitalists), and *Creating* (each team must create a PowerPoint presentation in which they describe the ideas behind the creation of their brand, the data which led them to think that this brand would be successful, and present pictures of the ways in which the brand will be promoted).

Practice Two creating activities which introduce problem-based learning in the course.

In the work that each team does to create a brand for a new product, students need to use all the stages which Wendy Conklin describes as being part of problem-based learning: They have to decide on a real-world product for which they must create a brand, they must research data related to other real-world products which compete in the marketplace with their product, they have to brainstorm ideas for how they wish to position their product, they need to decide what strategies they will use to create a brand which will maintain this position, and they have to prepare a presentation which explains the reasoning behind the approach they took in developing a brand for their product, while, at the same time, demonstrating the different ways in which they will advertise their brand and monitor its equity.

Practice Three using Socratic questioning techniques in class.

The lecturer of this course indicated that he does not prepare specific questions before class but uses impromptu questions to focus the students' minds and to lead them through a sequence of ideas which will enable them to create a final branding project that demonstrates they have assimilated the main concepts and content of the course. Since 50% of the class time is spent on examining Harvard case studies, questions that clarify ("What is an example of…?" and "Can you explain…?") are unavoidable, as are questions that look for reasons and evidence ("How do we know that this is true?"and "What else do we need to know?"). The way in which brands are positioned has a great deal to do with perspective, so questions about perspectives and viewpoints are common in the class discussion, as are questions that

scrutinize consequences ("What impact on the positioning of the product will this approach to branding have?") The lecturer reported that it was harder to ask questions which probed the students' assumptions ("Why do you think this way about…?" and "What else could we believe about this?"). He rarely asked questions about the questions ("What does this question mean?" or "Why was this question asked?"). The researcher's observation of this course identified a few of these approaches to questioning but not many. Most of the lecturer's questions were limited to questions of clarification.

Student Reactions to Each Course

In this case study, the researcher used a number of different instruments to collect data. A student questionnaire focused on students' overall response to studying compensation management and branding in an English medium of instruction course. Interviews with the course lecturers and student focus groups concentrated more on the effect of being required to use higher-level thinking skills, and whether this appeared to affect the students' learning experience, both in terms of learning the course content and in developing better communicative skills in English, even though English was not explicitly taught in either course.

In studying the students' responses, it became apparent that the students had very different learning experiences when they were in class listening to lectures and when they were collaborating together on the class projects. Often they found the lectures hard to follow. Working together on the class projects, on the other hand, they found it to be stimulating and an excellent way not only to understand the course content in greater depth but also to improve their communicative English language skills.

The Compensation Course

In their written comments, the Taiwanese students made a number of comments which may help to explain why they found the course difficult in certain respects. They described the extra time it took to do the reading for the course and the fact that it was not always easy to understand these assignments. They mentioned having difficulty following the lecturer's instructions and the pressure they felt keeping up with the lecturer's lectures. They also shared some frustration about being unable to express their thoughts and opinions clearly in English. Some are worried about contributing to the class in imperfect English.

When asked whether the lecturer could make studying in the course easier, students requested that when the lecturer lectures, she could explain some of the more difficult concepts or vocabulary in Chinese. Another suggested, "If it's possible, lecturer could provide the Chinese material in advance to let us preview, so that it

will help us a lot to understanding the concept in class." Five students suggested that the students' English language competencies should be tested before the course begins, using some measure like the TOEFL iBT, so that the lecturer could modify her teaching style and content to better match students' capabilities in English. As one student put it, "Each lecturer could take the course progress depends on student's competency or learning condition, and then modify their teaching style and content." Nine students requested that the lecturer provide more detail in her written and verbal instructions in her lectures and that she either make an effort to use simpler vocabulary when possible or take time to explain more complicated terms.

In the project work, on the other hand, many students said that they benefited from being required to use English in their project work because the dual challenge of using English to understand the content and then finding ways to express their ideas forced them to concentrate more closely. They had to use higher-level thinking skills in order to complete the project. As one student put it:

> To participate in the projects work in English is a challenge for me, but I think if I take the class in Chinese I will not take more attention … because I think it's very easy to understand and to know but however in English for me it's difficult so I will pay more attention … to learn and I think it will be better than in Chinese.

Another common theme was the belief that by working on projects together where conversations and discussions required students to use higher-order thinking skills, students not only learned more about the content but also learned how people from other cultures think:

> Student: Participating in this kind of whole-English environment has lots of advantages: 1 Increase your learning attitude and passion; 2. Improve your language ability; 3. Be more confident than before; 4. Realize diverse cross-cultural differences from students.
>
> Student: You learn a lot about marketing and branding, but you also learn different thinking in different cultures… a lot of different ideas. People have different views from you.

Students also commented that by being involved in projects that required them to converse using higher-order thinking skills, they began to develop the kind of fluency they would need to be able to participate in an international business environment.

> In this class you meet other people from different cultures so you can learn what people think. You want to focus your career about business and business now is very global so we need to have that kind of English. I have learned to express my ideas and to make presentations well.

The Branding Course

In their questionnaire and written responses, the Taiwanese students made a number of comments which may help to explain why they found the branding course difficult in certain respects. Like the Taiwanese students in the compensation class, they

described the extra time it took to do the reading for the course and the fact that it was not always easy to understand these assignments. They mentioned having difficulty following the lecturer's instructions and the pressure they felt keeping up with the lecturer's lectures. They also shared some frustration about being unable to express their thoughts and opinions clearly in English. As one student put it, "Language barrier: some students may feel embarrassed or don't have enough confidence to speak English in public although they have brilliant opinions."

When students were asked if the lecturer could do anything to make studying in the course easier, they mentioned that the lecturer could use Chinese more often to explain some of the more difficult concepts or vocabulary. Like the students in the compensation class, a number of students suggested that the students' English language competency should be tested before the course begins, so that the lecturer could modify his teaching style and content to better match students' capabilities. As one student put it, "The lecturer should use simple words, slow down the speaking speed, and make the course more interesting." Another suggested that the lecturer should check more regularly to see if the students are keeping up with him. A further suggestion was "We do the presentation with business cases in English. I think it's better that lecturer could give us some information such as summary. To tell us which part is important first."

When asked about their need to use higher-level thinking in this course, students noted that they didn't need it so much for the lectures but that they did use it while working on projects together. In the lectures, one student wrote, "If you do not pay much attention in class, you will lose large part of the lesson, and hard to catch up what lecturer or classmates says." In other words, the main job is recording what the lecturer says. In the project work, however, another student wrote, "Taking an English-medium instruction course permit to improve a lot your English. At the beginning it's true you have to concentrate more in class, but though working with classmates on the project little by little you understand well the content, and your listening skills in English have improved." Like four other members of the class, one of them wrote that by using higher-level thinking skills in their projects "It enables students (local and foreigners) to meet and inter-react more. It also helps you improve your English skills and general knowledge too." Another student noted that when you are required to use higher-level thinking skills to carry out a project, "It will allow you to do more than learn the content, it will allow you to think as a native speaker when doing business."

Summary

This case study examined two content courses taught in English at a prominent Taiwan university: one in compensation management and the other in branding. Both courses used curricula designed to challenge students to use higher-order thinking skills as they are defined in Bloom's taxonomy. The research issues of interest were several: whether the students felt that in a learning context requiring

them to use higher-order thinking skills, the content was more difficult for them to learn and understand, whether they felt they were able to learn the content well, and whether they would prefer to have studied the content in their native language rather than using English as the medium of instruction. Some researchers have claimed that it is better to teach content in students' native language first before introducing English language instruction in a particular content area (Cummins, 1994). Other researchers have claimed that some of the disadvantages of teaching content in a language which is not native to students can be mitigated by building higher-order thinking skills into EMI instruction (Dong, 2004).

In this case, each of the courses examined in the study was analyzed to assess whether it did integrate higher-level thinking skills into its English language content instruction. It was found that the lecturers of both courses did indeed integrate higher-level thinking skills in multiple ways.

Overall, the responses of the two groups of students in both the compensation course and the branding course were very favorable when it came to questions relating to studying the content of the courses in an EMI environment. In response to the question, "Do you like studying the information in this course in English?," 90% of the foreign students (N, 14) in the branding course answered in the affirmative. (The only exception was the one student from China, who felt that he was forced to take the course in English because it was the only branding elective offered and only in English. He would have preferred to study the course in Chinese.) All of the Taiwanese students (N, 9) answered in the affirmative. In the compensation course, 100% of the foreign students (N, 6) answered in the affirmative, while 95% of the Taiwanese students (N, 17) also answered in the affirmative. In response to the question, "Do you think it is worth the effort to combine studying the subject matter information in this course while also learning English?," 90% of the foreign students in the branding course answered in the affirmative (the Chinese student was the exception), as did 100% of the Taiwanese students. In the compensation course, 100% of the foreign students and 100% of the Taiwanese students replied positively.

While the survey used in this case study revealed that, for the most part, the students in these two courses were very positive about learning the course content in English in the manner that their lecturers used it, the student focus groups suggested that many students found that it was in the class projects, where they had to use higher-order thinking skills, that they learned to understand the content at a deeper level. This is also where they learned how people from other cultures often think differently from them and learned how to become more fluent in sharing their thoughts and ideas in ways which they felt would be an advantage in an international business context.

Students were more negative in their written comments, however, regarding the quality of instruction in the classroom. The lecturers of both these classes spent 50% of their time lecturing the students and 50% on projects or cases. It is fair in retrospect to see that, for the most part, it was in the student projects that students were most challenged to employ higher-level thinking skills. Little is mentioned in either the lecturer interviews or the published course materials about the nature of the

lecture segment of each class. Both lecturers said that they tried to use a variety of Socratic approaches to questioning students in class, but little evidence of these approaches was seen during visits to the classroom. In their comments about their experience in these courses, students did not mention the lecturers' questioning techniques in the classroom. Instead, the students reported that these lectures were very much like those they have experienced in many other classes: the lecturer lectures, the students listen and take notes, and some discussion is attempted occasionally. It is here, in the classroom, where we need to focus if we wish to improve the students' learning experience. Several suggestions can be made:

1. Lecturers need to know the level of English language competency of their students before the class begins. They should be given English language proficiency scores, such as those obtained from the TOEFL iBT, for each student in their class, so that they can ensure that their lectures, and project instructions, are delivered at a level where they can be understood by everyone.
2. Lecturers need to learn a repertoire of pedagogical skills to help students keep up with the pace of the class. These might include taking additional time to explain complex words and concepts, speaking more slowly, checking regularly for understanding, providing outlines on the white board or in PowerPoints to support the oral transmission of information in the class lectures, and providing students with supplemental materials beyond what is written in the textbook.
3. Lecturers should introduce more group activities into the classroom with the aim of encouraging students to use higher-order thinking skills, rather than allowing students to sit passively listening to a lecture.
4. Lecturers need to learn how to use Socratic questioning techniques more frequently in their teaching.

While this case study cannot claim to prove that there is any direct connection between building higher-level thinking skills into the instructional framework of an EMI content class and the quality of content learning, it is clear that in this case, doing so did not have an adverse effect. Intuitively it makes sense that if students are required to involve themselves in a highly interactive English language learning environment, one which requires them to use higher-level thinking skills, they will find that their communicative skills in English improve, and they will develop a deeper understanding of the course content. Consequently, content-area EMI lecturers may find it helpful to adopt the three practices outlined in this case study for incorporating higher-level thinking skills into their courses, as described by Wendy Conklin in her excellent book *Higher-Order Thinking Skills to Develop 21st Century Learners* (2012).

At the same time, simply adding higher-level thinking processes into the projects in which students must involve themselves in a course cannot automatically compensate for that portion of the class which involves traditional lectures. Here, in addition to deliberately stretching students' thinking by using Socratic questioning, EMI lecturers must be given their students' language test scores on a test like the TOEFL iBT. In this way, lecturers can tailor their instructional approach to each unique class setting. They should also learn the pedagogical tools necessary to cre-

ate interactive activities which break down the separation between foreign and native students and require students to use higher-order thinking skills in the classroom context itself.

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Chapter 7
Instructional Activities that Motivate Learners in Tourism Program

Chiou-Lan Chern and Mei-Lan Lo

Empirical Studies of EMI

Most empirical studies on EMI in Taiwan have utilized a survey approach to assess the perceptions of students and instructors (Chang, 2010; Cho, 2012; Wu, 2006; Yeh, 2010). There are some interesting but mixed findings. For example, most students in EMI programs recognized the benefits of acquiring content knowledge through English but reported difficulties in understanding the content of learning (Chang, 2010; Huang, 2012; Wu, 2006). In Wu's survey, 28 graduate students from applied mathematics, mechanical engineering, and technology management departments were asked about the strengths and weaknesses of taking EMI courses. The findings showed that the advantages of EMI identified by these participants included their (1) improvement in English, (2) exposure to global views and international culture, (3) opportunities to express ideas in English, and (4) opportunities to become familiar with textbooks and other resources written in English. However, the disadvantages were all related to English language proficiency, including students' (1) difficulties in understanding course content, (2) struggles in expressing ideas fluently in class, and (3) lack of incentives to participate in class. Overall, this study showed students' dilemma: they were positive about EMI courses but experienced difficulties.

Instructors' perspectives on EMI programs have also been investigated (Chang, 2010; Cho, 2012; Yeh, 2013). For example, Yeh interviewed 22 national and private university instructors and found that the motivation for instructors to offer EMI courses included accommodating international students' needs, improving local students' English ability, and maintaining their own English proficiency. The global status of English in academic and professional field seemed to be the main motivation for adopting EMI. Regarding the impacts of EMI on student learning, many

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instructors interviewed in Yeh's study were concerned about students' inadequate English proficiency, the depth of content knowledge acquired, and students' motivation. Code switching was, therefore, adopted as an instructional strategy to facilitate students' comprehension. When asked about their views on the emergent popularity of EMI in Taiwan, most instructors had reservations. Language issues came up repeatedly as either teachers' or students' inadequate English proficiency could result in the oversimplification of content and language used to engage complex concepts. One participant in Yeh's study stated, "Taking courses in a language yet to be mastered may have disadvantaged students' acquisition of content knowledge" (p. 226).

Regarding the instructional strategies employed by EMI instructors, Yeh (2010) surveyed 348 university teachers and found that a variety of strategies were utilized, such as checking frequently to ensure students understood the lecture, using simplified English, speaking at a slower pace, and switching to Chinese occasionally. These instructors were satisfied with their EMI course instruction but acknowledged that their students' limited English proficiency was the biggest obstacle for EMI.

This brief review of empirical studies on EMI seems to indicate that students and teachers held an ambivalent attitude toward EMI. On the one hand, they perceived EMI to have double benefits in helping students simultaneously acquire content knowledge and improve their English ability. On the other hand, both students and teachers also acknowledged that the depth of class interaction and knowledge dissemination was questionable in an EMI environment. Bearing the controversial findings of EMI studies in mind, we undertook this case study to document instructional activities that could motivate learning in tourism.

Motivation and Learning

A quick search on activities that motivate learning will reveal many principles and suggestions that are proposed by researchers and classroom teachers in various fields. For example, James (2014), an education consultant and researcher, identified six principles that are essential when designing activities to engage learners: (1) make the activity meaningful, (2) build up students' competence, (3) provide autonomy support, (4) include collaborative learning, (5) establish positive relationships, and (6) promote mastery orientations. These principles engage students in their behaviors and help them become emotionally and cognitively invested (Fredricks, 2014). Brown and Lee (2015) also identified eight principles of language teaching: automaticity, transfer, reward, self-regulation, identity and investment, interaction, languaculture, and agency. Although an EMI class is not a language class, EMI classes are usually conducted in an EFL context, and proficiency in English is an important factor to determine the outcome of content learning. Therefore, we wanted to explore whether these eight principles could be adopted to analyze the class activities in the chosen site of this case study. Below is a brief introduction of these eight principles identified by Brown and Lee (2015).

1. Automaticity: This refers to progression from controlled to free processing of language forms, which can be achieved through meaningful and purposeful practice.
2. Transfer: Being able to transfer knowledge learned in one context to another is a manifestation of meaningful learning.
3. Reward: Rewards can be intrinsic or extrinsic. Those that are generated intrinsically are the most powerful type of reward.
4. Self-regulation: Learners' ability to be in charge of their own learning—i.e., learner autonomy—is an important factor leading to the success of learning.
5. Identity and Investment: Learners' perceptions of their own roles in the learning community—their identity—will determine how involved they are in this learning context.
6. Interaction: Collaboration and interaction among peers help create a social network of learning.
7. Languaculture: This term, coined by Agar (1994), emphasizes the interconnected nature of language and culture. In an EMI context, we can define "culture" as the culture of a particular field of study, rather than that of a group of language speakers.
8. Agency: This refers to a person's choice to pursue a goal for personal actualization.

In this study, we use the above principles to analyze the pedagogical activities of one tourism program to identify elements that motivate learners.

Background of the Case Study

The aim of this study was to identify the features of EMI tourism instructional activities that motivate learners. We chose the Department of International Tourism Management (DITM), located in an EMI campus as a site for exploration. DITM is affiliated with a private university which has about 27,000 students and four campuses in northern Taiwan. The salient features of this EMI campus are: (1) all courses are taught in English; (2) students study abroad in their junior year; and (3) it is a residential college.

In the semester of spring 2015, we invited Professor C and the 21 students from one of her undergraduate classes, Tourism Resource Management, to participate in our study. Tourism Resource Management is a three-credit, elective course for sophomores in DITM. The course objectives are (1) to introduce types of tourism resources, (2) to introduce how to manage tourism resources, and (3) to provide students with opportunities for real-world experience in tourism resources management through an 18-h service learning. Throughout the semester, Professor C spent most of the class time introducing types of tourism resources and ways to manage those resources. In addition to presentations, she also included case studies, role plays, and guest lectures as instructional activities to meet the first two objectives.

Table 7.1 Demographics of the student participants

		N = 21	Percentage (%)
Gender	Female	15	71.4
	Male	6	29.6
Year	Sophomore	17	81
	Senior	3	14.3
	Junior	1	4.8
Nationality	Taiwanese	18	85.7
	Malaysian	1	4.8
	St. Lucian	1	4.8
	Chinese	1	4.8
Department	International Tourism Management	20	95.2
	Global Politics and Economics	1	4.8
English proficiency	IELTS: average 5.6	15	71.4
	TOEFL iBT: average 68	2	9.5
	TOEIC: average 525	1	4.8

To ensure the quality of service learning, she devoted 3 h to explaining the goal, logistics, and arrangement of this project before students went out into the field and 3 h afterward to have students reflect and share their experiences.

Professor C was in her 30s. After earning a bachelor's degree in English from a university in Taiwan, she pursued further studies in the United Kingdom. She holds a master's degree in Tourism Development and Planning and a doctoral degree in Marketing. It was her second year teaching in this EMI campus. She was introduced to us by another faculty member, Professor D, who had participated with Professor C in the same 5-day professional development program focusing on Content and Language Integrated Learning (CLIL) in Australia in February 2015. According to Professor D, Professor C has a good command of English, participated actively in the CLIL training, and seemed to be a teacher who is skilled at engaging students (personal communication, March 1, 2015).

The 21 students were mostly Taiwanese sophomore females, whose English proficiency was between B1 to B2 according to the Common European Framework of Reference for Languages (CEFR). The demographics of the student participants are shown in Table 7.1.

The following research questions are addressed in this study:

1. What instructional activities can be used to motivate learners in a tourism program?
2. What are students' perceptions toward these instructional activities?

Case Study

In order to answer these two research questions, we employed a qualitative approach to collect and analyze the data. Specifically, the data were collected from classroom observations, videotaped recordings of classes, a student survey, separate interviews with the teacher and students, and website materials such as the course Moodle.

To have access to the syllabus and other related course materials posted online, we asked Professor C to allow us to register as visitors in the course Moodle. Moreover, we requested to sit in on two class meetings (4 h total) and record five other meetings (10 h total) to document the instructional activities conducted in her class. At the end of the second observation, we administered a self-designed survey to the 21 students. The survey, which consisted of five demographic questions and ten open-ended questions, was aimed at exploring why students chose to study in an EMI campus, what difficulties they had encountered, as well as what they thought contributed to the success of an EMI program. At the end of the survey, we left a space for those students who were willing to participate in a follow-up interview to provide their contact information.

Among the five students who provided their contact information, two accepted our invitation and answered some follow-up questions via emails. One of the students, Student A, is a Taiwanese. She was then a senior from the Department of International Tourism Management. The other student, Student B, is a foreign student from St. Lucia. She was a junior from the Department of Global Political Economy. Both of their comments about the course will be quoted throughout the rest of the paper. To triangulate the data, we interviewed Professor C at the end of the second observation to listen to her thoughts and experiences of teaching EMI courses.

Overall Findings

Through class observations and video analysis, we found that throughout the semester, Professor C employed various instructional activities to engage her students. Those activities, e.g., presentations, case studies, role plays, guest lectures, field trips, and service learning, were mostly informative and interactive in nature. Students who participated in the follow-up interview had a positive attitude toward these instructional activities. In the following sections, we will describe how those activities were conducted and how the students perceived them. We also analyzed each of the activities to see if they match Brown and Lee's (2015) eight principles of language teaching: automaticity, transfer, reward, self-regulation, identity and investment, interaction, languaculture, and agency.

Presentations

The objectives of the course were threefold: (1) to introduce types of tourism resources, (2) to introduce how to manage tourism resources, and (3) to provide students with opportunities for real-world experience in tourism resources management through an 18-h service learning. From the analyzed data, we found that presentations were used quite often to fulfil the first two objectives. Moreover, when making presentations, Professor C usually started with some warm-up activities, either sharing her own story/experience or asking students to ponder some thought-provoking questions first individually and then in groups. For example, in our first observation, she began the presentation on "Tourism Development and Planning" by sharing an anecdote, in which she asked two of her freshman advisees what they wanted to do after graduation. After these students had set a goal, she further asked them what they needed to do to reach their personal goals. From this goal-setting and plan-making activity done in an academic setting, Professor C then switched to the national government's goals and plans for doubling the tourist arrivals in Taiwan, initiatives that were launched in 2002 and 2008.

