Research article

EMI and CLIL in Asian schools: A scoping review of empirical research between 2015 and 2022

Lisa Gilanyi, Xuesong (Andy) Gao [*], Shiyao Wang

School of Education, University of New South Wales (UNSW), Sydney, Australia

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ABSTRACT

As the role of English as a global language grows, many governments in the Asian region have been promoting the use of English as medium of instruction (EMI) in universities and schools. In recent years, the use of EMI has been promoted in the form of Content Language Integrated Learning (CLIL) in many pre-primary, primary and secondary school systems in Asia. Because this focus on the school sector is relatively new, there seems to be relatively limited empirical research on the implementation of EMI and CLIL in primary and secondary schools in Asia. Using scoping review methodology, this paper aims to 'map the terrain' by providing an overview of the contexts and focus areas of empirical research conducted in the last seven years (2015–2022). The findings highlight gaps in the existing body of literature, including a lack of research in primary school and early childhood contexts, limited research in some countries in the Asian region, and a relatively narrow range of research focus areas, stakeholder perspectives and methodological approaches. These findings highlight areas that future researchers may consider as they investigate EMI and CLIL in school contexts in Asia.

1. Introduction

To ensure the competitiveness of their citizens in the global economy, governments in many Asian countries have been introducing English language policies that aim to increase the English language proficiency of their citizens. The education system is often a key focal point for this and one of the most common strategies is through the use of English as a Medium of Instruction (EMI), which Macaro et al. (2018) [1] define as "the use of the English language to teach academic subjects (other than English itself) in countries or jurisdictions where the first language of the majority of the population is not English" (p. 37). Another approach to teaching content in English is Content Language Integrated Learning (CLIL), a label commonly used in Europe but more recently, also in Asia [2]. Coyle et al. (2010) [3] describe CLIL as being dual focussed, with equal attention given to teaching both language and content. Despite there being slight differences between these two strategies, primarily related to the degree of explicit focus given to language [4], they are often used interchangeably [2] and this approach has been adopted for the purposes of the scoping review, with both EMI and CLIL used as search terms.

Although the use of EMI in universities in Asia has been present for many years and has been the subject of a great deal of research, relatively little attention has been given to exploring EMI in multilingual primary and secondary schools [5]. In their systematic review of research on EMI in Higher Education published between 2000 and 2015, Macaro et al., 2018 identified only 77 articles that

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considered pre-primary, primary or secondary school contexts in the Asian region [1]. This ~~substantial~~ body of literature reflects the increased focus on English in schools in many Asian countries. It must be noted, however, that for many governments, the introduction of English language policies in schools has been a far from smooth process. For example, in 2003 English was introduced as the medium of instruction for Maths and Science in Malaysia, only for this policy to be reversed in 2009 and Bahasa Malaysia reintroduced. The use of EMI has also been met with some resistance in the Philippines, where it is viewed by many as a tool of colonisation that is damaging to the local culture [6]. In other countries, such as Vietnam, where very clear policies exist, there are longstanding concerns about the capacity of the educational system to implement them equitably [7,8].

Despite the challenges encountered in many regimes, EMI/CLIL continues to grow in popularity, with many governments implementing policies that rely on EMI/CLIL as strategies for increasing school students' English proficiency. For example, the governments in both Taiwan and Vietnam have recently introduced policies that shift the focus of English language education to their younger citizens. The Blueprint 2030 for developing Taiwan into a bilingual nation by 2030 includes plans to implement CLIL in primary schools and develop modes for integrating English in preschool and kindergarten curriculum. Interestingly, only two of the included studies examine CLIL in a primary school context in Taiwan [9,10], pointing to the need for a stronger research base to accompany this ambitious plan. Similarly, Decision 2080 announced by the Vietnamese government in 2017 includes a directive to encourage English language education in preschools and increase the teaching of subjects such as Maths and Science in schools using EMI; however, only one of the studies identified in this scoping review examines EMI/CLIL practices in schools in Vietnam.

Other countries in Asia that have introduced similar policies include Brunei's 2009 National Education System for the twenty-first century (SPN21), which aimed to introduce EMI in Maths and Science from Year 1 onwards [11]; Indonesia's 2016 School Literacy Movement program, which has led to many schools implementing EMI/CLIL for the teaching of content such as Maths and Science [12]; and Malaysia, another post-colonial country, which introduced a policy in 2003 (PPSMI) that required Maths and Science to be taught using EMI from primary school.

Given the growing popularity of EMI/CLIL in schools in the Asian region, together with the general consensus that this area is under-researched, it is timely for a review of empirical literature that considers how these strategies are understood, enacted and experienced by stakeholders. Understanding what kinds of empirical research has already been conducted, where and with what focus serves to highlight areas in need of future research. For this reason, this scoping review focussed on literature that explored issues related to EMI and CLIL in primary and secondary schools in Asia. It sought to answer the following guiding questions:

1. In what contexts has research been conducted?
2. What issues have researchers focussed on?
3. Which stakeholder perspectives have been included?
4. What study designs have researchers adopted?

