Empowering local bilingual teachers through extending the pedagogy of multiliteracies in Taiwan's primary education

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Abstract

In 2018, Taiwan announced a bilingual education policy. Since then, bilingual teacher development has been a national priority, which has created anxiety and concerns among local Taiwanese teachers, who are expected to teach in the English medium. By extending the core values, design principles and inspired practices from New London Group's (1996) pedagogy of multiliteracies (PoM), we present how a local Taiwanese teacher in a Grade 1 content and language integrated learning mathematics class successfully leveraged translingual and trans-semiotic resources in an English-as-a-foreign-language context, which in turn facilitated learners' multilingual production. The findings show that trans-semiotizing helps bilingual teachers effectively deliver and support content learning, whereas translanguaging enables bilingual teachers to create a positive environment which encourages learners' multilingual production. This study provides an opportunity for Taiwan's educators to productively navigate problems arising from the bilingual education policy and native-speakerism in Taiwan through creatively adapting the PoM. This study concludes with directions for bilingual teacher education.

Key words: Pedagogy of Multiliteracies, translanguaging, multimodality, bilingual education, primary education, Taiwan

Résumé

En 2018, Taïwan a annoncé la politique d'éducation bilingue. Depuis lors, le développement des enseignants bilingues a été une priorité nationale, ce qui a créé de l'anxiété et des inquiétudes parmi les enseignants taïwanais locaux, qui sont censés enseigner en anglais. En étendant les valeurs

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fondamentales, les principes de conception et les pratiques inspirées de la pédagogie des multilittératies (PdM) du New London Group (1996), nous présentons comment un enseignant taïwanais local dans une classe de mathématiques d'apprentissage intégré du contenu et de la langue de première année a réussi à tirer parti des ressources transsémi otiques dans un contexte d'anglais langue étrangère, ce qui à son tour a facilité la production multilingue des apprenants. Les résultats montrent que la transsémiotisation aide les enseignants bilingues à fournir et à soutenir efficacement l'apprentissage du contenu, tandis que les pratiques de translanguaging permettent aux enseignants bilingues de créer un environnement positif qui encourage la production multilingue des apprenants. Cette étude offre aux éducateurs taïwanais l'occasion de résoudre de manière productive les problèmes découlant de la politique d'éducation bilingue et du locuteur natif à Taïwan en adaptant de manière créative la PdM. Cette étude se termine par des recommandations pour la formation des enseignants bilingues.

Mots-clés : pédagogie des multilittératies, translanguaging, multimodalité, éducation bilingue, enseignement primaire, Taiwan

摘要

雙語教育為台灣的重要政策, 本研究認為新倫敦小組（The New London Group, 1996）多元識讀教學法（PoM）的核心價值觀、設計與實踐應融入臺灣雙語教育。本文透過學科內容與語言整合(CLIL)數學課程分析雙語教師如何在以英語為外語的語境(EFL)中擴展實踐PoM。研究結果顯示, 跨符號有效輔助雙語教師提供學科內容, 而跨語言使用創造一個鼓勵學習者多語產出的友善環境。

關鍵字 : 多元識讀教學法、跨語言溝通策略、多模態、雙語教育、初等教育、臺灣

Introduction

It is well established that a primary aim of the 21st century classroom is to equip students with the competence to engage globally and participate in today's interconnected, complex and linguistically diverse societies. One of the competences that policy makers stress is the ability to communicate effectively in global contexts. To foster bilingual talents, Taiwan's Ministry of Education (MOE) announced its commitment to implement "full scale bilingualization of Taiwan's educational system" (MOE, 2018, n.p.). The bilingual program, which does not replace but complements students' English classes at school, aims to provide more opportunities for students to learn and use the target language in content classes and real-life situations. With bilingual education, it is

the hope of policy makers that Taiwan's English learners not only gain more experience using English to learn and to communicate, but develop global competence, learning to "appreciate and respect different peoples and cultures and be ready to engage in international affairs with confidence and insight" (MOE, 2018, n.p.).

With full bilingual implementation as the goal, the MOE encourages schools in all educational levels, from K–12 to higher education, to introduce bilingual programs. For primary and secondary schools, teachers are to focus on daily English use, build learners' listening and speaking skills, and "promote CLIL (Content and Language Integrated Learning) in designated primary and secondary learning domains or subjects" (MOE, 2018, n.p.).

Originally developed and adopted in many European classrooms, CLIL features the integration of content and language learning. Advocates of CLIL believe that the two aspects of learning complement each other, creating synergies which translate to greater learning outcomes than traditional English or content classes with a single purpose (Ball et al., 2015). CLIL promotes integrative learning of 4 aspects (4Cs): content, communication, cognition and culture (Coyle, 2015). These 4Cs show the strength of its approach in preparing learners for interdisciplinary learning, authentic communicative skills, critical thinking and awareness of culture, which educators consider crucial for today's multilingual and multicultural world.

The MOE's bilingual education policy has received popular support, with more than 1,000, or approximately one-third of public schools launching bilingual programs within three years of the 2018 announcement (Hsu, 2021). Meanwhile, teacher education of pre-service and in-service teachers has become an urgent task. The MOE faces the problem of recruiting enough local teachers for implementing CLIL. The reluctance of local teachers to sign up for bilingual teacher training is mostly a result of a lack of confidence in speaking and using English. This might be an effect of native-speakerism (Holliday, 2006), a pervasive ideology which views native English-speaking teachers (NESTs) as ideal English teachers and native-like language use as the ultimate learning goal. In Taiwan, many parents and students expect local teachers to speak with native-like American accents in their classrooms. In addition, bilingual education being an emerging trend, the MOE is also in search of enough provisions to train local teachers to implement CLIL. To this date, there are limited models of support at the national level.