During the presentations, we found that Professor C liked to encourage her students to answer questions to earn bonus points. Moreover, she often used concrete examples to illustrate the theories and models in tourism. For instance, in a lesson on "Tourism Demand," she played a news video clip on the construction of the railroad from Taipei to Yilan to explain why there was a need to build such a railway.

After the presentations, Professor C often employed some follow-up activities so that students could recap the key points in lectures. Take our second observation as an example. After that day's presentation, "Tourism Seasonality," Professor C announced that she was going to post two questions on their class Facebook page. Students had to think as a destination manager and write down their solutions to the following problems: (1) a tourist spot where it rains almost every day and (2) a hot spring resort which does not receive many tourists in summer. After another presentation, "Understanding and Measuring Tourist Destination Images," Professor C asked students to work in groups to create a collage of "My Perception of Y City as a Tourism Destination" using the photographs of urban scenes that she had previously asked them to bring to class. Obviously, Professor C's presentations of the course content had a clear structure beginning with a warm-up stage, followed by idea introduction and development, and ended with student presentations or follow-up activities. This is in line with the structure of a language lesson identified by Richards and Lockhart (1995).

During the interview, Professor C commented that the purpose of the course was for the students to learn not only some theoretical models of tourism resource management but also the practical part of implementing these theories/models with essential skills. When making presentations, she usually started with a warm-up activity and then she would intersperse the presentation with activities and questions to engage her students. Her students were quite positive about this style of teaching. They thought that Professor C's lively and interactive instructional style

was conducive to their learning. They wished more professors would teach in a similar manner. As one student put it:

> I liked the format of how the course was conducted. I actually wish more professors would set their courses in a similar structure. It was highly interactive and allowed students to be engaged. (Student B, personal communication, August 24, 2015)

Overall, Professor C's presentations showed that Brown's principles of *reward* (e.g., giving bonus points) and *interaction* were being utilized to engage students and motivate them to learn.

Case Studies

In addition to the lectures that introduced different models and theories of tourism resource management, Professor C employed two case studies near the end of the semester to show her students how theories are integrated into practice. In the first case study, Professor C assigned the students to read "Developing a Strategy for the Angkor World Heritage Site," an eight-page (without references) journal article in English. In order to lower students' stress in reading, Professor C divided the students into groups and conducted a jigsaw-reading activity, in which students in the same group were assigned a small portion of the reading first and then they had to summarize the key points of that portion for the whole class.

In the second case study, Professor C used another English-language journal article, "How the History of Scotland Creates a Sense of Place," to illustrate how a sense of place can be constructed through a nation's culture, people, and landscapes. In this activity, Professor C began by sharing her 6-year experience of living in Scotland when she pursued her Ph.D. study there. Next, she introduced the first part of the paper with a PowerPoint slide and divided the class into four groups. Then she assigned each group to summarize the four themes mentioned in the second part of the article, using the first page of a worksheet she had created. Finally, she did a recap by using the "Visit Scotland Brand Essence Wheel" provided on the second page of the worksheet.

In addition to having students read the two case studies mentioned above, Professor C also asked the students to conduct their own case studies by applying different models/theories to places with which they were familiar. For example, after introducing G. Crouch's Model of Destination Competitiveness and Sustainability (Ritchie & Crouch, 2003), she asked students to apply this model to study the cities or towns of their own choice.

When introducing case studies in class, Professor C tended to let students work in groups to discuss and share opinions first and then she would ask one student from each group to present a summary of their discussion. Professor C required each presenter to say something different instead of just repeating the answer. As oral presentation was challenging for some students, Professor C used strategies such as listening attentively and offering encouragement to assist those students to fulfil the task. Student B indicated, "Many times she [Professor C] would really

encourage my classmates to give their own opinions even though they were a bit shy" (personal communication, August 24, 2015).

When Professor C asked students to read the cases in groups, the principle of *interaction* was applied; when students were asked to conduct their own case studies to integrate theories into practice, the principle of *transfer* served to engage these learners.

Role Play

The role play, Choice of City Versatile, was designed by Professor C to be a problem-based learning project. It served as a review session of the units on "Tourism Development and Planning" and "Tourism Impact." In the role play, a scenario was provided and each of the students was assigned a role. Students had 30 min to prepare for their lines based on the description and duties of their roles. In addition to the main roles that included city mayor, chief engineer, finance chief, town mayor, headman of a village, and villager, shadow characters were also assigned to support the main characters; their purpose was to think up strategies to be heard in the meeting as well as develop the overall story line.

Role play was quite new to the students. As it is not a common classroom activity done in a Taiwanese college setting, Professor C would occasionally switch to Chinese to ensure that students understood after she had first explained it in English. Students felt that this activity was interesting and well organized. As Student A put it, "The way it [the role play] was conducted was just like playing computer games—with a setting/scenario and characters—and you communicate and negotiate with others by using your assigned identity" (personal communication, August 7, 2015). Additionally, communicating and negotiating with others using an assigned identity provided students with a chance to actively use the theories and models they had learned in class. Student B commented, "I believe that working in service industry, especially in the Tourism sector, you need to fill out other roles besides that of your proposed position. I think that the role play is indeed fundamental for active learning" (personal communication, August 24, 2015).

Besides involving *interaction* with peers, role play activities no doubt aim at helping students *transfer* what they have learned to a real situation, with the goal that the tasks required will reach *automaticity*. Therefore, three of Brown's principles have been applied here when role plays are built into the classroom activities.

Guest Lectures

Two 100-min guest lectures were delivered by invited speakers during the semester. In the first guest lecture, two speakers were invited to share their experience and the process of establishing a new nature park in northern Taiwan. One of the speakers, a local government official, described how this project had begun as early as the 1980s and how this nature park influenced the environment, culture, transportation,

real estate, and the quality of life in that area. The other speaker, the CEO of an environmental ethics foundation, shared how they had planned and managed the resources in that attraction and highlighted its educational functions so as to distinguish it from other tourist sites.

In the second guest lecture, the secretary for the head of the culture division in the local government was invited. Having previously served as the vice-president of a newly built museum in Taiwan, she shared her experience in organizing various cultural activities at the governmental level, as well as her experience in establishing the ground rules for managing a museum.

After the first guest lecture, Professor C asked the students to write a reflective essay on the lessons they had learned from the guest lecture, as well as their attitude toward "tourism resource" and "management." Similarly, after the second guest lecture, she devoted some class time to having the students share their thoughts on the abovementioned questions.

In the interview, Professor C confessed that although she required her students to participate in the 18-h service learning so that they could observe how the theories/models were implemented in reality, it was still difficult for the students to understand how all the tourist resources were collaboratively put together and allocated. Fortunately, the three invited speakers all addressed the importance of collaboration among different departments, as well as allocation and management of different resources. Although this was an EMI course, the invited speakers used Mandarin Chinese. For Student B, a foreign student whose Chinese proficiency was lacking, Professor C provided her with a summary and translation of what was said. As Student B observed, "My peers…seem to have enjoyed the speech and during the Q&A sessions they were very eager to ask questions and seek further information from the guest speakers" (personal communication, August 24, 2015).

By inviting outside experts to give guest lectures, Professor C connected her students with the real world and prepared them to transfer the knowledge gained in class to real-life situations. Thus, the principle of *transfer* was fulfilled.

Field Trip

To allow students to connect the theories they had learned in class with the tourism industry, Professor C organized a class field trip to two tourism factories (one making soap and the other making food) and an "old street" (i.e., a street with shops that sell traditional products). These sites are all popular tourism spots in northern Taiwan. After the visit, Professor C asked the students to compare the two factories and tell which one they liked better and why. Next, she asked the students to identify some problems they found in these factories. To conclude the activity, she asked the students to share their general impression of the old street.

Students appreciated the opportunity to visit the two factories and the old street because the trip was well organized. Professor C arranged interpreters in the two factories to explain the day-to-day operations. In addition to learning about different services provided by the two factories such as DIY activities and community

service, the students also learned a great deal about the history of the factories. Student A commented, "Visiting factories was a good idea because students rarely had opportunities to do so by themselves" (personal communication, August 7, 2015).

By arranging the field trip, Professor C aimed at providing students with first-hand experience of the operation of the tourism industry to allow knowledge transfer from the classroom to the field and vice versa. This is another example of the principle of *transfer* being built into the course.

Service Learning

As mentioned earlier, one of the objectives of this course was for students to experience real practice in tourism resources management through an 18-h service learning. Professor C arranged for her students to serve and learn in an expo that lasted for 6 weeks. Students had to work in one of the following places during both days of the weekend: the information center, the shop selling local organic produce, and the environment education center. Before students tackled this project, Professor C participated in an information meeting so that she could prepare her students. Also, she asked two student volunteers to interview an officer of the expo and the other two students to serve as editors to help the project's assistant compile a service learning booklet that included students' service learning logs, group reflections, and the interview with the event organizer. At the end of this experience, students were required to present in class what they had learned, and each student received a copy of the service-learning booklet as a reward for their hard work.

This service learning was well received by the students as they felt it was a very meaningful way to experience the ups and downs of providing a service and how, when presented with challenging situations, they must think fast and take the right course of action. According to Student B, "It [service learning] gives us a reality check on what it is in the real world" (personal communication, August 24, 2015). Since Student B could not communicate easily in Mandarin Chinese, Professor C paired her with a student who was fluent in English and also briefed her (Student B) beforehand on what to expect. Both Student A and Student B indicated that they appreciated the opportunity to learn through providing service to others. Additionally, they felt that they were fully supported throughout the weekends of service learning. Student A stated:

> I appreciated the opportunity of service learning, although it had to be done during the weekend. The whole experience was worthwhile. We had provided services in different areas. After the service learning, Professor C asked us to share our reflection in class, and she also shared hers with us. (personal communication, August 7, 2015)

Service learning is another way to *transfer* what is learned in class to the real world and from field experience to knowledge consolidation. This experience also facilitates the acquisition of *automaticity.* As service learning allowed students to be immersed in the field for an extended period of time, the culture of that real-world

site could become part of the experience. Thus, *languaculture*, another principle identified by Brown and Lee (2015), was manifested.

The above recount of Professor C's class shows that five out of Brown's eight principles were manifested in Professor C's pedagogical activities: *automaticity*, *transfer*, *reward*, *interaction*, and *languaculture*. The other three principles—*self-regulation*, *identity and investment*, and *agency*—were not clearly evident.

Highlights and Challenges

From the classroom observations, survey, interviews, and document analyses, we have found some highlights and challenges of this EMI course in tourism. At the time of this study, Professor C was only in her second year of teaching in this program, but she had already successfully implemented various instructional activities to overcome one of the challenges in teaching this course—to engage her students. In the interview, she stated:

> Students tend to think "Tourism Resource Management" is quite boring just by judging the course title… It involves too many aspects…It's challenging for me to cover all of the topics with limited class meetings…Students find some of the content hard to understand because they lacked related experiences…I find it extremely difficult to motivate the students. (personal communication, June 8, 2015)

According to Professor C, her approach to teaching was very different in the past. She shared an example with us:

> In one of the courses I taught last year, I did all the lectures (teacher talking and students listening) from the beginning to the end, including case studies. The students felt bored, and so did I! I was very angry at them because I had worked so hard and they did not even bother listening! (personal communication, June 8, 2015)

What has transformed her teaching approach? Professional development. She asserted that she had benefited very much from the 5-day Content and Language Integrated Learning (CLIL) training in Australia, which was organized and funded by her university. After the training, she realized that when teaching EMI courses, she was not only a content teacher but a language teacher as well. She used to take it for granted that students knew the English terminology in tourism because she herself had studied in the United Kingdom, an all-English environment. However, after the professional development training, she became aware of the problems in her teaching methods and incorporated the strategies she had learned in order to more effectively engage her students.

Professor C's passion for teaching and learning could be the key to the success of the course. It is her passion in teaching that provided her with the drive to change, and it is her passion in learning that motivated her to participate in various professional development activities so as to gain new ideas. As Student A wrote,

> Professor C has many new ideas. We are all very grateful for what she has done for this course. From this class, we have learned that Professor C is passionate about living and

> loves to travel. We have learned a lot from her thoughts about different cultures and the travelling experiences in different countries. It's a great plus for this course. (personal communication, August 7, 2015)

There is no doubt that Professor C's passion in teaching and creativity in activity design is one of the highlights that contributed to the success of this tourism program. However, challenges also existed in this course taught in an English-immersion college. Professor C's English was clear and fluent, but her students' command of English language, ranging from IELTS five to six (CEFR B1 to B2), was not quite sufficient for handling EMI courses. From the survey, 76% of the students indicated that they chose to study in this EMI program because they wanted to improve their English in order to become more competitive in the future. Although most of the students said they wanted to work in the tourism sector after graduation, 67% of them felt that their English ability was not adequate. According to Professor C, about one-third of the students didn't understand what she said in class. She stated,

> We have raised the threshold of English scores on the entrance exam. Although we only admitted those students whose English score was ranked top 25% to our program, there is still a huge gap [between the top and low students]. Whether the course is taught in Chinese or English, students should get the same knowledge. ….Students needed to know some basic terminology in the field to understand and participate in class activities. (personal communication, June 8, 2015)

In addition to students' inadequate language proficiency, Professor C also felt disappointed with the students' learning attitude. She didn't think the students were diligent enough, and they seldom previewed the material. In the interview, Student B echoed Professor C's comments on the learning attitude of her peers, "I am a little disappointed in many of my classmates because we had sufficient time to prepare [for the role play] but it was evident that they did not give their best" (personal communication, August 24, 2015).

This discussion of highlights and difficulties reveals that Professor C invested considerable time to make herself a better EMI teacher; she had taken a training course overseas and assembled various resources to enrich her class activities, and she did all these passionately. Brown and Lee's (2015) principle of *identity* and *investment* emerged, therefore, not in the students, nor in the class activities, but in the instructor. If students had adopted the principle of *self-regulation* and demonstrated more autonomy in learning to empower themselves—which is the principle of *agency*—then the course analyzed in this case study would have manifested all eight principles that Brown and Lee identified as being crucial in learning.

Summary

In this chapter, we have described the instructional activities used in a tourism resource management class based on data collected from class observations, transcriptions of class videos, and interviews with the instructor and students. A variety of pedagogical activities that motivated students to learn were found: Presentations, case studies, role play, guest lectures, field trip, and service learning. All of these activities involved student participation, and even the most traditional format—lecturing—was conducted in a manner that included student-teacher interaction. We found the class to be conducive to learning for several reasons: First, the instructor was fluent in her command of English, and the class was conducted in clear English. Second, the instructor was very enthusiastic about teaching and constantly sought ways to motivate her students. Third, there was a variety of activities that engaged students to explore the theories and practice of tourism. The fact that some components of the class, such as the guest lectures and service learning, were conducted in the students' L1, Mandarin, and that the instructor incorporated some timely code-switching was another factor contributing to students' positive attitudes in learning. Finally, the students, being fully aware of and prepared to take up the challenge of acquiring content knowledge in English prior to attending this English-medium college, were very positive about taking content courses in English and hoped that their English language proficiency would improve as a result. Although the students probably didn't realize how much content covered in class they had failed to grasp, their positive attitude and beliefs in the benefit of EMI courses are one of the factors that make the program sustainable.

Based on the results of this study, we suggest that administrators of EMI programs offer professional development opportunities to support EMI teachers. An intensive immersion program like the one Professor C took part in or a support system to allow fellow EMI teachers to share ideas and learn from each other will empower teachers. Administrators should also communicate to students the rationale for offering content courses in English and provide students with a choice of the same courses taught in Mandarin and English. After all, students' motivation to learn and their investment in learning activities are as important as teachers' passion to offer activities that are conducive to learning.

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Part IV
EMI Materials

Chapter 8
Use of Authentic Materials in Law School

Jason Tien Chou

Specific Area of Interest: Authentic Materials in Law

In order to be applied to the facts in various scenarios in human society, US statutes or regulations tend to be complicated in structure and the terminology used therein tend to be abstract in nature. Therefore, Taiwanese law professors often take advantage of authentic case decisions issued by the US courts to explain how articles can be interpreted and applied by a judge in response to the facts in any particular case. For the students in Taiwan in pursuit of international legal practice, there are strong demands to both learn the content knowledge in the US laws and to improve their English proficiency. Their needs can be answered by studying US court decisions.

Case Decisions Issued by the US Courts of Law

The elements of a US court decision typically include the facts of the case; claims of the plaintiff(s); arguments of the defendant(s); the legal issues involved; the holdings and reasoning of the majority of the presiding judges; concurring opinions of some of the judges, if any; and/or dissenting opinions of some of the judges, if any.

Since the holdings of the court usually have strong controlling power on how subsequent cases with the same legal issues should be decided, prior court decisions are commonly referred to as "precedents" or "the law made by a judge." Therefore, authentic court decisions are often used as one of the primary sources of information to study the laws in the USA.

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Other authentic materials recommended for EMI law courses include the US Constitution, statutes passed by the US Congress, regulations promulgated by the US executive authorities, international conventions or treaties, and the model terms of business contracts.

The US Constitution

The constitution is the supreme law of a nation upon which the organization and functions of the government are based. In addition, the basic rights of the people, such as freedom of speech, due process of law, and legal protection against racial or sexual discrimination, are also provided in the articles and amendments to the constitutional law.

In order for the students to understand the checks and balances among the three branches of the US government, including the executive, the legislative, and the judicial, the authentic articles of the US Constitution and its amendments are considered to be suitable teaching materials for a law professor to teach the US Constitution in English.

Statutes Passed by the US Congress

Statutes are often used by a law professor to teach students about the laws passed by the legislature, which is composed of representatives elected by the people. For example, the Lanham Act (15 U.S.C. §§ 1051 et seq.) is the statute passed by the US Congress to provide for the registration and protection of trademarks. Therefore, in order for a law professor to teach the trademark law of the US, the authentic text of the articles of the Lanham Act, and the amendments to it, if any, should be often referred to by the professor during the course.

Regulations Promulgated by the US Executive Authorities

Distinguished from statutes, which are the laws passed by the legislature, administrative regulations are a set of rules made and promulgated by the executive authorities of the US government. The rules of the regulations are intended by the executive agencies to enforce the laws; therefore, the rules are more implemental and procedural in nature than the laws themselves.

For example, the US Securities and Exchange Commission (SEC, 2016) is the federal agency established to implement the Securities and Exchange Act of 1934 passed by the US Congress. A professor teaching the US laws with regard to the trading of stocks, bonds, and debentures will make reference in class to the authentic

articles of the Securities and Exchange Act of 1934 and, in addition, to the regulations made and promulgated by the US Securities and Exchange Commission.

International Conventions or Treaties

EMI professors teaching subjects dealing with cross-border legal issues may refer to the authentic rules promulgated by international organizations or treaties among nations. For instance, TRIPS (Agreement on Trade-Related Aspects of Intellectual Property Rights) is a multilateral treaty signed by the members of the World Trade Organization (WTO, 2016). Any member of this international organization is legally bound by the articles of TRIPS in regards to the protection of intellectual property rights.

Therefore, in order for a law professor to teach the international law on intellectual property, the authentic text of the articles of TRIPS and the amendments to it, if any, should be often referred to by the professor during the course.

Model Terms of Business Contracts

In the private sector, especially in the international business setting, agreements or contracts are executed to provide for the rights and obligations of the parties concerned. Drafting the articles of an international business contract in English requires not only expertise in international business law but also years of experiences in international business practice.

Contract form books are made available by legal publishers providing standardized terms and conditions for all kinds of business contracts. EMI law professors teaching contract law or international business law are recommended to take advantage of the authentic articles in a model business contract as teaching materials.

Online Databases of Authentic Legal Materials in English

Authentic legal materials written in English, such as the previously mentioned documents, can now be easily accessed by users on the internet. Westlaw (WestlawNext, 2016) and LexisNexis (LexisNexis, 2016) are the two major legal publishers in the USA that provide paid online legal research services for lawyers and other legal professionals. In addition, both sites provide proprietary legal database services.

Westlaw Online Legal Research Services

The online resources on Westlaw provided by Thomson Reuters, Inc., include the legal information of all major jurisdictions such as the USA, the UK, Australia, Canada, the European Union, and Hong Kong. Take the legal information of the USA as an example. Subscribers can search among more than 40,000 entries of court decisions, federal and state statutes, administrative regulations, newspaper and magazine articles, public records, law journals, law reviews, international treatises, legal forms, and other information resources in this database.

LexisNexis Online Legal Research Services

Competing with Westlaw, LexisNexis is also a US corporation providing computer-assisted legal research services for international legal communities. With its electronic accessibility to legal and journalistic documents, the LexisNexis database contains legal information of such jurisdictions as the USA, the UK, Australia, Canada, the European Union, Hong Kong, France, and South Africa. Different from Westlaw, LexisNexis databases also provide academic papers published by law reviews and journals.

Westlaw and LexisNexis are widely subscribed to by law schools, libraries, offices of attorneys-at-law, patent and trademark firms, legal institutes, courts of law, and government agencies around the word. With minimum training online, users can easily access their respective legal databases and locate the authentic documents desired for pragmatic or educational purposes.

Background of the Cases

Three EMI law courses taught at university law schools in Taiwan were selected for this case study. They all shared one common aspect in their course designs: all the EMI professors used US court decisions as their teaching materials. The background information of each case, including the course description, professor and student profiles, student evaluations, and etc., are summarized as follows:

Case One: Legal English

In the fall of 2015, nine Taiwanese graduate law students registered in “Legal English,” a graduate-level required course at one of the leading private universities in northern Taiwan. The committee responsible for the curriculum design of this

university's Master of Laws program had resolved that this course should be mandatory for their students in order that they would have an adequate training in English communication skills in law. The law professor assigned to teach this course was required to use English as a medium of instruction for the entire period of the course.

In addition to the EMI requirement, the committee enforced a small-class policy that no more than ten students were to be enrolled in each course in order to ensure teaching quality and learning effectiveness. The professor and students would meet in a classroom for a 3-h session every week for the fall semester of 2015 and the spring semester of 2016, with each semester composed of 18 weeks.