2. Methods

To generate an overview of the existing body of empirical research on EMI and CLIL in schools in Asia, a scoping review methodology was adopted, which is generally acknowledged as a technique for mapping relevant literature of interest to identify what is known, and not known, in a particular field [13]. Scoping reviews differ from systematic reviews in several ways. Systematic reviews often seek to answer quite specific questions by synthesising research that meets specified criteria such as a particular study design, and they generally assess the quality of the identified research [14]. They may also be used to identify or assess evidence for a particular practice [15]. Scoping reviews, on the other hand, allow researchers to identify relevant literature in a particular area and 'map' the research field providing a broad and often rapid overview of the extent, range and nature of existing research [14]. Munn et al. describe them as "an ideal tool to determine the scope or coverage of a body of literature on a given topic … as well as an overview (broad or detailed) of its focus" [15]. Scoping reviews may be useful for identifying contexts, topics or participant groups that are under-represented, helping to inform or frame future research projects [14] and reporting on the type of evidence that has been generated in previous research [16]. By scoping the existing body of empirical research, we were able to establish where and how research had previously been conducted and what issues researchers had considered, highlighting areas that may require further research.

To guide the selection of literature, the following specific inclusion criteria were agreed upon by the research team: (1) published in a peer-reviewed journal; (2) written in English; (3) published between 2015 and 2022 (those published before 2015 were included in Macaro et al., 2018 [1]); and (4) presenting empirical research (i.e., not a review or document analysis); (5) have full text available. Evidence from sources other than journals, such as book chapters, dissertations, conference proceedings, policy critiques, opinion pieces and other non-empirical literature was also excluded as the focus was on mapping research that generated evidence through examination or evaluation of EMI and CLIL in practice. Research conducted in higher education institutions was also specifically excluded. Furthermore, although the quality of the included articles was not evaluated, the decision to include only peer-reviewed articles was intended to ensure that the evidence-base established through the scoping review was robust. Finally, although there may have been relevant literature published in other languages, the research team did not have the capacity to engage with this and so only research published in English was included.

After establishing the inclusion criteria, three major databases were searched: Scopus, ERIC and Web of Science. The following query string utilising the Boolean operators (AND, OR) was used to find relevant articles: "English medium instruction" OR "English-medium Instruction" OR "Content Language Integrated Learning" AND (Asia* OR China OR Singapore OR Thailand OR Brunei OR Cambodia OR Indonesia OR Laos OR Malaysia OR Myanmar OR the Philippines OR Vietnam OR Hong Kong OR Taiwan OR South

Korea) AND "school". The database searches yielded a total of 1052 articles, which were then screened by a single reviewer based on a preliminary reading of the title and abstract to remove duplicates and irrelevant papers. This step eliminated 828 ineligible articles due to lack of relevance and duplication, resulting in a reduced list of 197 potential articles. A second researcher then read these articles in full and after excluding duplicates and articles that were found not to be relevant, identified a total of 35 relevant articles that met the inclusion criteria.

A second round of searches was then carried out for the same inclusion criteria using the following three methods: (1) citation check using Google scholar; (2) reference list check of each included article, (3) manual journal search for the top ten journals publishing articles on the original inclusion list. The list of the top ten journals that were manually searched can be found at Appendix 1. These journals were chosen as the high rate of publication indicated that CLIL/EMI was within their scope of interest, across a range of contexts. This second round yielded a further 26 articles, resulting in 61 articles in total being identified as relevant. The search strategy is summarised in Fig. 1 below. The process of finding and choosing the articles to be included in the scoping review was iterative, with the research team meeting regularly to discuss any difficulties or uncertainties that may have arisen during study selection and to revisit and improve the search strategy [17].

Each of the 61 articles was then read again in full to extract information that addressed the guiding questions. A discussion of the results for each guiding question can be found below. The details of each included article, together with a summary of key information, can be found at Appendix 2.

3. Results

As noted above, this scoping review did not seek to critique existing literature. Rather, its focus was on summarising what has already been done and how, to highlight gaps in the body of knowledge and guide the focus and design of future empirical research. In the sections below, the information extracted from the included articles is presented according to each of the scoping review guiding questions.

Guiding question 1: In what contexts has research been conducted?