It is against this background that the current classroom interaction analysis has been conducted. In the following, a brief overview of Taiwan's bilingual education and the challenges of implementation will be discussed. To counter these challenges, it is important to find a model where local teachers can be trained and empowered as CLIL teachers. In this respect we draw on the ped-

agogy of multiliteracies (PoM) to demonstrate how local Taiwanese teachers can design and implement the CLIL approach in their classrooms. We propose that PoM can play a key role in Taiwan's bilingual education and CLIL classrooms as a way to empower local teachers to be confident designers of their lessons countering the myth that native English speaker teachers are the ideal teachers to carry out CLIL.

For this reason, we collaborated with a local Taiwanese teacher to explore the adaptive use of PoM. We illustrate with an example of a Grade 1 CLIL math classroom to show how a PoM can support CLIL teachers in English as a foreign language (EFL) contexts, where both teachers and learners are using English as an additional language. The linking of theories and classroom analysis enrich our understanding of not only how PoM-inspired theories and practices can empower bilingual teachers in CLIL, but also how these theories can help teachers counter English native-speakerism.

Policy context and challenges of bilingual education in Taiwan

This section provides the larger context of Taiwan's English and bilingual education and discusses challenges of CLIL implementation which are associated with English native-speakerism.

Taiwan's English and bilingual education

Taiwan's bilingual education is best understood by differentiating between the respective goals of its English and bilingual education. As discussed, Taiwan's bilingual program does not replace the existing English language curriculum, but aims to complement it with additional and meaningful exposure through CLIL, i.e., through additional classes where content is taught in the medium of English. While parents and students have always valued and invested a great deal of resources in English learning, the MOE and educators have observed several problems in the current English education system. First among them is related to limited learning outcomes. Driven by high-stake tests for high school and college admission, the curriculum design of Taiwan's English classrooms has mostly focused on testing vocabulary, grammar, reading, listening and writing skills. This type of learning inadvertently encourages memorization and repetitive practices, which favour a certain type of learner, while affording few opportunities for active learning or critical thinking. Aspects that cannot be easily tested on the paper-based examination, for example oral communication, have not been prioritized.

As a society, this test-driven approach has inadvertently led to social inequality. In Taiwan, there is a "twin-peak phenomenon," believed by some to be perhaps the "most noteworthy issue" in Taiwan's English education (Chen & Hsieh, 2011, p. 95), where students with greater financial resources receive

additional training outside of school. While a small group of learners perform exceptionally well in tests, many more are left behind, unmotivated and lacking resources for improvement. Unfortunately, as long as students are required to take accuracy-driven high-stakes national tests, which include the English language subject, upon graduating from junior and senior high schools, the English curriculum will always be designed with the enhancement of learners' test performance in mind.

Recognizing this problem, the MOE introduced bilingual education programs in the hope that students can receive additional and meaningful exposure of English through CLIL. The integrated approach provides an opportunity for students to learn the target language (English) by utilizing content knowledge or life experience they have already acquired through their first language (Chinese). With its focus on 4Cs, CLIL has the potential to help learners develop global competence, which is a key aim of Taiwan's bilingual education. For instance, with CLIL's emphasis on cognition, students learn the additional language while developing thinking skills through more cognitively challenging and stimulating tasks such as classifying or problem solving. Students can apply their new and existing lexico-grammatical resources, while performing content-related tasks.

Because the MOE hopes that more schools launch CLIL lessons, it has allowed pilot schools the flexibility to choose the grade levels and school subjects they wish to implement CLIL in. Schools can also decide the percentage of Chinese and English use in their CLIL curriculum based on the level of content difficulty and students' English language proficiency. Most primary schools have selected lower grades to implement CLIL. The subjects commonly adopted for CLIL include life skills, health and physical education, and arts and performance.

In sum, it is perhaps irrefutable to say that as a school subject, English language education in Taiwan focuses on grammatical accuracy and test performance, whereas bilingual education aims at motivating target language learning and fostering global competence through CLIL. For the latter, the communication goal is to achieve fluency and intelligibility rather than grammatical accuracy, and thus negotiating meaning is an important ability. Even though English and bilingual education programs have very different goals, many policy makers and parents still equate internationalization as Englishization, and consider the all-English or English-only approach as the ultimate goal for both (Chen et al., 2020). As we will show in the following, the misguided expectation presents major challenges for Taiwan's recruitment and training of bilingual teachers.

Challenges in Taiwan's bilingual teacher recruitment and development

An overview of Taiwan's English education history reveals the strong influence of English native-speakerism. National language policies often reflect this ideology which privileges inner circle English language norms (Kachru, 1992) and native English speaker teachers (NESTs). This is evidenced by the MOE's plan to recruit more than 300 NESTs between 2021 and 2024 and to implement all-English or English-only instruction in Taiwan's primary and secondary English language subject classrooms by 2030 (MOE, 2021). During the same policy announcement, the MOE indicated that the goal for bilingual education is for selected elite high schools to achieve all-English instruction in CLIL by 2030.