Before admission to the graduate law program, the students in this course had received their education in different academic disciplines at the undergraduate level, including law, business management, accounting, computer science, tourism, and engineering. Some of them had already acquired content knowledge in various subjects of law, while others did not even possess the fundamentals of law. One thing in common among the students was that this course was the first law course taught in English which they had taken.

The instructor teaching this course was junior in terms of teaching experience. It was her third year since she had been associated with this university. She had received her legal education in the USA, where she was awarded with the degree of Juris Doctor by a prominent university and had been admitted to practice law in the state of New York by passing the state bar examination.

The instructor had taken part in some teaching development workshops offered by the university with regard to EMI courses. However, she admitted that since it was a brand new experience for her to teach an all-English course in law, she felt a great deal of anxiety. In addition, she had to put in more time and energy in pre-class preparation than in other non-EMI courses she was teaching. She was uncertain whether the outcome would justify the efforts both she and the students had made.

Written midterm and final examinations were given to assess the students' performances in this course. English legal vocabulary and/or phrases were tested in the format of multiple-choice questions. Paragraphs selected from authentic US court decisions were also included in the examinations, and the students were asked to translate them from English to Chinese. The multiple-choice questions and the essay-type translation questions, respectively, accounted for 50% of the scores of each examination.

Case Two: US Constitutional Law

In the fall semester of 2015, "US Constitutional Law," a 3-credit elective course, was offered to the first-year graduate law students in a national university in southern Taiwan. The Taiwanese students who signed up for this course were expected to have an understanding of the basic principles of US constitutional law and how these principles had been interpreted and applied by the US Supreme Court in practice. Prior to registration for this course, the students were fully informed that

English would be used by the professor as a medium of instruction during the entire period of the course.

The student workload for this course involved a pre-class reading assignment of six case decisions made by the US Supreme Court each week, 3 h of classroom lectures each week, and the midterm and final examinations. The assessment of student performance for this course was based upon two parts: the pre-class reading assignments and the student's performance on the midterm and final examinations. The two exams contained essay questions in English, and the students were required to answer in English.

The class was composed of eight part-time students, who were enrolled in the evening program for the degree of Master of Laws. Due to the admission policy, all the students in the evening program had a Bachelor's degree in any academic discipline other than law. Therefore, they did not have any prior education in the content knowledge of either Taiwanese or US constitutional law. In this class, four students had engineering backgrounds, two students had management backgrounds, one student was a registered nurse, and one student was a flight attendant. All of them had full-time jobs during the day and came to school during the evening on weekdays and during the day on weekends. Due to job requirements, some of them used English in daily operation at their workplaces.

The instructor who taught this course had graduated from one of the major universities in Taiwan with an undergraduate degree in law and received his doctorate degree of law from a leading university in the USA. His academic expertise was the US legal system and its constitutional law. He was fluent in English and had experiences in teaching EMI law courses.

Case Three: US Criminal Law and Criminal Procedures

The third case was a required graduate-level course, "US Criminal Law and Criminal Procedures," offered in the law school of a national university in southern Taiwan. This course was designed to analyze various types of federal crimes and state crimes and the laws addressing these crimes in the federal and state criminal codes of the USA. The legal procedures for the prosecutor to prosecute a criminal defendant and for the judge to try a criminal case, in both the federal courts and the state courts, were covered in the course as well.

Because it was a mandatory course, all Master's degree students were required to enroll in the course and to obtain a score of at least 70 points. Without successfully completing this course, the students would not be allowed to graduate. "US Criminal Law and Criminal Procedures" had been posted by the school on a list of EMI law courses before it was officially open for student registration.

Seventeen Taiwanese full-time graduate students signed up for the course. The policy of this graduate law school required a Bachelor of Laws degree for any full-time student prior to admission. Therefore, it was a fair assumption that all the students possessed basic content knowledge about Taiwanese criminal law and criminal

procedures. However, they had not had any opportunity to study US criminal law and criminal procedures, nor had they taken any EMI law courses prior to this one.

The course instructor was well educated in both Taiwan and the USA, with credentials from top law schools in both countries. He had taught "US Criminal Law and Criminal Procedures" for more than a decade at this university and other universities as well. Because he was a fluent English speaker, he felt quite at ease using English in giving lectures in this course and other law courses as well.

The assessment of student performance in both case one and case two was purely based upon the scores of written examinations. The professor in case three evaluated the students by multiple criteria, including pre-class reading assignments, translation homework, written Q&As by e-mails, oral presentations with PPT slides, and oral Q&As in the class.

Case Study

With the assistance of the three instructors, the author of this chapter was privileged to gain access to the course descriptions, syllabi, teaching materials, teacher and student profiles, assignments, and student evaluations in each of the three EMI law courses. Furthermore, there was an open house day in each course during the semester for faculty members who were interested in EMI to observe the class. The author took this opportunity to observe on site the teaching activities of each course.

At the end of the observation, the author interviewed the professors and some of the students in order to gain insights into what the professor thought about teaching an EMI law course and to hear the students' feedback about participating in an EMI law course. In particular, the author focused on their opinions about using authentic case decisions issued by the US courts of law as instructional materials in their classes.

From classroom observations, teacher interviews, and student interviews, the author wished to address the following questions:

1. Were authentic US court decisions used in their courses edited or unedited?
2. How did the students interact among themselves in classroom while using authentic US court decisions?
3. Was the level of pressure felt by the students different as a result of the teachers' use of authentic US court decisions?

Overall Findings

Edited Versus Unedited Authentic US Court Decisions

In case one, "Legal English," the instructor did not prepare her own teaching materials; instead, she assigned a textbook on the subject matter of the course, which was written by a Taiwanese law professor from a Taiwanese university. This textbook was published by a local law book publisher and made available to the public in Taiwan only. The book was aimed to introduce local readers to the laws of the USA and to its judicial system through an examination of US court decisions. Readers of this book learned the English legal terms and phrases used in those court decisions.

Thirty US court decisions, including decisions made by both the federal courts and the state courts, had been compiled as the main part of the book. The writer of the book had also edited the content of the authentic materials by shortening the length and simplifying the text for readers with lower English proficiency. Because the court decisions were written in English, for the purpose of better understanding, the writer provided editor's notes and paragraph-by-paragraph Chinese translation of the content. Keywords and/or phrases and important legal principles were underlined and explained in detail in Chinese. Quizzes in the format of multiple-choice questions were added at the end of each court decision, so that the readers could practice and evaluate their learning outcomes.

In case two, an English textbook on US constitutional law, written by an American law professor and published by a law book seller in the USA, was assigned by the instructor of this course. The same textbook had been assigned by American law professors at a number of law schools in the USA on the same subject. Like most of the legal textbooks used by American law schools, many landmark decisions made by the US Supreme Court in the history of US constitutional development were included in the book. By reading the court decisions, readers were expected to be able to appreciate the basic principles of US constitutional law and how those principles had been interpreted and applied by the US Supreme Court in practice.

Each court decision in the textbook had been edited by the writer, so that it was made shorter and easier for the readers to read and understand, while keeping the essence intact. In addition, the writer of the textbook added his personal notes, comments from other members of the legal community, case reviews published by law journals, and a list of extended reading at the end of each case. In contrast to the textbook used in case one with respect to targeted readers, the textbook used in case two was originally written for American law students. The latter's selected court decisions were provided with no Chinese translation, so they were more challenging for the Taiwanese students, who had to spend time and energy looking up new words and phrases in English.

Using a different approach from the first two cases, no textbook was assigned by the instructor of case three. Instead of using edited US court decisions in an assigned

textbook, the students in "US Criminal Law and Criminal Procedures" were required to search and find an authentic US court decision of his/her own interest from online legal research databases such as Westlaw or LexisNexis. After their selected court decisions had been found, the students had to take turns to make an oral presentation to the class in English about their chosen cases in the following weeks of the semester.

The full text of an authentic US court decision would, in general, extend over a number of pages in length. It was the duty of the presenting student to make efforts to understand the court decision in detail and write a case brief summarizing the content of the case using no more than 1500 English words. The full text of the court decision along with its summarized case brief had to be sent by the presenter via e-mail to the instructor and the rest of the class one week before the date of the student's presentation. Both the instructor and the students needed to work on the court decision to be presented before attending the class.

Use of Authentic US Court Decisions in Class Interactions

The instructor in case one seemed to be quite lenient about what the students should do for the course. No pre-class reading assignment or homework after class was required by the instructor. Dynamic teaching activities were not observed in the class. Following the syllabus of the course, the instructor gave lectures in English on one court decision from the textbook every week when she met with her students. It was the teacher who did the talking most of the time in class, trying to explain to the students in English the background of the case and the legal rules applied by the judge in solving the issues involved. Whenever English legal jargon appeared, the instructor would pause and switch to Chinese for further elaboration.

Interaction between the teacher and the students was rarely observed in this law class, not to mention interaction among the students. As an auditor sitting in the classroom, the author of this chapter noted that the students paid less attention to what the professor said in English due to the Chinese translation provided in the textbook. With the aid of the Chinese translation, the students interviewed by the author admitted that they hardly made efforts in looking up new words or phrases in an English dictionary.

Comparatively, the instructor in case two was more demanding. As pre-class assignments, the students in case two were required to read six court decisions from the textbook each week. The students had to take the initiative in understanding the assigned court decisions, because they were expected to be familiar with the whole picture of each court decision when they attended the class.

During the class, a student was called upon at random by the instructor to give an English introduction to one of the assigned court decisions in the textbook. The student would feel embarrassed in front of the class, if he/she was called upon without preparation. After briefing the class about the court decision, the student also needed to respond to the questions and comments made by the instructor or the

class. Due to restraints of time, approximately 30 min were allotted for the discussion of one case. The instructor did not spend time translating English into Chinese; instead, his lecture was devoted to discussion on the content knowledge involved in the court decisions. The interaction between the teacher and the briefing student was to ensure that the class had correctly grasped the entire scenario of the case and fully comprehended the reasoning of the court decision.

In contrast to the prior two cases, the instructor's demands in case three were much higher with regard to both pre-class assignments and in-class interactions. In case three, as assignments before class, the students were required to finish reading the case briefs provided by the presenting students and then turn in a copy of a Chinese translation of the case brief prior to the date of each week's presentation.

After reading and translating the English case brief, the students were required to ask questions about the content of the case brief by writing e-mails in English to the presenting student. The presenting student had to respond to the questions by replying to the e-mails in English. The correspondence had to follow the genre of business e-mails (Sit, 2012). The written Q&A practice via e-mails was designed to improve the students' ability in English writing for legal purposes.

On the date of presentation, the presenting student would address the class in English on the selected court decision. In addition to making an oral English presentation, he/she was required to use PPT slides to make the presentation more appealing to the audience (Tsai & Tsou, 2015).

After the oral presentation in English, the floor was open for the presenting student to respond to questions or comments from the instructor and the class. The oral presentation along with the Q&A session was intended to provide the class with an opportunity to improve their competence in listening comprehension and oral communication in English.

Level of Teacher's Demands and Student's Pressure in Using Authentic US Court Decisions

All three instructors used authentic US court decisions as their course materials. However, the level of demand by the instructor varied significantly from case to case. The more demanding the instructor was, the more dynamic teaching activities were in the class. Virtually no dynamic teaching activities were observed in case one. According to the students interviewed in case one, this EMI law course was no more challenging than any non-EMI law course they had taken.

In case two, the instructor was more demanding and more aggressive teaching activities were observed than in case one. It is self-explanatory that the level of anxiety and pressure felt by the students in case two was higher than in case one. Most of the students indicated in the interviews that the EMI law course was more difficult than any non-EMI law course they had signed up for.

However, it was noted in case two that class interaction mainly occurred between the instructor and the briefing students in each class meeting. The rest of the students were not active in class interactions, and they joined the discussion only when they were summoned by the instructor to give opinions or to make comments.

Although the briefing students were required to orally present the case in English, most of them usually read aloud from a prepared written summary about the case, instead of speaking to the class in their own words. The instructor lectured in English most of the time in class, but he would pause and switch from English to Chinese from time to time in order to elaborate on some key legal terms or important legal principles. Almost all of the students in the interviews in case two said that it was much easier for them to understand the content knowledge when the professor switched from English to Chinese (Flowerdew, Miller & Li, 2000).

Case three presented a much higher and more intensive level of interaction among the participants than found in the first two cases. More importantly, all the classroom activities in case three were student centered with the instructor acting as a supporter in the class. It was the students, both the presenting students and the audience, who took the leading role in the classroom activities.

The role of the instructor in case three was to provide assistance whenever elaboration and clarification of the content of the subject matter was needed by the students. Since all the students had an undergraduate training in Taiwanese criminal law and criminal procedures, they indicated in the interviews in case three that they had no problem understanding the content knowledge when the professor referred to the similarities and differences between the US and Taiwanese criminal legal systems. However, the students also complained that the EMI law course was the most challenging law course they had ever taken.

Highlights and Challenges

EMI law courses are currently at the experimental stage in Taiwan. Only a handful of EMI law courses have been offered in the curriculum of graduate law programs in Taiwanese universities. Highlights and challenges for both the teachers and the students found in the three cases are presented in the following summaries.

Highlight 1: From ESP Language Teaching to EMI Content Teaching

In order to meet the increasing demands of Taiwanese law students who intend to pursue a legal career in international practice, a great percentage of the law schools in Taiwan have offered English language courses for legal purposes (English for specific purposes, "ESP") (Anthony, 1997; Dudley-Evans & St John, 1998). There

are 33 Taiwanese universities offering undergraduate law programs, and 20 of them have offered ESP language courses. In addition, 17 out of 25 graduate law programs in Taiwan have offered ESP language courses. As illustrated in the three courses reviewed in this case study, more and more law professors in Taiwan are now being required to offer EMI courses, in which the instructors must use English as a medium of instruction not only for teaching English but also for teaching the content knowledge of law.

Highlight 2: From Textbook-Based Lectures to Case-Based Interactions

The Taiwanese legal system has traditionally followed the continental models developed in Germany and Japan (Chen, 2014). In the past, there were more law professors in Taiwan with German or Japanese legal educational backgrounds, who were accustomed to giving lectures to the students following the content of an assigned textbook. Over the past 20 years, the law professors who chose English-speaking countries for advanced legal studies have significantly increased in number. As a result, their styles of teaching at Taiwanese law schools have diverged from those adopted by their senior colleagues. As shown in the three cases, law professors now often use authentic US court decisions to teach the US laws. More teacher-student interactions or interactions among the students have appeared in the classroom when discussion of the pros and cons of court decisions is in process.

Highlight 3: From Teacher-Centered to Student-Centered Approach

The instructor in case one seemed to follow the traditional teacher-centered approach in conducting her class. She had assigned a textbook of her choice for the students and determined the content of each meeting following her syllabus of the course. Interactions between the instructor and the students were rarely observed in class, not to mention interactions among the students. In contrast, the instructors in case two and three took a different approach (Liu, 2014). It was the students, including both the presenting students and the audience, who played the critical role in the teaching process. The role of the instructor, especially in case three, was to assist the students on an "as needed" basis to elaborate and clarify the content knowledge of the subject matter.

Challenges for the Teachers: Insufficient Collaboration Between Content Teachers and Language Teachers

It has been observed in the three cases that the law professors played the role of both an ESP and an EMI teacher, since they were expected to teach legal English and legal content knowledge at the same time (Tsai, 2014). Two common factors have been identified in the three cases. First, the law professor in each case had received law degrees in both Taiwan and the USA. Second, all three instructors were fluent in both Chinese and English. Therefore, even without any collaboration with English language teachers, they could cope with students of various English proficiency levels through code switching. They could also help their students appreciate the content knowledge by referral to the similarities and distinctions between the US and Taiwanese legal systems.

However, the law professors, after all, had not been professionally trained as English language teachers (Flowerdew et al. 2000). No matter how fluent their English was, the law professors were not adequately equipped with pedagogical content knowledge and practical experience in conducting an all-English course. What could an English language teacher have contributed to the EMI law courses mentioned in the three cases? Through what kind of mechanism in the university could an EMI law professor have sought needed collaboration with an English language teacher (Tsai, 2014)? These questions are some of the emerging challenges that both content and language teachers have to face in the development of EMI law courses in Taiwan.

Challenges for the Students: Inadequate Class Interaction and Insufficient English Proficiency in Oral Communication

Taiwanese students at law schools are traditionally more used to the teacher-centered approach in the classroom. It has become the norm that the students, especially the undergraduate ones, spend time only in reading the textbooks assigned by their professors, and almost all of the assigned textbooks are written in Chinese. In the classroom, only the professor speaks, with the intention of giving the students as much content knowledge as possible. The students are busy taking notes of the professor's lectures in Chinese. They do not use English in class, nor do they raise questions or make presentations. Interaction in class is very rare.

It was self-evident that the level of pressure felt by the students in the EMI law courses was higher because they were required to take a more active role in their interactions with the professor and classmates. The students had to change their attitudes toward the roles they played in the learning activities shown in cases two and three. A more aggressive learning attitude is the key to the success of an EMI law course.

The pressure grew even higher when the students were required to speak English discussing US court decisions in class. According to the students in the interviews, they agreed that the EMI law courses were very helpful and rewarding in learning the US laws. However, they complained that their English proficiency in oral communications was not sufficient for them to actively engage in class interactions. Therefore, skills in oral communication in English need to be taught and more opportunities of practice should be given to the students at law schools before EMI law courses are offered.

Summary

Many law schools in Taiwan have offered ESP language courses to their students; however, EMI law courses are now only on the threshold of development. For Taiwanese law students in pursuit of international legal practice, EMI law courses will meet their learning needs in both English proficiency and legal content knowledge. EMI law courses should take advantage of available authentic legal materials which were originally written in English, such as case decisions issued by the US courts of law.

In the three EMI law courses examined in this case study, it is found that many US-educated law professors endeavored to flip the classroom by putting the students in the center of their classroom activities. In these courses, the law professors took a back seat and provided assistance to the students only when elaboration and clarification became necessary. Authentic case decisions issued by the US courts of law were used by these teachers as their primary teaching materials.

The three EMI law courses reviewed in this case study are examples of only a handful of experimental courses which have been created by innovative law professors in Taiwan. Despite the positive responses from both the professors and the students about their EMI experiences, some emerging challenges are in sight for university administrators, faculty members, and students. To make the current EMI practice more widespread and efficient at law schools, mechanisms at the university level should be put in place where incentives and resources are provided, and law professors and English language specialists are able to collaborate more closely in the development of EMI law courses.

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Chapter 9
Developing Glocalized Materials for EMI Courses in the Humanities

Shin-Mei Kao and Hsin-Tien Liao

Specific Area of Interest: EMI Courses in the Humanities

EMI courses in an EFL context are often offered in the academic fields that are globally competitive to attract international students. In recent years, Asian countries, such as Japan, Korea, China, and Taiwan, have been especially aggressive in creating an international atmosphere for academic studies (see Chap. 1) by offering EMI degree programs or independent EMI courses to accommodate talented international students. Examining the types and natures of these courses, one finds that courses in the disciplines of medicine, life science, technology, engineering, and business studies comprise the majority of the total EMI programs. Courses or programs in the humanities and liberal arts are comparatively fewer.

Take Japan's "Global 30" project, beginning in 2014, as an example. Thirteen key universities were selected to offer more than 300 undergraduate and graduate degree programs for international students (MEXT, 2016). One of the attractions for international students to study in Japan is, "no Japanese proficiency [is] required at the time of admission" because "these universities have broken down the language barrier which was one of the obstacles preventing international students from studying in Japan" (MEXT, 2016). Even so, only about 20 full-scale undergraduate and graduate programs in library arts, arts, and the humanities have been offered by seven of the 13 universities. The remainders are in the disciplines of medicine, science, life science, information, technology, engineering, business, and social science. Interestingly, according to Hashimoto (2013), EMI programs in Japan tend to

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focus on science and technology at the graduate level and the humanities and social sciences at the undergraduate level.

Korea, a similarly aggressive country in internationalizing its universities, has taken a different strategy from Japan. Some leading Korean universities, such as Korea Advanced Institute of Science and Technology (KAIST) and Pohang University of Science and Technology (POSTECH), have decided to directly transfer all their programs—undergraduate and graduate level—into EMI (Cho, 2012). In KAIST, all the courses, including Korean history, Korean literature, and foreign languages, have been taught in English since 2006. According to Cho (2012), about 88% of undergraduate courses and 95% of graduate courses were taught in English in POSTECH in 2010. However, "English-only" instruction in higher education has also been criticized as a policy lacking proper preparation for both faculty and students in terms of their language competencies, pedagogical strategies, and teaching resources needed for this change (Byun et al., 2011; Kang, 2012). Byun et al. (2011) investigated students' and professors' views of the effectiveness of EMI in Korea University, where in 2008, about 38% of the total courses taught were in English. They found that undergraduate students in the Colleges of Business and Liberal Arts not only felt more satisfied with but also longed for more EMI courses than students in other colleges, such as science, engineering, and nursing.

In Taiwan, despite encouragement for creating EMI courses from the Ministry of Education and university authorities, the percentage of EMI courses in the humanities is relatively small. Among the small number of EMI humanities courses, there are also more undergraduate- than graduate-level courses. Slightly different from the situations in Japan and Korea, EMI courses in the humanities in Taiwanese universities are mostly offered under the category of general education for nonmajors. Graduate-level EMI humanities courses are few, except for those offered in the fields of English literature, English language teaching, and linguistics. There are only a few EMI graduate programs in the humanities, and these are specially designed for international students.

For example, at National Cheng Kung University (hence, NCKU), a leading comprehensive university, a total of 381 EMI courses at both the undergraduate and graduate levels were offered in the second semester of the 2015–2016 academic year (Academic Affairs Office, NCKU, 2016). Figure 9.1 presents the distribution of these courses across the nine colleges and the General Education Center. Note that language-oriented courses taught in English, such as English conversation, English composition, and English for nonmajors, are excluded from the total. The three colleges that offered the most EMI courses were the Colleges of Engineering (38%), Management (20%), and Medicine (13%). Only about 6% of the EMI undergraduate courses were offered by the College of Liberal Arts.