To answer this question, two main contextual factors were considered: the country in which the research was conducted, and the education sector it considered. Although articles that focussed on higher education were excluded, one article considered both primary/secondary schools and higher education so this was included. The results are summarised in Table 1 below:

As can be seen from the above table, most of the relevant research was conducted in secondary contexts, with very few researchers examining EMI/CLIL in primary schools. In their systematic review of empirical research on EMI in Higher Education conducted between 2000 and 2015, similarly Macaro et al. (2018) [1] found that research in pre-primary and primary schools only accounted for around one quarter of all school-based research. Although ten out of the 61 studies in our scoping review included primary schools, only five focused solely on primary schools, highlighting the need for greater research that considers students in the early years, particularly as many governments in Asia have shifted their focus to pre-primary and primary education in recent years.

Also noteworthy is the countries in which research has taken place. More than half of the included studies were conducted in Hong Kong. This is not surprising, given Hong Kong's status as a former British colony in which English has long been associated with good academic and career prospects [18]. Again, this also reflects Macaro et al. (2018)'s earlier systematic review, which found that almost one third of school-based research had been conducted in Hong Kong [1]. Even after it became a Special Administrative Region (SAR) of China at the end of the last century, around 25% of Hong Kong high schools continued to use EMI [19] and these long-standing
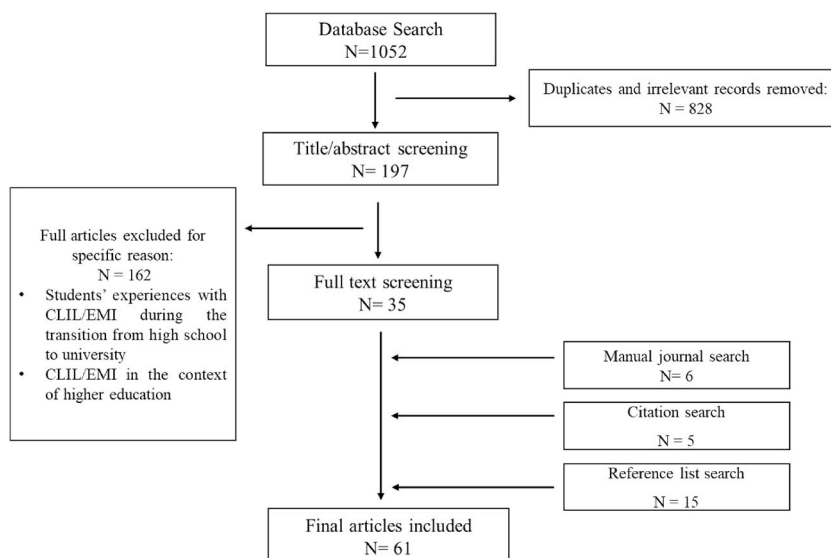

Fig. 1. Search strategy and results.

Table 1
Education sector and country context.

Country	K-12	Primary	Secondary	K-12 + Higher Education	Total
Brunei	0	1	0	0	1
China	0	0	6	0	6
Hong Kong	0	1	32	0	33
Hong Kong and China	1	0	0	0	1
Indonesia	0	0	2	0	2
Malaysia	1	0	0	0	1
Nepal	2	0	2	0	4
Pakistan	0	0	1	0	1
Singapore	0	0	1	0	1
South Korea	0	0	2	0	2
Taiwan	0	2	1	1	4
Thailand	1	1	2	0	4
Vietnam	0	0	1	0	1
Total	5	5	50	1	61

EMI/CLIL practices have provided a rich field for researchers. However, the need for research to be conducted in other Asian countries is particularly pressing, given the increased interest over recent years for implementing EMI/CLIL in schools outlined earlier. Despite this, this scoping review identified only a handful of studies on EMI/CLIL in schools in these countries. It is clear that the research focus needs to be extended beyond Hong Kong, to include other countries that also have strong government policies mandating the use of EMI/CLIL in schools.

3.1. Guiding question 2. what issues have researchers focussed on?

Each of the included articles was read closely and the key research focus or issue identified. Overall, the research team identified eight focus areas present in the research, as summarised in Table 2 below:

What is apparent from the above table is that most research examines what happens specifically in the classroom, with a strong interest in how language is used. The dominant framework researchers drew on was translanguaging, a pedagogical approach that seeks to engage with the full range of an individual's linguistic repertoire to support their learning [20]. This focus on translanguaging reflects a general embrace among bilingualism researchers in recent years of the educational benefits of this approach, leading to a growing body of research. It must be noted, however, that studies that examine translanguaging (or other language use practices) tend to be somewhat limited in scale, generally involving close analysis of a single or small number of classrooms.