The policy was announced despite the fact that educators around the world have witnessed the phenomenon of English as a lingua franca (ELF), or, more recently English as a multilingual franca (EMF), and recommended ELF-aware language policies and curriculum design (Jenkins, 2019). ELF and EMF describe the communication and interaction in the global context among people of different cultural and linguistic backgrounds. As stated by Chen et al. (2020), for Taiwan to build global talent, it is important to build bilingual education programs with ELF perspectives, rather than native speaker norms. This perspective must be adopted through appropriate curriculum design. This means that key aspects of global communicative competence, such as intercultural awareness and the ability to utilize one's multilingual and multicultural resources in effective communication, should be the aims of bilingual education rather than unreasonably following idealized native-speaker norms. Therefore, Chen et al. (2020) suggests that an ELF-informed bilingual teacher education, with local teachers' empowerment as a primary aim, is crucial to successful CLIL implementation.

Currently ELF awareness is only slowly being developed among policy makers, educators and practitioners through bilingual teacher education programs. However, the influence of English native-speakerism still poses challenges to CLIL implementation. First, the ideology has affected local teachers' confidence and willingness to teach CLIL lessons. As most CLIL lessons in Taiwan involve integrating English learning in content classes, these classes are best taught by content teachers with specialized content knowledge. However, under the premise of the ideology, local teachers are marginalized because they lack native-like accents or native-like language use. To ensure success in Taiwan's bilingual education, policy makers need to find a way to recruit and prepare local content teachers for effective CLIL teaching.

In addition to native-speakerism, the second challenge of CLIL implementation is related to the gap between learners' content knowledge and target language proficiency. Given learners' emerging English literacy, it is difficult for

learners to acquire content knowledge if the instruction is delivered in English only. Therefore, CLIL is more commonly implemented in primary schools in Taiwan. This obstacle is especially true for upper primary and secondary students who need academic and discipline-specific English to comprehend more complex concepts. Local teachers need resources to navigate the problems associated with instruction and classroom interactions delivered through the target language.

As we will show in the following, effective CLIL teaching does not depend on native-like accents or language norms, but requires local teachers to make content accessible to EFL learners and to encourage learner output. In the following, we show how the theories and practices of PoM have the potential to help local teachers navigate these problems.

Literature review: PoM and multimodality

Pedagogy of multiliteracies as applied to CLIL in Taiwan

In this section we first define and explain the notion of multiliteracies. Then we briefly address how the original PoM notion is taken up by other researchers and how it has expanded since its first introduction. We then elaborate how this is relevant in the context of Taiwan. Having observed the diversity and complexity of today's globalized societies, founders of PoM, commonly known as the New London Group (NLG), called for a revision of the traditional way of viewing literacy as the ability to read and write in a national language, believing this singular notion of literacy was outdated and in need of reconceptualization (NLG, 1996).

To the NLG, departing from singular literacy to plural literacies has meant that learners not only understand information generated and presented through different modes of communication, but also engage in critical evaluation of the information to make changes in society. To achieve these aims, PoM highlights four key pedagogical aspects: *situated practice*, *overt instruction*, *critical framing* and *transformed practice*. These terms reflect the core values of the approach, which includes:

1. situating learning that incorporates students' own life experiences,
2. direct teaching of social semiotic awareness in order to help learners understand the components of expressive forms or grammars,
3. encouraging and supporting students in questioning and critically assessing common sense assumptions found within discourses,
4. facilitating changed beliefs or behaviours resulting from learners' new understanding and engagement with the above-mentioned situated practices. (NLG, 1996)

Of the multiple literacies, two dimensions were highlighted in our study: the multilingual and multimodal (Cope & Kalantzis, 2009, p. 166). The multilingual dimension was a response to the significant phenomenon of multilingualism in the context of globalization. The implication for literary education is that language curriculum expands from teaching formal rules of a single national language to include learning of minority languages, social languages in different settings and the multiple Englishes in use. Similarly, the multimodal dimension was highlighted as it responded to the phenomenon where information is transmitted through different modes of communication (e.g., oral, visual, audio, facial gestural, etc.). Accordingly, an important aspect of teacher education programs should focus on enabling teachers to build and utilize their multilingual and multimodal resources in CLIL.

Multimodality

Coined by Kress and Van Leeuwen (2001), multimodality calls attention to how meanings shift backwards and forwards across and between different forms. Tang's (2020) recent study contributes to the discussion of multimodality by identifying two different discourse patterns of activities operating at different timescales of classroom events. The first pattern is related to the representation of content information from one semiotic mode to another (e.g., speech, writing, image, gesture, etc.). The study discusses five categories of semiotic modes commonly found in science classroom: verbal-linguistic, visual-graphical, mathematical-symbolic, gestural-kinesthetic and material-operational modes (p. 124). Understanding how information can be transformed from one semiotic mode to another helps teachers to be more resourceful in presenting and delivery content.

The second pattern identified by Tang (2020) is related to production. The study shows how teachers and students integrate different modes to make meaning. To encourage and facilitate learning of students-generated multimodal representation, teachers may use strategies which promote cognition, such as comparison, reasoning, mapping, etc. These tasks often require learners to solve a problem, and in the process of problem-solving, teachers help students negotiate meaning and gradually acquire language proficiency.

