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以英語授課：一個探討臺灣的大學教師教學情況之質性個案研究

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摘要

在非以英語為母語的國家中，高等教育使用英語授課愈趨普遍，但英語授課並非全然的品質保證。由於目前關於國內外英語授課的研究，缺乏以課室觀察與了解學生觀點的方式進行，探討大學專業教師如何協助學生學習，更值得學界重視。本文採質性個案研究方式，旨在探討大學專業教師如何以英語設計課程與引導學生，期待未來能協助教師有效教學。本文以臺灣四位教學成效受到同事與學生的肯定的大學專業教師為參與者，透過分析教師與學生訪談及課室教學觀察資料，指出教師如何使用三種多層次的教學方式(參與性、連結性、與擴大性)，以促進學生對專業內容、認知、與文化方面的學習。此外，對於專業教師缺乏語言目標與使用的發現，也點出語言與專業教師合作的重要性。本文最後將針對未來研究及語言與專業教師如何有效合作提出建議。

關鍵詞: 高等教育國際化、英語授課、教學原則與策略

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Teaching Content via English: A Qualitative Case Study of Taiwanese University Instructors' Instruction

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Abstract

The prevalence of English-medium instruction (EMI) in non-native English speaking (NNES) universities by no means guarantees effective teaching. Since little is understood about NNES university instructors' classroom instruction, it is pedagogically significant to examine how they support student learning. Using a qualitative case study, this paper explores four Taiwanese content teachers' classroom practices to explore effective guidance for students' learning of content via English. These instructors were perceived as competent by their colleagues and students. Their interview and observation data were collected and triangulated by student interview data. The findings identified the use of engaging, bridging, and amplifying at a multi-layered level to achieve content, cognitive, and cultural objectives. The limited attention to language objectives and use underscore the primacy of the collaboration between content and language teachers in facilitating NNES content teachers' professional development. In this respect, approaches to effective EMI by language and content teachers as well as directions for future research are specified in the conclusion.

Key words: Internationalization of higher education, English-medium instruction (EMI), teaching principles and strategies

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Teaching Content via English: A Qualitative Case Study of Taiwanese University Instructors' Instruction[1]

Huang, Yi-Ping

1. Introduction

In response to the internationalization of higher education and English as a global language, the use of English as a medium of instruction in higher education has gathered momentum in such non-English speaking areas as the Asian Pacific and mainland Europe (Coleman, 2006). After Taiwan became a member of the World Trade Organization (WTO) in 2002, the General Agreement on Trade in Services (GATS) stipulating that educational services should be accessible for other WTO member countries compelled the Ministry of Education in Taiwan to establish initiatives to internationalize higher education. These initiatives include the recruitment of international students, promotion of study abroad programs, and enhancement of students' English proficiency (Ministry of Education, 2001). Such mechanisms, along with the social prestige and economic values of English in Taiwan, promote English-medium instruction (EMI). It is thus unsurprising that the number of courses taught in English has tripled in Taiwan from the academic year of 2003 to 2006 (Ministry of Education, 2009).

However, the rapid growth of EMI by no means guarantees effective learning. Many studies have shown that non-native English-speaking (NNES) students are dissatisfied with the discipline-specific knowledge they have acquired via English (Chang, 2010; Huang, 2009, 2012; Tatzl, 2011). Their dissatisfaction is highly correlated with their inabilities to comprehend lectures (Chang, 2010), resulting primarily from the lack of a general and technical vocabulary (Chang, 2010; Hellekjaer, 2010; Huang, 2009, 2012; Tatzl, 2011) and ineffective listening strategies and/or study habits (Chang, 2010; Huang, 2012). Such language problems, interwoven with organizational, affective, and cultural factors (e.g.,

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lecturing in a large class with students afraid of or unaccustomed to using English), discourage NNES students to speak in English or interact with instructors (Dalton-Puffer, 2007; Wu, 2006). These limitations may restrict opportunities to learn or explore content, and thus it is imperative for teachers to assist students' content learning via English.

Unfortunately, NNES content teachers may not be skilled at aiding this learning. Their difficulties may include receiving no or inadequate support (Airey, 2011a); expressing ideas accurately, fluently, or comprehensibly in English (Chang, 2010; Sert, 2008; Tatzl, 2011); and/or recognizing students' linguistic needs, wants, and gains (Dafouz & Nuñez, 2009; Huang, 2012; Tatzl, 2011). These challenges may result from their lack of knowledge of (language) pedagogy and/or language proficiency, fueled by their self-characterizations as simply subject-matter instructors. Among various factors, teachers' lack of (language) pedagogy may outweigh their lack of language proficiency (Hellekjaer, 2010). As such, professional training in teaching methods with particular attention to the influence of language on content and language teaching becomes critical (Dafouz, Nuñez, Sancho, & Foran, 2007; Lyster, 2007).

The research on classroom discourses (Dafouz Milne, 2011) and teaching strategies (de Graaff, Koopman, Anikina, & Westhoff, 2007) has recognized the need for pedagogical support. de Graaff, Koopman, Anikina, and Westhoff (2007) developed an observation tool for effective teaching strategies based on second language pedagogy, validated by observations and interviews by secondary school teachers. Using a genre-based approach to analyze secondary, tertiary, and postgraduate data, Dafouz Milne (2011) illustrated the ways lecturers supported students and found that tertiary instructors provided limited teaching strategies of "simplifying, explaining, reformulating and reconstructing subject knowledge"(p. 205). The findings suggest that university instructors need to extend their instructional knowledge and skills to assist students' learning of content in English.

Despite the pedagogical significance of classroom research on effective EMI, most studies have failed to consider students' viewpoints. Given that teachers' opinions may not concur with students' (Huang, 2012; Vinke, Snippe, & Jochems, 1998), it is significant to understand how students view teachers' instruction. In this respect, university instructors perceived as effective by different stakeholders were recruited, and students' perspectives of their instruction were also elicited for

identifying effective instruction. Moreover, most studies about EMI in Taiwan investigated teachers' pedagogical motivation, difficulties, solutions, and benefits through interviews rather than classroom observations (Huang, 2012; Yeh, 2013). Since teachers' espoused discourse may differ from their behavior, it is timely to explore university instructors' classroom practices. Thus, this paper aims to specify effective guidance in EMI through a qualitative case study on the teaching practices of four skilled NNES content teachers at three Taiwanese universities. In so doing, we hope to better facilitate university instructors' professional development.

2. Literature Review

The previous literature about pedagogical support in English-taught courses is discussed in terms of (a) teaching objectives, (b) course design, and (c) effective teaching principles and strategies.

2.1 Teaching Objectives

Although most NNES content teachers using EMI in higher education self-identify as subject-matter instructors and aim to enhance students' understanding of content (Herescu, 2012; Huang, 2012), they do not necessarily plan content objectives well. For example, research on secondary education has cautioned teachers against reducing the teaching of content in English to simply explaining technical terms (Tan, 2011). Airey and Linder (2008) further highlighted the significance of increasing students' abilities to extract meaning from academic texts and apply it to everyday contexts by conducting a textbook analysis on science at the tertiary level. Formulating content objectives fundamental to students' success becomes pedagogically significant.