Another area of focus has been teaching materials, with a small number of studies examining the language of EMI/CLIL textbooks. Whilst these studies are useful for uncovering what is currently happening in classrooms and have the potential to generate very helpful pedagogical insights, they only examine single aspects of EMI/CLIL. Furthermore, they tend to focus on the researchers' understanding of how language is used in the classroom or in textbooks, neglecting the perspectives of the teachers and students who are engaged in the learning process. Only around one quarter of the included studies (15/61) examined teachers' and students' experiences of EMI/CLIL, suggesting that greater attention may be given to the perspectives and experiences of the people actually involved. Further to this, none of the included studies consider extensively the perspectives of other stakeholders such as parents, educational administrators and policy makers, suggesting that a broader approach that considers multiple stakeholders' perspectives on EMI/CLIL is needed.

Table 2
Key research issues.

Sector	Classroom interaction	Ideology	Learning outcomes	Pedagogic-al practice	Policy implement-ation	Student experiences	Teacher experiences	Textbooks	Total
K-12	2	1	0	0	0	1	1	0	5
Primary	1	0	1	0	3	0	0	0	5
Secondary	27	0	1	3	3	7	5	4	50
K-12 + Higher Ed	0	0	0	0	0	0	1	0	1
Total	30	1	2	3	6	8	7	4	61

Within the category 'classroom interaction', three further sub-categories were identified: translanguaging (N = 16), other aspects of language use (N = 13), and teacher beliefs about language (N = 1).

3.2. Guiding question 3: which stakeholder perspectives have been included?

Almost all the included studies consider only the perspectives, practices or experiences of students and/or teachers. Other important stakeholders such as policy makers, school administrators and parents are very rarely present in the research. There are a few exceptions: Sah & Karki (2020) [21] interviewed head teachers, teachers, students at parents in two different regions of Nepal; Manan et al. (2017) [22] administered questionnaires and conducted interviews with school principals as well as teachers and students in Pakistan; and Widiawati & Savski (2023) [23] included interviews with a senior officer, a school administrator, the head of the EMI program, as well as teachers, students and parents in one school in Thailand. This lack of diversity in participant perspectives is not surprising, given the strong emphasis on what is happening at the classroom level in much of the included research. Whilst this literature provides valuable insights into pedagogical issues relevant to EMI/CLIL, giving more attention to the perspectives of other stakeholders would likely allow researchers to uncover a broader range of factors relevant to the effective implementation of EMI/CLIL.

3.3. Guiding question 4: What study designs have researchers adopted?

A range of study designs have been adopted by researchers: there were 15 mixed methods and 11 quantitative; however, more than half (35/61) of the included studies were qualitative. Interestingly, 29 of the 35 qualitative studies had a component where researchers analysed data collected during classroom observations or samples from textbooks, and 12 of these studies relied solely on researchers' analysis of classroom or textbook data, with no input from the teachers or students involved. An additional 9 of the 15 mixed methods studies included an observation component. This further highlights the emphasis on investigating what happens in the classroom from researchers' perspectives, suggesting that the experiences of those in the learning environment may be underrepresented in the research literature.

It is also noteworthy that most of the studies that relied on observation of classes were very small in scale and generally limited to one or two teachers or classes [24–28]. Even studies that included survey data or interviews with teachers and students tended to be quite small in scale. For example, Hu & Gao (2021) [29] interviewed 4 teachers in 2 schools, Pun et al. (2022) [30] interviewed 6 teaches in 1 school and Lu et al. (2021) [31] interviewed 5 teachers in 1 school. Only the mixed methods or quantitative studies that had a survey/questionnaire component had larger participant groups. For example, An & Thomas (2021) [32] collected 331 student questionnaires, in addition to 60 student interviews in 15 classes across 9 schools. Such a large participant group, was however, the exception and most mixed studies were limited to a small group of teachers and students in one school.

Finally, very few studies considered more than one educational or country context. Exceptions include Mendoza & Ou (2022) [33], who included primary and secondary teachers from both China and Japan, and Pineda et al. (2022) [34] who compared the training needs of CLIL teachers across the primary, secondary and tertiary sectors in Taiwan and Spain.

Overall, there seems to be a lack of research that goes beyond a small-scale case study approach that focusses on single classrooms or schools, and presents analysis based primarily on researchers' perspectives or understanding of what is happening at a local level. Studies that investigate the implementation of CLIL/EMI from a broader range of perspectives and examine more diverse issues are needed.

4. Conclusions and recommendations for further research

This scoping review identified 61 articles published between 2015 and 2022 that presented results of empirical research on EMI/CLIL in pre-primary, primary and secondary schools across the Asian region. This confirms the view of many researchers that EMI/CLIL is under-researched in school contexts [1,5] and highlights the need for greater attention to be given to what is a growing phenomenon Asian schools. The review sought to provide an overview of where research had been conducted, what issues had been explored, which stakeholder perspectives had been considered and what study designs had been adopted. In providing a synthesis of this key information, we were able to highlight a few areas where further research is required.