The two patterns clearly show how multimodality support teachers in content delivery, and how teachers and learners co-construct output by integrating different modes of meaning making. Therefore, multimodality could be an important scaffolding tool for bilingual education in Taiwan, where teachers need to present content information to young learners who are emerging bilinguals.

In the following, we propose that recent theories inspired by PoM could enhance CLIL implementation in Taiwan (Coyle, 2018; Lotherington, 2012). The pedagogy is particularly relevant in Taiwan because local teachers can uti-

lize their multilingual and multimodal resources to support instruction. However, PoM needs to be combined with recent developments in translanguaging, especially in the Taiwan context where teachers and students usually share a common first language.

Theoretical framework: Extending PoM through promoting translanguaging in the classroom

Since the 2010s, as researchers of social semiotics have departed from the notion of code-switching, which viewed languages as different systems with boundaries, the concept of translanguing has been explored and become a key concept in both social semiotics and bilingual education. Studies have shown that translanguaging happens in every facet of one's social life and that the use of one's "multilingual, multisemiotic, multisensory, and multimodal" repertoires in thinking and communication is common (Li, 2018, p. 26). By looking at the intersecting modes, sociolinguistics has observed and identified social semiotics which are commonly employed to include body, space, gesture, senses and objects.

Translanguaging has contributed greatly to the classroom practice of bilingual education. The traditional view of language learning has considered learners' first and additional languages as separate systems, and the mixing of these systems in the language classroom should be avoided as they may interfere with one another, causing errors as learners acquire an additional language. Findings from social semiotics, discussed previously, have enabled educators to reconceptualize the role of the learner's first language in language classrooms. Given that translanguaging is a common phenomenon in everyday thinking and communication, teachers should be encouraged to use "multiple discursive practices" to help bilingual students engage in learning and to "make sense of their bilingual worlds" (García, 2009, p. 45).

In the present discussion, translanguaging is used to extend the scholarship of PoM, which was developed more than ten years ago and is in need of an update. Theorists of translanguaging have introduced several concepts which could be seen as aligned with the core values and design principles of PoM such as incorporating learners' life experience. Li Wei's (2011) "social space," where bilingual teachers encourage learners to bring together "different dimensions of their personal history, experience and environment, their attitude, belief and ideology, their cognitive and physical capacity" is one such example (Li, 2011, p. 1223). It echoes PoM's *situated practice*, which suggests that classroom should reflect learners' life experience and the social ecology of multilingual use.

Another PoM-inspired theory is the notion of trans-semiotizing (Lin, 2019), which complements multimodality theory by highlighting the dynamic pro-

Figure 1

The Rainbow Diagram
(adapted from Lin, 2012, p. 93; reproduced with permission)

cesses in mobilizing multiple modes (or trans-semiotics, using Halliday's term [2013]). Awareness of trans-semiotizing means that bilingual teachers could provide a variety of multilingual and multimodal support dynamically to facilitate content learning of students with emergent L2 proficiency.

Lin's Rainbow Diagram (2012, p. 93; see Figure 1) illustrates how translanguaging and multimodality could be utilized in bilingual classrooms where a variety of communicative resources is synthesized. The diagram presents a model where linguistic resources (e.g., L1, L2, everyday and academic, oral and written language varieties and registers) and multiple modes of support such as visual and other multimodal and semiotic resources are strategically employed by teachers to facilitate learning. Such bridging materials allow emergent bilingual learners to access content knowledge in CLIL classes.

In the following, we present several examples in practice. Lin and Wu (2015) studied data from a junior secondary science classroom in Hong Kong to show how translanguaging can be effectively integrated with multimodal practices. They demonstrated how the teacher used both English and Cantonese with various gestures and drawings in blackboard, which in turn, facilitated students to better understand seemingly difficult and complex science content.

More recently, Lin (2019) analyzes science classroom data of secondary school students to show how trans-semiotizing contributes to dynamic flow of meaning-making and knowledge co-constructing in the CLIL context. The study shows how a dynamic flow of communication is achieved when teachers and students employed not only translanguaging but an expanded set of multi-modal resources such as visuals, body language, gestures, eye contact, etc.

Translanguaging as a pedagogy and theoretical lens (Lin, 2020) has opened an opportunity for local contexts to critically respond to the hegemony of native-speakerism in language education. These theoretical lenses guide us to design and implement a particular bilingual initiative in Taiwan elementary classroom where English is not traditionally used as the medium of instruction. In the following, we will show that:

1. the PoM-inspired theories and practices effectively support local CLIL teachers in content delivery,
2. these theories and practices engage students in learning and contribute to learners' multilingual production.

In doing so, we hope to identify important training topics to help Taiwan's teachers become proficient bilingual teachers.

Methodology

This study adopts the mini-ethnographic case-study design, a blended design that is bound in time and space and uses qualitative ethnographic and case study collection methods (Fusch & Ness, 2017). This approach is suitable for this study because it focuses on a specific moment when Taiwan shifts towards bilingual education with CLIL implementation. To gain a better understanding of the PoM-inspired practice, this research combines the qualitative ethnographic method and a case study of a primary CLIL classroom in Taiwan. The following briefly describes the context of this study, including the school, the participants, the CLIL lesson observed and the research methods.