Research on Content and Language Integrated Learning has furthered content objectives (Coyle, 2007; Coyle, Hood, & Marsh, 2010; Fortanet-Dómez, 2010; Herescu, 2012). Students need not only to acquire knowledge and skills about the subject matter but also develop cognitive skills and cross-cultural understanding while learning content in English; that is, content teachers should also consider the involvement of mental processing in the ascending order of significance: remembering, understanding, application, integration, and evaluation, as well as the promotion of cross-cultural understanding to diverse cultural groups. Hence, cognitive and culture objectives should also be recognized and carefully planned.

Compared with content objectives, language objectives have received much less teacher attention. NNES content teachers may not specify increasing students' English proficiency as a learning objective. Instead, they may maintain that translating lectures in English is sufficient for students to learn content, leaving language issues either unacknowledged or incidentally addressed (Fortanet-Dómez, 2010); that is, the explicit explanations of grammatical rules of problematic language forms are rare (de Graaff et al., 2007).

However, research has not supported the voidance of language objectives in content learning (Coyle, 2007; Coyle et al., 2010; Fortanet-Dómez, 2010; Herescu, 2012). Instead, research underscores the significance of the integration of language and content since teaching subject matter in English necessitates not simply teaching the content itself but also the *language* of content. Even incidental language learning, according to Pecorari, Shaw, Irvine, and Malmström (2011), also requires careful planning. In particular, three language aspects should be considered when teachers set language objectives, including knowledge and skills of subject matter ("language *of* learning"), the ways to express complex academic ideas ("language *through* learning"), and the ways to perform various tasks in academia ("language *for* learning")(Coyle, 2007; Coyle et al., 2010). Indeed, NNES content teachers need to plan and monitor both content and language objectives to facilitate students' acquisition and application of disciplinary knowledge.

2.2 Course Design

At the program level, it is necessary to provide English for Academic Purposes (EAP) courses (Evans & Green, 2007) and/or ensure coordination between content and language courses (Met, 1998; Stoller, 2004). For example, Huang's (2012) qualitative case study of the curriculum of an English-taught program in Taiwanese higher education has suggested a content-driven sheltered immersion program where students with adequate English proficiency should be recruited and proficiency-appropriate materials should be used.

At the course level, lecturing is an economical way to convey information to large groups of students, so it "remains the central instructional activity" in higher education (Flowerdew, 1994, p. 1). Research in applied linguistics has shown various styles of lecturing. For example, Dudley-Evans and Johns (1981) elucidate

the “conversation style” (lecturers speak informally), the “rhetorical style” (lecturers speak with varied intonation), and the “reading style” (lecturers speak as if they were reading notes). Similarly, Goffman (1981) differentiates the “memorization” style (lecturers closely follow the scripts they prepare), the “reading aloud” style (lecturers read from notes), and the “fresh talk” style (lecturers do not follow the notes and speak freely often with the aid of slides). Among these approaches, lecturers gravitate toward adopting an interactive lecturing style featuring teacher explanations with different degrees of interactivity (Flowerdew, 1994; Northcott, 2001). The interaction between lecturers and audience has been reported to facilitate students’ comprehension of content (Northcott, 2001).

The trend of a more interactive lecture has also been found in research on learning and teaching subject matter via English (Dafouz & Nuñez, 2009; Dalton-Puffer, 2007). Yet scholars have also observed that lecturing in an L2 tends to be less interactive than that in a L1 (Airey, 2011b; Thøgersen & Airey, 2011). For example, Thøgersen and Airey (2011) compared lectures given by the same experienced lecturer in both Danish (L1) and English (L2) and discovered that the lecturers adopted a more formal, written style in English than in Danish. Conducting a stimulated recall, Airey (2011b) also noted that students were less willing to make oral responses when lecturers were given in L2. As such, lecturing in English may run the risk of turning into a monologue, and hence scholars have urged teachers to heed the interpersonal aspects of lectures by adopting small group discussions.

2.3 Effective Teaching Principles and Strategies

Drawing on learning theories and foreign language pedagogy, research on teaching content in English holds the following pedagogical views, principles, and strategies:

(a) Learning content requires an understanding of academic register. Since academic language involves more complex structure and decontexualization than everyday language (Cummins, 2000), appropriation of prose-like texts to oral discourse—mode-shifting—becomes a common approach to enhance students’ understanding of dense academic texts (Gibbons, 2002, 2003, 2009). Popular strategies include the use of simple words, examples, paraphrases,

analogies, audiovisual aids, and translation (de Graaff et al., 2007; Fortanet-Dómez, 2010; Huang, 2011, 2012).

(b) Research has demonstrated that acquiring subject-matter knowledge and skills involves engaging in cognitive processing, and hence linguistic demands of content should be made accessible and challenging in course design (Coyle, 2007; Coyle et al., 2010; de Graaff et al., 2007; Kong & Hoare, 2011). In this respect, lessons should progress from low to high linguistic demands, and key words or concepts should be recycled so that students can access and revisit relevant content and language (Coyle, 2007; Coyle et al., 2010; de Graaff et al., 2007; Walqui, 2006; Walqui & van Lier, 2010). The approach to maximize students' learning opportunities to access key words and concepts is called *amplifying* by Walqui (2006). Moreover, Kong and Hoare (2011) showcase that cognitively challenging academic texts or tasks, with a focus on knowledge relationships rather than isolated facts, are preferred because they require deeper cognitive processing and provide more opportunities to engage students.

(c) Interaction (assuming the use of language in exploring content) is the foundation of learning content and language; it affords students models of academically accurate and appropriate expressions as well as opportunities to experiment with and modify academic language (Coyle et al., 2010; de Graaff et al., 2007; Lyster, 2007; Gibbons, 2002, 2003, 2009; Walqui, 2006; Walqui & van Lier, 2010). Facilitating student-teacher and student-student interaction, thus, becomes a pedagogically significant principle. Student reactions may be encouraged through the creation of various interactive modes (e.g., interactive lectures and group discussions) (Airey, 2011b; Dafouz & Núñez, 2009; Dalton-Puffer, 2007; de Graaff et al., 2007; Thøgersen & Airey, 2011) as well as the use of questions and corrective feedback (Dalton-Puffer, 2007; de Graaff et al., 2007; Lyster, 2007).

(d) In interaction, content teachers should focus on both meaning and form. Regarding meaning, they can check comprehension of lectures and evoke student responses by using display questions (questions with known answers), clarification checks (e.g., "Is it clear?"), confirmation requests ("Do you agree?"), validation questions (e.g., "How did you know it?"), and open questions (questions posed to elicit responses longer than a single word) (Dalton-Puffer, 2007; de Graaff et al., 2007; Lyster, 2007). They can also help

students notice forms by explaining rules; giving examples; and using confirmation checks, clarification requests, recasts (repeating mistakes for students' self-correction), and reformulation requests (repeating what students have said with correct forms) (Dalton-Puffer, 2007; de Graaff et al., 2007; Gibbons, 2002, 2003, 2009; Lyster, 2007).