Overall, we found gaps in the contexts for research. In particular, there was a lack of research that focussed on early school years, which is problematic considering the growing interest of many governments in the Asian region to increase the language proficiency of their youngest citizens. Despite ambitious plans to introduce EMI/CLIL into primary school, or even pre-schools, very little research has examined the effectiveness of this approach and explored enablers or challenges to effective implementation. Ambitious policies for the introduction of EMI/CLIL in primary schools in countries such as Vietnam and Taiwan have not been accompanied by a significant body of empirical research that documents and evaluates the implementation of these strategies. Indeed, only six articles were found in total that considered EMI/CLIL in schools in these two countries, and only one focussed on primary schools. As the focus on English language proficiency shifts towards the earlier school years, it is essential that researchers consider the factors that support or inhibit the effectiveness of EMI/CLIL for young learners, which may be quite different to those in Higher Education. Greater research on EMI/CLIL in schools, particularly at the primary or pre-primary level is desperately needed to ensure the viability of these strategies for young learners.

Another area in which gaps were identified is the location of research. Most of the research identified by the review had been conducted in Hong Kong; however, many other Asian countries where EMI/CLIL is being implemented have been neglected by researchers. There is also a distinct lack of comparative research, and the inclusion of more than one regime may provide fruitful opportunities for understanding how contextual factors impact on the implementation and effectiveness of EMI/CLIL.

Given the complexity of implementing EMI/CLIL, our finding that only a fairly limited range of issues were explored in the

identified literature was somewhat surprising. Although eight key research themes or focus areas were identified, more than half of the studies examined aspects of classroom interactions, with language use, particularly translanguaging, representing the majority of these. A small number of studies explored issues related to textbooks, but these also focussed primarily on language. Several other very promising themes were explored, including policies and ideologies relating to EMI/CLIL, and student and teacher experiences; however, these only accounted for around one quarter of the studies. Research that moves beyond what happens in single or a small number of classrooms and examines the broader sociopolitical issues at play will allow for a more nuanced understanding of how EMI/CLIL is experienced and may provide greater insights into the conditions necessary for effective implementation.

Linked to this, is the fairly narrow focus on a small number of stakeholder perspectives. Most studies only included the perspectives of students and teachers, yet Sah & Karki (2020) [21] and Widiawati & Savski (2023) [23], who include parents, head teachers, school administrators and policy makers in their studies demonstrate the value of research that considers a wider range of perspectives. Future researchers should consider including decision makers, whose perspectives may be instrumental in shaping the implementation of EMI/CLIL, and parents, particularly where the research context is younger learners.

Finally, the strong focus on classroom interactions meant that most studies relied heavily on researchers' interpretations of their own observations. In some cases, these were accompanied by data collected through interviews with teachers and students [76]; however, the small scale (often one or a small number of classrooms, and one or two teachers and their students) meant that a fairly narrow perspective was presented. A few quantitative studies included larger numbers of participants, but the depth of their data was limited by the use of questionnaire/survey instruments. Only 15 of the studies took a mixed method approach and it is recommended that future researchers consider combining qualitative data sources such as observations and interviews, with survey data or student assessment data to gain a more comprehensive understanding of how EMI/CLIL has impacted all stakeholders in a particular context. In general, we feel that much larger scale studies that reflect a range of stakeholder perspectives and data sources will provide the in-depth understanding of EMI/CLIL that is required to support effective implementation. As noted above, we also recommend that researchers turn their attention EMI/CLIL in pre-primary and primary schools, particularly in contexts that are undergoing rapid development in their education systems but have not been examined extensively.

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Funding statement

Data availability statement

Data included in article/supplementary material/referenced in article.

Declaration of competing interest

The authors declare no competing interests.

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Appendix 1. List of journals searched manually

1. Current Issues in Language Planning
2. English teaching & Learning
3. International Journal of Bilingual Education and Bilingualism
4. Journal of English for Academic
5. Journal of Language, Identity & Education
6. Journal of Multilingual and Multicultural Development
7. Journal of Studies in International Education
8. Language and Education
9. Language Teaching Research
10. System