As a research-oriented university, the ratio of undergraduate to graduate students in NCKU is almost 1:1. In addition, among international students, there are two times more graduate than undergraduate students. Thus, it is not surprising to see that only 82 out of the 381 EMI courses were for undergraduate students. Figure 9.2 shows the percentages of the undergraduate- vs. graduate-level EMI courses, respectively, across the nine colleges and one center. Interestingly, the undergraduate

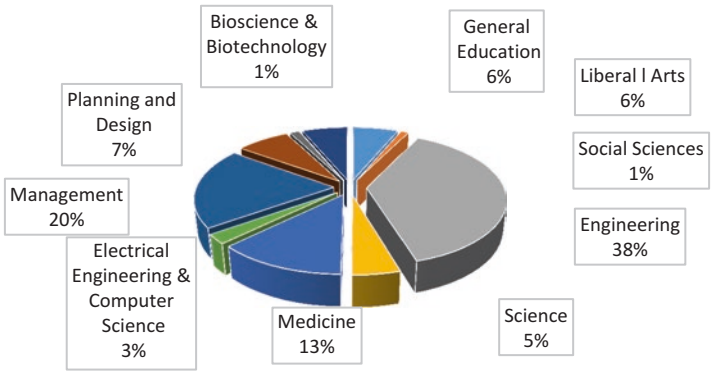


Fig. 9.1 Percentage of EMI courses offered at NCKU in the academic year 2015–2016

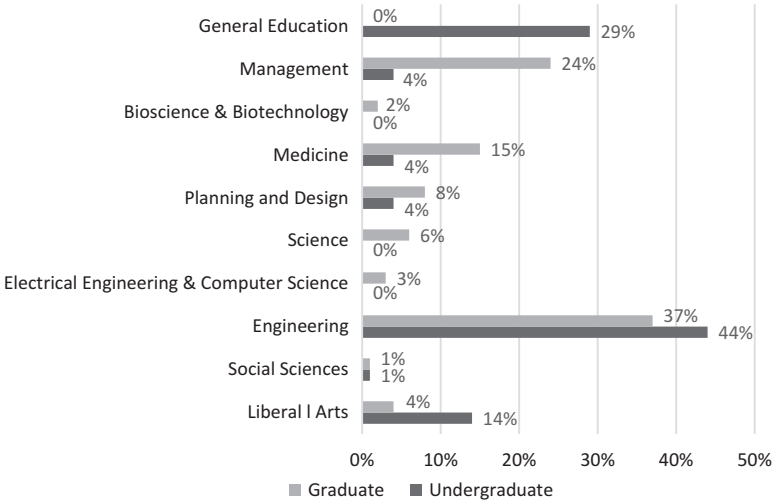


Fig. 9.2 Percentages of graduate- vs. undergraduate-level EMI courses offered at NCKU in the academic year 2015–2016

humanities EMI courses were mostly offered under the category of general education. The other undergraduate- and graduate-level EMI courses in the liberal arts were literature and linguistics courses offered by the Department of Foreign Languages and Literature to English majors.

Taiwanese undergraduate students are typically required to complete certain credits from the core and area courses in General Education. The core courses are primarily language-related, such as Chinese, English, and other foreign languages, whereas the area courses aim to broaden undergraduate students' knowledge base beyond their majors. In other words, the General Education area courses are for Taiwanese and international undergraduate students and cover topics outside their majors. The rule for taking these required courses, thus, has a great impact on the

areas, quantity, and content of the general education courses offered, and it is easy to predict the student enrollment in EMI general education courses in the humanities. For a university with a large number of international students from the fields of engineering, science, business, and medical science, NCKU surely has a need for more EMI general education courses in the humanities.

Despite the needs from the growing number of international students in Taiwanese universities, the faculties from the colleges of liberal arts, social science, or the humanities have not shown much enthusiasm. One difficulty in offering culture-related EMI courses stems from the lack of adequate teaching materials in English for nonmajors. Due to the fact that most academic texts and documentation about Chinese/Taiwanese culture, arts, and history are written in Chinese, EMI teachers have to deal with the burden of developing their own materials when designing a new course.

Background of the Cases

This chapter presents two cases. The first is a general education undergraduate EMI course: "Introduction to Traditional Theatrical Arts in Taiwan" (hence, ITTAT). This course was designed and offered under an umbrella project entitled "General Education English Learning Program" and managed by the General Education Center of China Medical University (hence, CMU). This program is sponsored by the Central Taiwan Teaching/Learning Resource Center of the Ministry of Education, R.O.C. (hence, MOE). The goal of this program is to "enhance the culture exchange and competitiveness among [international and local] students" (General Education Center, CMU, 2016). In 2012, the program began to recruit project-based instructors to design and offer courses for the students in 12 partner universities in central Taiwan, and the program continues to the present. A total of 16 courses have been developed in the humanities, social sciences, and general sciences under the central theme of Taiwanese studies. The teaching materials for these courses are also available in PDF format to the public from the official website of the program (General Education Center, CMU, 2016). The ITTAT was offered from 2012 to 2015 by the same instructor at several universities in central Taiwan, aiming to introduce the historical backgrounds of modern Taiwanese theatrical arts, with the foci on Taiwanese opera and Taiwanese glove puppet shows.

The instructor of the ITTAT course earned a Ph.D. in Drama from a national university in Taiwan. She taught at several national and private universities in central Taiwan before she was recruited as a project-based assistant professor by the General Education Center of CMU. However, before offering this course, she had not taught content courses to international students.

The ITTAT was a two-credit hour elective course for undergraduate nonmajor students. The class met once a week for 2 h. Although the ITTAT course was designed for international students, local students could also register for the class. Between 2012 and 2015, the class was taught at several different universities in

central Taiwan. The class size ranged from 12 to 80, with an average of 50 students. The composition of registered students varied greatly from school to school. The ratio of local vs. international students ranged from 3:2 to 8:1.

The second case is a graduate-level course, "Modern Arts in Taiwan" (hence, MAT), offered originally under "Taiwanese Studies" as the umbrella theme in the School of Culture, History, and Language at a key national university in Australia from 2010 to 2013 and then was offered by the same instructor at an arts university in Taiwan from 2013 to 2016 as part of an MA program of Chinese Arts for International Students. Up to the publication date of this book, this Chinese Arts MA program was one of the only two art-related graduate-level international programs among all universities in Taiwan. This course aimed to introduce different forms of modern and contemporary arts in Taiwan, for example, visual art, cinema, performance art, and popular culture, together with their historical, societal, and political contexts.

The instructor of MAT has two Ph.Ds.—in art history from a British university and in sociology from a Taiwanese national university. The instructor had also worked in the National Museum of History in Taiwan. Despite his rich experience in teaching and administration, the instructor had never conducted a course in English before he was invited to the Australian university. In addition to "Modern Arts in Taiwan," he also offered two other courses under Taiwanese Studies: "Taiwan: History and Culture", and a course in Chinese calligraphy. The MAT course was the first of its kind in Australian universities. Since it was open to all graduate students, it had attracted students with different academic and language backgrounds.

The reason for choosing these two cases is twofold. First, they represent the typical situations of undergraduate- and graduate-level humanities courses. The ITTAT course was a general education course for nonmajors, while the MAT course was a domain-specific content course for graduate students. Second, these two courses were offered several times at different universities with teacher-developed course materials. Thus, exploring how the courses were organized and presented can provide valuable information for teachers who are interested in designing EMI humanities courses.

The instruments applied in this study included course syllabi, teaching materials, students' works, teacher interviews, and information about the students through personal communication with the teachers. From the data, this chapter wishes to address the following three aspects:

1. What are some of the challenges in designing suitable course materials for EMI courses?
2. What are the needs of the students in EMI courses and how are their needs reflected in the material selection?
3. What strategies are used to present the course materials?

Case Study and Findings

By examining the course materials and interviewing the instructors, the researchers identified some common phenomena regarding the challenges in designing EMI humanities courses and the strategies taken to overcome the difficulties.

Challenges in Designing Suitable Course Materials

"What to teach?" and "how to present?" were two key questions asked by the instructors when selecting course materials. The two instructors faced a common problem: There were no appropriate commercially published textbooks that would serve the goals and scopes of the courses. Unlike courses in engineering, science, medicine, and business—fields that have many textbooks in English published internationally—suitable texts in regional studies and the arts are largely written for a local audience in the local languages. Some research-oriented books in English were available, but the instructors assigned these only as references due to the books' primary emphasis on research. Thus, the two instructors solved the problem by creating their own course materials with different approaches.

The instructor of the ITTAT course wrote a textbook under the sponsorship of the Central Taiwan Teaching/Learning Resource Center and made it publicly available online before the course was officially offered (Lee 2012). The MAT instructor also developed his own course materials using PowerPoint. The weekly materials of the MAT course were placed on the course's official website at the university's WATTLE (Web Access To Teaching & Learning Environments), in a PDF form. A list of recommended readings was also given to the students. The reading materials included news articles, reports, book chapters, and historical documentation related to the topics to be discussed. The process was time-consuming and required continuous updates and adaptation for different groups of students.

The second challenge faced by the two instructors was the need to constantly modify their original teaching materials as the courses progressed. Minor adjustments were also made as the courses were taught to different groups of students or at different institutions. Both instructors indicated that the differences between the plans and what was actually presented in class were especially marked when the courses were first offered. Although this discrepancy gradually diminished as the courses were offered repeatedly, modification and adjustments were still frequently made for different audiences at different institutions.

The third challenge was the lack of appropriate materials in English. This included, for example, documentation of historical, societal, and political accounts; information about artists, art performances, and art collections; drama scripts, and so on. Thus, adapting materials from Chinese, and even from Taiwanese (also known as Southern Min, a dialect widely spoken in Taiwan), into level-appropriate English required enormous time and effort during the course preparation stage.

Addressing Student Needs and Diversity in Course Selection and Implementation

Teaching students with highly diverse backgrounds was a common challenge faced by the two instructors. According to the ITTAT instructor, students from Asian regions, such as Mongolia, Indonesia, Vietnam, Malaysia, Korea, and Japan, comprised the majority in the classes, followed by students from Central and South American countries. Among the international students, only a very few were native speakers of English. Thus, English was used as a lingua franca in the class. The international students were usually attracted by the course title, with the expectation of learning about the arts and culture of Taiwan. However, local students who were familiar with different Taiwanese performing arts, such as Taiwanese opera and glove puppet shows, had greater expectations about the depth of the course. Since the natures of these two groups of students were very different, it was difficult to satisfy the needs and interests of both communities.

The MAT was a course with greater depth and breadth for graduate students and attracted students from different cultural and language backgrounds. For example, in 2013, some of the students were from Australia, with English as their first language, while others were from East Asia, including Japan, Korea, and even Chinese-speaking areas, such as Hong Kong and China. Thus, some students were unfamiliar with Taiwan and totally new to Taiwanese (or Chinese) language and culture, while some were native speakers of Chinese Mandarin or other dialects.

Therefore, the two instructors asked themselves: "How can the students benefit from the course?" A common approach was to assign group projects or discussions so that students of different backgrounds could share, collaborate and even debate. In addition, the instructors felt it was important to allow students the freedom to work on topics that interested them or to which they could relate.

The MAT instructor further pointed out that the course must provide a platform to accommodate individual perspectives, as well as the cultural and political identities of the participants, especially regarding sensitive issues. To achieve this, the students in the MAT course were asked to make a 20-min oral presentation during the tutorial period based on the assigned readings. The midterm assessment was to complete a WIKI entry about Taiwanese arts or culture according to each student's choice. The final assessment was a formal written essay of 3000 words (for undergraduate students) to 5000 words (for graduate students) based on development of a project related to the topic of each student's tutorial presentation.

The two instructors also included a great variety of sources as course materials. In the MAT course, the instructor selected a large number of news articles published by Taiwanese as well as international news agencies to serve as discussion materials that reflected different perspectives on certain political and societal issues in Taiwan. In addition, the MAT course instructor used Taiwanese history as a platform to connect the island with the world. For example, the course explored the link between the aboriginal tribes in Taiwan and Australia based on various theories of the Austronesian migration in Asia, Oceania, and Africa, in the prehistory period. The

course also examined Taiwan's role in relation to European powers in the Age of Discovery during the fifteenth to seventeenth centuries. In this manner, the course also raised students' awareness of the debate on Taiwan's identity in the world today. The instructor emphasized the importance of "feeling the pulse of the time" when discussing culture and societal issues.

Similarly, in the ITTAT course, in order to help the international students better understand the concepts in Taiwanese opera, differences and similarities between Chinese and western theatrical forms were compared and demonstrated. In addition, to connect the past with the present and the local with the international forms of performance arts in Taiwan, the instructor showed videos of how modern Taiwanese puppet shows employ up-to-date postproduction effects and 3-D technology in TV and movie formats. In this manner, art forms and real-life experiences were bridged, and local issues and world knowledge were connected, with the contribution and input of all the students, regardless of their language and cultural backgrounds.

Continuous Adaptation of Course Materials

Under the sponsorship of MOE's "General Education English Learning Program," the instructor of ITTAT wrote a textbook for the course before it was first offered. In the first year, the course was offered in five universities of different characteristics in middle Taiwan. The instructor immediately realized that it was naïve to use the same materials with students of various combinations of majors, cultural origins, and language backgrounds. Thus, she modified her coverage of topics, presentations, and class activities according to the responses of each class. In a class with more local students, she included more theoretical discussion about drama genres and styles; in a class with more international students, she included more demonstrations and hands-on activities and invited local students to be the helping hands. To give more flexibility to her teaching, the textbook she wrote was used as the primary reading assigned to students at home before they attended the weekly meeting. Separate weekly course slides were prepared for each class at different universities.

The instructor of the MAT course used a different approach. An outline of topics to be discussed was given to the class without particular textbooks. The instructor prepared his weekly PowerPoint slides with additional readings as the course moved on. The files were uploaded to the course website weekly after each meeting, so the students could find the extra reading materials online. Immerging issues were included in the discussion during the tutorial period of the week. As the course was offered for the second time, modifications were made to the weekly slides. Since this course required the students to create Wiki entries as part of the course requirements, new students each year could also look at the published entries as their examples of writing and tried to find new topics for their projects. Furthermore, they were asked to add or modify the existing entries. In this manner, the teacher and students shaped the course together and made new contribution to the knowledge base.

Strategies for Presenting Course Materials

Although the ITTAT course was taught to undergraduate students in Taiwan, and the MAT course to graduate students abroad, the two instructors developed quite similar strategies to tackle the challenges in presenting the course materials. This section discusses their strategies.

Visualization

Historical and social events contain facts, dates, people, places, and abstract concepts that might be hard to digest and retain for nonmajors or students unfamiliar with the target societies. To present the materials in a more comprehensible manner, both instructors used a "visualization" strategy to convey the information through graphs, diagrams, tables, timelines, maps, photos, and videos. Using visual aids not only makes the abstract concepts more understandable for students but also allows for more elaboration on the concepts and for making connections across disciplines.

Take the following timeline that summarizes the history of Taiwan, with references to world events, as an example (see Fig. 9.3). This graph was used in the MAT course in the orientation stage to prepare the students for exploring the culture and arts in Taiwan. Considering Taiwan's complex history and present international situations, the timeline identifies the various powers that have exerted control over the island, from the connection with Austronesia during the prehistorical period up to the most current political tension between Taiwan and China. All the powers that influenced the region are displayed by their national flags, including the Netherlands, Spain, Kingdom of Tungning, Qing, Japan, and the Republic of China. Parallel timelines of Mainland China and Taiwan are also displayed. This graph provides a quick visual summary of the island's past and present in a comprehensive style. Additionally, with this visual aid, the students could apply their knowledge of world history prior to the course and make quick references to the history of their home countries. This diagram demonstrates that the history of one region is interwoven with other parties and thus cannot be approached from one angle or be interpreted by a one-dimensional perspective.

Another visual aid used in the MAT course was a short video showing how Australians viewed the issue of "one China, two states." This video was intended to raise students' awareness of the tension between the two political entities across Taiwan Strait. Entitled, "Two Chinas," this video was produced in 2008 by the Mansion News Lab, an online Australian satirical news show available on YouTube (see Fig. 9.4). It was made in response to the historic official meeting between China and Taiwan on March 22, 2008. At the beginning of the program, one of the hosts reads an e-mail from an audience member asking "how many Chinas are there?" The other host then moves to a map of China and Taiwan to explain what the issue was about in a funny and sarcastic manner.

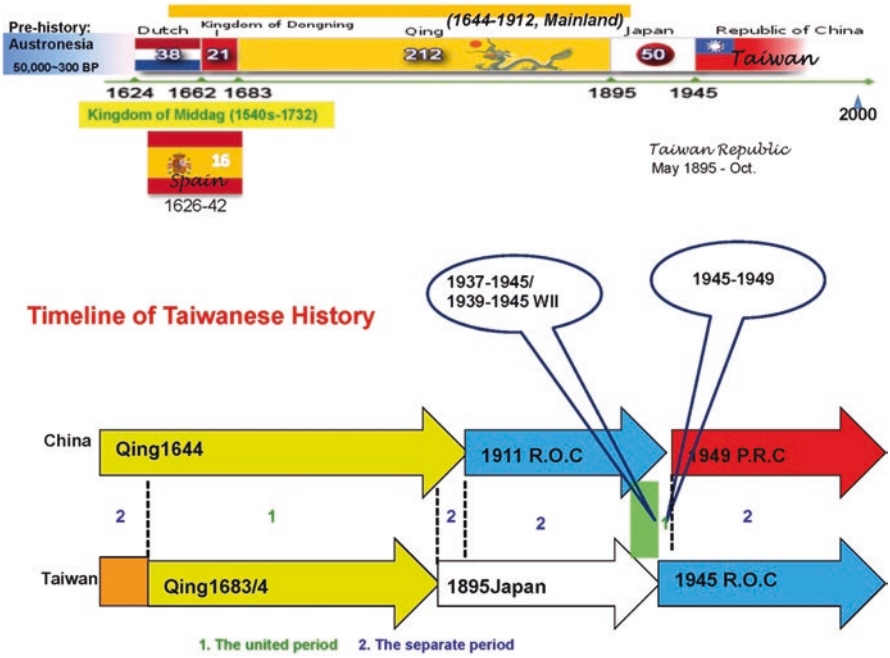


Fig. 9.3 Timeline of Taiwanese history (Adapted from the lecture notes of the MAT course)

Fig. 9.4 Two Chinas: The Mansion News Lab (Retrieved from https://www.youtube.com/watch?v=H5KEitxFxL4, March 1, 2016)

This humorous interpretation of the cross-strait relationship between China and Taiwan reflects a rather realistic confusion held by the general public in the international community. The video was used to initiate an open discussion in the classroom. The instructor then presented a diagram of four vectors formed by two continuums: radical vs. legitimate and identity vs. geographical designation. The

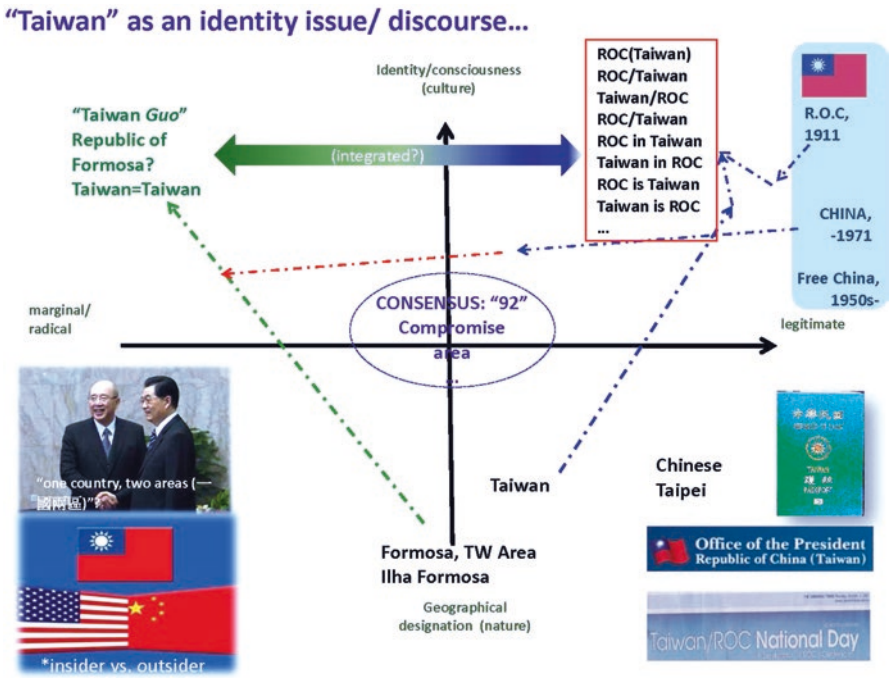


Fig. 9.5 "Taiwan" as an identity issue/discourse… (Adapted from the lecture notes of the MAT course)

instructor explained the factors along the two continuums, and the students were invited to discuss what each vector represented (see Fig. 9.5).

The ITTAT course used a similar strategy to help the students understand some theatrical concepts in Taiwanese and Chinese opera. For example, to visualize the stage arrangement of Taiwanese opera, a diagram was created and presented in the class (see Fig. 9.6, adapted from Lee 2012). In this diagram, the stage is divided into sections with corresponding theatrical terms and functions marked. The instructor first explained the theatrical meanings of the section in relation to stage performance. The diagram helped the students to visualize these divisions of the stage. After watching some video segments of Taiwanese opera performance, the students were invited to use this diagram to analyze the characters' movements. In this way, the terminology used for stage performance was made comprehensible to the students by elaboration on the diagram together with the video clips.