(e) In addition to focusing on meaning and form, content teachers are advised to bridge the gap between different cultures and communities (Huang, 2011; Pawan, 2008; Walqui, 2006; Walqui & van Lier, 2010). Specific attention has been drawn to academic acculturation from learning English as subject matter to using English to acquire knowledge (Huang, 2011); culturally responsive teaching for international students (Huang, 2011; Pawan, 2008); and establishing a link between theory and practice, students and content, and current and prior knowledge (Walqui, 2006; Walqui & van Lier, 2010). Popular strategies may include the provision of culturally familiar examples, reliance on the L1, development of metacognitive strategies, and combining of international and local students.

The above literature suggests that guidance provided for student learning features multiple layers, such as the design of overall curricula at the macro level, the planning of tasks or activities in a lesson at the meso level, and the use of strategies to facilitate interaction/learning at the micro level (see also Walqui, 2006).

3. Research Purposes and Questions

Developed from the above literature, this study assumes that content teachers' provision of guidance in EMI can be examined through their course design, activity use, and classroom interaction/technique adoption and that the multi-layered support facilitates students' content, cognitive, language, and/or cultural understanding. In order to understand the ways Taiwanese university instructors promote students' learning, the following questions guide this study:

1. How do university instructors design their courses? What kinds of activities are used? What kinds of interaction or strategies are featured? For what purposes?
2. Do instructors' perspectives on effective guidance concur with students'?

In so doing, we hope to explore effective use of multilayered guidance perceived by both instructors and students, as well as those endorsed by the instructors but

not necessarily the students. The identification of (in)effective EMI, we believe, will better facilitate university instructors' professional development in Taiwan.

4. Method

4.1 A Qualitative Case Study

Since the paper aims to discover effective guidance in EMI for future teacher development, a multiple-case design (Yin, 2009) was adopted to explore four cases (Taiwanese content instructors) in three contexts (one private and two public universities). Heterogeneous sampling was used because this paper assumes "any common patterns that emerge from great variation are of particular interest and value in capturing the core experiences and central, shared dimensions of a setting or phenomenon" (Patton, 2002, p. 235). Heterogeneity, in this study, refers to the universities in which instructors are currently working and instructors' length of teaching experiences and expertise.

4.2 Context and Participants

For this study, two public (University A and University B) and one private university (University C) were chosen because they represent three common forms of English-taught programs in Taiwan: The first type refers to a campus-wide design where almost all the curriculum is taught in English to aid Taiwanese students' study abroad experiences in their junior year (University C). The second type refers to a program-wide design in which a certificate is issued after students take all EMI courses in a program (University A). This design targets both international and Taiwanese students at the undergraduate and graduate levels. The third type refers to an individual design of EMI courses (University A and University B) where courses are taught in English by instructors at any level to any student as long as instructors deem it necessary.

Four Taiwanese university instructors (T1, T2, T3, and T4) were selected based on strong teaching evaluations; recommendations from students, colleagues, or department chairs; confidence in their own teaching; and classroom observations. Both T1 and T2 taught elective, individually-designed EMI courses in University A. T1 is a novice instructor who teaches graduate students Educational Technology, and decided to teach in English because the medium of academic discussion is dominated by English. Unlike T1, T2 is an experienced instructor who received TA training and tenure in the U.S. and has taught in South

Korea, the U.S., and Taiwan. He has taught Politics in English at both undergraduate and graduate levels in various public universities, including University B. T3, the program-wide design representative, is an experienced instructor in Economics who received TA training and taught as an assistant professor in the U.S. Like T2, he has taught EMI courses at both undergraduate and graduate levels. T4, a representative of the campus-wide design, is a novice instructor who has taught Politics to undergraduate students in English. He received no training in education.

A total of fifteen students were recruited, including two graduate students in T1's class, six non-freshmen in T2's courses (in both University A and University B), three sophomores in T3's class, and four freshmen in T4's course. These student participants were chosen based on their self-perception of English proficiency and availability. All of them were Taiwanese students.

Table 1 summarizes information related to each instructor.

Table 1 Information Related to the Four Instructors

	University	**EMI design**	**Length of adopting EMI**	**Expertise**	**Course Observed**	**Type of observed courses**	**# of course observations**
T1	A	Individual Graduate	5 years	Education	Educational Technology	Elective	4
T2	A B	Individual Undergraduate	> 15 years	Politics	Politics Politics	Elective	4 4
T3	A	Program Graduate: IMBA Undergraduate: ETP	> 10 years	Economics	Economics in IMBA Economics in the ETP	Required Required	2 2
T4	C	Campus	5 years	Politics	Introduction to Statistics	Required	4

4.3 Data Collection

Data were collected from three major sources: (1) teacher interviews, (2) classroom observations, and (3) student interviews. Three interviews were conducted with each instructor. Lasting approximately two hours each, the semi-structure interviews were designed to understand the instructors' teaching experiences, philosophies, methods, strategies, difficulties, and solutions, as well as their opinions about EMI.

One of each participant's EMI courses was chosen for classroom observation.

A total of four class periods (twelve hours) for T1, T2, and T4 were observed and video-taped roughly once a month. T3 did not feel comfortable being observed, and hence only two classes were observed and tape-recorded. Classroom observations were conducted in T1's Educational Technology graduate-level class (University A); in T2's Politics at both University A and University B at the undergraduate level; in T3's Economics at the undergraduate English-taught program (ETP) in Commerce and graduate IMBA (International Master of Business Administration) (University A); and in T4's undergraduate Introduction to Statistics class (University C)(see Table 1).

A total of 15 students were interviewed at least once to collect information about their learning difficulties and solutions and opinions about EMI. All of the interviews were conducted in Chinese, since not all the participants were comfortable expressing their ideas in English.

4.4 Data Analysis

The data collected were transcribed based on the adaptation of Atkinson and Heritage's (1999) transcription conventions (see Appendix). They were coded and analyzed based on Charmaz's (2006) grounded theory and Carspecken's (1996) levels of inference. Initial coding was conducted line-by-line and incident-by-incident for each teacher interview, classroom observation, and student interview. Low-level codes with little inference were utilized at this stage. A comparison of different raw codes led to selective codes which were used to establish core categories and extract salient themes in focused coding. Attention was paid to high-level codes with much abstraction and further inference. The focused codes were then reorganized using three levels of guidance: macro-, meso-, and micro-level illustrations (cf. Walqui, 2006). In this study, the macro level referred to the design of the overall curricula and/or tasks across different periods of classes; the meso level referred to the use of activities within one unit or period of classes; and the micro level referred to the adoption of instructional techniques or strategies.

In this study, prolonged engagement, peer debriefing, and triangulation were employed for validation. Although most data were in Chinese, all the coding was done in English and checked by a bilingual peer debriefer. Only excerpts (e.g., the participants' quotes used in this paper) were translated into English and verified by

a bilingual speaker and a native-speaker of English.

5. Results and Discussion

This section presents the four university instructors' use of engaging, bridging, and amplifying at the macro, meso and micro levels to facilitate content, cognitive, and cultural learning but not necessarily language use. Since not all the guidance from instructors assured success, the inadequate ones—the lack of attention to language objectives and use—will be discussed at the end of this section.