Appendix 2. Summary of studies on EMI/CLIL in schools in Asia

Author(s) (year)	Participants	Country	Education level	Research method/ design	Purpose of the study	Key research theme
An & Macaro (2022) [4]	15 teachers, 308 students in 7 schools	China	Secondary	Mixed methods: questionnaires, interviews, lesson observations	Explores the language practices of teachers who do not speak students' L1 and how these intersect with students' beliefs	Classroom interaction/ language use
Beaudin (2022) [9]	116 students in 1 school	Taiwan	Primary	Quantitative: pre-test, post-test, and delayed post-test on course content; questionnaire	Evaluates the effectiveness of a CLIL program on students' science and language content learning; explore their attitudes to CLIL	Learning outcomes/ student perceptions
Graham (2022) [35]	199 pre-service teachers	Taiwan	Primary	Quantitative: online questionnaire	Explore teachers' experiences of teaching and language anxiety when implementing Taiwan's English language policy	Teacher experiences
Hong (2022) [36]	2 teachers and 61 students in 2 classes	South Korea	Secondary	Qualitative: online classroom observations of 8 lessons, interviews with teachers	Explores classroom language interactions in an online environment	Classroom interaction/ language use
Liu (2022) [37]	10 students	Thailand	Secondary	Qualitative: observation, interviews	Explores the desires of students in a Thai bilingual school and how these connect to their EMI study	Student experiences
Mendoza & Ou (2022) [33]	16 teachers	Hong Kong and China	Primary and Secondary	Mixed methods: surveys and interviews	Examines teachers' attitudes to/use of a range of EMI practices	Classroom interaction/ teacher beliefs
Pham & Unaldi (2022) [38]	8 teachers	Vietnam	Secondary	Qualitative: interviews and document analysis	Explore teachers' perceptions and practices implementing CLIL	Teacher experiences
Phyak et al. (2022) [39]	2 teachers in 2 schools	Nepal	Primary and Secondary	Qualitative: ethnographic observations of 5 lessons and interviews	Explores how teachers create translingual spaces in EMI classrooms	Classroom interaction/ translanguaging
Pineda et al. (2022) [34]	Not specified	Taiwan and Spain	Primary, Secondary, Tertiary	Quantitative: online questionnaire	Analyses the training needs of CLIL teachers	Teacher experiences
Pun & Jin (2022) [40]	356 students in 8 schools	Hong Kong	Secondary	Quantitative: questionnaire	Examines students' perceptions of impact of classroom language on learning outcomes	Classroom interaction/ language use
Pun et al. (2022) [30]	6 teachers, 13 students in 1 school	Hong Kong	Secondary	Qualitative: interviews and classroom observations	Examines the sustainability of EMI programs that are driven by top-down policies	Policy implementation
Sah & Li (2022) [41]	2 teachers, 6 students in 1 school	Nepal	Secondary	Qualitative: 10 classroom observations in 2 classrooms, interviews, focus group discussion	Examines impact of EMI on minority languages where translanguaging only includes English + dominant language	Classroom interaction/ translanguaging
Tai (2022) [42]	1 teacher, 2 classes	Hong Kong	Secondary	Qualitative: classroom observations in 2 classes, interview	Examines how one teacher used translanguaging to support minority students who don't share majority L1	Classroom interaction/ translanguaging
Taylor (2022) [43]	59 teachers	Thailand	Primary, Secondary	Mixed methods: questionnaire, recordings of a training workshop	Examines teachers' perceived CLIL knowledge and competency; compares native and non-native English speakers	Teacher experiences
Williams (2022) [27]	10 students in 1 class	Hong Kong	Primary	Qualitative: classroom observations	Examines how students used gesture and model during a CLIL class	Classroom interaction/ translanguaging
An & Thomas (2021) [32]	331 students (questionnaire), 60 students (interview) in	China	Secondary	Mixed methods: questionnaire, interviews	Examines students' beliefs about the role of language interaction in CLIL classes,	Student experiences

(*continued*)