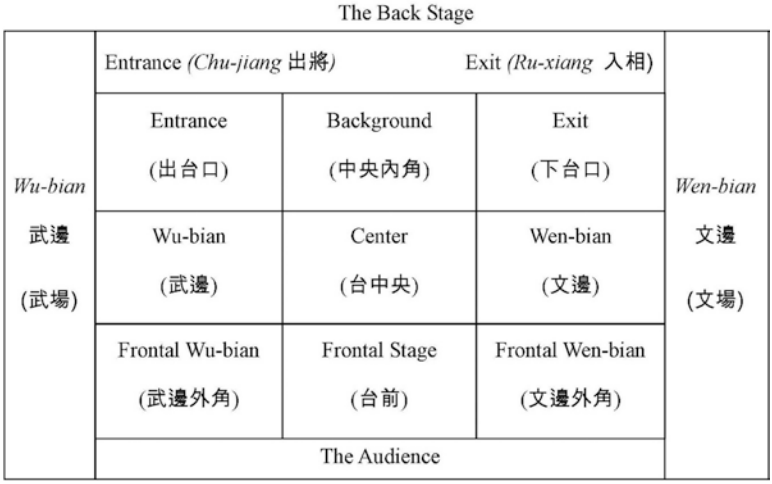


Fig. 9.6 The stage arrangement of Taiwanese opera (Adapted from Lee 2012, p. 42)

Adapting Materials in Chinese for an International Audience

When discussing issues related to Taiwanese society, cultures, and the arts, the two instructors needed to tackle the problem of presenting concepts, issues, and terminology that are unique in Chinese or other regional languages for an international audience. Examining the course materials and PowerPoint slides of the two courses, the researchers found that the two instructors used a similar strategy: presenting a specialized term in Chinese, with its pronunciation in romanized form, its literal meaning in English, and the definitions and extended meaning in the context. Instead of using the promoted romanization systems in Taiwan, such as tongyong pinyin (通用拼音) or the Wade-Giles system, both instructors chose Hanyu pinyin (漢語拼音), a phonetic system widely used by linguists and also the official romanization system used in China for transcribing Chinese characters. Their reason was not political but simply to make the course more accessible and compatible with documentation written in English and published internationally.

Take the following excerpt from a lecture slide of the MAT course as an example (see Fig. 9.7). The topic was an introduction to the works of Master Zhang Daqian (張大千) and his impact on modern Chinese paintings. The slide explains some common Chinese painting techniques, such as fine-line (gongbi 工筆) and expressionistic (xieyi 寫意) brush strokes in Chinese ink painting. The instructor explained these techniques with a photograph of Master Zhang. For the students who had heard of the terms "gongbi" and "xieyi"—especially students from a Chinese background—the Chinese characters enabled them to make a connection with their existing knowledge. The students who did not know any Chinese benefitted from the pinyin in that they could then either say the terms or recognize the sounds during the class. Because these brush techniques are unique in Chinese painting, the

Fig. 9.7 Master Zhang Daqian's painting (Adapted from the lecture notes of the MAT course)

instructor would certainly refer to them again. This teaching strategy, somewhat similar to code-mixing, was very natural and efficient.

The following excerpt from the ITTAT course book is another example of explaining Chinese terms in English. This passage introduces the musical instruments used for the traditional glove puppet show:

> *The major instruments (Nanguan;南管) are stringed instruments, like the pipa (a four-string lute; 琵琶), sanxian (a three-string fiddle; 三弦) and erxian (a two-string fiddle; 二弦). The music was smooth and tender, and the melodies were mild and elegant. The puppet players used Nanguan as the background music to accompany the puppet shows, for telling a romance or a narration full of feelings*. (Lee 2012, p. 29)

In this except, three Chinese musical instruments are introduced: the pipa, sanxian, and erxian. The literal translation of each instrument in English explains how that instrument might be compared to some commonly known western instruments. Since English names are not quite suitable for Chinese instruments, the instructor referred to them by their original Chinese names in her lecture. The students were able to learn these names during the course.

This technique is not new but often overlooked by EMI teachers when teaching cultural issues. Ideally, the name of a cultural concept or item should retain its original pronunciation for the sake of easy reference in real life. The spicy Korean dish made of pickled vegetables is known internationally as "kimchi," and Japanese soup noodles as "ramen." To enforce anglicization of a term in Chinese, or in any other non-English language, might seem convenient at first glance but can actually be confusing for continuous use. A good example is to use the general word "dumpling" to refer to distinct kinds of Chinese pastry/dessert with savory or sweet fillings, such as baozi (包子), jiaozi (餃子), xianbing (餡餅), tangyuan (湯圓), shaomai

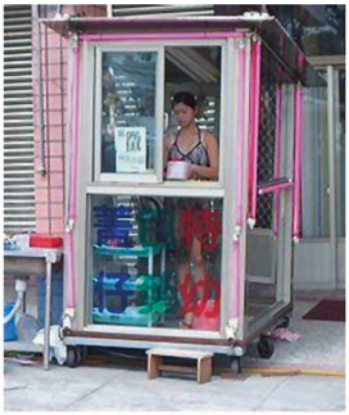
(燒賣), and huntun (餛飩). It might seem expedient at first to tell a foreigner to use the word "dumpling," but referring to any of these foods as "dumpling" would cause confusion when that person tries to make an order at a restaurant or food stand. Thus, it is better in the long run to learn the original Chinese name.

In addition, with such a denotation strategy, the two instructors demonstrated to the class, especially to the students who speak Chinese, how to describe a specific term in Chinese in their assignments written in English. The instructors taught the students when defining a new term, they could first describe the category of the concept/object and then exploit its specific features, with characteristic that set the concept/object apart from other members of the same category. The students were encouraged to support the text with graphical images. This technique can help students incorporate new terms from their own cultures in their reports and presentations and establish a platform for discussion across cultures.

The instructor of MAT assigned his students to create Wiki entries on topics related to Taiwanese culture and art as part of the course requirement. The following Wiki entry introduces the culture of chewing betel nuts in Taiwan with a subsection about the stands that sell betel nuts by betel nut beauties on the street.

During the same period, the uniquely Taiwanese Betel Nut Beauties were popularised. "Betel nut girls" work in roadside stands, usually large elevated glass windows with bright neon lights, making fresh betel nut leaves while wearing skimpy and provocative attire. Their job is to prepare the nuts for sale, run it to the customer, give tourist advice, traffic directions and flirt to increase sales.[13] There is a lot of controversy surrounding the role of betel nut beauties and whether they are victims of exploitation or self-empowered.[14]

Betel nut consumers typically buy the product fresh daily from a betel nut beauty stand or an ordinary "mom and pop" shop that also sells alcohol and cigarettes. Contrary to historical use, betel nuts are now predominantly consumed by men rather than women. Chewing has become an almost exclusively male habit with approximately 98.8% of users being men. This demographic changed in a relatively short amount of time after the Japanese occupation propagated the idea that women who chewed betel nuts were vulgar.[15][16] Betel nuts remain the second most grown agricultural product in Taiwan today and are chewed by approximately 7% of the population; however the crop has come under increased media scrutiny due to related health and environmental effects of betel nut consumption.[17]



A betel nut beauty working in Taiwan.

See also: Betel Nut Beauty.

The following Wiki entry was written by a Taiwanese student on the topic of Ba Jia Jiang, a folk belief and martial art in Taiwan:

> *Ba Jia Jiang (八家將) is originated from the Chinese folk beliefs and myths, usually referred to a few members of God, generally eight members. The general argument of the existence of Ba Jia Jiang is from the eight generals catching evil exorcism for Wufu Emperor (五福大帝). These eight generals are the gods of the underworld. They are also known as the bodyguards or attendants for the temples of the nether Gods such as Dongyue Emperor*

(東獄大帝), Yama (King of Hell, 閻羅王) and Cheng Huang (City Gods, 城隍). (Source: https://en.wikipedia.org/wiki/Ba-Jia-Jiang)

This assignment had two goals: to explore a topic of the student's interest and to extend the knowledge base of culture-related issues of Taiwan with international readership. The instructor of ITTAT indicated that students of low English proficiency often encountered difficulties in describing abstract phenomenon and tended to rely on direct transition. For example, a Taiwanese student in his oral presentation to the class in the ITTAT course described the glamorous moment when a main character appeared on the stage in the modern glove poppy show as, "Su Iam-bun appeared suddenly with *a thousand blings blings*"(i.e., 瑞氣千條, ruiqi qiantiao; literary meaning, one thousand shining rays). The expression was understandable and brought laughter in the class. Both instructors indicated that such kind of expression in oral presentation was perfectly acceptable, though they still might correct grammatical or structural problems in students' written essays.

Highlights: Globalization and Localization

As Taiwan gains greater international exposure, an increasing number of international students are interested in interdisciplinary studies related to Taiwan, in terms of its culture, arts, languages, peoples, politics, and society. These students may enroll in different academic programs such as business, management, social sciences, design, and the arts, and might not possess adequate proficiency in Chinese to take Chinese-taught courses in the humanities and social sciences. Thus, in addition to the more popular areas of EMI in engineering, business, and biotechnology, there is a growing need for conducting EMI courses in the humanities for both undergraduate and graduate students. The two courses investigated in this chapter have provided practical models for designing and conducting such a course.

Investigating the two courses, the researchers found that both instructors pursued a similar goal: connecting Taiwan with the world. Both instructors applied the concept of globalization as their strategy for fulfilling this goal. The focus of the courses was the culture in Taiwan, but both instructors tried to take global interests into consideration in the course design. Thus, identifying Taiwan's role in the international society was at the core of material selection and presentation. That is, the aim was to reflect global views on local issues. The two courses thus demonstrate a rising trend in designing EMI courses: taking both globalization and localization into account, that is, glocalization.

Placing glocalization at the core of the course design also carries another function: recognizing the needs and diversity of the students. Regardless of students' knowledge bases and language backgrounds, a glocalized EMI course can help learners understand and benefit from the teaching materials. The two instructors expressed the view that a course should do more than just fulfill the graduation requirement; it should also offer intrinsic motivation for students. Such an internal

motivation derives partially from students' interest in the topics discussed and partially from the extendibility of the course content to other aspects of the students' life. For graduate students, this extendibility can refer to the professional development in their academic studies. Therefore, the course should correspond with the students' research interests. For undergraduate students, extendibility can refer to a connection with the target culture taught in class, to the students' own culture (if different from the target culture), and to the world.

Summary

This chapter reports on findings from course material analysis and teacher interviews in two EMI courses about culture and arts in Taiwan. This chapter compiles a list of challenges faced by the two instructors and strategies taken to overcome the difficulties. The findings suggest that humanities courses taught in English should connect the target culture with the global world so that the students, local or international, can link the course with their knowledge base and background.

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Part V
EMI Teacher Development and Assessment

Chapter 10
EMI Teacher Development Programs in Taiwan

Cynthia Tsui

Specific Area of Interest: Teacher Education

According to Dearden (2014), a global scoping research team that conducted a massive survey involving 55 countries across four different continents, 83% of the countries reported that a shortage of qualified EMI teachers had created a significant problem. Tsuneyoshi (2005) also noted that one of the biggest challenges in sustaining an EMI program was finding faculty who were willing *and* able to teach content courses in English. A common misconception among policy-makers and administrators is that teachers who have spent time abroad or speak English well are capable of teaching EMI courses. Many nonnative speakers of English who have obtained their doctoral degree from English-speaking countries are assigned to teach EMI courses once they return to their home country. The underlying assumption is that time spent in an English-speaking environment is sufficient to make someone become a competent EMI instructor. Many EMI teachers, however, are not even aware of the level of English proficiency they might need in order to conduct their EMI classes at least as effectively as through their first language. Their ability to read and write in English is perhaps adequate since they needed these skills during their pursuit of the doctoral degree. However, high proficiency in reading and writing in English does not automatically transfer to "effectively explaining key concepts to students in such a way as to make the lectures comprehensible" (Barnard, 2013). Language difficulties experienced by EMI teachers include the inability to express ideas accurately, fluently, and comprehensibly in English (Chang, 2010; Sert, 2008; Tatzl, 2011). Also noted by researchers (Huang, 2012; Macaro, 2015; Tatzl, 2011) are teachers' inability to detect students' linguistic limitations that impede their learning and progress in EMI classrooms.

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In addition to deficiencies in their own English, EMI teachers often have to tackle pedagogical challenges as well. Faculty who are nominated to teach EMI courses may be junior teachers who have yet to polish their pedagogical skills in a real classroom. While managing to plan and design their course material can be time-consuming itself, nonnative English-speaking EMI teachers also need to cope with the challenge of using a second language to deliver their content knowledge. Werther, Denver, Jensen, and Mees (2014) reported how lecturers who had been thrown into English-taught courses haphazardly could experience difficulties and severe stress. The pedagogical deficiency, coupled with language deficiency, could cause a serious strain on junior EMI faculty. And yet, as reported by Tange (2010), few faculty are willing to admit that their English proficiency or pedagogical knowledge is inadequate, as such an acknowledgement could affect their status and career progression.

Research findings on the difficulties experienced by ill-prepared EMI teachers are prevalent (Ellili-Cherif, 2014; Huang, 2014; Li, 2013; Werther et al., 2014). However, training support to upgrade the readiness of EMI teachers has been sporadic. Kling and Stæhr (2011) reported on the development of the Test of Oral English Proficiency for Academic Staff to certify the linguistic proficiency of university lecturers. A similar Test of Performance for Teaching at University Level through the Medium of English at the University of Basque Country is also reported (Ball & Lindsay, 2013). Measures to certify the language proficiency of EMI teachers, however, are not a sufficient indicator of teachers' qualification for EMI assignments. Many EMI teachers are found to have developed their own strategies—language specific, content specific, or pedagogy specific—to cope with the day-to-day demands in EMI classrooms. Some may succeed after a few years of trial and error; some drop out or fail without even knowing why. A lack of clear guidelines and standards for EMI teachers has rendered the quality of their teaching questionable (Chapple, 2015).

In recent years, several training courses have been put forward to address the growing needs. In 2013, the British Council organized three one-week Academic Teaching Excellence (ATE) pilot professional development courses for university teachers in Europe (Dearden, 2014). Teachers in these ATE courses were found to have limited or no previous knowledge of the impact that EMI might have on their teaching. While EMI might involve a more interactive, student-centered style, many teachers still believed that they only needed to translate the course material from the students' L1 to English in order to teach effectively. Even though these teachers insisted that their job was not to teach English, they still needed to present concepts and ideas in ways that were accessible to students with different levels of English proficiency. Adjusting the instructional language accordingly and being linguistically sensitive to students' different levels of English became an important part of their pedagogical training.

Additional training courses were documented by Ball and Lindsay (2013). These EMI support courses, ranging from a three-day intensive course to a course of 10 weekly three-hour sessions, covered a broad spectrum of topics, including English pronunciation; suprasegmental issues of intonation, stress, and enunciation;

discourse markers; English-medium pedagogy; classroom practice; and assessment and feedback. In these courses, the skills and content included pronouncing high-frequency academic lexis, accuracy of expression, use of body language and eye contact, presentation skills, promoting learner engagement and participation, clarifying specialist terminology, lecturing to large groups, task design, and testing. Since pedagogical skills were not, in the past, a prerequisite to a successful university career and advancement, many EMI lecturers were not aware of the need to enhance their methodological repertoire. However, teaching in a language other than the instructor's mother tongue, especially at advanced conceptual levels, requires more sophisticated pedagogy. The EMI teachers who completed the training coursework reflected that they were now becoming more aware of the significance of the pedagogical skills in their EMI classroom.

The review above points to the obstacles facing EMI practitioners and, in general, a lack of scaffolding training for EMI teachers before they embark on the EMI journey. Even though an effort has been made to establish EMI training programs by relevant institutes, as described previously, these training programs have only served a small fraction of the overall number of EMI instructors who are currently teaching. Moreover, the design and effects of these programs, in most cases, are still experimental in nature, as no systematic guidelines and standards have been yet agreed upon.

Theoretical Framework

The theoretical framework used in this chapter to evaluate the existing EMI training programs is *The Kirkpatrick Four Levels Model* (Kirkpatrick, 1996)—a business evaluation model designed to measure the effectiveness of training in improving the performance of trainees. The first level (EL1) is reaction, the second level (EL2) learning, the third level (EL3) behavior, and the fourth level (EL4) results or impacts. Reaction and learning evaluations are administered in training class, while behavior and results are administered when trainees return to their workplace. Figure 10.1 below shows how the four levels of evaluation work.

According to Kirkpatrick (1996), reaction level measures how those who participate in a training program react to it. It is important not only to get a reaction but to get a positive reaction. If participants do not react favorably, they probably will not be motivated to learn. Although positive reaction may not guarantee learning, negative reaction almost certainly reduces the effect of learning. The second level, learning, refers to the extent to which participants change attitudes, improve knowledge, and/or increase skill as a result of the training. Attitude, knowledge, and skill are the three areas that a training program can aim at. To witness the occurrence of learning, one or more of the three changes must take place.

Next, the third level, behavior, can be defined as the extent to which change in behavior has occurred because the participant attended the training program. In order for change to occur, four conditions are necessary: (1) the person must have a

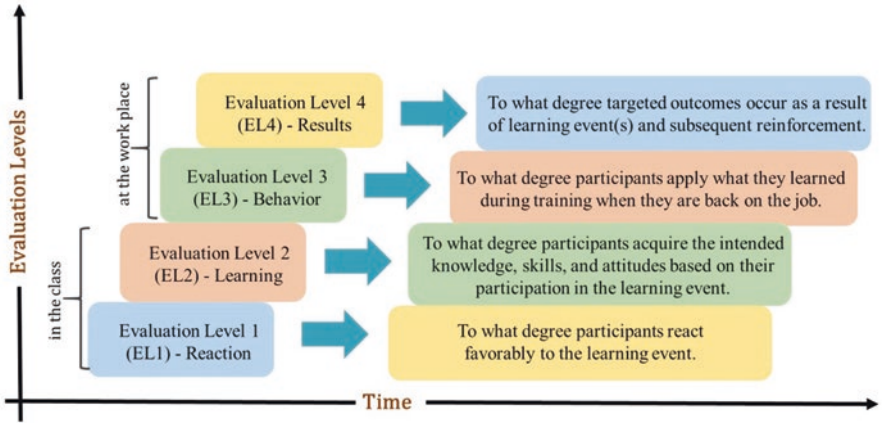

Fig. 10.1 Kirkpatrick's four-level evaluation model (1996)

desire to change; (2) the person must know what to do and how to do it; (3) the person must work in the right climate; and (4) the person must be rewarded for changing. If no change in behavior is present, trainers should not assume that the training is ineffective. Instead, they should reexamine whether the four necessary conditions are fulfilled or not.

Finally, the fourth level, results or impacts, can be defined as the final results because of participation in the training. Possible results can include increased production, improved quality, higher enrollment rates, etc. Tangible results like these are easier to measure in terms of dollars and figures. But for intangible results, such as leadership, decision making, motivation, or empowerment, it is difficult, if not impossible, to measure. But as reminded by Kirkpatrick (1996), trainers or program organizers can still state desired behaviors, as evidence of the results, in terms of short-term or long-term behavior change.

Despite its origin and applications in the field of business training, Kirkpatrick's model is considered ideal in the current study since it examines the effect of a training program with a clear set of criteria that can be equally applied to educational settings. Level three, behavior, and level four, results, in particular, target training effects that should be monitored and assessed by trainee's employers, in this case, the universities with EMI curriculum.

Background of the Case

Taiwan has joined the world in establishing EMI curricula at the tertiary level. The birth rate has continued to plummet in recent years, and university enrollment rates, especially in private universities, have also witnessed a downturn. Recruiting international students from overseas is one way to boost enrollments. EMI programs and

curriculum, therefore, seem a natural step to follow. University teachers from all disciplines are being recruited to teach EMI courses; however, the readiness of these EMI teachers is often not verified.

Beginning in 2010, Taiwan's Ministry of Education began sponsoring EMI faculty development programs, domestically and internationally, to provide training courses to university faculty members who have a need to teach EMI courses. Under the supervision of the Ministry of Education, these enrichment programs have been organized by different Regional Education Resource Centers that are set up to promote inter-collegiate exchanges and sharing of academic resources among universities in close proximity. There is a total of six such centers, each of which consists of anywhere between 12 and 17 partner universities in its alliance. Three of the six regional education resource centers have thus far developed their own EMI teacher development programs. These are the Northern Taiwan Regional Education Resource Center, Regional Education Resource Center for Taoyuan-Xinzhu-Miaoli (TZM), and Central Taiwan Regional Education Resource Center. The current case involves four EMI teacher education programs initiated by these three centers between 2010 and 2014.

EMI Teacher Development Programs in Taiwan

In this section, a total of five EMI teacher development programs initiated by three different Regional Education Resource Centers in recent years will be reviewed here. Highlights of participants' feedback will then be provided. Next, an analysis of the five programs, using Kirkpatrick's four-level model (1996), will be conducted.

Regional Education Resource Center for Taoyuan-Xinzhu-Miaoli (TZM)

In 2010, Yuan Ze University, one of the 12 partner universities in the *Regional Education Resource Center for Taoyuan-Xinzhu-Miaoli (TZM)*, sent 20 of its faculty members to the University of New South Wales in Australia for a two-week EMI faculty development camp. The camp received good reviews and feedback from the participants and has since become an annual event. In 2011, the participants in this EMI camp grew to a group of 28 teachers, including three teachers from the neighboring National Tsing Hua University. In 2012, the camp further expanded to a group of 30 members, including nine teachers from different universities in the same region. Beginning in 2013, the profile of the participants had grown to include six teachers from Yuan Ze University and 25 teachers from 20 other universities across the nation. Details of the 2013 EMI faculty development program are as follows:

Program	2013 Taiwan Universities–University of New South Wales (UNSW) faculty development program
Duration	August 19 ~ 30, 2013
Venue	The University of New South Wales, Australia
Hours	60 h
Areas of training	English language, presentation skills, special lectures on pedagogical strategies, lecture/tutorial observations, meetings with faculty and international students for future research collaborations, visits to educational institutions
Participants	31 faculty members from 21 different universities in Taiwan

Because the pre-screening procedure favored faculty members who had obtained their doctoral degrees domestically, many participants experienced for the first time courses taught in an English-speaking environment by native speakers of English. Through interactions with the instructors in class and observations in other content courses, participants were able to witness firsthand how to conduct an EMI class in real time. Meetings with scholars and international students in their fields of study also allowed participants to exchange ideas and build connections for future collaboration.