5.1 Engaging

All of the instructors considered it important to promote deep disciplinary understanding and high-order cognitive thinking skills (i.e., understanding, application, integration, and creation) through "engaging" students in specialist fields, as has been seen in the previous literature (Airey & Linder, 2008; Coyle, 2007; Coyle et al., 2010; Dalton-Puffer, 2007; Kong & Hoare, 2011; Lyster, 2007). In this study, engaging was defined as supporting students in thinking, reasoning, synthesizing, evaluating, applying, and arguing. Such a principle was realized as macro-level planning, meso-level lectures and group activities, and micro-level use of guiding questions and narratives.

5.1.1 Macro-level planning

All the instructors taught a series of progressive units or topics from a textbook determined by themselves (T1, T3, and T4) or the program (T2). These topics were conceptually relevant, predetermined and listed in course syllabi. None of the students voiced any opinion on the topics chosen or their overall organization. Only when they were not taught accordingly did students complain about the difficulties in following the instructor's lecture due to the difficulty of previewing assigned readings. As a student in T2's class explained, "If classes are related to one another, then it's easier for you [students] to know the structure." Such results suggest that each lesson necessitates a certain degree of stability, which is particularly significant for NNES students.

5.1.2 Meso-level activities

Within each unit, instructors adopted interactive lectures accompanied by group discussions. For example, students in Educational Technology discussed the assigned readings in groups before the lecture to facilitate their self- and peer-learning (T1's class), while those in Politics and Commerce collaborated with

peers to solve a problem or a case after lectures (T2's and T3's classes). As T3 explained, "I will pose a discussion question which requires students to think- to review what we learned today…. It's okay if students cannot find the answers, but they can discuss with their classmates sitting next to them." Learning of disciplinary content, thus, was facilitated not only through instructors but also through peers in discussions where students could help one another clarify and analyze disciplinary concepts. Such discussions with peers were valued by students. As T1's female graduate student commented, "Discussions better help us [students] understand the assigned reading. Because …I might misinterpret the paper, during the discussion, I will notice some of my own misinterpretation. Other classmates' questions will help me discover what I didn't notice." As such, the significance of the interactive mode of learning was recognized (Airey, 2011b; de Graaff et al., 2007; Thøgersen & Airey, 2011).

Regarding the style of interactive lecture, both instructors and students favored speaking informally and with varied intonation in lectures—a combination of the "conversation style" and the "rhetorical style." As T4 explicated, "I know Statistics is very boring, so if you keep talking about formula in lectures, they [students] will be [bored]." In an attempt to keep students attentive in lectures, instructors may elect to "talk informally." For example, in order to engage students in understanding "electoral fraud" in Kenya, T2 recounted an incident about power outage in an election that encouraged the losing candidate to suspect the election was rigged. T2 drove this point home by exaggerating his tone, using short chained sentences, and adopting direct speech ("no, you're cheating"):

> Last time- they had a presidential election [in Kenya]. - <You have an- (XX) president- who was losing the election, and then- he stopped counting [ballots]. And then- when- the- counting- resu::med, he wo::n-. OK, this is a little bit like Taiwan- forty years ago-. We have the, you know= counting the ballots. And then suddenly- we found Oh! –power outage. –No electricity. –The room darkened. – And then- when the light came ba::ck, the KMT wo::n- the election.> OK ((T2 is laughing)).((Ss are laughing.)) The same thing here- in Kenya….The challenger of Odinga- said, "no::, you're cheating." We call- … electoral fraud.
>
> (Politics in University A)

This "informal" and "relaxing" way of talking, according to T2's student, may "promote memory retention." By incorporating interpersonal and interactive

aspects of lectures, instructors can more successfully engage students. Such results corroborate the value of interactive lectures or the interpersonal aspects of interaction (Dafouz & Núñez, 2009; Dafou et al., 2007; Dalton-Puffer, 2007; Northcott, 2001).

5.1.3 Micro-level techniques

Both instructors and students viewed questioning and narrating salient in engaging students in academic texts and affording opportunities for language use. The following excerpt in which T3 invited students to infer the principles underlying the definition of "public goods" by posing a series of display questions paints a clearer picture of such guidance:

> Do you think the firework is a public good? –if you think yes, raise your hand, firework…. ((A few students are raising hands.)) Ok, -how about private good? ((No one raises hand.))…. Can we prevent somebody from seeing the firework, the firework is something in the air, if you want to see it, you can see it…. So it's difficult to prevent somebody from seeing it. But -do you think -if you are seeing the firework and then that will affect somebody else of seeing the firework?.... That's not the case, ok? So basically we think the firework is a public good, because anybody wants to see it, you can…. we [can] prevent somebody from using this kind of good, -then that is excludable. –So… can -firework be excludable. Probably not, right?
>
> (Economics in the ETP in University A)

T3 began engaging students in commerce discourse by asking, "Do you think the firework is a public good" and conducting a poll to evaluate students' prior knowledge and determine his next pedagogical move. This display question also demanded students focus on knowledge relationships rather than unrelated facts while relating the existing common knowledge ("firework") to the new discipline-specific knowledge ("public good" and "private good"). In a similar vein, T3 asked another display question, "Can we prevent somebody from seeing the firework" before introducing the abstract concept of "excludable." By so doing, T3 attempted not only to teach technical terms (the objective concerning language *of* learning) but more importantly to demonstrate an approach to reason in Economics and allow students to ponder classification questions (an integration of content and cognition objectives). The above use of display questions, according to T3's student, would "help [students] understand [concepts]." Indeed, an opportunity for students to reason and apply is afforded by the use of display

questions with a focus on challenging academic knowledge and the requirement of deeper processing in content (Kong & Hoare, 2011).

In addition, instructors used open questions to encourage students to elaborate on their responses. In the study, open questions were classified as either display or referential questions (the latter being those asked because one does not know the answer). Display questions requested that students define a term or explain a concept, while referential questions asked that students reason from multiple perspectives. Both instructors and students seemed to engage in a guessing game with open display questions, as evidenced in the following example about "euphoria":

T2: What does euphoria- really mean here?
SF1: Extremeness of joy and happiness.
T2: So- what does that mean? This one.
SF2: Extreme happiness?
T2: Extreme happiness? Almost like- you feel good, that you don't- it's it's- far-away- from-, uh… still remove from the reality but… you feel so good……..
SF3: Is that, you know, because [xxx].
T2: Well, it's not that, but it's some kind of optimism, but euphoria means- uh- it dwe::lls on the false hope, almost. Then you're doing well. -That's how I think the best I can put.

(Politics in University A)

The open display question successfully elicited one female Taiwanese student's attempt to define the term. Her response provided T2 an opportunity to evaluate students' understanding of the term and accordingly to clarify its meaning. T2'sexplanations successfully encouraged another female Taiwanese student to join in by paraphrasing or explaining (though inaudible). As such, the use of open display questions in definition or explanations stimulates the discussion of a disciplinary concept from different perspectives, as well as affords practicing opportunities concerning how to define and explain in English, i.e., what Coyle et al. (2010) calls "language *through* learning."

