

# Chapter 11

## EMI Course Assessment: A Survey Study of the Issues

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### 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

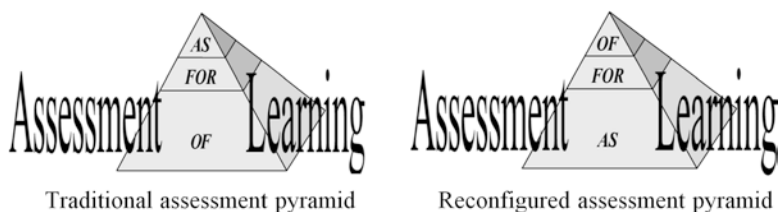


Fig. 11.1 Traditional versus reconfigured assessment pyramids (Earl and Katz 2006)

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
<b>English as an instructing medium for content learning (53%)</b>	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	
<b>English as an instrument for the training of academic skills (34%)</b>	Department of Finance	Weekly assignments
	Department of Business Administration	Case study analysis
	Department of Information Management	
	Department of Tourism Management	
	Department of Electrical Engineering	
<b>English to facilitate the creation of an English environment (13%)</b>	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
<b>Assessment of learning</b>	Provide evidence of achievement to parents, educational institutions, and students themselves.	Summative assessment	Term project
			Written exam
			In-class quizzes
			Weekly assignments
<b>Assessment for learning</b>	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
<b>Assessment as learning</b>	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
<b>Basic user (A1–A2)</b>	<i>Test item</i>	<i>Test item</i>
	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.
	<i>Function</i>	<i>Function</i>
	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.
<b>Intermediate user (B1–B2)</b>	<i>Test item</i>	<i>Test item</i>
	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.
	<i>Function</i>	<i>Function</i>
	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.
<b>Proficient user (C1–C2)</b>	<i>Test item</i>	<i>Test item</i>
	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.
	<i>Function</i>	<i>Function</i>
	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
<b>Basic user (A1–A2)</b>	<i>Test item</i>	<i>Test item</i>
	Ask students to provide narration to pictures	Ask students to organize the reading content in short phrases or bullet points.
	<i>Function</i>	<i>Function</i>
	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.
<b>Intermediate user (B1–B2)</b>	<i>Test item</i>	<i>Test item</i>
	Assign students to pair work activities that contain information gaps.	Ask students to write summaries of assigned readings.
	<i>Function</i>	<i>Function</i>
	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.
<b>Proficient user (C1–C2)</b>	<i>Test item</i>	<i>Test item</i>
	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.
	<i>Function</i>	<i>Function</i>
	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<sup>1</sup> 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

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<sup>1</sup> 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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