Author(s) (year)	Participants	Country	Education level	Research method/ design	Purpose of the study	Key research theme
An et al. (2021) [44]	15 classes across 9 schools 15 teachers in 7 schools	China	Secondary	Quantitative: analysis of classroom observations	and the challenges they encountered Examines the teacher-whole class language interactions of English native-speaker teachers	Classroom interaction/ language use
Graham et al. (2021) [10]	2 teachers	Taiwan	Primary	Qualitative: collaborative autoethnography	Critique of Taiwan's bilingual education policy from the perspective of teachers	Policy implementation
Hennebry & Gao (2021) [45]	3854 students	Hong Kong	Secondary	Quantitative: questionnaires	Comparison of language learning motivation in different medium of instruction modes	Student experiences
Hu & Gao (2021) [29]	4 teachers in 2 schools	Hong Kong	Secondary	Qualitative: classroom observations, interviews, analysis of learning materials	Examines subject teachers' language-related pedagogy in CLIL classes	Pedagogical practice
Hu et al. (2021) [46]	123 science textbooks	Hong Kong	Secondary	Quantitative: corpus analysis of textbooks	Compares English medium science textbooks with English as a foreign language textbooks	Textbook analysis
Lu et al. (2021) [31]	5 teachers, 199 students in 2 schools	China	Secondary	Mixed methods: questionnaires, interviews	Explored students' perceptions of and attitudes towards learning science in English medium, identifying difficulties and supports	Student experiences
Pun & Tai (2021) [28]	2 teachers, students in 2 classes	Hong Kong	Secondary	Qualitative: observations	Examination of classroom language interactions in one science classroom	Classroom interaction/ translanguaging
Tai & Wei (2021) [47]	1 teacher, 19 lessons	Hong Kong	Secondary	Qualitative: observations of lessons	Analyses how teachers and students co-learn in a multilingual classroom	Classroom interaction/ translanguaging
Tai & Wei (2021) [48]	1 teacher, 11 lessons	Hong Kong	Secondary	Qualitative: observations of lessons, interview	Examines the construction and role of playful talk in translanguaging in an EMI classroom	Classroom interaction/ translanguaging
Tai & Wei (2021) [49]	1 teacher, 11 lessons	Hong Kong	Secondary	Qualitative: observations of lessons, interview	Explores how teachers use the iPad to extend semiotic and spatial repertoires and create a translanguaging space	Classroom interaction/ translanguaging
Zhou et al. (2021) [50]	3 teachers, 40 students (observed), 6 students (interviewed)	Hong Kong	Secondary	Mixed methods: observations of lessons, interviews	Explores the use of translanguaging in a finance course and students' attitudes towards translanguaging	Classroom interaction/ translanguaging
Hong & Basturkmen (2020) [51]	1 teacher, 50 students in 2 high schools	South Korea	Secondary	Quantitative: observations of lessons	Investigates the frequency, focus and types of language-related episodes in 2 EMI classes	Classroom interaction/ language use
Hu & Gao (2020) [52]	12 students	Hong Kong	Secondary	Qualitative: interviews, stimulated recall, observation, and analysis of learning materials	Examines how and why bilingual students appropriate and use resources for self-regulated learning	Student experiences
John Albury (2020) [53]	10 focus groups of 4–5 students	Malaysia	Primary, Secondary	Qualitative: focus group interviews	Explores the language education preferences of Malaysian students	Student experiences
Liu (2020) [26]	1 teacher in 2 classes	Hong Kong	Secondary	Qualitative: observations of lessons, student assignments	Examines the how translanguaging functions as scaffolding the process of feeling-meaning	Classroom interaction/ translanguaging
Lo & Fung (2020) [54]	70 students, 4900 questions in textbooks, workbooks, exams	Hong Kong	Secondary	Quantitative: corpus (questions) from assessment materials, student results	Examines the linguistic and cognitive demands placed on students in CLIL assessments	Pedagogical practice/ assessment

(*continued*)

Author(s) (year)	Participants	Country	Education level	Research method/ design	Purpose of the study	Key research theme
Maxwell-Reid (2020) [55]	3 teachers in 3 schools, students in 3 classes (number not specified)	Hong Kong	Secondary	Qualitative: lesson observations, questionnaires, and interviews	Examines how language is represented in science lessons in bilingual settings	Classroom interaction/ language use
Pun & Thomas (2020) [56]	19 teachers in 8 schools	Hong Kong	Secondary	Mixed: questionnaires, interviews	Focusses on how teachers adjust to/cope with EMI and the strategies they use to address challenges	Teacher experiences
Sah & Karki (2020) [21]	Head teachers, teachers, students, parents at 5 schools in 2 regions (numbers not specified)	Nepal	Primary, Secondary	Qualitative: interviews, focus groups	Reports perspectives of different stakeholders on the motivations for introducing EMI in low resourced schools -	Ideology
Seah & Silver (2020) [57]	3 teachers, 39 lessons in one school	Singapore	Secondary	Qualitative: lesson observations	Analysed classroom discourse to identify how teachers attended to science language demands	Classroom interaction/ language use
Sharbawi & Jaidin (2020) [11]	74 teachers, 111 students	Brunei	Primary	Quantitative: questionnaires	Examines the impact of the 2009 EMI policy which emphasized English over the official language	Policy implementation
Tai & Wei (2020) [58]	1 teacher, 11 lessons	Hong Kong	Secondary	Qualitative: observations, interviews	Examines how a translanguaging provides opportunities for teachers to bring the outside into an EMI classroom to support learning of academic knowledge	Classroom interaction/ translanguaging
Widiawati & Savski (2023) [23]	1 senior officer, 1 school administrator, 1 head of EMI program, 7 teachers, 5 parents, 27 students	Thailand	Primary	Qualitative: interviews, classroom observations	Examines the impact of EMI on minority languages where translanguaging only includes English + the majority language	Policy implementation
Xiong & Feng (2020) [24]	Teachers and Students in 2 classes (numbers not specified)	China	Secondary	Mixed: observations, interviews, test scores, documents	Examines the effectiveness of a Sino-Canadian cooperative immersion program	Classroom interaction/ language use
An et al. (2019) [59]	15 teachers	China	Secondary	Mixed: thematic analysis plus quantification of time spent on LFE's	Examines language focussed episodes in science classes taught by monolingual teachers	Classroom interaction/ language use
Lin (2019) [60]	2 teachers	Hong Kong	Secondary	Qualitative: analyses of classroom language	Illustrate the role translanguaging and *trans*-semiotising practices paly in EMI classes	Classroom interaction/ translanguaging
Lo (2019) [61]	3 teachers	Hong Kong	Secondary	Qualitative: questionnaires, interviews, observations, post-lesson reflections	Examines the impact of a 6-month PD course on teachers' beliefs and language awareness	Teacher experiences
Mukminin et al. (2019) [62]	5 teachers	Indonesia	Secondary	Qualitative: survey, document analysis, interviews	Explore the implementation of an EMI program in one school	Policy implementation
Pun (2019) [63]	3 textbook series	Hong Kong	Secondary	Qualitative: content analysis using SFL	Examines the language features students encounter in Chemistry textbooks in EMI classrooms	Textbook analysis
Pun & Macaro (2019) [64]	19 teachers	Hong Kong	Secondary	Quantitative: lesson observations	Investigated the effect of L1 and L2 on teacher questions and interaction patters	Classroom interaction/ language use
Rachmajanti & Anugerahwati (2019) [12]	5 teachers, 70 students	Indonesia	Secondary	Mixed: questionnaires, test scores, interviews	Investigate the correlation between a combination of predictor variables and students' English learning achievement	Learning outcomes
Wu & Lin (2019) [65]	1 teacher	Hong Kong	Secondary	Qualitative: ethnographic case study	Explores the translanguaging/*trans*-semiotising practices on one experienced teacher	Classroom interaction/ translanguaging