Students benefitted not only from the use of open display questions but also from open referential questions, requiring deeper cognitive processing of knowledge. For example, T2 intended to support students by using open referential questions (e.g., "Is there a good coup?"). Such questions, according to students, helped them to think from different perspectives and synthesize major points. As

one of T2's students expressed, "It [answering the open questions] helps you with thinking, especially thinking in English…. And you would think about the issues from different perspectives." These questions also opened the floor for explanation or justification, intending to elicit more and longer responses. "Listing different points- and summarizing answers [while answering the instructor's questions]," according to a student in T2's class, "is very important for taking exams, making presentations, or writing theses in the future."

Indeed, both types of questions availed students opportunities to foster understanding of academic concepts, to develop critical thinking abilities, and to practice academic speaking (i.e., language demands *through* learning content in English).

Extending Dalton-Puffer's (2007) research, this study reveals another way to engage students, i.e., employing a narrative example to open the door for experience/opinion-sharing, reflection, and/or clarification. In the following excerpt, T2 attempted to explain the technical term of "level-playing field" by telling a pseudo-story about a campaign strategy in Taiwan. This story encouraged a female international student to share her reflection that candidates' appearances might influence female Taiwanese students' voting:

T2: Do you know about this level-playing field- in Taiwan? When we have presidential debate, >we do not want people to see- the shorter candidate-look short.< So they have to stand- on a higher platform…. ((Ss are laughing.)) Because people can do vote- like the taller guy, the more handsome one. So the shorter guy- would have something- you know- to step on, so they look tall. =That's level-playing field.=
SIF: I have a reflection here.
T2: Yeah.
SIF: Or the girls would say we vote for President Ma because he is really handsome.

(Politics in University A)

Indeed, students can elaborate in responses through the use of open questions and narratives. The recognition and employment of the language and reasoning opportunities afforded by such elaboration is pedagogically significant for NNES content teachers.

5.2 Bridging

Although Sert (2008) suggested "the institution [of higher education] may hire native speaker lecturers for some of the courses to make the flow of information more natural and comprehensible" (p. 168), native-ness was downplayed by both instructor and student participants. Instead, they emphasized the importance of NNES content teachers' instructional skills, confirming the significance of pedagogical content knowledge in the previous literature (Huang, 2011; Pawan, 2008). As one of T2's students explained:

> It's difficult to understand a theory with only theoretical explanations. What's it really like in reality-…. The instructor [T2] incorporates an abstract concept in reality and tells you how it works….. He would teach you abstract concepts first because concepts are abstract but real situations are what you saw or what you can see now. So, when an abstract concept is presented in real situations, you will know, "Oh, so this concept- it's like this."

This student's explanation reflects a salient teaching principle involving weaving "new information into the existing mental structures" (Tharp & Gallimore, 1988, p. 108) and providing culturally responsive teaching (Gay, 2000)—a combination of Walqui's (2006) use of bridging and Huang's (2011) use of cultural scaffolding.

In this study, enabling students to engage in an academic community and develop a concept from a cross-cultural perspective is called bridging since the term symbolizes a link across diverse states and communities. To achieve this end, instructors may adopt (a) approaches and activities at the macro-level planning, (b) interactive lectures and group discussions at the meso level, and (c) background-familiar guidance at the micro level.

5.2.1 Macro-level planning

All the university instructors recognizing students' difficulties in understanding and applying abstract concepts in English might attempt to bridge the gap between theory and practice/reality. The macro-level approach included establishing a personal link between students and subject matter, building on students' prior knowledge, establishing a link between subject matter and reality, and providing culturally responsive teaching. In this respect, instructors selected assigned readings with examples accommodating cultural diversity and encouraged students to participate in international conferences for academic acculturation. As T4 explained in his response to the school's attempt to recruit more international

students, “I’ll need to teach in English, so I need to find some articles suitable for their [international students’] level.” When requested to explain what he meant by “level,” he expressed, “I’ll look for articles that are not so well written, but deal with the same concept;” that is, the instructor recognizes the need to accommodate students’ linguistic needs and cultural differences.

The tasks in the macro-level design were not viewed as effective without learners’ perceptions of relevance (cf. Walqui & van Lier, 2010). For example, all three student participants taught by T2 in University B appreciated the opportunity to participate in the international conference on Politics T2 organized. This incidental learning afforded them an expansion of their academic horizons. But since they were notified about the conference at the last moment, two out of three students felt inadequately prepared for the conference. In retrospect, one of the students commented, “We [students] should have been prepared, to read in advance, and then be prepared mentally.” Unlike T2, T1, who taught at the graduate level, deliberately required students to conceive of a researchable topic and write a two-page paper laying the groundwork for subsequent conference presentations. This approach was well-received by student participants, for writing was no longer viewed as an isolated academic activity but well-connected to the envisioned international community. As one of T1’s students explained, “Unlike other instructors at the graduate school, every instructor asked us to write a research proposal, but when it was done, it was put away. This instructor’s term paper is different…it’s rather practical.” Indeed, encouraging students to participate in international conferences cannot be deemed effective without students’ perceptions of relevance. Thus, the findings support that the macro-level planning of bridging and engaging course progression are necessary.

5.2.2 Meso-level activities

Within most units or class periods, instructors provided exercises for practice in group discussions (T3 and T4) and incorporated international or national news related to politics in the beginning of lectures (T2). For example, to help students apply Game Theory and Nash Equilibrium, T3 asked students to determine the best strategy to decide the prime-time and down-time evening news slots for two TV programs in groups. By so doing, he provided students an opportunity to apply theoretical concepts to real situations with support from both peers and the

instructor. As T3's student reflected on such a practice, she explained:

> if you do not listen carefully in class, you don't know how to complete the task…. In order to complete the task, you need to discuss with peers. And those who understand it will explain it to you…. Through this question [task], you can better understand what's covered in class.

As such, the gap between theory and reality/practice may be narrowed by such attempts to incorporate exercises and news reports in group discussions or lectures.

5.2.3 Micro-level techniques

Given that students learn new concepts when they build on their previous knowledge and understanding, one common bridging strategy is activating students' prior knowledge (cf. Walqui, 2006). For instance, while teaching "game theory," T3 compared the meaning of "game," "play," "gamble," and "race," with the nature of competitiveness, and more importantly, the strategic actions in such a competition. As he explained,

> We don't usually translate the game theory into y*ou-xi li-lun*[2]… that's wrong. Because this is more like a gamble, so we call that a *sai-ju*[3], so that means… you are having a race with some other people, and you have to think about what kind of actions you have to take, appropriately. OK?
>
> (Economics in the ETP in University A)

This example demonstrates that the instructor attempted to scaffold students' understanding of a new academic concept in English using homonyms in Chinese to make abstract terms in English more accessible.

Another common bridging strategy is to establish a personal link between students and subject matter by using students themselves or classroom-related experiences as examples (cf. Walqui, 2006). In the following example, T4 was re-explaining the difference between "sample statistics" and "population parameter" by using student heights as examples rather than by using abstract statements:

> For example, -now we have the-ok, started from you ((pointing at two international students)), … Alberto, and –Aldia, and you are the samples from the –the population [the population] are you five, I select you two. And-I get the height from you two, so I use this sample statistics to –estimate all five

[2] *You-xi* is a Chinese-equivalent phrase of play, and *li-lun* is a Chinese-equivalent phrase of theory.
[3] *Sai-ju* is a Chinese-equivalent phrase of race.

students your –average height might be- that one ((pointing to a number on the whiteboard)).