Context of the school

The school, a public school located in the rural area in southern Taiwan, began their CLIL program in 2018. The school was among the first eight pilot bilingual schools in the city which launched the CLIL program in 2018. As discussed, although bilingual education is a top-down decision, during this pilot stage, schools can choose which subjects to integrate and the percentage of Chinese and English to use in instruction. The flexibility is essential because each pilot school has their own teacher profile and learner needs. For this reason, there are no textbooks. CLIL teachers are responsible for developing the lesson plans.

The topics of bilingual lessons in this school are mathematics, natural science and interdisciplinary topics related to local culture. For Grades 1 and 2, there were three periods of bilingual learning a week covering alternative curriculum and life education. For Grades 3 to 6, the number of weekly bilingual class period is increased to eight. CLIL subjects include alternative curriculum, mathematics, natural science, fine arts, health and integrated activities. As of Fall 2020, the student size was 372, including 190 male and 182 female students. The average class size is 25.

The participants

The learners in this study were first-grade students, who have four periods of mathematics per week, one of which is bilingual and takes place in the flexible periods (to be discussed). The math lesson topics between the bilingual and regular classes, conducted in Chinese, did not overlap. The students had been receiving bilingual lessons since they began grade 1. Before the class observation which took place, in May 2020, students had had nine months of bilingual lessons. In Taiwan, first- and second-grade students do not have English classes. At this school, bilingual classes are introduced in flexible periods, which, according to MOE guidelines, are set aside for alternative curriculum designed for either cross-disciplinary learning or topics related to local cultures. The school, along with many elementary schools in Taiwan, use these flexible periods for CLIL lessons because the teaching qualifies as alternative curriculum. As mentioned in the previous section, these students receive three bilingual lessons every week, one of which is mathematics.

The CLIL teacher (Teacher H) is a math teacher with 18 years of teaching experience in primary schools. She is a certified primary school teacher with a bachelor's degree in education. At the time of this class observation, she had taught bilingual lessons for three and a-half years. She also teaches regular math in Chinese. She attended two three-day CLIL training workshops, for introductory and advanced levels, provided by the city's Bureau of Education. Teacher H's English proficiency level is CEFR B2. According to the CEFR can-do statements, a B2 level user is a confident speaker of English who can express her own opinion and give a prepared presentation on a familiar topic.

The researchers were not involved in this CLIL lesson. We have worked closely with CLIL pilot schools as advisors and teacher trainers since the city first launched experimental programs in 2018. The researchers observed CLIL lessons at the pilot schools regularly to monitor progress.

CLIL lesson observed

In Taiwan, elementary schools are 20 weeks per semester. The bilingual school in this study schedules one class period of CLIL math per week. Throughout

Figure 2

An example of the graph poster produced by students

the semester, Teacher H taught four units of CLIL math, with each unit covering five lessons. One of these four units is graph making. The topics of the five lessons are Lesson 1 Sort and Tally; Lesson 2 Graph Making I; Lesson 3 Graph Making II; Lessons 4 to 5 Task Production. Each lesson is 40 minutes in length. An example of the students' final work, a poster containing a graph, is presented in Figure 2.

The math lesson observed for this study is the first lesson. The content objectives of this first lesson are for students to sort items by attributes and to count the number of items in each group. The language objective is for students to respond and finish the sentence. For example, when the teacher says "I can sort by . . . ," students' responses are "size," "colour" or "shape."

In this lesson, students learned to sort a group of items by attributes, such as by size, colour and shape. This lesson includes three activities. First, the teacher used garbage recycling, an idea familiar to learners, to demonstrate the concept of sorting. Students helped the teacher sort recyclable items into the paper, plastic and glass categories. Then the teacher announced there was going to be group work, with each group receiving a bag of tiles to sort. According to Teacher H, the teaching procedure is typical of her bilingual lessons. No adjustments were made to accommodate to class observation.

Research method and design

Data in this study were collected by classroom observation (Evertson & Green, 1986). The classroom observation took place on May 12, 2020. In Taiwan, due to successful control of Covid-19, classes continued to be conducted in person, with everyone in school wearing a mask at all times and following a strict protocol to stay safe. The lesson observed was open to teachers and researchers interested in bilingual teaching. The video recording focused on the teacher's instruction. To minimize influence of subjectivity and bias, the video recording was watched again post-observation. Both researchers watched the videos separately and compared their notes.

To answer the research questions, we selected and analyzed four excerpts from the first lesson period. The first two excerpts show how the teacher mobilized multiple linguistic and multimodal resources to scaffold young leaners in learning a math concept. The third and fourth excerpts illustrate how, when translanguging is allowed in bilingual classes, students engaged in active learning evidenced by their multilingual production. We transcribed the speech uttered by the teacher and students and noted the visual, body language and voice variation of the participants. Information on the transcription notation is provided at the end of this article.

PoM-inspired instruction to present content to young learners

Data from Excerpt 1 shows Teacher H introduced the concept of sorting with presentation slides and a bag of recyclable items. The instruction occurs at the beginning of the first class period.

Excerpt 1 (00:27 to 2:12)

Line	Speaker	Utterance
1	Teacher	Alright? And then, today we are going to do <u>sorting</u>. {T points to the first page of the presentation slide showing the topic sorting and pictures of colourful buttons sorted by colour.} Okay, everyone says <u>sorting</u>.
2	Class	Sorting.
3	Teacher	But you will say "huh? what is <u>sorting</u>?" We will see. {T points to her head indicating thinking}
		Okay, alright, look at this. What are these? {T presents and points to the next slide which shows two pictures of garbage dumps} <u>Garbage</u>. <u>Garbage</u>, okay?
		I have some garbage. {T walks away to the side of the room and brings back a paper bag.} Look. We have garbage, garbage, garbage. Garbage, okay? Garbage. Um.