One obligation for the participants, after completing the program, was to teach at least one EMI course within the next academic year. This requirement resulted in a total of 41 EMI courses offered by the 20 participants in the 2010 school year; 60 EMI courses offered by the 25 participants in 2011; and 72 EMI courses offered by the 30 participants in 2012. This is an average of more than 2 EMI courses per participant. In addition, many participants committed to becoming "seed" EMI instructors, going from school to school, to share their insights and experiences. This commitment resulted in a total of 16 experience-sharing speeches in 11 universities in the year 2012.

Northern Taiwan Regional Education Resource Center

In 2011, the Ministry of Education commissioned National Chengchi University, one of the 17 partner schools in the *Northern Taiwan Regional Education Resource Center*, to organize an EMI education program to be held in Singapore. Details of the program are as follows:

Program	Teaching content-based subjects through English program for university lecturers from Taiwan
Duration	August 1 ~ 19, 2011
Venue	Southeast Asian Ministers of Education Organization (SEAMEO) Regional language Centre (RELC), Singapore
Hours	90 h

(continued)

Areas of training	Content and language integrated learning (CLIL), lesson planning and delivery, classroom instructional language and oral interactional skills, internationally intelligible English
Participants	18 faculty members from ten different universities in Taiwan

This intensive faculty education program was among the initial attempts by the government to support EMI development. National Chengchi University was responsible for planning the three-week program with the Regional Language Centre (RELC) in Singapore. RELC is part of the Southeast Asian Ministers of Education Organization (SEAMEO) and is committed to promoting regional cooperation and development in the fields of education, science, and culture. It offers custom-made training courses to their clients, in this case a group of 18 university instructors who were teaching their content courses in English and who received 90 h of training. These participants were faculty members from ten different universities (seven national and three private universities) across the nation. Most were junior faculty in the fields of engineering and business.

Two months after completing the program, halfway into the fall semester of 2011, the participants were required to attend a performance demonstration to deliver a presentation in English so as to, on the one hand, demonstrate their learning outcome, and on the other hand, reflect on any improvement in their teaching skills as a result of the training.

Feedback given by the participants indicated that, in general, instructors at RELC were experienced educational trainers, able to respond to the different needs of the trainees. The training courses, offered in four areas of interest, were helpful in the sense that participants were able to rethink their role as an EMI instructor, to learn more teaching techniques, to detect individual problem areas in using the English language in the classroom, and finally, to gain more confidence in teaching.

There were suggestions and room for improvement, however, according to the participants. First, some of the course materials were oriented more toward the needs of middle school teachers and did not sufficiently address the pedagogical issues at the tertiary level. Secondly, several participants suggested to arrange visits to some academic institutions while abroad, so as to observe any cross-cultural differences or to strengthen their understanding of pedagogical principles. Moreover, to make the best use of an overseas training camp, authentic on-site practice of EMI teaching in a real classroom with real students could be arranged to allow participants to experience the challenge firsthand. Finally, the participants strongly recommended the establishment of an EMI certification organization in Taiwan.

In 2012, the Ministry of Education again authorized National Chengchi University to organize an EMI faculty development camp with RELC, Singapore. Similar to the training program in the previous year, important components of the training included content and language integrated learning (CLIL), methods and materials design, and use of functional English language in class. A new component for the second year was a series of visits to higher-education institutions in Singapore. A total of 22 faculty members from 14 universities passed the screening

process to be qualified for the training. This group of participants also showed a good representation of the different universities from various parts of Taiwan. Their fields of expertise included business, social sciences, and the humanities.

As a sustained effort from the Ministry of Education to continue nurturing EMI development in Taiwan, this EMI faculty education program had received wide recognition across the nation. Not only did the program attract more faculty from more universities, it also allowed faculty to form cross-disciplinary ties. Positive feedback from the participants affirmed the changes made possible by the training, including awareness of the importance of establishing quality EMI courses in order to compete in the international academic arena, the need to constantly upgrade one's pedagogical skills to enhance students' learning, and the opportunity to learn from colleagues in the same field.

The participants also gave critical evaluations of the program. Some doubted the need to perform such a training program overseas, costing millions of dollars, while domestic resources could very well yield similar results. A domestic EMI development program, specifically designed to fit the needs of faculty in Taiwan, was thereby called for.

Following two consecutive years of this EMI overseas faculty education program 2011 and 2012, the Ministry of Education decided to continue the program in 2013. However, instead of sending faculty participants overseas for costly camps, the Ministry of Education decided to encourage domestic camps that could be equally effective if the most suitable trainers could be located. Thus, beginning in June, 2013, National Chengchi University was again commissioned by the Ministry of Education to conduct a two-year project to design and implement a domestic EMI faculty development program.

The project began with an online survey of needs assessment distributed to approximately 700 EMI instructors among 17 partner universities in the greater Taipei area. One hundred and twenty eight (N = 128, male = 70, female = 58) teachers responded to the survey. A high percentage (76%) of the respondents was found to have taught EMI courses as an assigned duty from their departments. When asked about the biggest concern or difficulty for EMI teaching, many rated "reduced learning effects," "doubled workload," and "compromised course materials" as the top three concerns. Finally, among other things, when asked what training courses would help their EMI undertaking, nearly 70% of the respondents expressed an interest in learning more "teaching techniques" (22%), "content and language integrated learning" (16%), "class management" (15%), and "English presentation skills" (14%). Based on the survey responses, plans were made and courses were arranged to address the specific needs of EMI instructors in the region.

Instead of a standalone intensive program, a series of keynote speeches and workshops were arranged to complement one another across a span of 2 years, with the aim of giving participants the needed time to learn and implement the ideas at their own pace. The two-year project resulted in a total of four plenary speeches, seven workshops, one summer intensive program, and one performance presentation. Details of the project are as follows:

Project	EMI faculty development program
Duration	June 1, 2013 ~ May 31, 2015
Online survey	N = 128 (June ~ September, 2013)
Plenary speeches	1. *How to teach effectively in English* (November 4, 2013)
	2. *Why should we teach Chinese culture in English?* (November 4, 2013)
	3. *How to energize an EMI class* (November 25, 2013)
	4. *English, teacher, student* (November 25, 2013)
Workshops	1. *Writing research articles in English as a second language* (January 6, 2014)
	2. *Meaningful classroom writing in English as a second language* (January 7, 2014)
	3. *Practice of teaching in English by case method* (May 26, 2014)
	4. *Handling small and large teaching* (May 26, 2014)
	5. *A progressive approach to preparing and improving yourself for EMI* (November 22, 2014)
	6. *Designing and managing group work in the classroom* (April 18, 2015)
	7. *Accents and dialects: developing understanding of the world Englishes* (April 18, 2015)
Summer training camp	*2014 faculty enrichment summer program (FESP): English as a medium of instruction* (August 29 ~ September 2, 2014)
	Areas of training (40 h):
	Cross-cultural awareness, the role of English in CLIL, the flipped classroom, English presentation skills, class management, demonstration of teaching a case, experience sharing from EMI instructors in different fields of study, microteaching
Performance presentation	November 22, 2014

The five-day, 40-hour faculty enrichment summer program (FESP) was the highlight of the two-year project. The participants were 39 faculty members from 13 different universities (five national and eight private universities) in northern Taiwan. Training courses were designed and organized based on the results of the aforementioned survey. Many plenary speakers were invited from overseas, including Dr. Tan Su Hwi, who was one of the key instructors in the EMI enrichment program in Singapore in 2011 and 2012. Another key instructor, Dr. Christopher Hill, was director of research training and academic development at the University of Nottingham Malaysia Campus. The language training component also involved professional language trainers from the British Council.

Participants were engaged in intensive coursework of pedagogical skills and language skills throughout the camp. Most importantly, at the end of the training, they were required to conduct microteaching in which they designed a lesson of their own EMI courses and taught to their fellow trainees, who might be novice learners, as if they were their own students. The microteaching was evaluated by language trainers on how each participant had successfully delivered the lesson to the audience, who was also invited to give constructive feedback.

Three months after completing the program, all participants were required to attend the performance presentation where they gave an oral presentation in English detailing how they had implemented the new ideas in their EMI classes. Feedback from participants described how they used to be self-conscious about their less-than-perfect language skills. After the training, they realized that the English language was actually only a tool and that good design of the content, along with proper use of different teaching techniques, would help vitalize the learning process, which in turn would alleviate teachers' perceived "fear and stress" due to language issues. Many acknowledged that the program had forced them to reexamine their teaching from a student's perspective and that a totally fluent teacher does not necessarily make a good content teacher. How to effectively engage students in the learning process was more vital, and at times more difficult, than speaking the language perfectly. This shift of mentality, from an instructor with language anxiety to a content expert with language proficiency, empowered the participants with greater self-assurance.

Another important gain, according to the feedback from participants, was the interdisciplinary ties built among them. Had it not been for the EMI development program, participants from different fields of study, from different universities, would not have gathered together, under normal circumstances, to work together so closely. During the 5 days of the camp, participants were given ample opportunity to work in small groups, to share teaching experiences, and to tackle problems together. Many of them bonded through the common thread—EMI—and were able to support each other emotionally as well as professionally. Some expressed in their written feedback that they had felt alone in their EMI endeavor prior to the program. During the training, they were exposed to new ideas and new colleagues, which instilled in them an awareness that the difficulties they had experienced were all part of the journey and that, given enough practice and support, the EMI undertaking would prove to be fruitful. The trust and bonds that developed among the participants resulted in continuous dialogues on social network services and academic collaboration through co-teaching of EMI classes.

Central Taiwan Regional Education Resource Center

As the name implies, the *Central Taiwan Regional Education Resource Center* is located in central Taiwan (Taichung) and consists of 13 universities (five national and eight private universities) in the region. In 2014, Providence University organized an EMI training program, sponsored by the Ministry of Education, that consisted of a four-week intensive camp (132 h) at the University of California at Irvine (UCI), USA (Ministry of Education, 2013). Details of the program are as follows:

Program	2014 English-mediated instruction teacher training program
Duration	July 7 ~ 31, 2014
Venue	The University of California at Irvine (UCI), USA
Hours	132 h

(continued)

Orientation	June 24 ~ 25, 2014
	English as a medium of instruction: seminars 1, 2, 3
	Pre-departure briefing
	TOEFL ITP pretest
Areas of training	English-medium instruction practicum, content-based instruction, task-based learning, English for English-teaching professionals, the flipped classroom, specialized training workshops, content class observations, cooperative language teaching, classroom management, whole language approach, assessment, open courseware
Obligation	August 5, 2014
	TOEFL ITP posttest
Participants	20 faculty members from 13 different universities in Taiwan

Participants went through a stringent application process, beginning with a nomination from their respective department or college, a statement of purpose detailing their EMI experiences, and a proof of English proficiency in the form of a standardized test or a videotaped teaching demonstration. Efforts were made to include faculty from as many different disciplines and universities as possible. A total of 20 qualified teachers were chosen by the review committee to represent all 13 partner universities in the region.

A pre-departure briefing, via a teleconference meeting with the UCI personnel, and two orientation seminars on the status quo of EMI in Taiwan were important measures to ensure that participants would be well prepared for the three-week intensive program in California. Among all the EMI programs abroad, this was the only program that included an orientation process. Another important feature of this program was the use of a standardized test to assess the participants' English proficiency. By collecting a pretest score prior to the target training and a posttest score after completing the training, the organizer had an opportunity to examine the effect of the training on a given participant's language ability. Although the areas of training covered more than language skills, data from a language test served as a useful indicator of any change during the training.

Moreover, participants were asked to keep a daily and weekly journal in which they described the biggest challenge of the day or the week and how they dealt with the challenge. These individual records, collected periodically during the training, not only sensitized the program trainers to modify the teaching during the 3 weeks but also helped the organizer to collectively reflect on the results of the program. Most importantly, keeping a journal helped the participants to remain aware of their learning process and difficulty, if any, which in the long run would benefit the learners themselves.

The arrangement to have participants observe classes in their relevant fields of study allowed them to better understand how to present the technical knowledge specific to their fields and how to manage a class in different conditions. For example, participants from the field of business observed a class entitled "Introduction to Managerial Finance," faculty of science a class entitled "Nuclear Environment," and faculty of humanities a class entitled "Critical Reasoning." Participants observed

firsthand how these instructors presented a concept, elicited responses, dealt with silence or interruption, handled questions, or revisited old concepts with new approaches, all well within their fields of expertise. The live demonstration in these content classes, in a way, allowed participants to engage in vicarious learning where learning occurs as a function of observing, retaining, and replicating (Bandura, 1977).

On the other hand, some participants indicated that it would have helped them even more had the content teachers actually observed their own microteaching during the training and given relevant comments. As one of the participants stated, "Language trainers may not necessarily understand every piece of a content course and therefore can only comment so much."

At the end of the program, all participants were required to make performance presentations, after which they received individualized written feedback from each of their EMI instructors regarding their language and presentation skills. After returning to Taiwan, participants were required to attend a forum—*Internationalization of Taiwan Higher Education through English-mediated Instruction*—on November 28, 2014, at Providence University. Several participants shared their EMI training experiences at the forum.

In general, this EMI overseas training program contained many practical measures that other training programs had not included, such as pre-departure orientation seminars, pretest and posttest, and participant journal writing. These measures helped collect additional data for further analysis and can therefore serve as a helpful index for future faculty development programs to consider.

One concern, however, lies in the language context in which an EMI teacher development program takes place. In an English-speaking country, the use of English as the medium of instruction is a given fact. Usually, the teacher and most of the students speak the language as their mother tongue. Class interactions will typically proceed in English. In an environment where English is neither the native language nor the official language, both the teacher and students will have to try very hard to make a class succeed in English. Even if the teacher has sufficient language skills, the students may not have the ability to understand or interact with the teacher proficiently. Therefore, observing a content class in an English-speaking country, as was the case with the UCI program, may have limited value since the classroom procedures might not be completely replicable in a non-English context such as in Taiwan. This is an important concern to bear in mind for organizers of any future EMI overseas programs.

Evaluation of the Education Programs

In this section, an analysis of the five teacher education programs is presented, using Kirkpatrick's four-level evaluation model. First of all, in terms of evaluation level 1, reaction, most of the programs reported participants' positive reaction toward the training content, except the two overseas programs with RELC in Singapore. Some

participants even commented that a great deal of games and songs, often used by teacher trainers of middle school education at RELC, may not apply to their college EMI classrooms.

Level 2, learning, refers to how much participants have changed their attitude, knowledge, and skill as a result of the training. The five programs either conducted a post-training survey or required a post-training report for participants to reflect on their learning. These data helped reveal traces of change in the three aspects above. For example, as mentioned before, participants in various programs were found to have repositioned their role as a content teacher who should be pedagogically competent rather than linguistically perfect. In terms of knowledge and skill, those programs that required participants to demonstrate their new knowledge or skills, upon completion of the training, were fulfilling the second level of Kirkpatrick's evaluation model. Specifically, the program with a measure of pretest and posttest and programs with microteaching were of this kind.

As for level 3, behavior, Kirkpatrick (1996) states that four conditions must be present before a trainee can show his change in behavior at the work place. They are (1) a desire to change, (2) know-how, (3) the right climate, and (4) a reward. Those training programs that documented participants' change in behavior, months after completing the training, were proof of the training effect. Specifically, programs that invited participants to return in order to share how they had revised their course design or teaching techniques were indeed fulfilling the behavior level of Kirkpatrick's model. However, whether these participants will actually continue the learned behavior throughout their EMI career still depends on the academic climate and the rewarding system that surround each and every participant in their own universities.

Finally, level 4, results or impacts, as reminded by Kirkpatrick (1996), intangible results may be difficult to obtain or measure. Nevertheless, the training program series, organized by Yuan Ze University at TZM, was able to demonstrate that many of their participants had committed to becoming "seed" EMI instructors, going from school to school, to share their insights and experiences. This strong commitment clearly fulfills the results level of Kirkpatrick's model. None of the other four programs have participants of this massive scale to travel this far.

In addition to how much these development programs had fulfilled the requirements of Kirkpatrick's four-level model, there were also some pitfalls shared among them. First of all, participants reflected that generic training in language and pedagogical skills oftentimes could not sufficiently address domain-specific needs, which could only be answered by experienced EMI content teachers. For example, a language trainer who is not familiar with a theory in engineering mathematics is probably not likely to comment intelligently on the equations used by a content teacher to prove the theory and, therefore, not able to comment on how well the lesson is designed. Across all five training programs, content teachers were never involved in supervising or monitoring participants' microteaching sessions. An experienced content teacher could easily spot any domain-specific clues that a language trainer could hardly detect. Future enrichment programs need to incorporate this element into the course design.

Another pitfall lies in the effects of the training programs. The intensive nature of the programs, especially the ones overseas, was meant to uplift the English proficiency of the participants. However, because most of the education programs were between 2 and 3 weeks long, such brief training could at best provide language input and exposure to participants. Whether this input and exposure could produce a marked improvement in their English proficiency, especially verbal fluency, has yet to be confirmed. After all, language proficiency is a set of literacy skills that take time to develop and mature. While a great deal of language input received in an intensive fashion may enhance a learner's receptive skills such as listening and reading, productive skills such as speaking and writing usually take more time, above and beyond the given instruction time, to develop. Short-term training programs, therefore, may not yield an immediate quantum leap in participants' language skills. All of the five faculty development programs were short-term and intensive in nature, including the domestic program which, despite a 2-year span, had the component of language training delivered within 1 week. Future faculty education programs need to include the language training component as an on-going, long-term learning process.

The last pitfall concerns the language background of target EMI students. As mentioned before, if students are native speakers of English, they are more able to adapt to different accents and variations in the English spoken by instructors. No matter how foreign the instructor may sound when speaking English, the content will eventually be sorted out and understood. However, if the students are not native speakers of English and are not used to a variety of English accents, the situation can be very different. These students can easily get lost during lectures and not even know how to ask for help.

This is the problem with sending EMI teachers abroad to English-speaking countries. While they can improve their language skills when immersed in an English-speaking environment and attend tailor-made language courses which target the necessary classroom English or personal weak areas, they may face a different student body during observation classes in the host country. The student body of an English-speaking country operates on different parameters than that of a non-English-speaking country. In any English-speaking country, students normally speak the language to perform daily tasks, although due to immigration they may come from diverse language and cultural backgrounds as well. Students in an EMI class, in contrast, are normally in a non-English environment where they do not need to speak the language once outside the classroom. They may not be proficient enough to use the language well in class like their counterpart students in an English-speaking environment. These nonnative speakers of English can be challenging to teach because both the content of the course and the English language can be stumbling blocks. EMI teachers need to constantly check whether it is the content or the language that is interfering with their students' learning, whereas in an English-speaking environment, the language may not even be an issue of concern. In an overseas EMI development program, therefore, not until the trainers are fully aware of the differences between the student bodies can they begin to help their EMI colleagues to handle the task at hand. The organizers of future overseas EMI

development programs, particularly to English-speaking countries, will need to take this into account when designing the training courses. A more accurate replication of the classroom condition in the target EMI setting (e.g., by observing how to teach content knowledge to a group of English-as-a-second-language learners) will not only sensitize the EMI trainers to their trainees' real needs but also help the trainees develop coping strategies.

Framework for Future EMI Teacher Development Programs

The evaluation results show that the five EMI education programs all have their own strengths and weaknesses. Most of them are able to fulfill at least two levels of Kirkpatrick's evaluation model; however, none were able to have all four levels completed. Most importantly, none of the five programs were able to provide sustaining, long-term support to nurture an EMI teacher's growth across different stages of his professional development.

Based on this need, a framework is hereby suggested as a future model for such programs. This framework consists of three components: (1) English language training, (2) pedagogical training, and (3) licensing certification. The third component is not found in any of the five existing programs. The English language training component applies to all nonnative English-speaking EMI teachers. Courses to include are classroom instructional language, oral interaction skills, English for English-teaching professionals, accents and dialects, and world Englishes, just to name a few. The purpose of this training component is to ensure that an EMI instructor will be communicatively competent in delivering their lessons in English.

The second training component—pedagogical skills—involves methodological approaches including, but not limited to, English presentation skills, lesson planning and delivery, classroom management, task-based learning, cooperative learning, case study teaching, handling small and large classes, the flipped classroom, and assessment. In addition, experienced EMI content teachers are invited to offer domain-specific teaching workshops to teachers of the relevant fields. For example, teachers who teach mathematics-oriented courses need to learn how to use "think-aloud" to demonstrate their reasoning while solving an equation. Teachers who teach law courses need to know how to use the Socratic method to engage students. The purpose of these domain-specific workshops, as well as the general pedagogical training, is to enrich the teaching repertoire of potential EMI instructors for any future usage in class.

The third component of the training, licensing certification, is most crucial in sustaining an EMI teacher's development. It entails a certification process, preferably no less than 6 months, whereby EMI teacher trainees are evaluated by language trainers as well as expert content teachers of their respective fields. Feedback will be provided to allow the exchange of ideas between evaluators and trainees. An EMI certificate will be awarded to teachers who successfully complete all the training courses and the evaluation process. In order to build a strong pool of EMI teacher

trainers, it is recommended that an alliance be formed with universities in other Asian countries to enable recruiting of experienced language trainers and content teachers in all fields. Teacher trainees will thus be exposed to trainers who have various linguistic and cultural backgrounds, be it native English speaking or nonnative English speaking, and will therefore be better prepared to handle multilingual EMI classes. At the same time, through working with expert EMI content teachers, trainees will be able to advance their teaching skills, above and beyond generic pedagogical techniques, in that content teachers of the same field can offer their insights into the microteaching of teacher trainees.

Since language capacity, much like teaching capacity, is a set of literacy skills that needs time to develop and advance, these training courses should be offered to potential EMI teachers on a rolling basis on weekends during the school year rather than as an intensive program. If appropriate and logistically possible, some training courses can be completed online over a period of time. Teachers can be encouraged to take the courses in their free time and gradually satisfy all the requirements before receiving their EMI certificate.

The potential EMI teacher's academic affiliation should be responsible for the cost of the training, which will be subsidized by the Ministry of Education. No teacher should be assigned to teach EMI courses until they are awarded the certificate. Administrators and department chairs should encourage faculty members to obtain the EMI certificate by offering promotional credits or other relevant incentives. In order to strengthen the validity of the current EMI certificate, international accreditation should be sought so that certified EMI teachers are qualified to teach EMI courses, as visiting scholars, in universities or countries that recognize the certification. This would greatly increase faculty mobility among universities with EMI programs.