(Introduction to Statistics in University C)

Using students themselves as examples may demonstrate to students an approach to apply abstract concepts to everyday situations, closing the gap between students and subject matter, as well as maintaining students' attention in lectures. As T4's student explained,

> He will try to provide examples related to everyday life to better help us understand [the concept]….like use his teachers and companies as examples. Incorporate this kind of everyday life things [examples] into interpreting formula. So you would think of it as something accessory, that is, when you think of this example, you think of this formula.

With the diversity of student population, instructors deemed it necessary to accommodate not only domestic but also international students. They deliberately used examples from international students' countries or invite domestic students for explanations in order to bridge old and new concepts, as well as establish rapport with students. For example, T2 invited a male Korean student to comment on the governance of Kim Jong-pil by asking "Is that true?" and "You don't think so?":

T2: ….I've heard people- of my generation- told me they missed good old days of Kim Jong-pil, saying the economy was so good at that time. Is that true? No ((T2 is smiling.))? You don't think so?
SIM: There's a Park Chung-hee.
T2: Park Chung-hee and Kim Jong-pil.
SIM: [Yeah.]
T2: [They] say- during that time, Korea's economy is the best.
SIM: It's different. Park Chung-hee- communicate a lot and- this emperor came up, and Kim Jong-pil carry, so- Kim Jong-pil just do nothing.

(Politics in University A)

These confirmation questions with rising intonation function as an elicitation request to acknowledge international students as resources, affording this student an opportunity to use English. By so doing, T2 not only included the international students in the class but also provided other students an insider's perspective on the discussed topics. T2's student explained such strategy "was helpful to clearly explain opinions of both sides." In the follow-up move, T2 acknowledged the limited reply of the Korean student and provided one of the reasons for his own

argument by saying that "during that time, Korea's economy is the best." Such comments successfully engaged the Korean student in expressing his own opinions as counterarguments, i.e., the language demand emerging from EMI. As such, bridging takes into consideration the content, cognitive, and culture objectives, with language *through* learning as a by-product.

In a similar vein, instructors also incorporated Taiwanese examples and encouraged domestic students to respond to international students (T1's and T2's courses). "When international students asked questions about Taiwan, the instructor will invite our responses. That's the time we can respond," explained T2's student. Even so, all the students and instructors admitted that international students tended to respond to teachers more often and with longer turns than Taiwanese students. As T3 explicated,

> When you randomly select [students to answer questions], you'll know our students actually can answer, they just don't want to do so. Or they want to pose questions, but they feel embarrassed to do so in front of so many people. Also, they may feel others may think they are showing off. Ya, international students are more willing to speak…. but they're not necessary right. They are braver.

Indeed, although Taiwanese students may not verbally interact with the instructor frequently, they may "mentally interact … with the teacher's words" (Forman, 2008, p. 323).

The last important form of bridging is to establish a link between subject matter and reality, showing how new material is related to specialist fields or international news. For example, T1 asked students to comment on educational systems, T2 on African elections, and T3 on American taxes. The following example illustrates how T2 attempted to link African politics to recent international news by asking students to postulate why U.S. President Obama, whose father was born in Kenya, refused to visit this country:

> T2: Kenya is democratic but -with a lot of problem…. What was the-problem- of Kenya?=
> SIF: = (xxx) malnutrition
> T2: OK, malnutrition.= You know…Those are just excuse problems. Kenya's biggest problem- for Kenya right now- is- >the world richest country's-president-called- Obama.< [His] father came from Kenya-, but he refused

to visit- there…Why?

(Politics in University A)

The use of open questions ("What was the problem of Kenya?") successfully engaged students in guessing a possible answer. Though the answer was established by the instructor in the form of a display question, students reasoned in this guessing game with an attempt to link what they had learned at school to real life situations. Indeed, it is such open questions that can not only elicit more student responses but also help link the real world and abstract concepts (practice and theory).

5.3 Amplifying

As one of T2's students articulated, "I believe that T2 is pretty fluent in English, but in order to enable local [domestic] undergraduate students to understand the content, he deliberately chooses simple words or popular examples." On the surface, according to both instructors and students, *simplifying* or choosing words comprehensible to students but not necessarily speaking slowly, is an effective principle. However, given the distinction between spoken and written language, as well as everyday and academic registers (Cummins, 2000), a more plausible explanation for "choosing simple words" may be *amplifying* (Walqui, 2006; Walqui & van Lier, 2010). In this study, amplifying is understood as instructors' provision of multiple opportunities for students to access the same concepts or languages within a class period or across class sections to enhance their comprehension of disciplinary content in English (i.e., remembering and comprehending). Introducing abstract meaning of the written texts in a more comprehensible context requires curriculum planning on the macro level, the use of interactive lectures and group discussions on the meso level, and the adoption of different learning aids on the micro level.

5.3.1 Macro-level planning

In recognition of students' unfamiliarity with the form and meaning of a new concept, the same concept or keyword might be repeatedly mentioned, re-introduced, or re-explained to promote comprehension and retention. As T2 expressed, "When I repeated mentioning the countries in the Third World, they [students] know the existence of these countries…. One day they will remember which country is which." As such, T2 repeatedly mentioned these countries with

the aid of the map in class and required students to memorize all the Third World countries for an exam. Such results support previous findings that repetition, or reoccurring of the same concept or term in different contexts, functions as a significant principle of curriculum design (Coyle, 2007; Coyle et al., 2010; de Graaff et al., 2007; Walqui, 2006; Walqui & van Lier, 2010).

5.3.2 Meso-level activities

Within each unit, instructors might use different activities to increase the accessibility of texts in English and reduce students' anxiety to learn content in English, most of which used Chinese as mediation. For example, T1 required students to preview the assigned (English) reading and then pose questions, responses, and reflections in either Chinese or English on the on-line discussion platforms, thereby providing input and time for processing academic knowledge in a foreign language and paving the way for group discussion in Chinese in class. After the discussion in Chinese, T1 would lecture in English. By providing multiple access opportunities, T1 aimed to enhance students' understanding of academic texts and reduce their anxiety to communicate in English. Although students appreciated such discussions, a one-hour lecture in English drained their attention. As one of T1's students explained,

> I don't know if students are afraid of English, so when the instructor was lecturing, the class was quieter. Some students were staring at the screen, being unable to concentrate. I sometimes felt the same way. Plus it's English. Without attention, it [T1's lecturing] is like background music.

In this respect, decreased attention spans in the L2 deserve attention in the meso-level planning of activities.

5.3.3 Micro-level techniques

Micro-level analysis has verified the usefulness of the adoption of audiovisual aids, translation in native language, and mode-shifting (cf. Gibbons 2002, 2003, 2009). For example, such visual aids as maps, formula, tables, figures, and pictures often accompanied explanations to aid comprehension. As one of T2's students explained,

> If he's [T2] talking about a particular country [in Africa], and we're not that familiar with its location…. But, with the map, we can completely understand…. It makes it easier for us to connect those contributory factors

[to particular historical events].