		What are these? {T takes out recyclable items from the paper bag and put them on a front-row desk.}
4	Class	Garbage.
5	Teacher	Garbage. Okay. These, these are garbage. So, what should we do with the <u>garbage</u>? Should we put them together ={T brings her hands together to make a circle, indicating togetherness.}= or sort them? {T shows separateness with the gesture of putting things in groups, alternating between her right and left hands at a distance.}
6	Class	Sort them.
7	Teacher	Oh, very good! So we will do garbage <u>sorting</u>. {T shows another slide, which contains the phrase garbage sorting and 6 recycle bins.} So you see <u>sorting</u>? ={T points to the word sorting on the slide.} Okay. Let me see. {T points to her eyes.} you will see, okay? {T starts sorting the recyclable items into groups.} Okay maybe this one, a group {T points to paper}. Maybe this one {T points to plastic}?
8	S1	Teacher.
9	Teacher	And maybe this one here. And how about this? {T hands a newspaper to Debra to sort.} I can bring it there. Or you can maybe, Debra, paper can put together? {T gestures toward the paper group.}
10	Debra	{Debra puts the piece in the paper group.}
11	Teacher	So, we were doing <u>sorting</u>. Understand? Yeah. Okay, so these are garbage <u>sorting</u>. {T points to the slide with 6 recycle bins.} and Teacher H was doing garbage <u>sorting</u>, too.

In Excerpt 1, Teacher H first introduced the theme of this lesson (Line 1). Then, she raised the question what the word "sort" means to the students, which made her students to be aware of the theme of the lesson (Line 3). Then she demonstrated the sorting activity, first by herself, (Line 7) and then, with one student volunteer Debra (Line 10), which helps her students to understand what they should be doing next. Finally, the teacher told the students the main objective of this lesson and repeated the key words that students need to learn (Line 11).

The classroom data show that Teacher H employed a variety of resources from visual aids (Lines 1, 3, 7), repetitions of key words (Lines 1, 3, 5, 7, 11), real objects (Lines 3, 7, 9, 10), voice variation (Lines 1, 3, 7 ,11) and body language (Lines 7, 9, e.g., the act of putting recyclable items into groups). Her speech was supported by either her pointing to the presentation slides or gesturing the act of putting things in groups (Figure 3). Teacher H also repeated and emphasized two key words, "garbage" and "sorting," with a louder voice. The topic and key word, "sorting," was repeated eight times in Excerpt 1.

Throughout the lesson, the teacher requested students to answer key ex-
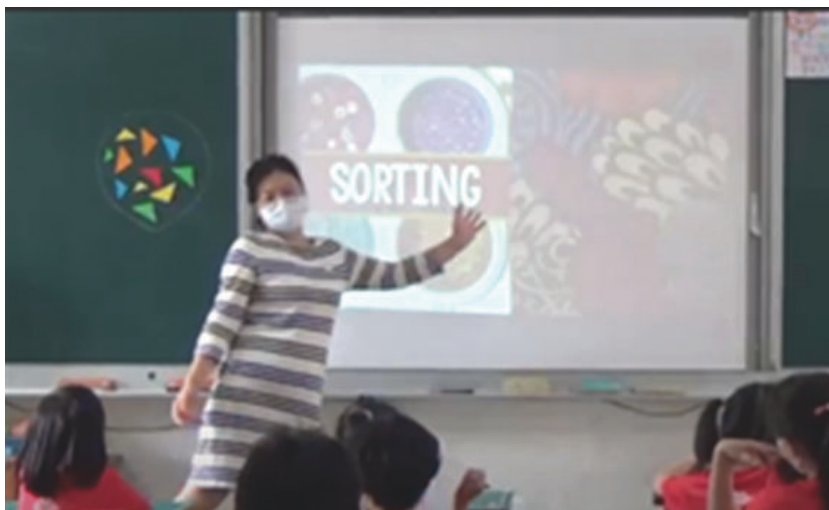
Figure 3

The teacher supports her utterances with visual support

pressions and ideas (Line 6), which works as a way to check their comprehension verbally. Comprehension checking is also realized by asking students to perform a simple task such as putting the newspaper in the paper group (Line 10).

In addition to using multimodal resources, such as voice variation, visual aids, body language and real objects, Teacher H incorporated learners' life experiences in the lesson. In Taiwan, every classroom has recycling bins. Students recycle waste every day at school; the life experience helps learners connect the picture of garbage dumps with sorting items. The link between a math concept, the key word "sorting," and young learners' everyday experiences has contributed to their content knowledge.

Next, we show how the teacher explained a classroom activity. While in Excerpt 1, the teacher used different multimodal resources to support content teaching, Excerpt 2 shows that Teacher H used simple language familiar by the learners to facilitate understanding. Excerpt 2 begins about approximately four minutes after the start of the first lesson and two minutes after Excerpt 1, when the topic of sorting was announced. In the following excerpt, Teacher H explained what students would be doing in group activities and showed the students they could sort by size or by shape.