Highlights and Challenges

Although English-medium instruction programs and courses have been offered by many universities in Taiwan over the past decade—and it seems there are more to come—EMI instructors have yet to be properly educated to handle the demand. Beginning in 2010, a series of EMI teacher development programs were initiated by the Ministry of Education and organized by different Regional Education Resource Centers. Most of these programs were conducted overseas in English-speaking countries. The participants—a total of 130 faculty members from around Taiwan—were able to advance both their language and teaching skills through the training. Moreover, these participants have since become EMI seed instructors. They are, however, only a fraction of the total number of university lecturers currently practicing EMI in Taiwan. More teachers need to be groomed with EMI training before they begin or continue their EMI career.

As mentioned before, the teacher training programs conducted in English-speaking countries may overlook the language barriers faced by nonnative

English-speaking students prevalent in Asian contexts. In fact, not only in Asian countries, some European countries, such as Spain, could also face non-English-speaking students struggling in EMI classroom, as reported by Defouz (2011). Future training programs need to sensitize EMI instructors to the potential language difficulties experienced by their students. The future model of EMI teacher education programs suggested earlier can also include training sessions conducted in different Asian contexts where trainees would perform their microteaching. In so doing, trainees will be exposed to a variety of nonnative accents as well as students' language difficulties, for which trainees will learn the necessary coping strategies and teaching techniques. EMI teachers who are sensitive to the language barriers and limitations of their students are more resilient to the disturbing language factors in class. Also, they are better able to provide timely help by adjusting their teaching to meet the needs of the students.

By the same token, universities from different Asian countries can join forces in future EMI teacher education programs. This would not only broaden the pool of the student and faculty bodies for microteaching but also bolster the credentials of the faculty development program in order to meet international accreditation. After all, since EMI courses are part of the internationalization endeavor assumed by many universities, a collaborative effort and a systematic, context-specific certification program would be more promising to ensure the quality of EMI education.

Summary

This chapter begins by briefly reviewing the literature on problems experienced by untrained EMI teachers. Next, a review of Taiwan's EMI teacher development programs in the recent past pinpoints the strengths and weaknesses of these programs and notes the absence of a sustaining EMI licensing certification program. Finally, this chapter proposes a framework for an EMI certification program applicable to Asian contexts.

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Chapter 11
EMI Course Assessment: A Survey Study of the Issues

Yu-Ting Kao and Wenli Tsou

Specific Area of Interest: Assessment of Content Knowledge

In recent years, employing English as the medium of instruction (EMI) for academic subjects has become a global trend. Within the academic fields that involve EMI in Taiwan, most of the teachers are not native English speakers but are now constantly teaching their subjects through English. It has become apparent that using normative standards to evaluate both EMI teachers and students is no longer tenable (Pikinton-Pihko 2013). Additionally, for students who enroll in EMI courses, learning in a language other than their mother tongue—particularly at advanced conceptual levels—requires their comprehension on both the content knowledge and language practice. Therefore, there is a growing need to develop adequate assessment measures for EMI contexts. However, in Asia, there has been little research into the issues related to assessment in tertiary-level EMI courses.

In contrast, the development of content and language integrated learning (CLIL), which is popularly applied in European countries, has created frameworks, suggestions, and general guidelines for assessment in both primary and secondary schools. While assessment in CLIL usually emphasizes a dual-focus on both content knowledge and foreign language competence, EMI focuses consistently on content knowledge, with less emphasis on language competence. Although certain differences exist between EMI and CLIL, the principles for designing CLIL course assessments are worthy of consideration. Thus, in this chapter, the researchers review the general guidelines and principles of assessment only for content knowledge in the CLIL

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literature. This may serve to provide a frame of reference for future empirical EMI studies.

Three main assessment concepts have been widely discussed not only in EMI contexts (Kiely 2009; Massler et al. 2014; Quartapelle 2012), but also in the fields of EFL (English as Foreign Language). They are: (1) assessment *of* learning; (2) assessment *for* learning; and (3) assessment *as* learning. These concepts approach assessment from the perspective of purpose rather than methods that emphasize intended end results. From this viewpoint, Earl and Katz (2006) also suggested that teachers think about the curriculum and their students as they develop and select assessment methods that are "fit for purpose" (p.29).

The purpose of assessment *of* learning is to measure, certify, and report the level of students' learning. It requires the teacher's collection and interpretation of information about students' accomplishments. This assessment should allow students to show their genuine understanding, and the ability to apply key concepts, knowledge, and skills in ways that are authentic and consistent with current thinking about the content studied. Thus, the concept of assessment of learning is usually represented as summative evaluations consisting of tests and exams given at the end of a course. Examples of the tasks in summative assessments are cloze tests, matching, multiplechoice items, and written responses/answers to close-ended questions. Grading of these testing activities generally involves judgements of "correct" and "incorrect." Summative assessment tools are usually used to assess students' content knowledge in CLIL settings, since they help the teacher verify the level of competence achieved by students.

Second, assessment *for* learning occurs throughout the learning process (Berbero and Maggi 2011; Maggi 2011). This perspective views assessment practices as being integrated into teaching, and oriented, not towards a judgement about level, but toward enhanced learning. Assessment is thus associated with the development of learning opportunities. It can provide information that serves as feedback used to modify the teaching and learning activities in which teacher and students are engaged. In classroom practices, assessment *for* learning can include formative assessment tools, such as portfolios, experiment logs, and learning journals, all of which allow students to display their progress. No matter what assessment method is adopted, Earl and Katz's suggestion (2006) for teachers is to incorporate a variety of ways for students to demonstrate their learning. For example, allowing students to conduct oral presentations through visual aids can assist students who are struggling with understanding the content or those who have lower English proficiency. In addition, providing feedback to students is another important feature in this concept. It promotes a reciprocal process in assessment whereby the teacher and students collaboratively improve the quality of instruction.

Third, the goal of assessment *as* learning is to provide teachers with rich and detailed information about students' progress in developing the habits of mind and skills to monitor, challenge, and fine-tune their own learning. Teachers monitor students' goal-setting process and their metacognitive skills, as well as the strategies that students use to support or challenge, adjust, and advance their own learning. Teachers can use a range of methods in assessment *as* learning as long as the

methods are constructed to elicit detailed information both about students' learning and their metacognitive processes. Teachers usually use alternative assessments, such as self- and peer evaluation and observation grids to help students examine their own learning progress in more detail. Although many assessment methods have the potential to encourage reflection and review, the key in assessment *as* learning is that the methods allow students to consider their own learning in relation to models, exemplars, criteria, rubrics, frameworks, and checklists that provide images of successful learning (Earl and Katz 2006; Jones 2010). Therefore, it is important that both the teacher and students share learning intentions and criteria for measuring success in the course. To this end, teachers can scaffold students' understanding and their metacognitive processes by (1) providing criteria, exemplars, and resources to help them analyze their own work; (2) teaching them the necessary skills to evaluate their own learning in relation to their prior understanding and the curricular learning outcomes; and (3) gathering evidence about how well they are progressing.

Assessment *for* learning, assessment *as* learning, and assessment *of* learning all serve valuable and different purposes. However, it is not always easy to find the right balance. Traditionally, classroom assessment has focused on assessment *of* learning—measuring learning at the end of the course, using this information to judge students' performance, and reporting these judgements to others. Teachers have also used assessment *for* learning when they incorporate diagnostic processes, formative assessment, and feedback at various stages in the teaching and learning process, though this is often informal and implicit. In contrast, systematic assessment *as* learning—where students become critical analysts of their own learning—has been rare (Earl and Katz 2006). Researchers among others (Massler et al. 2014) have suggested a reconfiguration of the balance among the three approaches. They highlight the importance of assessment *for* learning and assessment *as* learning in enhancing student learning. Assessment *of* learning, on the other hand, should be reserved for circumstances when it is necessary to make summative decisions. Figure 11.1 shows two pyramids to compare the relationship of the three concepts, from the traditional approach to the suggested reconfiguration.

To balance the three assessment purposes is difficult, and sometimes even impossible; however, it is important for teachers and others who are engaged in assessment to understand the three purposes, recognize the need for balance among them, know which one(s) they are using and why, and use them wisely. Several questions are

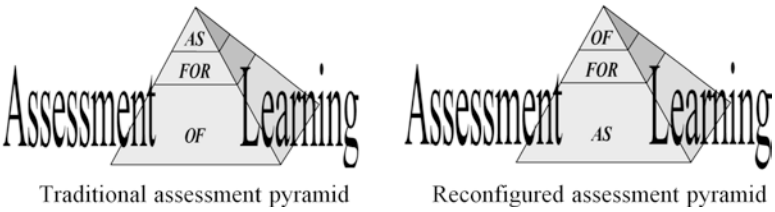

Fig. 11.1 Traditional versus reconfigured assessment pyramids (Earl and Katz 2006)

recommended to help teachers reflect on their own assessment approach for assisting student learning: *Why am I doing this assessment? What am I assessing? What assessment method should I use? How can I ensure quality in this assessment process? How can I use the information from this assessment?* (Earl and Katz 2006, p. 50).

To summarize, three main concepts associated with assessments are presented in this study. How these concepts are used to assess content learning in CLIL classrooms is also discussed. However, to what extent practicing EMI teachers in Taiwan apply these assessment principles in their own courses is still unknown. Therefore, in order to further explore the issues of EMI course evaluation in Taiwan, the researchers intend to address the following questions:

Research question 1: What types of assessment tools and grading criteria do EMI teachers employ in their courses?

This research question aims to explore the concept of "assessment *of* learning" in the surveyed EMI context. The application of "assessment of learning" in the classroom is usually represented through summative assessments. By investigating the assessment tools and grading criteria that EMI teachers typically use, the researchers can better understand how students' learning performance is assessed in EMI courses.

Research question 2: What is the role of English in assessment?

This research question investigates how the concept of "assessment *for* learning" is applied in the surveyed EMI context. As an integral part of teaching, various applied assessments can reveal the teacher's expectations for their EMI courses and their efforts to enhance students' learning. The use of different assessment tools can also reflect how the teacher perceives the language component of an EMI course and affect how the teacher modifies their pedagogical goals and activities based on the feedback.

Research question 3: How do EMI teachers address students'English deficiency through learning and assessment?

This research question seeks to investigate the evolutionary approaches that EMI teachers use to address students' learning difficulties and then how they strengthen students' autonomy through various assessment methods. In other words, it aims to explore the extent to which the concept of "assessment *as* learning" is applied in the surveyed EMI context.

In sum, the researchers aim to document the current situation of how students are assessed in EMI courses in Taiwan, and then provide suggestions for EMI teachers to address the needs of students and the related issues regarding course assessment.

Background of the Study

The instruments applied in this study included an online written survey and teacher interviews. Both instruments were administered during the spring semester of 2016. The online written survey was a questionnaire containing both closed- and open-ended questions about teachers' practice, perceptions, and reflections on EMI course assessments (Appendix 1). It particularly focused on exploring teachers' perceptions

on the use of English during course assessments. The open-ended interviews sought an in-depth understanding of EMI teachers' ideas on the issues involving course assessments. The interview questions are listed in Appendix 2. Each interview lasted 30–40 min and was audio-recorded for the purpose of further analysis. The recordings were transcribed by the researchers who conducted the interviews.

The participants in this study were teachers who provide EMI courses at the tertiary level in Taiwan. A total of 29 EMI teachers (from three public, two private, and one vocational university) participated. Among these participants, eight of them also joined the in-depth interviews. Details about the participants' affiliation and the EMI courses they offered are presented in Table 11.1.

Table 11.1 Participants' department and EMI course

Department/Program	EMI course	Number of participants
Accounting and Information System	Accounting	1
Accounting and Information System	Investment Practice	1
Business Administration	Investment Analysis	1
Computer Science and Information Engineering	Introduction to Computers	1
Electrical Engineering	(1) Power Conversion System Analysis	2
	(2) Resonant Converter Design	
	(3) Special Topics on Power Electronics	
Environmental Engineering	Water Quality Management	1
Finance	Managerial Economics	1
Finance	Capital Market and Fund Portfolio Management	1
Information Management	Strategy and Information Management	1
Information Management	Customer Relationship Management	1
Mechanical Engineering	(1) Electric Engineering	1
	(2) Automatic Control	
Mechanical Engineering	Advanced Dynamics	2
Mechanical Engineering	Fluid Mechanics	1
Mechanical Engineering	Heat Transfer	1
Mechanical Engineering	Applied Mechanics II	2
Physiology	Pathophysiology	1
Tourism Management	Introduction to Wine	1
Graduate school of Business and Operations Management	Applied Calculus	1
Institute of Creative Industrial Design	Investigation of Creative Industries	1
Executive Masters of Business Administration	International Financial management	1
Department of Transportation Management	Transportation Engineering	2
Foreign Language Center	World Culture	2
Foreign Language Center	Business English	2

During the interviews, participants were free to select the language (i.e.,Chinese or English) with which to respond. Twenty-three of their responses were then translated into English for coding purposes. Three themes emerged from analysis of the responses: (1) EMI assessment tools and grading criteria; (2) the role of English use in EMI assessment; and (3) learners' difficulties and teachers' compensatory approach. However, not all interview items were equally answered; some of the unrelated answers and omitted questions have been excluded from the results.

Results and Discussion

Overall Findings

Three emerging themes analyzed from the surveyed EMI courses were reported in this study. First, the assessment tools and criteria used by teachers were identified. Although most of the EMI assessment tools and criteria emphasized evaluating students' comprehension of content knowledge, participants acknowledged that students' English proficiency in the four skills (i.e., listening, speaking, reading, and writing) was also an important requisite for success in their courses. Second, how EMI teachers viewed English use in their classroom affected the way in which they selected assessment tools. Three different roles of English that EMI teachers anticipated in their courses were explained, along with their associated assessment tools. Finally, EMI students' learning difficulties were identified and teachers' compensatory approaches to both content knowledge and English proficiency were reported.

These findings are also examined according to how the participants understood and applied the concepts of assessment *of*, *for*, and *as* learning.

EMI Assessment Tools

The concept of "assessment *of* learning" is explained through the teacher's use of a task or activity to measure, record and report on a student's level of achievement in relation to specific learning expectations. The results for the first research question can be categorized in two parts: (1) the assessment tools used and (2) the criteria applied in the participants' courses.

Ninety-five percent of the participants in this study indicated that most of the assessment tools employed in their courses were summative assessments, such as a term project, written final exam, in-class quizzes, and weekly assignments. The goal of summative assessments is to evaluate students' learning at the end of the instruction unit by comparing the results within the entire group of students or against some particular standards. When examining the assessment tools used by study participants, the researchers found that these tools could be generally divided into three

main categories: (1) examinations that only focus on content knowledge, (2) evaluation of students' class participation and content-based examinations, and (3) multiple assessment tools that include the previous two categories and other assessments such as projects. Three selected courses are described below as representative examples:

Customer Relationship Management

1. Mid-term examination (50%)
2. Final examination (50%)

Accounting

1. Participation and assignment (50%)
2. Mid-term examination (20%)
3. Final examination (30%)

Automatic Control

1. Assignments (10%)
2. Quizzes (15%)
3. Experiments (10%)
4. Term Project (10%)
5. Mid-term examination (30%)
6. Final examination (25%)

Although the assessment tools differed from course to course, 90 percent of the participants indicated that these tools were basically the same as those used in their non-EMI courses. In other words, both EMI and non-EMI courses have similar assessment formats, such as in-class quizzes, weekly assignments, a term project, or a final written exam. Although there were no significant differences in assessment tool use, 73 percent of the participants mentioned that the use of English as the medium of instruction caused some degree of variations in their grading. Comments from several participants follow:

> EMI students would be required to use English to present and to interact with each other. Thus, the clarity and fluency of their English language are important factors in EMI assessments.

> EMI students should have acquired some level of English proficiency in order to comprehend the question in English and to answer it with appropriate academic language.

> EMI students need to be more aware of international information, such as news about the domestic and international capital markets.

To sum up, the surveyed EMI teachers believed that students' English proficiency and their awareness of global issues were significant factors in EMI course evaluation. According to the results, however, the majority of the assessment tools used by participants were similar to those in non-EMI courses. No specific assessment tool was used to evaluate only the English proficiency of EMI students.

EMI Assessment Criteria

Assessment criteria are pre-determined standards of performance that can prevent students from becoming confused or trying to guess what teachers want to assess. This section examines the assessment criteria employed by the participants in their EMI courses. Table 11.2 presents details of the criteria used for each assessment tool.

Table 11.2 Grading criteria used in the surveyed EMI courses

	Assessment tool	Activity	Grading criteria
1	Attendance & Participation	Oral or written responses to the teacher's in-class prompts.	Participate actively in class discussions.
2	Weekly assignment	Paper-based assignments on the content knowledge, such as filling in graphs, doing calculations, and writing reflections.	The grade is given based on correctness of the content. Some teachers in this study also graded this assignment based on completeness.
3	Quiz	Oral or written test on content knowledge.	The grade is given based on correctness of the responses.
4	Case study analysis	Students analyze the backgrounds, problems, or language use of a real-life case, and provide solutions.	The grade is based on (1) content correctness, (2) rationale of the analysis, and (3) practicality of the solutions or suggestions.
5	Project/Student presentation	Students need to:	There are five criteria:
		1. Meet with the teacher weekly or monthly to report on the progress of their project;	1. Students are able to conduct the project independently and discuss their work with the teacher.
		2. Present the project to the whole class in English;	2. Students are able to orally present their project with clear reference to the aims, research questions, findings, and results.
		3. Produce a written report in English which contains the aims, research questions, findings, and results of their study;	3. Each part of the written report is well constructed and follows the given word limits. For example, the aims of the study are clear and well defined; the introduction contextualizes the study clearly through the background information given.
		4. Conduct a "Question & Answer" session to engage their audience in discussion.	4. Students are able to present/defend their perspective on the issues and provide suggestions.
		5. After the presentation, the audience (classmates), in groups, give constructive criticism and comments to the presenters.	5. The audience is able to respond critically to the group's presentation.
6	Mid-term/Final exams	Paper-based written exam in English that covers the content studied.	The score is based on the accuracy of the answers.
			(Pass/Fail; A passing score is usually 60 and above.)

In general, these EMI assessments focused on evaluating students' mastery of the content studied through oral or written English. Thus, students would need to first comprehend the questions/directions in English and then provide appropriate responses using academic English. Therefore, although these EMI assessments focused on students' knowledge of the content, the students' English proficiency in the four language skills was also an important requirement for success. However, in the reported grading criteria, none of the participants specifically listed English proficiency as one of the criteria in assessing students.

To conclude, most of the assessment tools and criteria used in the surveyed EMI courses were summative assessments conducted at the end of a task, unit of work, etc. The study results indicate that although the participants understood the importance of improving students' English proficiency through assessments, none of them applied assessment tools to evaluate students' English performance or indicated the English component in their criteria. This finding suggests that EMI teachers, as teachers of content, might feel uncertain about how to evaluate the language component in their courses, or they might have a different perspective on the roles of English in EMI courses. This latter point is discussed in the following section.

The Roles of English in EMI Courses

One of the main purposes of assessment is to inform the planning of future learning and teaching. In the previous section, the researchers reported on the assessment tools and criteria used by the surveyed EMI teachers. However, each teacher's selection of which tools and criteria to use is highly associated with his/her own perception of the role that English plays in the EMI classroom. In this section, we will explore how different ideas about the roles of English inform classroom assessment and future teaching, that is, the concept of "assessment *for* learning."

In EMI courses, the most obvious role of English is that of the medium of instruction, conveying the content for students to learn. However, the researchers wanted to know if the participants also viewed English as having other roles and, if so, whether that role influenced the teacher's choice of assessment. Interestingly, participants' responses to this question varied according to their department/program affiliation. To report the results, the researchers first synthesized participants' responses into three major roles that English plays. Next, they examined how English was evaluated in the participants' courses and to what extent the assessment tools corresponded with the English role that these teachers assigned to it. Table 11.3 lists 15 responses selected from the associated departments, and identifies the types of assessment tools that participants used based on the role that they believe English plays in their course.

Table 11.3 Three major English roles and associated assessment tools

Role of English	Department/Program	Assessment tools
English as an instructing medium for content learning (53%)	Department of Physiology	Mid-term examination
	Department of Tourism Management	
	Department of Mechanical Engineering	
	Department of Information Management	Final examination
	Department of Environmental Engineering	
	Department of Accounting and Information System	
English as an instrument for the training of academic skills (34%)	Department of Finance	Weekly assignments
	Department of Business Administration	
	Department of Information Management	Case study analysis
	Department of Tourism Management	
	Department of Electrical Engineering	
English to facilitate the creation of an English environment (13%)	Department of Mechanical Engineering	Project/Student presentation
	Graduate school of Business and Operations Management	Online interactive discussion

English as an Instructing Medium for Content Learning

Fifty-three percent of the participants considered English as a tool or the medium solely for instructional purposes. They believe that their responsibility is to teach content knowledge, not to provide language scaffolding in order to remedy students' English deficiency. Thus, compared to content knowledge, English played a minor role in these course assessments. In the written survey, two of the participants commented as follows:

> Teaching English is not the main focus of my course; instead, English is a tool used in EMI courses.

> It [English] has no significant role. Students' English performance is not evaluated in the course.

Thus, for these participants, the most common and practical assessment tool for their EMI courses is the paper-based written examination, such as mid-term and final examinations.

English as an Instrument for the Training of Academic Skills

In the written survey, thirty-four percent of the participants mentioned that using English provided them with ways to foster students' logic thinking, communicative strategies, and academic writing. As two participants stated:

> English is used as a tool to assess students' logic because English is more logical in terms of grammar and has more clarity in its expression.

> Using English can help students know how to give academic presentations.

For those EMI teachers who considered English as a tool to equip students with academic skills, weekly assignments and case study analyses were the most common assessment tools they used. They stated that selecting authentic materials to design assessments can help students apply knowledge gained in the classroom to real-life situations. Through students' analyses, critiques, and comments on real-world solutions, EMI teachers can evaluate students' comprehension and their communicative skills in English.