In addition, translation of technical terms into the native language, in this case Chinese, fostered students' comprehension. As one of T3's students explained,

> I can understand! It's magic! Because I thought it's a content course [taught in English], but probably because the instructor talked slowly… and sometimes… like technical terms, the instructor would translate them into Chinese and also write it on the blackboard. So you'd understand what he's talking about.

Yet not all the translation in Chinese was deemed effective. T4 initially lectured all in English, but when he observed students' puzzled facial expressions, he re-explained the concepts in English to international students and in Chinese for Taiwanese students. Such repetition, albeit time-consuming, was well-received by students. Even so, both the instructor and students still worried material had not sufficiently been covered. Also, the students might not listen to lecture in English. As one of T4's students admitted, "The instructor lectured once in English and once in Chinese. So I simply pay attention to the Chinese part." Such reaction was noticed by T4, and hence in our second interview, he expressed the decrease of switching to Chinese. In this context, it is noted that Gibbons (2002, 2003, 2009) discerns that amplifying or message abundancy does not mean "pure repetition" but recontextualizing a concept. To this end, providing Chinese-equivalent explanations may not achieve the desired goal without the use of other techniques.

The most important form of the micro-level amplifying is called recontextualization through mode shifting, referring to the change of written or spoken discourses or one academic text with another (Gibbons, 2002, 2003, 2009). The instructors paraphrased the written texts using mode-shifting, which often occurs with a combination of audiovisual aids, graphic organizers, and Chinese translation. Table 2 illustrates how T3 paraphrased the written texts of "equilibrium in game theory" by using less complex sentence structures, passive voice, and abstract words. The left column of Table 2 represents excerpts explaining "equilibrium in game theory" from the textbook shown on the PowerPoint slide. Note that this explanation includes an embedded sentence structure with passive voice and abstract words or phrases ("economic actors"). The right-hand column represents T3's mode-shifting through paraphrasing by using conditional sentences

with active voice and concrete words or phrases ("player"). Likewise, when explaining game theory, T3 read aloud the written texts on the PowerPoint slides with the direct Chinese translation, followed by the conditional sentence with active voice and everyday language ("think" instead of "consider"). In doing so, he was able to simplify complex academic texts in English for his students.

Table 2 An Illustration of T3's Mode-Shifting

Written text	Spoken text
A *Nash equilibrium* is a situation in which economic actors interacting with one another each choose their best strategy given the strategies that all the others have chosen. *Game theory* is the study of how people behave in strategic situations. Strategic decisions are those in which each person, in deciding what actions to take, must consider how others might respond to that action.	T3: So now for the equilibrium in the game… if the other player doesn't change the strategy, then this player is going to follow that strategy all the time, the player doesn't want to change, so that is the equilibrium. T3: … so for the game theory, it is "a study of how people behave in a strategic situation," ((T3 reads the PowerPoint slide.)) *Zai yi ge ce lue de quing kuang zhi xia, ni yao ze me qu*[4] behave, "and strategic decisions are those in which each person, in deciding what actions to take, must consider how others might respond to that actions." ((T3 reads the PowerPoint slide.)) To know when you are doing one action, you ought to think about how other people are going to react, and if you know how they are going to react, then you can modify what you have to do right now…. (Economics in the ETP in University A)

Indeed, the results of this study confirm previous findings of amplifying as a significant pedagogical principle (Gibbons, 2002, 2003, 2009; Walqui, 2006; Walqui & van Lier, 2010), with an aim to obtain content and cognitive objectives.

Table 3 summarizes three principles used by the instructors at the macro, meso, and micro level, with their corresponding objectives. The consideration of content, cognitive, and culture objectives reflects that these instructors consider themselves subject-matter instructors responsible for increasing novices' academic abilities and socialize them into academia (Huang, 2012).

[4] "Zai yi ge ce lue de quing kuang zhi xia, ni yao ze me qu" is a Chinese-equivalent phrase for "in a strategic situation, how people," which is in need of a verb. This explains the reason that T3 code-switched to "behave."

Table 3 Multi-layered Guidance Used by Instructors

	Objectives	**Macro-level designs**	**Meso-level activities**	**Micro-level techniques**
Engaging	Content Cognitive	A predetermined syllabus	Lectures Group activities	Guiding questions Narratives
Bridging	Content Cognitive Culture	Establishing a personal link between students and subjects Building on students' prior knowledge Establishing a link between subject matter and reality Providing culturally responsive teaching	Lectures about international or national news Exercises in group activities	Narratives Metaphors Analogies Translation into native language Guiding questions
Amplifying	Content Cognitive	Repetition, or reoccurring concepts or terms in different contexts	On-line discussions Lectures Group activities	Audiovisual aids Mode-shifting Translation into native language

5.4 Language Use as a "By-Product"

The above section showcases that instructors attempt to achieve content, cognitive, and cultural objectives with the focus on the language *of* learning, i.e. technical concepts.Language use *through* and *for* learning becomes a "by-product" (cf. Fortanet-Dómez, 2010) presumably because instructors and students believe that the primary pedagogical goal of a content teacher is to aid in subject-matter not language learning. As T1 expressed, "I don't think students are learning English [in EMI courses]…. English learning in this class is simply a by-product," and as T2's student explained, "I'm not here to learn vocabulary such as political independence…; I'm here to learn about how it [xxx government] functions." As such, language learning was believed to be achieved through learners' exposure to comprehensible input with positive emotions (Pecorari et al., 2011; Yeh, 2013), and hence language-learning objectives were rarely explicitly planned at the macro-level design of the curriculum. It is unsurprising that the instructors' and students' perceived improvement lies primarily in cognitive and receptive language skills. Their limited attention to language objectives may indicate an underestimation of the intricate relationship between content and language, and hence clarification should be provided for both content teachers and students.

Even if explicit language instruction and correction were provided, this study reveals that they were not viewed as effective by most students. The curriculum planning for language instruction and correction included (a) requiring students to

read aloud and correct their mispronunciation by providing reformulation questions in T1's course and (b) explicitly but incidentally teaching synonyms and antonyms related to politics and their significance in academic writing and speaking in T2's class. Such responses may be due to the emphasis on the language *of* learning at the lexical level (i.e., meaning and pronunciation of a word), not the language *for* or *through* learning (i.e., the formulaic expressions and discursive or pragmatic notions of language NNES students need to answer/pose questions, define a term, explain an idea, or perform an academic task in English). As such, the type of language objectives and the ways to achieve them require further investigation (Coyle, 2007; Coyle et al., 2010; de Graaff et al., 2007; Fortanet-Dómez, 2010; Pecorari et al., 2011).