Excerpt 2 (03:55 to 05:22)

Line	Speaker	Utterance
1	Teacher	Okay. But what are we going to do? {T points to a presentation slide showing the garbage dump from an earlier slide.} First, listen. First, you will do <u>sorting</u>, okay? I give you a group, a bag of things, and then you take them out. Okay?
2	S1	Out.
3	Teacher	And then you will say "um, this, this, this." Okay? Okay. {T demonstrates the act of sorting with gestures.} And, you also need to write {A picture of pen and pencil appears on the slide. T points to the picture of pencil and gestures the act of writing.}
4	S2	An apple.
5	Teacher	Ah, um, it's … different. It's a <u>big</u> and <u>small</u>. {T gestures large and small sizes with her hands.} Um, yeah. It's big and small. Or, or <u>triangle</u> {T points to the tiles of triangles on the black board.} and, and … {T shows tiles of circles and asks Ss to answer.}
6	S3	Circle. Circle.
7	Teacher	They are different <u>shapes</u>. Okay? Or, um, different colours. Is that okay? So you will write down. First, sorting. Second, write. And then you will come here to tell. {T makes the sound of speech.} And then we will give you big hands. Is that okay? Alright. so, for example, look at here, do you see many …? {T points to the tiles of triangles on the black board.}
8	S4	Many triangle[s]
9	Teacher	Very good. Okay. Triangles, okay. If we want to sort these, what will you do? Anybody wants [to] try? No? You try? What will you do? If you want to sort these, what will you do?
10	Ss	Me. Me.

Excerpt 2 shows Teacher H first explained the group activity, which included sorting the tiles, filling out a form and giving a report (Lines 1 to 3). Then, she explained that students could sort by size or by shape (Lines 5). Teacher H repeated the instruction again (Line 7) before she asked for a student volunteer to sort the tiles on the blackboard (Line 9).

This excerpt was selected because it shows how Teacher H supports her speech by using words which students have learned before. When she asked students to sort a group of tiles by attributes such as size, the teacher used the phrase "big and small," along with corresponding gestures (Line 5). In addition, before introducing the word shapes, to prepare the learners, the teacher pointed the tile on the blackboard, said the word "triangle," asked students to

Figure 4

Students were eager to participate

produce the word "circle" (Line 7). Students' response of 'circle' suggests that some of them have learned the shape words before, and thus Teacher H was leveraging learners' prior knowledge to support her L2 instruction.

In this excerpt, we observed how the teacher supported learners' production effectively with language which students knew. At the end of this excerpt, when the teachers asked students to volunteer, about one-fourth of the class raised their hands to indicate willingness to participate (Lines 9 to 10, Figure 4).

PoM-inspired instruction to encourage learner production

After analyzing how Teacher H supported her instruction with trans-semiotizing, the following shows how Teacher H created a collaborative environment where learners feel comfortable translanguaging (Figure 4). Two lesson excerpts from the same class period are discussed. Excerpt 3 shows how Teacher H demonstrated the idea of teamwork. Excerpt 4 presents classroom data during the middle of the 40-minute class period, when the group work was finishing, and students reminded their classmates that time is up. In both excerpts, students spoke in both Chinese and English.

Excerpt 3 (03:30 to 03:45)

Line	Speaker	Utterance
1	Teacher	Okay. We will do <u>group work</u> ={T holds hands with one S and gestures to a second student to join the holding hands.} Work together. Understand? It's <u>not</u> (.) "<u>me</u>, <u>me</u>, me!" <u>No</u>. We=
2	S1	四個人一組 ((tr: Four in a group))
3	Teacher	No, we work together. Okay? Everyone says, "teamwork."
4	Class	Teamwork. {The class responds.}
5	Teacher	Teamwork {T repeats the keyword.}
6	Class	Teamwork

Excerpt 3 shows that Teacher H tried to explain what the word "teamwork" means (Line 1). Teacher H used different modalities to elaborate to the whole class what teamwork means. First, she held hands with two students (Line 1), but instead of looking at the student who she held hands with, she looked at other students and talking to the class (Figure 5). Her body language indicated that the class should be paying attention and watch her.

However, S1's Chinese utterance in Line 2 deserves our attention. Here, the student interrupted the teacher with his own interpretation of what the teacher was trying to say. The incident allows us to see not only engagement but more importantly the initiation S1 took to interact with the teacher. Such initiation is not common in Chinese classrooms. Most students wait until they

Figure 5

The teacher illustrates the idea of teamwork by holding hands with students.

are called on by the teacher before they speak. It is possible to interpret S1's interruption of Teacher H's instruction as his way of demonstrate comprehension. The Chinese utterance is a sign of active learning.

Excerpt 4 presents an example of student engagement supported by data from teacher-student and student-student interactions. It took place in the middle of the 40-minute class period, when the group activity was ending. As discussed, the excerpt was selected because of learners' utterances in both Chinese and English.

Excerpt 4 (19:02 to 20:15)

Line	Speaker	Utterance
1	Teacher	Okay. 20 (.) seconds. Sit down (.) If you finish, you can sit down, okay. Twenty … nineteen … eighteen … seventeen … sixteen … fifteen … fourteen … thirteen … twelve … eleven … ten … nine … eight=
2	S1	=老師在倒數啦! ((tr: The teacher is counting down.))
3	Teacher	Seven … six … five … four … three … two … one …
4	Ss	Zero:: ↑ {Ss used a happy tone, indicating happiness and engagement}
5	Teacher	Sit down, please. (.) Okay, sit down, please.
6	Ss	=坐下, 坐下, 快一點啦 ((tr: Sit down. Sit down. Hurry up.))
7	Teacher	Sit down, please. (.) Thank you. (.) Sit down, please.=
8	Ss	=Sit down, please.
9	Teacher	Sit down, please. (.) Thank you.