English to Facilitate the Creation of an English Environment

Thirteen percent of the participants indicated that the main purpose for using English in EMI courses was to provide an English environment to which students could become accustomed. One teacher reported:

> Using English in class can help students get used to an English-only environment. It might enhance their ability to think in English and answer questions in English.

In order to foster an interactive English-language learning environment, several EMI teachers designed an online chatroom or posted discussion topics in order to gauge students' progress in learning the course content. Also, by having students produce written responses in English, teachers were able to train students' academic writing ability. In addition, these teachers required students to conduct an oral presentation on a selected topic in order to assess students' comprehension and English oral proficiency.

To conclude, three major roles that English played in the surveyed EMI courses were identified. EMI teachers' perceptions of the functions of English reflected the way they evaluated its proportion in course assessment. Gajo's study (2007) discussed three different stages in integrating language component with the content knowledge. The stages were described as follows: (1) teachers' use of language components are not precisely reflected in the assessment; (2) teachers started to examine the benefit of language components to the content learning; and (3) teachers investigated whether the integration of language and content knowledge enriched the transmission and the acquisition of the knowledge. Future work could explore the ways of these identified roles reflected different extents of integration in the EMI contexts.

Learner Difficulty

Assessment *as* learning happens when students reflect on and monitor their progress in order to inform their future learning goals. The answer to the third research question—"How do EMI teachers address students' English deficiency through learning and assessment?—was analyzed in two parts: (1) EMI students' learning difficulties and (2) EMI teachers' compensatory approach to solve learning problems.

Although most researchers (Earl and Katz 2006; Jones 2010) considered the intertwined student difficulties between the content knowledge and language were hard to identify in most CLIL contexts, this study attempted to further prompt the participants to differentiate students' real learning difficulty. This step was important as it required the EMI teachers to examine their understanding on students' current performance, possible learning difficulty, and future potential ability. As indicated in the online written survey and in-person interviews, students' learning difficulties resulted from unfamiliarity with either the language or content knowledge, or the interplay of the two. Thirty-three percent of the participants (i.e., n = 24) believed that students' learning difficulties resulted from a lack of understanding the course content. Eight percent of the participants felt that English was the main problem. The remaining 59% of participants thought both the content and the language caused students' learning problems. Several participants commented as follows:

> It is difficult to differentiate the causes of students' learning difficulty. Eventually those two factors [content and language] would interplay with each other.

> We need two step procedures to ensure students' understandings. The first is the medium, English, and then the content. It is hard to tell at which step there is a problem.

> Some students would give up reading the English textbooks because of their limited English abilities. But, at the same time, they lost the access to understand the content.

This section reveals the extent of EMI teachers' understanding of their students' learning difficulties. To promote the concept of "assessment *as* learning" in EMI contexts, it is recommended that EMI teachers first understand the source of their students' learning difficulty and then offer different approaches to guide and provide opportunities for each student to monitor and critically reflect on their learning process. In the following section, we will examine three compensatory approaches that the participants applied in their classes.

EMI Teachers' Compensatory Strategies

In using assessment to assist students' learning, five EMI teachers in the face-to-face interview suggested a range of methods in different modes that can elicit students' learning and metacognitive processes. Through these compensatory approaches to EMI assessment, the teachers have developed the capacity to foster independent learners, who can take more responsibility for their own learning and monitor future directions.

Code-Switching

One of the participants, upon observing students' learning difficulties in her classes, has considered the necessity of designing bilingual assessments (i.e., English and Chinese). She reported that:

> So far, the exam papers have been written in English. But I am considering whether to design bilingual exam papers for certain questions and certain students.

She mentioned that most of the students in her university had low English proficiency, so it was difficult to know whether their difficulties stemmed from the content or the language issue. Similar compensatory approaches were taken by three other participants, who all taught in a business program. They said that during examinations, they would explain or repeat the questions in Chinese if they noticed students' uncertainty about English. They also allowed students to answer written exams in Chinese or a combination of Chinese and English, so that students' understandings of the content could be more fairly assessed.

For both EMI teachers and students, code-switching is a valuable tool for various reasons. First, it offers a chance for one to use their native language (in this case, Chinese) when their proficiency in English is limited. Since code-switching is useful in particular situations, EMI teachers can selectively use it to assist students' learning. Second, code-switching can be a sociolinguistic tool, used for clarification, elaboration, and emphasis of content knowledge. It gives students more choices to communicate their ideas and is thus a useful tool in EMI contexts.

Use of Visual Aids

In addition to code-switching, one participant believed that aligning instruction with assessment can increase students' likelihood of success in EMI courses. A strategy he uses is visual aids. He designs visual aids, such as pictures and graphs, but maintains the same level of difficulty in English use while explaining the meanings of these aids. He will then use similar visual aids to assess students' comprehension. When conducting a group presentation, students are also required to use pictures and graphs to illustrate their topics. In this way, what the teacher provides for content delivery also becomes the content and main format for assessments. This participant remarked:

> Assess students based on what you teach. Using pictures and graphs can visually help students understand the content knowledge. It also lessens students' confusion about the use of English.

Using visual aids in EMI classes can not only boost the effectiveness and efficiency of content learning, but also promote students' deeper thinking so as to further strengthen their critical thinking skills. More importantly, incorporating visual aids in assessment provides challenging opportunities for practice, so that EMI students can become more confident and competent in assessing their own learning.

Peer Collaboration

Group learning was another compensatory approach that one participant frequently applied in her EMI course. Specifically, this EMI teacher (1) built collaborative learning groups to create a "safer" environment where students could take chances

to try and learn from each other; (2) guided students in developing internal feedback or self-monitoring mechanisms to validate and question their own thinking; and (3) offered students opportunities to do self- and peer assessment. She stated that students in EMI courses were usually highly motivated. They knew their deficiencies and were, as a result, willing to exert themselves more. She felt that EMI teachers should use students' awareness to motivate them to learn both content knowledge and English language. One way of doing this is to group students with mixed abilities and to promote group learning through various assessment tools. In the following, she reports how she assessed students' learning through group presentations:

> Having students do group presentations on assigned readings or their chosen topics can train their ability to search for related information. Giving an English oral presentation enhanced not only their critical thinking ability but also presentation skills in an academic setting. Finally, having students do peer evaluations offered them opportunities to examine others' work with constructive suggestions.

In this way, students were self-regulated or other-regulated (by group members) to build responsibility for their own learning. Through group presentations, students benefitted by advancing their English proficiency and by polishing their research skills. They also became metacognitive learners who regularly monitored and reflected on their own progress and who could determine their next step in learning would be.

To conclude, three compensatory approaches were mentioned by participants in this study to accommodate EMI students' learning difficulties: (1) allowing code-switching in EMI assessments; (2) using visual aids to integrate instruction and assessment; and (3) promoting group learning and self/peer assessment in EMI courses. These approaches not only can lessen students' problems with the course content and/or their English deficiencies, but also help students to take more responsibility for their own learning and monitoring of future directions.

EMI Assessment Framework

Assessment is a critical aspect of instruction since it helps to identify the most effective strategies and activities that will encourage student learning. While traditionally regarded as occurring at the end of learning (i.e., summative assessment or the concept "assessment *of* learning"), assessment can take place throughout the course of learning, embedded in the instruction. Once teachers determine what they want students to learn, teachers then need to decide how to evaluate student learning both during the course and at its conclusion. Based on the review of the literature, three main assessment concepts are identified to be applicable to the EMI contexts. The results from the current study also suggest a need to implement appropriate assessment tools to assist EMI teachers to evaluate students content and language knowledge. Therefore, a framework focusing on concepts of assessment is suggested for EMI teachers to use, one that employs a variety of tasks and assessments to assist student learning.

Table 11.4 Framework

Concept	Purpose	Assessment type	Examples of assessment tools used in EMI courses
Assessment *of* learning	Provide evidence of achievement to parents, educational institutions, and students themselves.	Summative assessment	Term project
			Written exam
			In-class quizzes
			Weekly assignments
Assessment *for* learning	Collect information about students' learning process to determine what students know and can do next.	Formative assessment	Mid-term exam
			Final exam
			Weekly assignment
			Case study analysis
			Project/ Student presentation
			Online interactive discussion
Assessment *as* learning	Help students become more aware of how they learn and to take more responsibility for their own learning.	Assessments and activities that build students' autonomy	Self-assessment
			Peer-assessment Peer collaboration

This framework is based on the three concepts mentioned earlier: (1) assessment *of* learning; (2) assessment *for* learning, and (3) assessment *as* learning. In Table 11.4, each concept is explained through its purpose, assessment type, and examples of assessment tools. Following Table 11.4 is a discussion of how EMI teachers can utilize these assessments in their classes.

The concept "assessment *of* learning" refers to summative assessments that usually become public and result in statements about how well students are progressing. When conducting summative assessment, teachers have the responsibility of reporting students' learning accurately and fairly. Therefore, it requires teachers to provide a rationale for undertaking a particular summative assessment at a specific point in time, and clear descriptions of the intended learning. In EMI contexts, having clear rubrics and criteria for summative assessments on both content knowledge and English language performance becomes crucial since the assessment standards affect students' ability to demonstrate their competence. For instance, Humphrey and Sharpe's study (2015) offered a '4x4' toolkit to expand secondary and tertiary students' language development in four dimensions when reading literacy texts. Also, because English ability is sometimes the source of students' learning difficulties in EMI courses, teachers need to consider having a range of alternative mechanisms for assessing the same outcomes, such as using visual aids or allowing code-switching during discussions or exams.

Regarding "assessment *for* learning, "teachers use formative assessments as an investigatory tool to determine what their students know and can do, and what confusions and misunderstandings, or gaps they might have. The collected information then provides teachers the basis for offering descriptive feedback to students and to reflect on their own use of instructional strategies and resources. In the EMI context, it is important for teachers to align assessment with instruction since assessment *for* learning occurs throughout the learning process. For example, using weekly

assignments or online interactive discussion can help teachers monitor students' learning process and provide immediate feedback and direction to students. In addition, because students in EMI courses may encounter learning problems from either the course content or English language, or the interplay of the two, teachers can consider creating differentiated teaching strategies and learning opportunities to help individual students advance in their learning. For instance, different types of learning supports could be provided to students based on their development, such in-class interactive prompts, individual meeting or peer learning opportunities. Also, the pedagogical materials could be further differentiated, such as visuals, extended readings, or leading questions to encourage students for future exploration.

For the third concept, "assessment *as* learning," the teacher's role lies in promoting the development of independent learners through various types of assessment tools. Teachers design assessments as regular and challenging opportunities for students to become confident and competent lifelong learners. In EMI contexts, assessment feedback serves as encouragement to students to focus on the learning task, rather than on merely answering correctly. EMI teachers' feedback thus should provide students with ideas for adjusting, re-evaluating, and articulating their thinking, which will lead to the training of students' critical and metacognitive skills. Teachers can create the conditions for self-reflection and peer learning opportunities, for example, by assigning student group presentations and using a self/peer evaluation system.

In conclusion, a variety of methods can be used for EMI assessment *of, for* and *as* learning. The most important consideration for EMI teachers is to determine the aim of the assessment and then select the most appropriate method that can best serve the purpose in the particular context.

Assessment of Students' English Proficiency

English is the vehicle of expression in EMI courses; yet, in these courses, it is seldom independently assessed. Since EMI courses focus on an internationalized academia, assessment writers/teachers should consider to what extent the language demands *enables* or hinders the student from demonstrating their understanding of content knowledge. Participants in this study mentioned that EMI students' learning difficulty derived partially from their insufficient English ability; however, only a few of these teachers applied compensatory approaches to enhance students' learning, and none of them specifically listed English performance in their assessment criteria. The reason for this might be that, in their role as content teachers, they are unaware of instructional strategies and tools for assessing students' comprehension through English.

Therefore, following the aforementioned assessment concepts, this study provides suggestions for different types of assessments that EMI teachers can use to evaluate students' comprehension through English. These assessments are based on students' level of language proficiency, following the Common European Framework

of Reference for Languages (CEFR standards). Table 11.5 below deals with test items and their functions in receptive skills (listening and reading), and Table 11.6 lists strategies for productive skills (speaking and writing).

When designing EMI assessments, teachers should consider using multiple measures in order to obtain a multidimensional view of a student's performance. For instance, by asking students to conduct in-class small group presentations, the teacher can assess their comprehension of the content, English speaking performance, and organizational skills. In addition, if students use PowerPoint slides and/or write their reflections about the assignment, teachers will also be able to assess students' writing ability.

Table 11.5 Assessing English receptive skills in EMI courses

	Reading	Listening
Basic user (A1–A2)	*Test item*	*Test item*
	Ask explicit questions about the text or facts directly presented in the text.	Ask students to match English terminology with pictures, Chinese words or phrases based on the teacher's oral descriptors.
	Function	*Function*
	Through this assessment, students will understand the facts of the content knowledge and select appropriate answers in English.	Through this assessment, students will understand the meaning of the terminology and the corresponding expressions in English.
Intermediate user (B1–B2)	*Test item*	*Test item*
	Ask inferential questions about the text information that was implied by the text.	Ask students to design and evaluate information on charts, graphs, and tables based on the oral directions.
	Function	*Function*
	Through this assessment, students will understand the inferential information of the content knowledge and select appropriate answers in English.	Through this assessment, students will apply the described content information in designing charts, tables or graphs. They will also understand the meaning of the assigned content knowledge in English.
Proficient user (C1–C2)	*Test item*	*Test item*
	Ask students to summarize the main idea of the text in their own words.	Students are able to respond to the teacher's oral commands, such as giving critiques after listening to some authentic materials.
	Function	*Function*
	Through this assessment, students will comprehend the assigned reading materials and organize the content based on its importance. Student will also demonstrate their understanding with their own expression in English.	Through this assessment, students will understand the teacher's oral description and authentic oral materials of the content knowledge and give appropriate responses.

Table 11.6 Assessing English productive skills in EMI courses

	Speaking	Writing
Basic user (A1–A2)	*Test item*	*Test item*
	Ask students to provide narration to pictures	Ask students to organize the reading content in short phrases or bullet points.
	Function	*Function*
	Through this assessment, students will identify the pictures with associated concepts in English.	Through this assessment, students will comprehend and summarize the content in English.
Intermediate user (B1–B2)	*Test item*	*Test item*
	Assign students to pair work activities that contain information gaps.	Ask students to write summaries of assigned readings.
	Function	*Function*
	Through this assessment, students will interact with each other and exchange needed information in English.	Through this assessment, students will summarize the content from their comprehension.
Proficient user (C1–C2)	*Test item*	*Test item*
	Ask students to express opinions/ critiques of an assigned topic.	Ask students to write a research paper on a topic within the framework of the curriculum.
	Function	*Function*
	Through this assessment, students will explain their own perspective on the assigned topic in English.	Through this assessment, students will need to understand how to do a literature survey and how to organize a research paper.

A Hypothetical Example of EMI Assessment in an Electronic Engineering Class

In the following, we will consider a hypothetical example of EMI course evaluation in an electronic engineering class to illustrate how the aforementioned assessment concepts and tools can be applied. Publications in both industry and higher education document the increasing demands for engineering students to have good communication skills (Bergman et al. 2013). One effective way of enhancing students' communication skills is through presentations and report writing. Below, we will examine two types of assessment tools that evaluate both students' content comprehension and their communicative performance in English. The topic in this example is the supply of power to an island with a varied topography.

Assessment 1: Weekly assessment.

The goal of this assessment is to evaluate students' understanding of the content and their English receptive skills. The level of difficulty ranges from basic to complex.

1. Reading comprehension test on weekly assigned readings. Specific test items are as follows:
   - List at least three autonomous electrical power supply systems mentioned in the reading. (wind/photovoltaic/diesel/battery)
   - Describe the design of the standalone renewable power supply systems on Futuna Island, Vanuatu in the Pacific Ocean.
2. Matching important terminology with pictures or charts. For instance, fill in the terminology, such as "wind generator," "solar panels optional," etc. in the related picture.
3. Listening to a short clip on video[1] and completing a listening comprehension test. Use authentic materials as much as possible so as to in order to better equip students for the workplace and motivate them with a relevant assignment.
4. Responding to the teacher's spontaneous in-class oral questions.

Assessment 2: Student group presentation.

The aim of this activity is to evaluate students' progress throughout the semester by focusing on students' content knowledge and productive skills.

1. Early semester: Students form small groups of four to five and write a proposal describing their selected topic for presentation.
2. Mid-semester: Students in groups meet with the teacher to give an oral progress report. While discussing the topic with the students, the teacher assesses their learning and provides needed instruction. After the meeting, students make any necessary revisions to their topic and prepare an improvement plan for a follow-up meeting.
3. A week before the presentation: The teacher meets with two student groups together and checks their improvement plan. Each group then conducts a quick demonstration with their PowerPoint slides and other materials. Both the teacher and the other group members provide feedback to the presenters.
4. On the day of the presentation: Both the teacher and students in the audience evaluate the presentation, with scores weighted 40 percent for the teacher and 60 percent for the audience. After each group's presentation, the teacher assists the presenters in conducting a Question & Answer session so that everyone, presenters and audience alike, gain an opportunity to practice their critical thinking skills through asking pertinent questions and giving meaningful responses.

In sum, assessment tools such as those described above can enable EMI teachers to evaluate students' content comprehension, as well as enhance students' communicative English skills. More importantly, these assessment tools accord with the concepts of "assessment *of, for and as* learning." For instance, the weekly assessment provides evidence of students' achievement throughout their learning process. This summative assessment tool is crucial because it offers a window for both EMI teachers and students to examine their pedagogical goal and learning process. Additionally, assessing students' performance through their oral presentation offers

[1] Backup power supply system: https://www.youtube.com/watch?v=534T9mNRNqk

students opportunities for students to take more responsibility for their own learning. Through conducting assessment, EMI teachers can collect the information needed to determine what has been achieved and how to encourage students to move to the next stage. Through careful integration with the curriculum, these assessment tools can be easily applied in EMI classes.

Highlights and Challenges

Assessment has so far been something of a blind spot in many EMI courses and programs. Little attention has been paid to the issues of EMI course evaluation and its effectiveness in assisting students' learning. Thus, a well devised plan for the assessment of EMI students' progress and achievement is required. The current study provides insights from a survey of practicing EMI teachers in Taiwan. It reports not only on the assessment tools and criteria that EMI teachers currently use, but also on EMI teachers' understanding of students' learning difficulties and their attitudes toward using English in EMI courses. The results reveal that some EMI teachers in Taiwan are already incorporating certain adaptations in their assessment tools to enhance students' learning process, such as allowing code-switching and peer collaboration. Their use of these assessment tools also meets with the guidelines of assessment *of, for,* and *as* learning. However, the survey also showed that only a few EMI teachers displayed an awareness of how assessment can promote student learning. Therefore, this study includes an assessment framework and hands-on materials for EMI teachers to apply in their classes. For instance, an example of applying weekly assessments and student group presentations is outlined for an electrical engineering class. Various assessment tools are also listed for EMI teachers who aim to promote students' English ability while assessing their content knowledge. In order to facilitate EMI teachers' use of the suggested assessment framework in their courses, this study also suggests the following training for students and teachers.

Student Training in Self-Assessment

Student self-assessment involves students in evaluating their own work and learning progress. It includes (1) identifying one's own strengths and weaknesses, (2) setting realistic goals for learning, (3) revising one's own work, (4) tracking one's own learning progress, and (5) deciding when to move to the next level of the course. Students who join EMI courses in Taiwan usually maintain a high level of metacognitive awareness in monitoring their own learning. A gentle prompt from the teacher at the beginning of the semester, however, can help students to stay involved and keep motivated. Several strategies for EMI teachers to encourage student self-assessment are: assigning reflection activities, setting learning targets throughout the semester, and giving clear rubrics for course assignments.

EMI Teacher Training

To understand the purpose of assessments and its benefits for EMI course evaluation requires that teachers take an active role during the assessment process. It calls for EMI teachers to be sensitive to the students' learning process for both the course content and English language proficiency. Receiving training in assessment concepts and associated tools would benefit EMI teachers by enabling them to better identify students' learning difficulties, provide more effective feedback, and thus enhance students' learning process. Such training would also ultimately affect how EMI teachers make decisions in judging students' immediate performance as well as other emerging abilities.

Summary

Beginning with an aim to investigate EMI teachers' assessment practices, this chapter has reviewed the concepts of assessment—particularly in evaluating content knowledge—from the literature related to content and language integrated learning (CLIL). Three innovative concepts of assessment (assessment *of, for* and *as* learning) are presented through an explanation of the purpose of assessment, types of assessment, and the actual application. In order to explore the extent to which EMI teachers apply these assessment concepts in their courses, this chapter then presents findings from 29 EMI teachers who have taught EMI courses at the tertiary level in Taiwan. The results document (1) the assessment tools and criteria applied in the participants' courses, (2) three roles that English plays in EMI courses and their associated assessment tools, and (3) EMI students' learning difficulties and teachers' compensatory approaches. Finally, this chapter proposes a framework for assessment and suggests activities for classroom assessment that can be applied in EMI courses.

Appendices

Appendix 1: Online Questionnaire

Personal Information

1. Name
2. Department
3. Email
4. Title of your EMI course

Interview Questions

5. How do you assess your students? Please describe the format of the assessments in your EMI courses.
6. What are the criteria for EMI evaluation?
7. How does your assessment of an EMI course differ from the non-EMI course you teach?
8. Do you design bilingual (e.g., Chinese and English) exam papers for your EMI courses?
9. What is the role of English in the assessment?
10. How do you identify students' learning difficulty from EMI assessment? Is it from content or from the language?
11. Do you think that EMI course assessment should reflect real-life situations in students' field of study? To what extent or in what aspects?

Appendix 2: Guiding Questions for the EMI Teacher's Interview

1. Could you please briefly describe the assessment tools and criteria used in your EMI course?
2. How do you identify students' learning difficulties in EMI courses?
3. Once you notice students' learning difficulty, how do you provide instruction or conduct assessment to assist with their learning?
4. If a student lacks appropriate foreign language proficiency (i.e., English), how would you accommodate that student through course instruction and assessments?

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