The only useful form of error correction found in this study is recasting, but it often occurred without signaling student reformation; recasting was effective yet limited in language use. In the following text, T2 meant to express a person with a spine or a backbone, and joked about "taking calcium," implying knowledge that the word "bone" in Chinese is a homophone for "manhood" in English. "Taking calcium" implies doing so to strengthen "bones." This use of Chinese knowledge as a foundation did not hinder the male Taiwanese student's understanding, since he attempted to engage in the conversation by uttering "show your bone*," which suggests he did not know how to express "integrity," "backbone," or "manhood" in English. This inaccurate usage caused by direct Chinese-English translation was then reformulated by T2:

> T2: Should we send you some- <u>calcium</u>? You understand? Calcium. You know? Because you don't have a <u>spine</u>….We need some calcium.
> STM: Show your bone.*
> T2: Show your- yeah, <u>manhood</u>, please.
>
> (Politics in University A)

Students with lower levels of English proficiency (like the male student in this case) appreciated T2's linguistic support. As he expressed, "at least I know what that word means." Yet without a follow-up move for comprehension checks, recasting rarely provides students space for reformulation or opportunities to use English with a longer turn. Indeed, NNES content teachers carry the burden of language modeling to achieve communication but not language use/learning (Smit, 2010).

In addition, the opportunities to experiment with academic language in different contexts are limited. In the case of this research setting, students were allowed to write or speak in Chinese and were rarely required to reformulate their responses, let alone appropriating texts in different registers or developing metacognition, as indicated in Walqui (2006).

Limited opportunities for language use indicate several dilemmas faced by NNES content teachers, with one of the most common concerns being domestic students' fear of speaking in public (Huang, 2012; Yeh, 2013). T1 and T4 believed that students were not proficient enough to interact in English. In particular, T1 believed that students learned content in English by listening before speaking, and hence, he hoped students would learn how to ask questions in English. In addition, T3 believed that Economics was a foundation course, which should be taught by lectures not solely in discussions. Both T1 and T4 voiced concerns that the large class size also inhibited class discussions. In this sense, students' opportunities to use language are constrained by such factors as ethnic cultures, nature of subject matter, teacher beliefs, and class size.

Given the pedagogical significance of language use and contextual concerns, instructors should not lower their expectations of students' academic performances in English (cf. Walqui, 2006; Walqui & van Lier, 2010). Instead, multi-layered guidance must be employed to help students to accomplish increasingly difficult tasks in English with increasing demands in English use and with explicit instruction on language *for* and *through* learning, which can considered in one lesson, course, or program. In so doing, we hope that student responses in English can be encouraged with adequate support.

6. Implications

In recognition of the pedagogical significance of research on effective EMI, this paper explored four competent Taiwanese university instructors' classroom practices to illustrate effective guidance for student learning. This paper identified multi-layered use of engaging, bridging, and amplifying to achieve content, cognitive, and culture objectives, with an emphasis on the language *of* learning instead of language *for* or *through* learning. The findings also indicate that these instructors recognized the linguistic, cognitive, and affective demands of learning content in English. Although language learning was a by-product of these content

classes, foreign language use was encouraged but limited. To that end, explicit language instruction and correction, albeit incidental or planned, were considered ineffective unless given in a context that was perceived meaningful and relevant to learners (e.g., recasting). Limited language use opportunities may be due to such factors as ethnic cultures, nature of subject matter, teacher beliefs, and class size. Such results suggest that even skilled NNES content teachers were limited in facilitating language use, underscoring the primacy of the collaboration between content and language teachers to achieve the dual goals of content and language development. In this respect, we suggest that NNES content teachers' EMI can be facilitated through joint efforts between content and language teachers.

To begin with, this study shows that both NNES content teachers and students may have misunderstandings about teaching content in English, and thus clarification is necessary in mentoring with the aid of language teachers. In this respect, this study reminds us that language and content learning cannot be dichotomized, and hence careful planning of content, cognitive, linguistic, and cultural objectives should be taught. Attention should be drawn to facilitating not only the language *of* learning (e.g., academic concepts) but also language *for* learning (e.g., discussing in groups and writing a short essay) and language *through* learning (e.g., explaining and defining). Benefits will be gained by knowing *how* to provide *appropriate* corrective feedback, with a focus on eliciting more frequent and longer student responses, as well as the pragmatic and discursive notions of language. Additionally, this study underscores that effective guidance in EMI should be multi-layered and multi-modal; that is, any strategy or activity may not be as effective as expected if it is isolated from other types of assistance, such as the use of the L1, simple words, and lectures. In so doing, we hope to develop a better understanding of teaching content in English.

Second, it is critical to extend NNES content teachers' expertise to develop culturally and linguistically responsive courses through modeling. Competent NNES content teachers' classroom practices showcasing effective guidance can be identified in collaboration with language teachers based on the principles found in this study. In particular, NNES content teachers are advised to design interactive lectures and group discussions containing diverse tasks for language and content learning. They should also be skilled at guiding students to realize knowledge relationships through display questions and mode shifting (via paraphrasing).

Additionally, it is also important to know how to elicit more student responses through open questions and experiences (in a narrative form) related to and/or novel to students. The awareness of how to maximize student responses (participation) via student reformulation can also be explored with the aid of language teachers.

In addition to instructor support, NNES content teachers need to recognize that facilitation can also come from peers in both group discussions and interactive lectures, be they in Chinese or in English. As such, selections of materials and examples from diverse cultural backgrounds and explanations of cultural differences are pedagogically significant for academic socialization. Explaining, questioning, story sharing, and exchanging opinions or information between learners should be encouraged for better cultural, cognitive, and language development. Such interaction underscores learners' content expertise, with language being considered as shared communication venue (cf. Smit, 2010).

7. Conclusion

Rapid EMI growth does not promise effective teaching practices; thus, many NNES content teachers and students are left to struggle alone in the classroom. This qualitative case study attempts to model effective EMI by researching four competent Taiwanese university instructors' practices triangulated with students' perceptions. The identification of multi-layered use of engaging, bridging, and amplifying may provide directions for future professional development. Even so, this paper by no means claims the generalizability of these principles to all contexts. The use of guidance is contingent and hence left for university instructors who perceive relevance in application. Moreover, the findings that even competent instructors' practices do not guarantee effective guidance perceived by students or supported by research confirm previous literature that universities are obligated to train instructors to address the related difficulties, and more platforms to discuss and implement research-informed practices are needed (Dafouz et al., 2007).

Despite its contribution to EMI, this study has limitations. Given that our primary aim is to identify effective guidance for future teacher development, students' learning processes are beyond the scope of this study. The discord between students and instructors in effective guidance, however, prompts future researchers to explore how students learn content via English through instructors'

use of guidance. Also, although we recognize the significance of peer dialogue in previous literature (Gibbons, 2002, 2003, 2009; Walqui & van Lier, 2010), this study's sole focus on expert-novice dialogue represents a compromise with the difficulties encountered in data collection (e.g., the overlapping schedule and content teachers' feelings of discomfort and rejection of observations). On this account, future research can examine the ways instructors, peers, and students themselves support one another's content and language development in group discussions. Research in these directions would not only enrich our understanding of classroom practices but also promote NNES content teachers' professional development.

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Appendix

Transcript conventions adapted from Atkinson and Heritage (1999).

[ ]	overlapping utterances
=	contiguous utterances
–	a short un-timed pause
> <	a quicker pace
(())	an explanation of the circumstance
xxx	inaudible passage
xxx	emphasis
*	wrong use
S(s)	students
T	teacher
STM	a Taiwanese male student
SIF(M)	an international female (male) student