(*continued*)

Author(s) (year)	Participants	Country	Education level	Research method/ design	Purpose of the study	Key research theme
Hu & Gao (2018) [66]	3 textbook series (285 extracts)	Hong Kong	Secondary	Qualitative: content analysis using SFL	Examines the linguistic demands of English language science textbooks for EFL learners	Textbook analysis
Hu & Gao (2018) [67]	6 students	Hong Kong	Secondary	Qualitative: observations, simulated recall, interviews	Explores students' strategic utilization of resources for self-regulated writing	Student experiences
Kewara & Prabjandee (2018) [68]	4 teachers	Thailand	Secondary	Qualitative: observations	Determine the extent to which teachers implemented CLIL strategies following a PD program	Teacher experiences
Lo & Jeong (2018) [69]	1 teacher, 52 students	Hong Kong	Secondary	Mixed: pre/post tests, classroom observation, interviews	Investigates how genre-based pedagogy can facilitate students' learning of content and language	Pedagogical practice
Sah & Li (2018) [70]	1 school case study, 1 head teacher, 2 teachers, 4 students	Nepal	Secondary	Qualitative: interviews, observations, artifacts	Reports on teachers' and students' attitudes to EMI	Student experiences
Lin & He (2017) [71]	1 teacher, 14 students	Hong Kong	Secondary	Qualitative: observations, interviews	Examines the role of translanguaging in facilitating CLIL for minority students	Classroom interaction/ translanguaging
Lin & Lo (2017) [72]	2 teachers, 2 lessons, total of 70 students	Hong Kong	Secondary	Qualitative: observations	Uses social semiotics theories to analyse science lessons and explore translanguaging	Classroom interaction/ translanguaging
Manan et al. (2017) [22]	11 schools, 11 principals, 8 teachers, 245 students	Pakistan	Secondary	Mixed: questionnaire, interviews, observation	Explores perceptions of students, teachers, principals in a low-fee EMI school, and teaching methodologies	Policy implementation
Maxwell-Reid & Lau (2016) [73]	3 textbooks	Hong Kong	Secondary	Qualitative: content analysis using SFL	Examines the use of analogy to teach one topic in science textbooks	Textbook analysis
Lin & Wu (2015) [25]	1 teacher in 1 classroom	Hong Kong	Secondary	Qualitative: observations	Analyses how a teacher used students' L1 to co-construct understanding of scientific proof	Classroom interaction/ translanguaging
Lo (2015) [74]	30 lessons	Hong Kong	Secondary	Mixed: observations	Explores how teachers used L1 to facilitate content and language learning	Classroom interaction/ language use
Lo & Macaro (2015) [19]	2 schools, 8 teachers, 320 students, 15 lessons	Hong Kong	Secondary	Mixed: observations	Analysed teacher-student language interactions in 2 different classroom settings	Classroom interaction/ language use
Tavares (2015) [75]	1 teacher, 14 students	Hong Kong	Secondary	Qualitative: observations, interviews, stimulated recall	Investigates the language strategies of a bilingual teacher in an EMI maths classroom	Classroom interaction/ language use

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