The above excerpt begins with the moment when Teacher H announced that students had 20 second to finish their work, and then the countdown began (Line 1). In the middle of the count down, S1 said to her group in Chinese that the teacher was counting down the time. When Teacher H counted to one, several students uttered "zero" with a prolonged ending sound, as if trying to lengthen the time available to finish the group work (Line 4). After the countdown was complete, Teacher H asked students to sit down. Her instruction initiated several responses from students. Some used L1 to repeat the instruction to their group members (Line 6), while others repeated the teacher's instruction (Line 8).

As this excerpt presents a short time period when the group activity was ending, with all students standing in group and trying to finish their work, the scene was busy and seems chaotic; however, learners' production in L1 and L2 are signs of engagement and active learning. We would claim that production in L1 (Line 6) suggests listening comprehension of L2, and production in L2 (Line 8) shows students modeling the teacher's speech. When students

are eager to participate in the classroom rules using their available linguistic resources, the learning the target language is realized.

Conclusion: Implications for CLIL teacher education

The findings of the present study provided two insights. Bilingual education informed by PoM-inspired theories such as translanguaging and trans-semiotizing have the potential to (1) support bilingual teachers' L2 instruction in CLIL, and (2) help teachers create a positive and collaborative learning environment to support learner production. As Lin and Wu (2015) have shown, EFL students are empowered to learn more when they are allowed to utilize their linguistic repertoires. Our analysis shows that bilingual teachers' leveraging of multimodal and trans-semiotizing resources is equally beneficial to young EFL learners. Moreover, these theories have the potential to counter native-speakerism by helping local teachers such as Teacher H to be effective in CLIL.

As of May 2021, Taiwan was three years into bilingual education. This study captures a critical moment of this shift through the discussion of the PoM and inspired practices in the primary CLIL classrooms. Referencing to these findings, the following provides several directions for CLIL teacher education programs.

Local CLIL teachers as proficient bilinguals

We would begin by addressing the importance of teacher beliefs and attitudes. Bilingual teacher education programs should begin by instilling positive self-perception in local content teachers about their role as bilingual teachers. They need to be assured that, with training, they can become proficient bilingual teachers. As the present study shows, bilingual teachers utilizing translanguaging and trans-semiotizing can communicate concepts and give instructions in a way that is accessible to young learners. These theories also help create a positive learning environment that encourages learners' translanguaging and multilingual production.

Conceptual understanding of translanguaging and trans-semiotizing

Theories are important for CLIL teachers because the flexibility of CLIL means that learning goals and teacher procedure need to be aligned with local teachers' profiles and learners' needs. Therefore, CLIL teachers should have a sound understanding of models utilizing trans-semiotizing, such as the Lin's Rainbow Diagram (Figure 1), so they know how to leverage multilingual and multimodal resources to deliver and support content learning.

Critical understanding of translanguaging is also important so bilingual teachers can encourage learner production. Because translanguaging is a strategy to facilitate learning, there are no rules regarding how and when teachers

or students should translanguage. A sound understanding will help bilingual teachers know when translanguaging could support learning and when to create opportunities for students to build their L2 speech. As Excerpts 3 and 4 illustrate, learners' multilingual production in L1 and L2 could be viewed as an indication of comprehension, active learning and engagement. Equally important, a sound appreciation of translanguaging means that bilingual teachers can explain the reasons and benefits of a multilingual language classrooms to parents who request an all-English approach.

Competence building of translanguaging and trans-semiotizing

In addition to developing theoretical understanding, bilingual education programs can use case studies and classroom observations to help teachers identify opportunities of tranlanguaging and trans-semiotizing practices. In addition, collaboration between teachers of different disciplines should be encouraged so bilingual teachers can expand their multilingual and multimodal repertoires.

By analyzing and elaborating classroom data on content delivery and learner production in a primary CLIL classroom, we show the many potentials enabled by PoM-inspired theories and practices. There are several limitations to this work. While the findings could be leveraged to counter the misconception of native-speakerism, a more thorough and substantiated discussion should be made through both longitudinal ethnographic studies and/or quantitative studies. Future directions of research may focus on comparative analysis or CLIL classroom research with more advanced grade levels.

In conclusion, we show that awareness of translanguaging and trans-semiotizing should be a key focus of bilingual teacher education in Taiwan. The training will help empower local teachers as proficient bilingual teachers who can effectively deliver content and who can encourage learner production and engagement with a collaborative and multilingual environment.

Acknowledgments

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Appendix: Transcription conventions

=	(a) Turn continues below, at the next identical symbol;
	(b) If inserted at the end of one speaker's turn and at the beginning of the next speaker's adjacent turn, indicates there is no gap at all between the two turns
↑	Rising intonation
Zero:	Lengthening of the preceding sound
{T points to}	Nonverbal actions
四個人一組	((tr.: four persons in a group)). Non-English words are italicized and are followed by an English translation in double parentheses
<u>Text</u>	Louder and emphasized
T	Teacher
S/Ss	Unidentified student/several or all students simultaneously